NEW ORLEANS MOSQUITO & TERMITE CONTROL BOARD

2012 ANNUAL REPORT

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DIRECTOR'S REPORT

Report on the activities of the City of New Orleans Mosquito, Termite, and Rodent Control Board from January 1 - December 31, 2012

We have settled into the new City of New Orleans Mosquito, Termite, and Rodent Control Administration Building. The new building consolidated our group into one location and has increased our efficiency and allowed for better communication among employees, thus improving the management of our operations. This building has become a tremendous asset for the our department and for the City of New Orleans.

The 2012 mosquito and West Nile virus (WNV) season proved to be the most challenging since the introduction of WNV in Louisiana in 2002. The overall number of human cases were less than those in 2002 and 2003 and there were no fatalities. However, the prevalence of the virus throughout Orleans Parish was unprecedented. The season began early and the WNV pressure did not relent until late October.

We upgraded our ground ULV spray equipment and purchased new vehicles. Seven new spray units and six vehicles were purchased with non-general fund money. Our ground capacity increased from seven to nine spray trucks.

Details of our 2012 activities and accomplishments follow in this report.

Respectfully submitted,

Claudia Riegel

Claudia Riegel, Ph.D.
Director

OPERATIONS AND FACILITIES

CLAUDIA RIEGEL, Ph.D.

Employees

In 2011 we had several resignations of Pest Control Inspectors. In 2012, we hired five Pest Control Inspectors 2s. Four of the five are currently still employed by The City of New Orleans Mosquito and Termite Control Board (NOMTCB). A six month extension of the probationary period is now standard practice at NOMTCB (New Orleans Mosquito and Termite Control Board).

NOMTCB hired Ms. Bernice McDowell on March 25, 2012, Mr. Steve Ollar on April 8th, Mr. Phil Smith on April 30, Ms. Jennifer Hamilton on April 29, and Mr. Andrew Ruiz on November 9, 2012.

Mr. Steve Ollar (Fig. 1) was a grounds keeper and irrigation specialist at a local golf course. He has been learning rodent control and pest control practices.

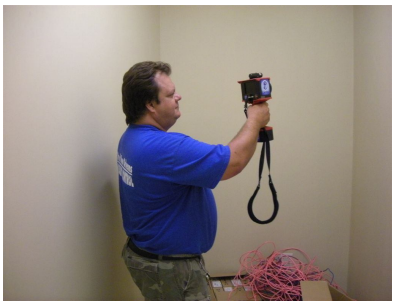

Figure 1. Mr. Steve Ollar was hired as a Pest Control Inspector 2 in April, 2012.

On April 30, Mr. Philip Smith was hired as a Pest Control Inspector 2 (Fig. 2). Philip focused on the nuisance wildlife management and pest control for city facilities. He took and passed the Louisiana Dept. of Agriculture technician's license. Philip has experience working on film crews and we plan to use his experience for production of training videos.

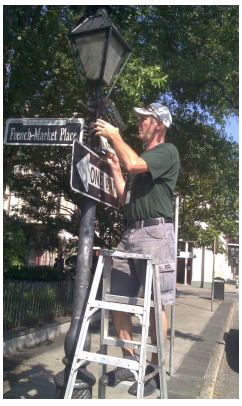

Figure 2. Mr. Philip Smith inspected the termite traps in the French Quarter.

In April, Ms. Jennifer Hamilton was hired as an Inspector 2 (Fig. 3). Jennifer has been an enthusiastic and self motivated employee. She quickly learned the City's several accounting programs and organized the accounting files and accounts. Within two months, all the bills were current and several long-standing issues were resolved. She has an undergraduate degree in accounting but also has a degree in chemistry. She has also been involved in our new EPA school IPM grant.

Figure 3. Ms. Jennifer Hamilton poses for a picture used for a door hanger that discussed the importance of wearing mosquito repellent.

Mr. Andrew Ruiz (Fig. 4) is a graduate student at Tulane University. He started as an intern and was hired full time on November 9th. Andrew has background knowledge in GIS and public health. NOMTCB has ArcView software, so Andrew has been able to produce many maps for mosquito and rodent control.

Figure 4. Mr. Andrew Ruiz has been a valuable addition to the NOMTCB family.

NOMTCB's internship program has become very competitive (Fig. 5). Most of our interns were recent high school graduates and college students. College students are usually from LSU and from universities in New Orleans. Tulane University's School of Public Health has a Practicum program and we accept several of their students each year. Many of these interns have worked with us before and have experience. These interns are fantastic because they are excellent employees and require minimal training. The summer interns allow our staff to complete numerous projects each summer.

Figure 5. Summer Interns, 2012. From left to right: Christian Fraught, Krystal Seger, Andrew Ruiz, Whitney Howe, Brooke Schalm, Daniel Schwank, David Freytag, Aidan Breaux, Denzel Millon, Kelly Vignes, and Cory Vignes.

NOMTCB has 35.45 positions, not all of which are funded (Fig. 5). The Assistant Director position was not funded in 2012 or 2013. We will be requesting funding for 2014 so the position can be filled. Other positions opened because of resignations and terminations. Budget cuts do not allow for the all the positions to be filled.

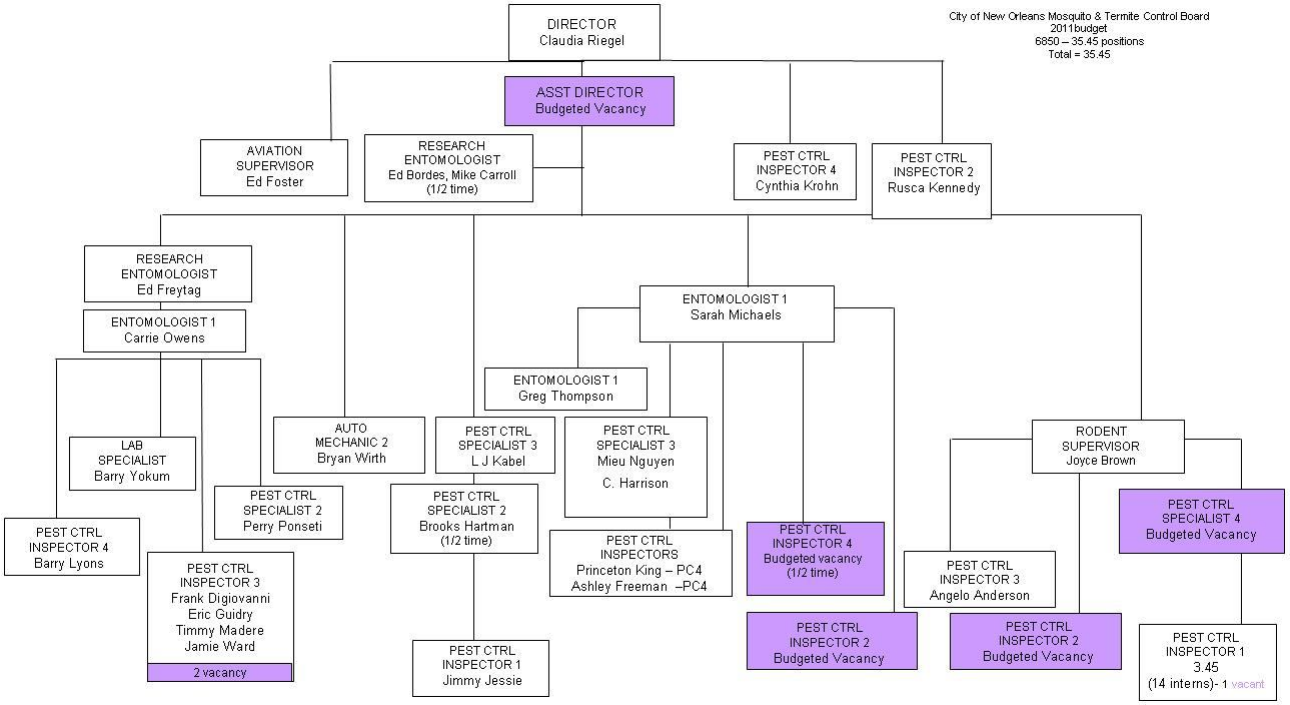

Figure 5. NOMTCB's organizational chart as of December 31, 2012 shows several vacancies and filled positions.

Ms. Ashley Freeman graduated from Tulane University with a master's degree from their Public Health program in May. She conducted extensive field work collecting rodent samples from all parts of New Orleans. Ashley accepted a position with Mosquito Zone, Inc. and left NOMTCB in September. I wish her the best in her future endeavors.

Our department implemented Performance Management Plans (PMPs) for each employee. The PMPs outlined the employees' responsibilities for the year. Each employee will have a mid-year review to check on their progress.

Facilities

Administration building

NOMTCB officially moved into the new building in September of 2011. During the first quarter, Mr. L.J. Kabel (Pest Control Specialist 3) and Mr. Perry Ponseti (Pest Control Specialist 2) worked with Woodward Design+Build and their contractors to complete the building's punch list. There are still major issues with rust on the roof and water leakage into the building in specific locations. Several of the cosmetic punch list items have been completed.

The new building has an auditorium with a capacity of 125 people. Tables and chairs were purchased this year. We purchased table and chairs that will last for many years and are versatile in order to accommodate the many events we host. Audiovisual equipment was installed. We now have the capability of streaming video to the lobby and several offices. Seminars can recorded for future use. In 2012, 3,418 people visited or used our facilities. The groups requesting use of the training room included several city departments, Sewerage and Water Board (S&WB), various departments of the state, the pest control industry, and many more.

We have hosted many events this year. The Louisiana Department of Agriculture and Forestry moved their structural pest technician and licensee testing to our facility. Other meetings held at our building included the Superbowl XLVII table top exercises, S&WB meetings pertaining to runoff, Greater New Orleans Pest Control Association (GNOPCA) recertifications, a GNOPCA evening general membership meeting, pest control sponsored recertifications, Deputy Mayor Ann Duplessis' customer service training, Dillard University's pesticide training, GNOPCA and City of New Orleans Termite Academy, and several others. The New Orleans Fire Department and many other city departments (NORD, Safety & Permits, S&WB) use our facility regularly.

Figure 6. Dr. Gary Balsamo discussed nuisance wildlife zoonotic diseases in NOMTCB seminar series.

NOMTCB started a seminar series in 2012. Our first speaker was Mr. Ed Freytag who discussed the basics of digital photography. Dr. Gary Balsamo (Fig. 6) from the LA Division of Health and Hospitals discussed nuisance wildlife, such as raccoons, and the diseases they can transmit. The seminars offer one credit hour for recertification for sanitarians which are free and open to anyone to attend. We have had great attendance and even members of the pest control community have participated. The topics included rodenticide EPA regulations, West Nile virus, rodent control operation, the role of public health in the Emergency Operations Center, and more. One hour of CEUs for sanitarians was offered so many Division of Health and Hospitals employees attended.

Warehouses

In order to obtain reimbursement from FEMA for the consolidation for NOMTCB's PW for the buildings, FEMA requires that NOMTCB move our warehouse operations to another building. We are still operating from the middleshop and the backshop, but these facilities will eventually need to be demolished. Dr. Mike Carroll has been looking for suitable warehouses or property for purchase in the Harbor Circle area. We will continue of search until a suitable and affordable warehouse or property is found.

Figure 7. Ms. Ashley Freeman (NOMTCB) inspects a desk with food in a school office with known rodent activity.

Hanger

No progress was made on permanent repair of our hanger. However, the architectural drawings have been completed. Dr. Mike Carroll and Mr. Ed Bordes have reached out to the airport in order to begin negotiations for a lease. A meeting occurred at the hanger with Martha Griset (City of New Orleans real estate agent), the airport's real estate agents, and NOMTCB staff members (Mr. Ed Bordes and Dr. Mike Carroll). The Levee Board proposed a lease that is in review by the several administrators at the city. They would like to charge approximately $25,000 per year in rent and they want a fire suppression system installed at the hanger. With the 2012 and 2013 budget cuts, the rent would be a hardship.

Operations

A significant portion of my time is spent on personnel, essential operation matters, and obtaining extramural funding. Unfortunately, the USDA-ARS terminated the French Quarter component of Operation FullStop. The loss in funding will be significant for our department.

A new grant ($113,000) was awarded to NOMTCB in April. The grant is an Environmental Protection Agency School Integrated Pest Management demonstration. The project will focus on reforming the pest control standard operating procedures in five schools in the Recovery School District (RSD) in order to alleviate chronic pest problems. Ms. Janet Hurley, a colleague from Texas AgriLife Extension, will be a partner in this project. Ms. Hurley has implemented integrated pest management programs in numerous school districts in Texas. Meetings were scheduled with the RSD to outline the project's priorities and timeline. The project was initiated in May (Fig. 7) and will have a two year duration. Our goal is that the RSD schools will be the model for the rest of the metropolitan area and the state of Louisiana.

The first quarter of this year marked the beginning of our new wildlife division. This division was formed due to the large influx of nuisance wildlife complaints from the general public since Hurricane Katrina. All complaints involving blighted properties and city facilities are being serviced at no charge. Private residents were being serviced at a small fee to help cover the cost of expenses incurred while trapping. A trapping agreement was cleared through the city's legal department and clearly stated the responsibilities of NOMTCB and the homeowner during trapping. The primary calls for service were for raccoons, opossums, and snakes. In January, after receiving a request from the NOPD mounted division stables, the wildlife division began attempting trapping coyotes in City Park, though none have been captured to date. The program was successful at alleviating many nuisance wildlife issues. During preparations for the budget, it was apparent that cuts would jeopardize the future of this program in 2013.

Dr. Janet McAllister from the Centers for Disease Control visited our facility in April. She spent three days with our mosquito control division. We discussed most of the activities in mosquito control. Dr. McAllister has a tremendous amount of experience in the field of mosquito control and travels throughout the United States and internationally. We are always continuing to use best practices for all that we do and she had a few suggestions that NOMTCB was implementing in 2012.

Hurricane Isaac

NOMTCB was in the Emergency Operation Center (EOC) by August 28, 2012. Mr. Ed Freytag (Research Entomologist), Mr. Princeton King (Pest Control Inspector 4), and I stay during an emergency. NOMTCB was not required to stay overnight in the EOC during this storm.

We learned many lessons after Katrina and our department is far better prepared for emergencies. In addition, the new administration building is more than 16 feet above ground level and offers protection to our contents and equipment. Many items were also moved to the administration from our other more vulnerable facilities. The building is prewired for a natural gas or propane generator. A grant was submitted by Homeland Security for generators and we are on the list to receive one if the grant becomes available in 2013.

We updated the NOMTCB emergency response plan in 2012. The new plan includes provisions for computers, biological samples, and sensitive data. Preparation for Isaac was relatively problem free. Each time there is an event, we learn how to improve preparations.

Our staff worked together to move vehicles to a safe location (Levee Board facility on Franklin Ave.) and pesticides were elevated a the lakefront facilities. The middleshop and backshop have flooded several times in the past so we always prepare for the worst. Six to eight inches of water entered the middleshop and backshop. Losses were minimal and no damage was observed. The water receded within a couple of days (Fig. 8) and our crew cleaned the facility and put it back into operation.

Figure 8. The waterline showed that approximately six to eight inches of water entered the middleshop.

Mr. Ed Foster (Aviation Supervisor) evacuated the airplane. Because the airport did not have power and there was minor flooding at the airport, the plane was flown to New Orleans International on September 1. The plane was returned to the Lakefront Airport when runways were reopened and water receded from the hanger (Fig. 9).

Figure 9. The water receded from the hanger and it was cleaned prior to moving the airplane to the Lakefront.

MOSQUITO FIELD OPERATIONS

SARAH MICHAELS

The magnitude of West Nile virus (WNV) activity and landfall of Hurricane Isaac made 2012 a very challenging year. We were able to respond to these events due to the hard work and dedication of our staff and a great group of summer interns who worked many long, difficult hours.

By early March, due to the mild winter and warm spring temperatures, large broods of the unbanded saltmarsh mosquito, *Culex salinarius*, emerged in outlying areas and the fresh floodwater mosquito, *Aedes vexans*, in large urban parks. Populations of the local WNV vector, *Culex quinquefasciatus* or the "southern house mosquito," also emerged early and increased rapidly. Inspectors applied larvicides to large swales in City Park and we initiated ULV ground spraying with Scourge® (resmethrin, Bayer Environmental Sciences) and Fyfanon® (malathion, Cheminova).

Surveillance for West Nile virus was conducted by weekly gravid trap collections in 25 locations throughout the city from April - December. Since this species is attracted to water with high organic content, traps were baited with a fish oil emulsion. Natural breeding sites typically include sewers, catch basins and ditches with standing water and man-made containers. Collected mosquitoes were sorted into "pools" and submitted for testing at the Louisiana State University Veterinary Diagnostic Laboratory in Baton Rouge. The first WNV positive pool was collected on April 4th – the earliest positive pool collected in the city, and widespread WNV activity began in early June (Fig. 10). Out of 897 pools submitted in 2012, 181 mosquito pools tested positive for WNV.

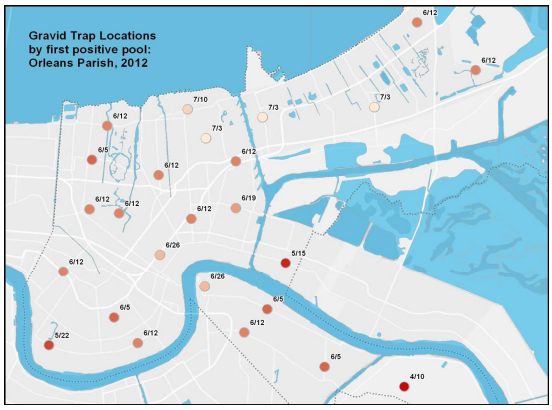

Figure 10. Gravid trap collections by date of first positive pool.

In response to the early WNV activity, we conducted a city-wide aerial application in May with our Britten- Norman Islander Aircraft applying Dibrom® (naled) (AMVAC). *Culex quinquefasciatus* feed on fledgling birds in the tree canopy in early spring, then move down from the tree canopy and begin feeding on mammals after the birds have left their nests. Mosquitoes become infected with West Nile virus through feeding on virus-infected birds and later can pass the virus on to humans. This year's spring drought-like conditions created a conducive habitat for this species by concentrating polluted water, as rainfall "flushes" polluted water out of sewers and containers. Drought also concentrates birds and mosquitoes around the few available water sources and increases the likelihood of virus transmission. High temperatures accelerate the mosquito life cycle, shortening the number of days needed to develop from egg to adult. Conditions were indeed conducive this year to allow for this series of events to occur.

To estimate the rate of viral infection among mosquitoes, the minimum infection rate (MIR), or the number of infected mosquitoes per 1,000 tested, was calculated. MIR = [number of positive pools / total specimens tested] x 1000. The MIR peaked in June (Fig. 11), and generally declined throughout July and August reaching 0 positive the week prior to the landfall of Hurricane Isaac in late August. Additional positive pools were collected in October and December, indicating low levels of continued transmission and possible overwintering of virus in local populations.

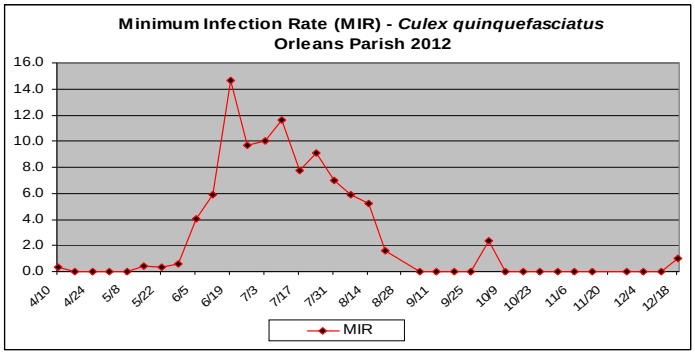

Figure 11. Minimum Infection Rate (MIR) for West Nile virus detected in *Cx. quinquefasciatus* in Orleans Parish, 2012.

To suppress mosquito populations, NOMTCB continued an aggressive aerial and truck application program following the recommendations of the Centers for Disease Control and Prevention's (CDC) West Nile Emergency Response Plan. After detection of WNV, an area is successively treated over two nights using both ground ULV equipment and by air. Having both these application methods available is critical and was successful in reducing the overall number of mosquitoes, thereby reducing the risk of WNV transmission. The interruption of viral activity proved to be challenging, but the mosquito gravid trap counts and the number of positive locations were reduced by August (Figs. 12 and 13).

Beginning in early June, we issued a series of press releases to keep the public informed of positive mosquitoes and human cases in Orleans Parish. We were also able to communicate our WNV prevention

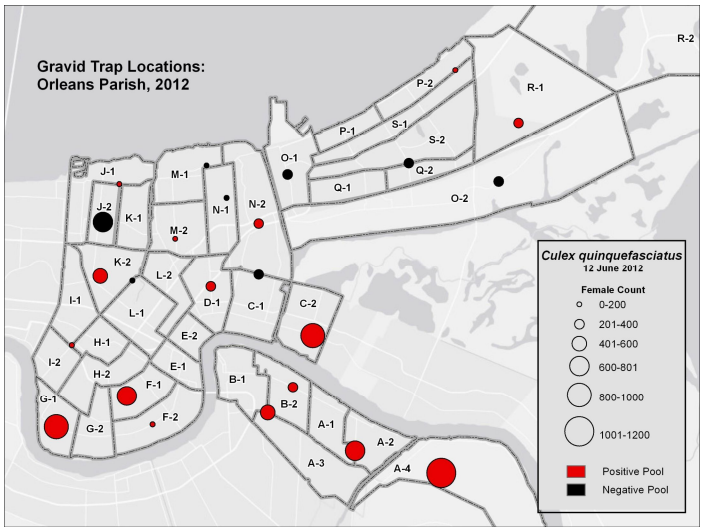

Figure 12. *Culex quinquefasciatus* collected by gravid traps on June 12, 2012. Size of the circle indicates higher numbers collected, red indicates WNV positive locations.

message through a series of local television and radio interviews. NOMTCB urged residents of New Orleans to protect themselves from WNV by avoiding mosquito bites through limiting outdoor activities between dusk and dawn, using CDC-approved repellants, reducing the number of mosquitoes around the home, and maintaining screens on windows and doors to keep mosquitoes from getting inside. We encouraged the public to contact NOMTCB to treat standing water, report abandoned pools, or with any other questions or concerns regarding mosquitoes or West Nile virus.

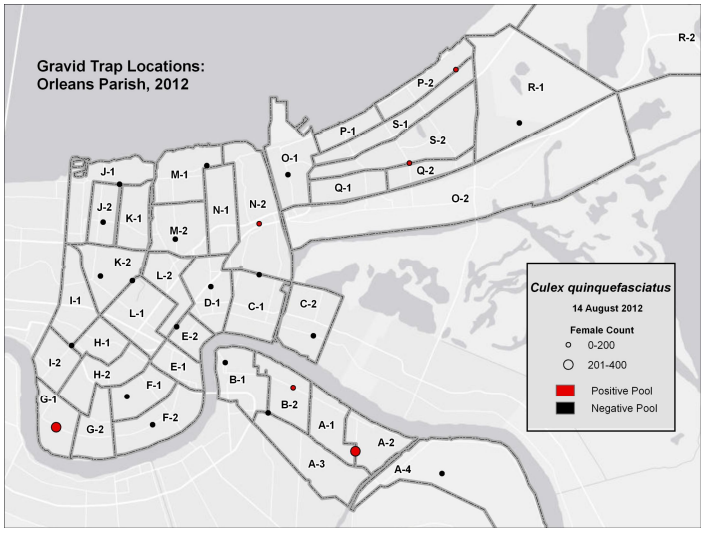

Figure 13. *Culex quinquefasciatus* collected by gravid traps on August 14, 2012.

In 2012, 575 service requests were called in by phone or sent by email (Fig. 14), a 32.5% increase from 2011 (434 in 2011, 148 of these were in the 2 weeks following TS Lee).

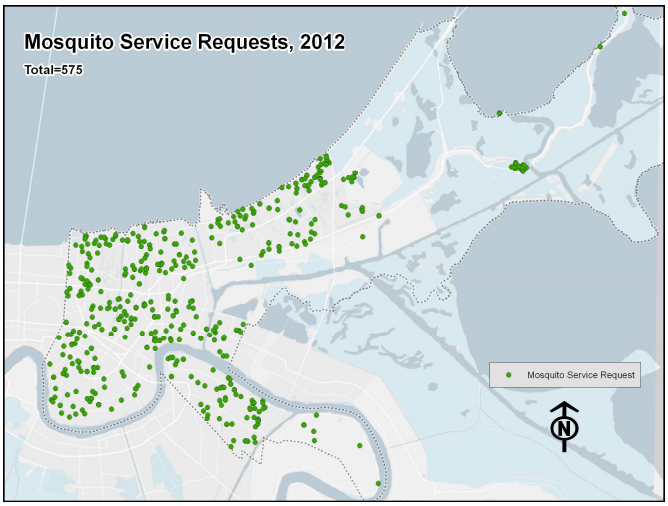

Figure 14. Mosquito service requests received in 2012 by street address.

Source Reduction and Outreach Activities

In June, NOMTCB partnered with the Department of Sanitation to remove hundreds of tires from the Lower 9th Ward that contained water and were breeding mosquitoes. We worked with Sewerage and Water Board inspectors to identify and treat water leaks (Figs. 15 and 16).

Figure 15. Summer interns participate in tire removal with the City's Department of Sanitation in the Lower 9th Ward, June 7, 2012.

Figure 16. Hundreds of tires were removed from the West Bank on July 3, 2012, Many, including this tire, were found to be breeding mosquitoes.

In July, we partnered with the New Orleans Fire Department and Infectious Disease Epidemiologists with the Division of Health and Hospitals to conduct community outreach efforts to educate citizens and apply larvicide briquettes (Altosid Pellets WSP, methoprene, and Fourstar Briquets 45-day release, *Bacillus sphaericus* and *B. thuringiensis israelensis*) to all storm drains and standing water on the West Bank (Fig. 17).

In August, NOMTCB went door-to-door to educate citizens and to treat storm drains Uptown and in Hollygrove (Fig. 18).

Figure 17. WNV prevention door hanger developed for community outreach efforts.

This past season was the most active in the state since 2002. There were more neuroinvasive cases reported in 2002, but less overall. A total of 18 cases of WNV human infections were reported in Orleans Parish in 2012, 382 cases were reported state-wide. Of the 18, 11 were neuroinvasive, the more serious form of the disease and 6 classified as fever, with relatively minor flu-like symptoms and one was an asymptomatic blood donor.

Hurricane Isaac

NOMTCB staff assisted in the evacuation of vehicles and equipment in preparation for Hurricane Isaac, staffed the emergency operations center (EOC) during the event, and drafted public education messages afterwards. Fortunately, WNV transmission in Orleans Parish had slowed prior to the storm, but with standing water from the heavy rains and increased human exposure due to lack of electricity and clean-up activities, NOMTCB stressed the importance of eliminating or treating standing water and use of repellants.

In the weeks following the storm, ground ULV operations covered most of the city as a precaution. Aerial applications targeted floodwater species, which emerge in large numbers and are aggressive biters and a source of residential service requests but fortunately are not disease vectors.

Research and Education

We also monitored *Aedes albopictus* and *Ae. aegypti* populations and completed an aerial application as part of Rutgers University Asian Tiger Mosquito Area-Wide Project in partnership with Dr. Dawn Wesson at Tulane University and Dr. Gary Clark from USDA in Gainesville, FL. The aim of this project is to develop cost-effective and sustainable methodologies for mosquito abatement districts to control these species which are often pests, but can also be vectors of diseases such as dengue and Chikungunya. Results of this study were presented at the Louisiana Mosquito Control Association Annual Meeting in Lafayette in December, and will also be presented as a symposium with other participating districts at the American Mosquito Control Association's Annual Meeting in Atlantic City, New Jersey in February.

In November, we presented a poster, "Characterization of the Resurgence of West Nile Virus in New Orleans, Louisiana – 2012" at the annual meeting of the American Society of Tropical Medicine and Hygiene in Atlanta, Georgia, the result of ongoing research with Drs. Chris Mores and Rebecca Christofferson of the Department of Pathobiological Sciences at Louisiana State University in Baton Rouge.

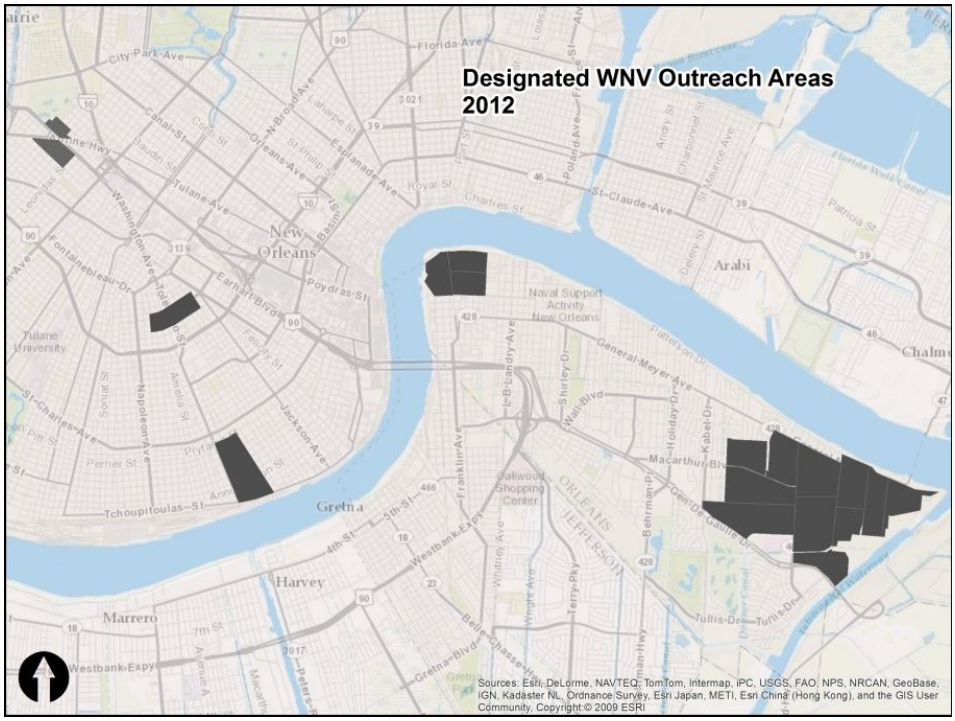

Figure 18. Targeted WNV outreach areas from the 2012 mosquito season.

AVIATION
ED FOSTER

Entering the 2012 New Year found us busy conducting several observation flights at the request of the New Orleans Office of Homeland Security and Emergency Preparedness. Yet another brush fire had occurred in the east near Bayou Sauvage and we were able to provide NOFD with an aerial vantage point that helped them monitor the fire and identify access points. We coordinated this effort with Fire Chief Robert Eiserloh.

Early in the year is also when many of the administrative obligations are due such as the annual insurance renewal application and submittal of the congested area operations plan to the Federal Aviation Administration. Additionally, I attended an aerial application safety seminar sponsored by the Louisiana Agricultural Aviation Association. Our insurer recognizes completion of this seminar by granting a premium discount.

Concurrent with this activity was the continuation of our aircraft and ground support equipment inspection/ maintenance period which began in late 2011. Sourcing of parts, materials, and forecasting future needs are all part of this activity.

Upon completion of the yearly aircraft inspection, we conducted several proficiency and nighttime training flights to exercise both pilot and equipment, ensuring that everything would be ready when needed (Fig. 19).

Figure 19. Night proficiency flight.

Another annual requirement that we satisfied was calibration of the aircraft spray system. The flow rates and average droplet size produced by the system were precisely measured to verify conformance with the chemical label requirements. We successfully completed this in conjunction with the Iberia Parish Mosquito Abatement District and are grateful to Director Herff Jones and his staff for offering their invaluable assistance with this.

We have since purchased specialized equipment that will enable us to perform this testing more efficiently in house and are looking forward to conducting this and additional testing mid 2013.

Early May saw the need for spray flights and we continued these throughout much of the year. As summer is a busy time for us, we were fortunate to have had the availability of interns to assist us with some of the more mundane tasks. They proved to be very helpful with cleaning up around the hangar, sorting hardware, etc. (Fig. 20).

Summer brought with it a busy hurricane season, further adding to our already heightened level of activity. As it became clear that Hurricane Isaac was headed to New Orleans, we executed our evacuation plan.

Figure 20. Summer intern Corey Vignes organizing hardware.

Being located outside of the levee protection system on Lakefront Airport requires getting an early start on things. Equipment and materials were elevated to the mezzanine area at our facility at the Lakefront Airport. A temporary safe haven away from the storm path was identified and the airplane was evacuated.

As Isaac made landfall, initial reports indicated that we had survived unscathed. Unfortunately, the dynamics of the storm pushed a lot of water into Lake Pontchartrain resulting in flooding of the airport (Fig. 21). Some hangars had as much as 4 feet, destroying many aircraft. Fortunately, we only had 12-15 inches in our hangar, leaving a big mess, but minimal damage.

Figure 21. Flooding in neighboring hangar.

It took several days for the water to reside. Once that occurred, Mr. L.J. Kabel (Pest Control Specialist 3), Mr. Princeton King (Pest Control Inspector 3) and Mr. Barry Yokum (Lab Specialist 2) immediately went to work restoring the hangar to functionality. They pressure washed, removed debris, restored utilities and had everything ready before the airport officially opened and the airplane could return home. Shortly after returning we were back in the mode of conducting spray flights which continued regularly through October (Fig. 22).

As the year ended and mosquito activity declined, we started making plans and preparing for our end of year maintenance period. The primary focus for this period will be completing some major structural repair work on the aircraft in addition to the regular inspections and maintenance. We are expecting yet another busy mosquito season in 2013

Figure 22. Watching the sunset as we await peak mosquito activity.

FLEET MAINTENENCE

BRYAN WIRTH

The year began with repairing a pneumatic antenna cylinder and fabricating a new and improved cylinder stop sensor bracket for the office of Homeland Security and Emergency Preparedness bus (Figs. 23 and 24). The bus was repaired in time for use in Mardi Gras activities.

NOMTCB was asked to assist in Mardi Gras parade clean-up. Mr. Princeton King (Pest Control Inspector 4) and I assisted in clean-up of several parades using backhoes and other equipment that is primarily used for source reduction. Working the parade route was difficult and required long hours.

Entire front ends of several vehicles were replaced and some of the vehicles were repaired from front to rear. Much attention was given to NOMTCB's fog trucks in order to have them run at peak efficiency. An assessment was made of the repairs needed and all the fog trucks will be serviced by the end of the second quarter. In addition to the trucks (F-150), each spray unit was cleaned and all the chemical lines were resealed in order to improve engine performance. The battery and caution light wires were re-run through the frame of the vehicles. Mr. Princeton King and I recalibrated the ULV spray units.

Preventative maintenance on all vehicles, fog units, fog trucks, backhoes, and our forklift was completed. This includes all major repairs such as engine replacement and minor repairs which involves front end rebuilds, brakes, tires, and more. I have done all record keeping and ordering of parts, accessories, supplies, and equipment for each vehicle myself. At least 80 percent of all major repairs to our vehicles have been completed. I aim to have most, if not all, major and minor problems repaired by this time next year.

We also improved our safety standards in our shop. For example, caution signs were placed in the shop, caution tape was placed around the shop floor around the equipment, and the use of personal protective equipment, such as safety glasses, ear plugs, etc, is mandated.

Figure 23. Homeland Security Emergency Preparedness bus that was stationed at NOMTCB for repairs.

NOMTCB's shop has a lot of different types of machines and equipment. Repairs to our tire machine, part washer, back pack fogging units, and Echo drills were also completed.

Figure 24. Antenna cylinder and cylinder stop sensor bracket in the Homeland Security Emergency Preparedness bus.

The hydraulic equipment (backhoes, dozer, and fork-lift) were maintained by performing anything from oil changes to rebuilding hydraulic cylinders and valves. Preventative maintenance was conducted on the pneumatic equipment such as the tire machine, pneumatic locks, the air compressor, and pneumatic lines (Fig. 25).

Figure 25. Mr. Bryan Wirth removes a hydraulic cylinder from a backhoe for cleaning and repair.

I have also participated in outside chemical equipment testing projects with BASF on a prototype unit which involved extensive testing, trouble shooting, and suggestions on modification.

The mechanic shop at NOMTCB (Fig. 26) has advanced greatly this year. Adding new equipment and servicing old equipment has made it much more functional and safe to complete servicing tasks as well as cutting down on the number of outsourced maintenance and repairs.

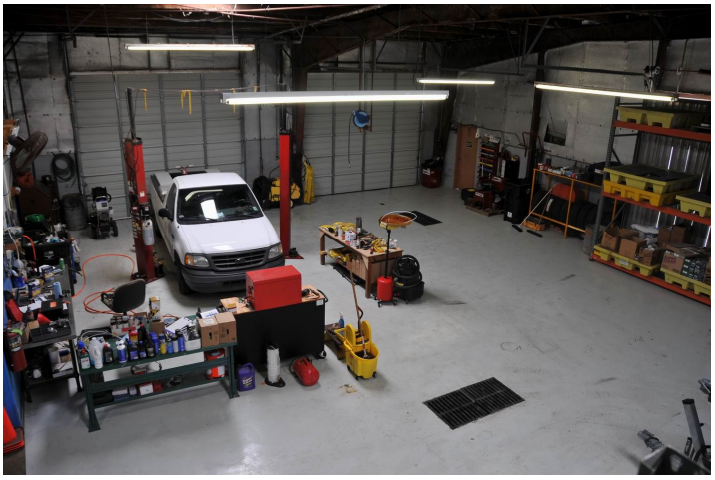

Figure 26. NOMTCB's auto maintenance shop located at 6601 Stars and Stripes Blvd.

VECTOR/RODENT CONTROL
JOYCE BROWN

Service Requests

During 2012 the NOMTCB Rodent Control Program received 917 rodent complaints by e-mails and calls to the office. Of the 917 rodent complaints, 49 residences had rodent activities; 141 burrows were found and treated. These residences were re-inspected. All complaints were followed up with inspections and treatments as required (Fig. 27). NOMTCB inspectors treated 2,718 storm drains using 11,012 bait blocks. Table 1 is a chart of all incoming rodent complaints calls or emails to the office for the year of 2012, broken down by month.

At selected severe cases, inspectors place bait stations at residences adjacent to vacant houses and abandoned lots with trash, high grass, debris and other City code violations (Fig. 28). These bait stations are monitored on a biweekly schedule and removed when the rodent activities subsides.

Fact sheets were given to residents. When the resident was there during the inspection, we took the opportunity to discuss conducive conditions or pest-proofing. Inspections and treatments of storm drains, burrows, and ant mounds at vacant houses and vacant lots were continued. After these inspections, all violations were e-mailed to Code Enforcement.

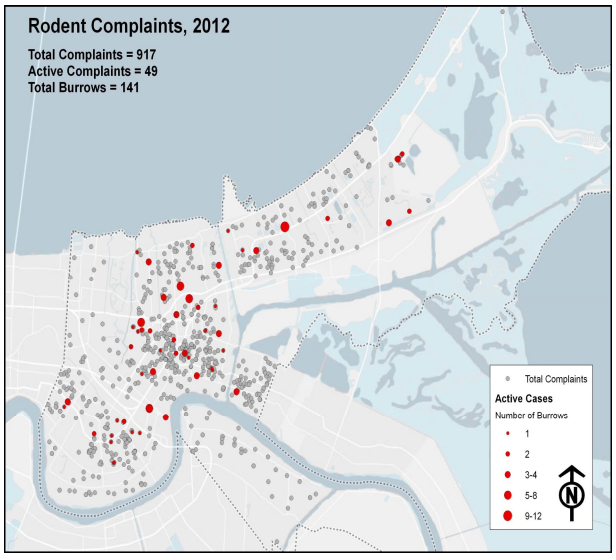

Figure 27. Rodent service requests (complaints) received by NOMTCB in 2012.

Table 1. Rodent service requests by month received by our office.

2012 Rodent requests for service by month			
Months	Initial Inspections	Re-Inspections	Total
January	75	8	83
February	42	2	44
March	83	9	92
April	80	4	84
May	80	3	83
June	103	2	105
July	86	0	86
August	90	7	97
September	76	6	82
October	86	1	87
November	56	4	60
December	60	3	63
Total	**917**	**49**	**966**

Figure 28. A vacant house with city violations next to resident.

French Quarter Projects & Storm drains

Rodent activity appears to have increased in selected areas in the French Quarter (Fig. 29). In January, NOMTCB inspectors treated 684 storm drains using 4,104 bait blocks in the French Quarter. Inspectors returned in 14 days to check the consumption of bait eaten by rodents to determine the activity. No additional treatments were needed. Another check was performed in March that resulted in re-treatment of 33 drains. In July, a second round of treatments (664 storm drains were treated, using 2,256 bait blocks). Inspectors returned 14 days after treatment and checked 300 drains. Fifty drains were retreated with rodenticide. In August, a spot check was conducted on the storm drains in the French Quarter to determine if more treatment was needed. In October, another spot check was conducted and bait was replaced in storm drains in which bait was consumed

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Figure 29. Norway rat burrows were found in a garden in the French Quarter.

Figure 30. Supervisor Joyce Brown and summer intern, Brooke Schalm, treating storm drains.

Monthly rodent inspections

Rodent inspectors continue to inspect and treat 17 city sites monthly/quarterly, or as needed. These buildings include City Hall, Juvenile Court, State Building, NO Public Library, Lafayette Square, Lee Circle, Treme Center, City Park, (Amusement Park, Mesh Shop, Greenhouse Garden), New Orleans Police Headquarters and 2800 Gravier (NOPD). Bait stations were placed on the following sites, City Hall, Juvenile Court, and New Orleans Public Library for safety precautions. The bait stations are checked and re-treated every month or as needed. Louis Armstrong Park, the bus station, Tulane and Charity hospitals have decreased in rodent activity; therefore these sites are inspected on a quarterly basis. In addition, the New Orleans Transfer Station was monitored. continues to monitor and treat the New Orleans Transfer Station (Sanitation), NOMTCB Inspectors continue to service the City in controlling rodents.

Fight The Blight/ NOLA For Life

In June and July of 2012 NOMTCB rodent control supervisor, Joyce Brown, met with participants in the Fight The Blight Program (Department of Public Works, Code Enforcement, Sanitation, Sewerage & Water Board, Park & Parkways, NOPD, Mayor's staff, RTNO (Rebuilding Together New Orleans), volunteers and other city agencies at City Hall) to participate in the clean up of neighborhoods. NOMTCB inspectors performed surveys of exterior yards, neighborhood inspections, treated storm drains, and educated the public on what measures to take to prevent rodents from entering their homes. Storm drain treatments (Fig. 30) and surveys were performed within a 5-block radius in 5 areas of the city (Districts A, B, C, D, and E).

NOMTCB employees participated in the NOLA for Life program in District E. Several city agencies were there to work with the rebuilding of the park/ playground and to interact with the community in educating residents on all services that is available to them through the city. NOMTCB inspectors issued ant bait and literature on mosquitoes, termites, general pests , and rodents, and pest proofing pamphlets. Mayor Landrieu and other City officials were there to encourage the community to take pride in re-building their parks and neighborhood.

Integrated Pest Management for City Property

Our Rodent Control Division goes beyond just servicing city facilities and responding to citizens outdoor rodent issues. Over the course of the year, our inspectors participated in many special and diverse projects.

In 2012, NOMTCB was responsible for pest control at city buildings and greenspace. The program was initiated in 2006 and we strictly follow an integrated pest management approach. Table 2 lists the properties serviced and the pest control.

NOMTCB inspectors treated 35 NORD parks and playgrounds, Armstrong Park, and Jackson Square for red imported fire ants. We used 279 pounds ant bait to complete these areas. Mound and/or broadcast treatments were completed.

In January, we were requested to inspect the Superdome for rodents. We advised their staff and pest control operator on techniques and procedures for better rodent control leading to a decrease in rodent population there.

In June we also began a trapping run for rodents along the river flood wall in the French Market. Twenty-four snap traps for rats were placed along the flood wall beginning at Café Du Monde and continuing until the French Market dumpster near the open air market. The run was monitored and serviced five days a week until the end of July. Over a hundred rats were culled during the course of this project.

In June, the eight food vendors in the open air section of the French Market were treated as a whole for an infestation of German cockroaches. A follow up treatment occurred in July and by August and by then the cockroaches were under control.

In October, we were fortunate enough to have Dr. Bobby Corrigan, the worlds' leading authority on rodent control, tour the French Market and provide .advice and insight into the continuing rodent issues there. Many of his suggestions have been applied in the area with great success

Since the reopening of the Governor Nicholls Wharf, the rodent population along the Moonwalk has been in a state of constant increase despite our best efforts. In December, we treated the rocks for rodents between the Moonwalk and the river beginning at the Governor Nicholls Wharf and ending at that Natchez Wharf. In two days, over two hundred pounds of pellet rodenticide was placed into the hundreds of rodent burrows littered among the rocks.

In November, a liquid treatment for termites was performed on the YET Building, a NORD facility located on Claiborne Avenue, due to an active Formosan termite colony. The treatment was a success and allowed for our staff members to get hands on experience with a method of treatment commonly used in the commercial pest control industry.

The summer also provided us with five honey bee treatments. Three of the hives were located at NORD parks and the other two were located in Jackson Square. All five hives were treated at night for both the safety of the public and our inspectors. The treatments were successful.

City Facilities Service Request Chart

Table 2 . City facilities that were treated for pests for the year of 2012.

Number	Address	Site	Pests	Visits	Dates
1.	1300 Perdido St.	City Hall 2W6E	German cockroaches	1	1/12/2012
		City Hall 2W20	German cockroaches	1	1/12/2012
		City Hall 304	German cockroaches	1	2/27/2012
		City Hall 2W20	Fungus gnats	1	3/15/2012
		City Hall 7E06	Fungus gnats	1	3/15/2012
		City Hall 9W03	Red imported fire ants	1	3/15/2012
		City Hall 1W39	Roaches/Ants	1	3/28/2012
		City Hall 9W03	Red imported fire ants	1	4/28/2012
		City Hall 2nd fl	Check monitoring boards	1	5/23/2012
		City Hall 9th fl	Spiders	1	5/25/2012
		City Hall 2W60/15	Gnats	1	10/3/2012
		City Hall 1W23/34	Check monitoring boards	1	10/3/2012
		City Hall 5W08	Book lice	1	11/12/2012
		City Hall (Garage)	Ants	1	1/4/2013
		City Hall 2W80	Insects on plant (removed plant)	1	12/4/2012
2.	700 Decatur St.	Jackson Square	Honey bees	1	6/15/2012
		Jackson Square	Honey bees		7/25/2012
3.	545 St. Charles St.	Gallier Hall	American cockroaches/ mice	1	6/27/2012
4.	1001 Harrison Ave.	German Brown Ct.	Mosquitoes	1	6/25/2012
5.	1829 St. Roch Ave.	St. Roch Park	Mosquitoes	1	6/25/2012
6.	1120 South Broad St.	Rosenwald Center	Mosquitoes	1	6/25/2012
7.	4317 Magazine St.	NOPD (2nd District)	Termite inspection	1	5/3/2012
			Rover ants	1	6/8/2012
			Crazy ants	1	9/25/2012
8.	200 N. Alexander St.	NORD	Mosquitoes	1	6/25/2012
9.	4550 Old Gentilly Blvd	Fire house #6	Rats	1	2/1/2012
10.	1100 Milton St.	Youth Study Ct.	Mice	1	1/23/2012
			Mice	1	10/31/2012
			Mice	1	11/19/2012
			Mice	1	12/17/2012
11.	2700 Tulane Ave	Criminal Court Bldg.	Fleas/mosquitoes/book lice	1	6/27/2012
12.	1008 St. Peters St.	Fr. Quarter Market	Inspection	1	2/15/2012
13.	19809 Chef Menteur Hwy	Venetian Isle FS	Mice	1	7/5/2012
14.	1111 Newton St.	Arthur Monday Mult-Center	Rats	1	1/25/2012
			Mice	1	4/19/2012
			Ants	1	5/10/2012
			Ants	1	6/26/2012
			Rats, mice, ants, spiders	1	9/10/2012
			Mice	1	10/25/2012

Number	Address	Site	Pests	Visits	Dates
15.	421 Loyola Ave.	Juvenile/Civil Court	American cockroach	1	6/1/2012
			Fruit flies	1	10/17/2012
			Fruit flies	1	10/3/2012
16.	200 N. Claiborne Ave.	Auto Pound	Rats	1	6/19/2012
		(Bienville)	Rats		8/7/2012
17.	5601 Read Blvd.	Joe Brown Center	Spiders/bees	1	5/25/2012
		Joe Brown Center	Rats	1	6/28/2012
		Joe Brown Center	Spiders	1	8/6/2012
			Spiders	1	12/4/2012
18.	Lake Forest & Read	NO East Library	Oversee termite pretreat	1	1/12/2011
19.	5100 St. Roch Ave.	NORD	Bees/termites	1	7/24/2012
20.	219 Loyola Ave.	Downtown Library	Rats	1	2/7/2012
	Exterior inspected monthly			1	
21.	2222 Simon Blvd.	Allie Mae Complex	Flies	1	7/16/2012
22.	624 Louisiana Ave.	Lyon Center	Mosquitoes	1	7/16/2012
23.	2920 Magazine St.	Eng #1(NOFD)	Spiders	1	7/12/2012
24	1899 Tchoupitoulas St.	NOPD	Mice	1	8/9/2011
25.	913 Alvar St.	Alvar Branch/Library	German cockroach	1	7/17/2012
			Ants	1	8/23/2012
26.	1401 S. Carrollton Ave.	Nix Library	American cockroaches	1	7/17/2012
27.	Harrison at Marconi Blvd.	Police Horse Stables	Rats	1	7/14/2011
28.	2529 Gen. Meyer St.	Behrman Center	Rats	1	1/23/2012
29.	1600 Mardi Gras Blvd.	SPCA	Spiders	1	7/7/2011
			Rats/Mice	1	On-going
30.	#10 Chatham St.	NORD	Termites	1	8/2/2012
31.	Basin at St. Peters St.	Armstrong Park	Rats	1	5/25/2012
					On-going
32.	4800 Haynes Blvd.	Maintenance Park/	Rats	1	2/16/2012
		Parkway			
33.	1116 Magnolia St.	NOPD Evidence Rm.	Mice	1	3/25/2012
			Research site		ongoing
34.	715. South Broad St.	NOPD Headquarters	TBA	1	3/29/2012
			Ants	1	4/13/2012
			Mice	1	6/15/2012
			Mice/Ger. cockroaches	1	7/17/2012
35.	1616 Caffin Ave.	NOFD (trailer)	Spider	1	3/30/2012
36.	6520 Congress St.	Senior Citizen Hm	American cockroach	1	4/27/2012
		Senior Citizen Hm.	Mice	1	6/20/2012

Number	Address	Site	Pests	Visits	Dates
37.	1600 St. Bernard Ave.	Hunters Field Ct	Rats	1	4/10/2012
38.	3330 Florida Ave.	Engine #8	German cockroaches	1	4/18/2012
39.	1137 Baronne St.	Park & Parkways	Rats	1	4/26/2012
40.	1600 Gentilly Blvd	Stalling Center	Wasps	1	6/5/2012
41.	300 Calliope St.	EMS Unit #3158	German cockroaches	1	6/8/2012
42.	1500 Lafreniere St.	St. Bernard Center	Rats	1	6/12/2012
43.	10200 Almonaster Blvd	City Auto Pound	Wasps	1	6/13/2012
44.	Open Air Market (Fr. Qtr)	French Market #1	German cockroaches	1	8/1/2012
45.	219 Loyola Ave.	Main Library	Crazy ants	1	8/20/2012
46.	2829 Gentilly Blvd	Park/Parkway	Ant inspection (none found)	1	10/1/2012
47.	3100 Louisa St.	Sampson Ply	Rats	1	10/17/2012
48.	727 South Broad St.	Mun. Traffic Ct.	Mice	1	8/23/2012
48.	1899 Tchoupitoulas St.	Special Operations	Rats	1	10/30/2012
49.	1130 Oretha Castle Haley	Homeless Shelter	Mice/Germ. cockroaches	1	11/15/2012
50.	3014 Holiday Dr.	Algiers Library	Rats	1	10/23/2012
51.	5641 Read Blvd.	NO East Library	Mice	1	10/31/2012
52.	13200B Old Gentily Rd	Bio Lab	Mice	1	10/30/2012
53.	4300 So Broad	Rosa Keller Library	Mice	1	11/14/2012
54.	4330 St. Claude Ave	NOFD Eng#	Mice	1	11/9/2012
55.	987 Robert e. Lee	Engine #13	Rats	1	12/4/2012
56.	13400 Old Gentilly Blvd	Taxi Cab Insp.	Cellar spiders	1	11/19/2012
57.	1140 S. Broad	NFL/YET	Formosan termites	1	11/14/2012
58.	1401 S. Carrolton Ave.	Nix Library	Mice	1	12/4/2012
59.	6601 Stars & Stripes Blvd.	NOMTCB Hanger	Mice	1	12/12/12
60.	4015 Burgundy St.	NOPD 5th District	Mice	1	12/4/2012
61.	13400 Old Gentilly Rd.	NOFD Training	Mice	1	12/3/2012

TERMITE ENTOMOLOGY

ED FREYTAG

Administration Building

Although many issues have been resolved by the builder since the beginning of the year, there are still many problems in the new building that needed to be addressed by midyear. A leaking problem with the water pan on the evaporator of unit 7 was addressed by the contractor many times but was never fixed properly. AC technicians have made several repairs and resolved this issue with the other units, but unit 7 continues to have a steady drip onto the concrete base. The refrigerant in all the units has been tested for the correct pressure and some required additional charge, and the temperature seems more stable, specially maintaining a lower humidity level in the training room. The water seepage from wind driven rain has been stopped in the lobby, as well as in the elevator. Masons had to remove bricks outside and seal the area properly. The rust spots and scrapped paint on the roof required a new paint job, but it was addressed by the contractor by just spot painting the damaged areas (Figs. 31 and 32).

Figure 31. Rust spots on the roof panels caused by rusting screws left there by careless contractor workers.

Figure 32. Paint scraped off the ridges of the roof panels caused by careless installation.

A use permit was finally approved for the elevator after the vent and fireproofing issues were resolved. Some rainwater was found leaking in the elevator shaft during rainstorms, and this will also need to be addressed by the contractor. The landscaping around the building was postponed for this year, but new sod was planted in front of the building providing a more inviting look than bare soil.

Mr. L.J. Kabel (Pest Control Specialist 3) installed four new electrical lines– each with its own 20 amp breaker– to the field inspectors' work stations otherwise extension cords had to be run to the wall outlets. A work order was submitted to the IT department to install new communications lines to the cubicle offices, and that was completed in a timely manner. Now all the technicians have access to the internet in their cubicles, although not everyone has a computer at their desk.

Mr. Kabel installed a new three-phase 240 volt line to the equipment room to run the drying oven. Unfortunately, a single-phase line was specified in the blue print. He also installed a new 120 volt line to provide an outlet in the storage room of the training room to power a refrigerator for storing perishable food items for educational events.

The drain in Laboratory 1 (Dr. Cottone's lab, also known as the DNA lab) had an incorrectly open drain installed which overflowed and leaked onto the floor if water was poured into the wash basin. The drain line was correctly installed by the contractor. A dishwasher was installed after the drain problem was repaired.

Clear security lockboxes were installed around each AC/Heat thermostat to prevent unauthorized temperature changes. All thermostat units have been programmed to provide maximum comfort and efficiency during the day and conserving energy at night by raising the temperature a few degrees.

The builder incorrectly installed regular vinyl tiles instead of the acid and solvent resistant flooring in the

mosquito rearing rooms and a change order was sent to the contractor. The contractor removed the tile and reinstalled the correct flooring (laboratory grade) to match the rest of the laboratories.

The audio and visual equipment was finally installed in the training room. A new high definition projector with high light output was installed in the ceiling, along with two 50 inch monitors to facilitate reading the screen from the back of the room (Fig. 33). Eight speakers were installed in the ceiling for projecting the sound from either the podium microphone, wireless microphone, and/or lapel microphone. A recording system allows the PowerPoint presentation and the speaker (on a picture-in-picture format) to be saved at the same time on a SD card. A SMART board with a overhead projector was also installed, and the classroom response system remotes were purchased with the system. The improvements to the training room will make it a premier presentation location for city departments and other government agencies, as well as for the private sector. An additional switchboard was installed so additional internet lines are now available.

Figure 33. Ceiling mounted projector and 50 in. monitor in the background.

New shelving units were obtained for the equipment storage room. Two large tables were set up; one for electronic equipment prior to conducting working on or repairing computers and the other for preparing inspections in the field. Eight new two-way radios were received from the Homeland Security Department and have been placed on the chargers so they will always be ready for use in the field. They will be very useful, specially during mosquito fogging assignments at night.

Inspections and Treatments

Four infrared inspections (IR) were conducted for the pest control industry to assist them in resolving problems with Formosan termite infestations. The Termite Division charges $125 per hour to conduct a thorough inspection using the infrared camera, the Pestfinder motion sensor, a moisture meter, and the Videoprobe. An inspection requires at least two crew members to carry all the equipment, but sometimes three inspectors are needed in large buildings. The inspections may take anywhere from one hour to five hours, depending on the size and type of structure.

During the inspection, photographs are taken of the building, trouble areas, damaged wood, actively infested areas, treatments, conducive conditions, etc. and are incorporated into the report. A diagram of the building is drawn that includes all the damage, moisture, conducive conditions, active areas, etc. The report is written in narrative form and either mailed or electronically delivered to the pest control company. The report is not given to the homeowner unless the pest control company requests it as part of the inspection. The report is not considered a WDIR (Wood Destroying Insect Report) and is not meant to be used for realestate transactions. In the last two inspections that we conducted we could not determine the source of the Formosan termite infestation because they had 3/4 in. wood floors on top of 3/4 in. plywood underlayment, and the infrared camera and the Pestfinder could not penetrate into the wood. In cases like these we try to suggest solutions that are workable between the homeowner and the pest control company.

Honey Bee Service Requests

Several calls from the public and city departments were received for honey bee control. The inspectors visited several homeowners' properties for honey bee problems, but they decided that they were not posing a stinging threat and we chose not to intervene. Each call received is logged at the office. The two most important factors to consider are the location of the honey bee nest and whether they are posing a threat to people or pets.

Three calls on public property were treated with a foaming machine and an insecticide to eliminate the bees, as they could not be removed alive. Three treatments were conducted that required foaming with insecticide: one honey bee nest was treated inside a tree a the St. Rock playground; a tree and a light pole with honey bee nests were treated at Jackson Square in the French Quarter, and a nest was treated at the Stallings playground. At the Stallings playground we used the Videoprobe in the interior walls and ceiling to try to determine where the nest was located, but we could not locate it. Drill holes were made into the outside cinder block wall where we assumed they had built their nest. The treatment in the wall at Stallings playground was a challenge because we had to drill holes into the wall while standing on a ladder wearing a full bee suit, and then treat the wall while standing on a ladder (Figure 34).

Figure 34. Injecting foam and insecticide into the wall at Stallings playground.

Alate Trapping

Frank DiGiovanni (Pest Inspector 3) was able to gather all the materials and build enough sticky traps to cover the same locations in the French Quarter as were run last year. Alate traps were constructed using small 6x9 inch plastic clipboards on which a glue trap was attached. A chicken wire cage was placed over the glue trap to prevent birds from eating the swarming alates and also to prevent the birds from getting stuck on the glue board itself. The sticky traps are attached to a light pole approximately 7 to 10 feet high and close to the light where the Formosan alates will be flying around in circles during a swarm. Unfortunately, they were not deployed until April 30, and by that time the Formosan swarmers had already started to fly, so we did not get a zero count on the first collection.

Trapping of Formosan alates began on April 30 with 33 alates. The biggest alate catch was on May 4th, and a swarm was observed on that night. A second smaller swarming peak was observed on May 29th, with diminishing alate numbers trapped until they stopped swarming on July 16. It will be interesting to see if next year the alate numbers collected in the traps increase since the funds for maintaining the termite contracts in the French Quarter as part of Operation FullStop have been terminated. It is very likely that many property owners will discontinue the treatment contracts without the USDA subsidy.

Studies with Michigan Tech

A field test site was established in one of the small islands of City Park located off City Park Avenue and Marconi Drive. Mr. Timmy Madere (Pest Inspector 3) located the site last year and installed a test stake plot and test box with Mr. Glen Larkin, from Michigan Tech, to determine the level of termite activity. Formosan subterranean activity was extremely high and convinced the Michigan Tech personnel to use the site as a large scale test site for several wood-treating companies. Early in the spring Timmy started to cut down small trees and bushes to clear the site (with the permission of City Park authorities) and sprayed Roundup to kill unwanted vegetation.

In early April, Mr. Glen Larkin, Mr. Joe Eskola (of Michigan Technical University) and two representatives from Osmose, Mr. Rich Ziobro (VP of Research) and Mr. Doug Fenwick (VP of Customer Service), came down to assist in setting up the installation of 50 treatment boxes. The 500 plus cinder blocks were bought locally and brought to the site on a trailer. Each cinder block had to be individually placed on the flat boat (a deck with plywood was built to accommodate the cinder blocks) and then hand transported into the island. Three separate boat trips were required to transport all the cinder blocks, which collectively weighed over 5,000 pounds. Each box consisted of a piece of 3/8 plywood on which ten cinder blocks were placed. The wood samples were placed on top of each cinder block (Figs. 35 and 36).

Figure 35. Large scale test box installation. Each test unit will be covered with a grey cover.

Figure 36. Large scale test box installation. Each test unit will be covered with a grey cover.

After each box was completed a cover was placed over each one. Glen Larkin and the Osmose representatives were very pleased with the site selection and completion of the installations. The wood samples were inspected after six months by the Michigan Tech. personnel and they found that most of the boxes had Formosan subterranean termite damage. They were very impressed with the activity and were pleased with the results. This project will continue for at least five years.

Operation FullStop

Funding for Operation Full Stop was stopped by Congress in 2012 and the USDA-SRRC personnel were re-assigned to other projects. We are still going to continue with some of the inspections and surveillance projects in the French Quarter to determine if FST populations increase over time. It is speculated that many homeowners and commercial property owners may drop the termite contracts if they are not subsidized by the federal government, which may result in increased termite activity.

Photography

Recording events with still photographs or video has always been an important function in our department. We are constantly incorporating photographs into PowerPoint presentations, brochures, and publications, but it never fails that someone is always going to need a photograph which is not in the database. The monthly seminars at NOMTCB have been recorded to a computer hard drive using a Canon XLII video camera. These videos will be edited, transferred to DVD and organized for future use.

Dr. Patrick Jordan, former director of the USDA-SRRC, requested pictures of Formosan subterranean termite damage on structures to be included in "Leading Agriculture into Tomorrow," a book he is in the process of writing. A release form was signed by NOMTCB for permission to use the pictures. A byline will be included citing NOMTCB as the source.

Pictures of each arena on the Extended Foraging Arena study for BASF were taken every week for eight weeks. Each treatment consisted of 11 arenas per treatment and there were 13 treatments in the study for a total of 143 pictures each week. The live termites in each arena photo were counted at a later time and analyzed to determine the effects of each treatment.

Photographs were taken of the damage caused by Hurricane Isaac at the facilities located in the Lakefront airport. Although the flooding damage was minimal, records of the damage were necessary for insurance and recovery purposes.

Other photographic assignments included, but not limited to rodent baiting in storm drains, installation of the new fog units on trucks, picking up tires in the Lower 9th Ward, distributing West Nile virus information in Algiers with the fire department, live pictures of a Norway rat and house mouse, IPM in school inspections, pictures of the 2012 Pest Control Academy, and selecting pictures of insects for printing and framing to sell at the NOMTCB booth at the National Pest Management Association meeting in Boston.

I had a meeting with Dr. Robert Suranyi, Entomologist with MGK, at the American Wood Protection Association meeting in Nashville and discussed if we could provide high definition images of bed bug eggs treated with one of their products. His protocol required close up images of treated and untreated eggs from the day of treatment until the untreated egg hatched. He was also interested in different magnification ranges of the egg surface.

The egg pictures were very challenging to obtain due to their small size and reflective surface, and I spent one week testing different setting with the lenses and flash to get the results they were looking for (Fig. 37). Since the eggs are so small (approx. 1 mm in length), each final focused image is the result of 15 to 30 images that are only partially focused. Using Helicon Focus software, all the images are "sandwiched" into a final image that is focused from top to bottom.

All of the final images, including the individual "slices," were sold to MGK and they own the rights to them to use at their discretion.

Figure 37. Bed bug eggs eight days after being deposited on paper.

Nuisance Wildlife Control Pilot Program

This year we started a pilot program for the control of nuisance wildlife due to the high number of complaints from the citizens to remove these unwanted pests (Fig. 38). Mr. Phil Smith (Pest Inspector 2) was hired in April to respond to the complaints logged at the main office at 2100 Leon C Simon Dr.. The program was designed following the format used by other districts in California and other states. Most of the other districts use a trapping by contract method and charge a nominal fee for the services. In the beginning of the program, Mr. Smith spent a lot of time determining how to proceed with the complaints, calling back the complaints to determine the root of the problem, and then visiting each site to survey and assess the situation. Most of the complaints required determining if there were conducive conditions, such as pet food left outside, unkempt yards, unsecure garbage cans, and adjacent blighted properties.

The complaints were logged in the office and then picked up by Mr. Smith, and he then called and discussed the nuisance problem and prioritized the situation to set up an appointment for an inspection. After the inspection and assessment of the homeowners situation, the homeowner was asked to sign an inspection form which discusses conducive conditions, and helps determine if trapping is a viable solution. A trapping agreement was discussed with the homeowner

which explains certain obligations of the owner to the trapper, such as accessibility to the premises, daily inspections, immediate notification of any captured animals (including cats and dogs), and agreement to a trapping fee on a per live trapping incident.

Figure 38. A raccoon was trapped at the Equestrian Center in City Park.

Phil started the process of completing the last phase of the trapping which is billing the homeowner for removing the nuisance animal. A trapping event usually takes approximately two to three weeks depending on the weather, after which the complaint needs to be closed. All trapping agreements were reviewed by the supervisor and finalized by the Director. Most of the complaints had been for raccoons and opossums, approximately 65% and 35%, respectively. Only four feral cats have been trapped since the program started and they were immediately released at the site. At least four coyote complaints had been logged but none have been captured in the live walk-in metal traps, even though fresh turkey necks and cow innards have been used to bait them. Several sighting of coyotes were reported at City Park, and we were able to document one sighting at the golf driving range (Fig. 39).

A total of 86 complaints were logged through July 2012 and came from a variety of locations throughout the parish. The majority of the complaints were from citizens with neighboring abandoned residences or where the buildings have been demolished but the vegetations is overgrown. This created a delicate situation where there is a need to remove the unwanted pests but they may not be able to afford the

Figure 39. Large male coyote roaming free at the golf driving range in City Park at approximately 5

trapping fee, specially if there is more than one trapping incident in the residence's backyard. In many instances there may be several families of raccoons living in a wooded area. This may explain why two (an adult couple) to as many as five or more (when the adults have young ones) were trapped from a single location.

The pilot nuisance wildlife program was not approved for funding by the City Council, so the services for the public were discontinued in October. The fees collected were not enough to even cover the cost of the equipment purchased, and certainly would not cover the salary for the technician. Our department will continue to respond to nuisance removal request in city buildings and facilities.

I was an invited guest speaker by the Alabama Urban Forestry Association Conference October 11-12 held in Orange Beach, Alabama, to speak on Formosan subterranean termites biology and control, with emphasis on damage to trees. The foresters and arborists were quite concerned that the Formosan termites will get established in forested areas beyond their ability to control them. In addition to the one hour talk, I also demonstrated how to inspect trees for termites using simple tools and also how to locate them inside the tree using a flexible boroscope such as the Videoprobe. I demonstrated how to properly drill the tree and inject it with foam (with no termiticide). Although we were not able to locate Formosan termites in the park where we had the demonstration, we found native subterranean termites on the outside and inside of the tree with the Videoprobe.

TERMITE RESEARCH

CARRIE COTTONE, Ph.D. (formerly Carrie Owens)

Louis Armstrong Park

Louis Armstrong Park has been the site of one of the longest-running research projects on Formosan subterranean termite colony dynamics and has served as a model of an area-wide termite population management program for more than a decade. All research conducted within the park is performed as a collaboration between our group and Dr. Nan-Yao Su from the University of Florida. Currently, there are 808 termite monitoring/baiting stations within the park.

All detectable termite colonies within the park were delineated in 2009 using mark-release-recapture and DNA analysis techniques (Fig. 40). There were 14 FST and one native subterranean termite colony detected within the park. Mr. Eric Guidry (Pest Control Inspector 4) began baiting these colonies in September 2010. At that time, 54 out of 808 (7%) monitoring/baiting stations within the park contained live foraging termites.

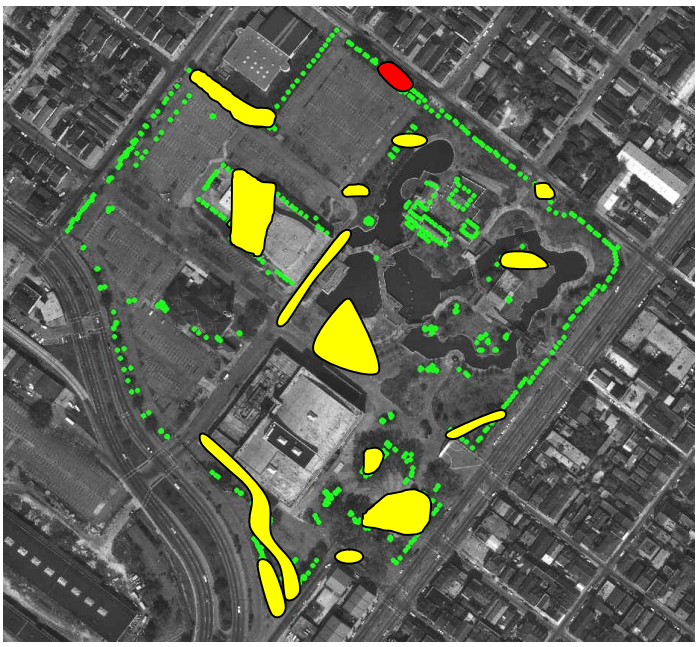


Figure 40. Location of all detectable colonies in Louis Armstrong Park in April 2009 (green dot = monitoring station, yellow area = FST colony, red area = native colony).

This current area-wide colony baiting is the second time within a decade that all detectable termite colonies within the park have been baited. The colonies that are presently being treated are different from those present at the time of the first round of baiting. The objective of this current baiting study is to determine the amount of high density bait formulation required to achieve area-wide management of termite populations in an urban environment with high termite pressure. A total of 32 bait tubes were applied to in-ground termite stations within the park during 2012. As of December 2012, there were no actively foraging termites within any monitoring/baiting stations located in Louis Armstrong Park (Fig. 41). This is indicative of colonies being eliminated due to termite population management using bait technology.

It is our goal for 2013 to continue to monitor all stations within Louis Armstrong Park for termite activity. If termites are observed within any stations, bait will be applied to monitoring stations and will be replaced as needed according to the label directions.

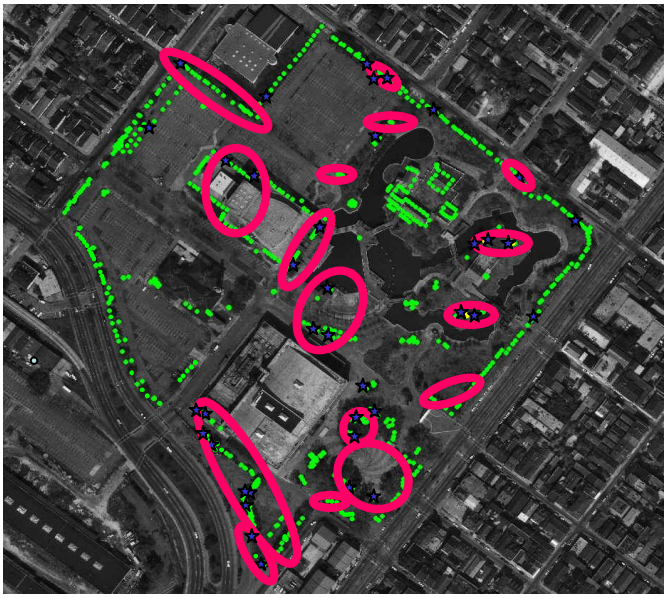


Figure 41. Location of monitoring stations (green dots) bait placement (blue stars) and eliminated colonies (pink circle) in Louis Armstrong Park in December 2012.

Canal Street

Canal Street has served as the control site for Louis Armstrong Park since colony baiting in Louis Armstrong Park began. There are 1,280 termite monitoring stations located along the sidewalks and neutral ground on Canal Street from Convention Center Boulevard to Carrollton Avenue. All monitoring stations are serviced each month with the assistance of Mr. Barry Lyons (Pest Control Inspector 4), Mr. Steve Ollar (Pest Control Inspector 2), Mr. Phil Smith (Pest Control Inspector 2), Mr. Eric Guidry (Pest Control Inspector IV), Mr. Timmy Madere (Pest Control Inspector 4), and Mr. Frank DiGiovanni (Pest Control Inspector 3). We chose this site as a control due to the abundance of monitoring stations and close proximity to Louis Armstrong Park. Control sites are necessary when studying any area to which treatment is applied. Termite activity at the control site is an excellent indication of whether the lack of termites observed at the treated site is caused by application of treatment or if there is a natural fluctuation of foraging areas due to environmental conditions.

Of the 1,280 monitoring stations located on Canal Street, at least 200 contained live foraging consistently throughout the spring and summer months. Because of our group's concerns regarding the impact of these colonies on historic buildings and palm trees located along Canal Street, we have decided to delineate all detected colonies and eliminate the majority of them. Genetic and mark-release-recapture techniques are currently being employed to delineate all detected colonies. As of December 2012, six FST colonies have been delineated and three have been baited. Our goal is to bait and eliminate all but four colonies located along Canal Street. These four colonies will remain undisturbed by treatment and continue to serve as the control colonies for Louis Armstrong Park.

Industry-Supported Research

Our organization continues to conduct field research and laboratory bioassays as part of agreements made with collaborators such as Dow AgroSciences, BASF, DuPont, and the American Wood Protection Association (in collaboration with researchers from Michigan Technological University).

Mr. Barry Yokum (Lab Specialist 2), Mr. Timmy Madere (Pest Control Inspector 4), and Mr. Eric Guidry (Pest Control Inspector 4) have done an outstanding job of acting as liaisons and termite experts as they conduct research as part of these agreements. This summer, we have met with Dr. Bob Davis (BASF), Dr. Joe Demark (Dow AgroSciences), Dr. Clay Scherer (Dupont), and Mr. Glen Larkin (Michigan Technological University) to discuss current projects and plan for projects to be initiated during the 2013 calendar year.

These projects include conducting laboratory bioassays on the transferability of termiticides and the use of novel wood preservatives to prevent termites from damaging wood. Field trials will also be conducted to test new soil termiticides and baits. Furthermore, the efficacy of novel treatments will be verified in our genetics laboratory by comparing the DNA of termites present before treatment to that of termites that reinfest any treated area. This will determine whether termites present after treatment belong to a colony that survived treatment or originated from a neighboring colony that was not exposed to treatment.

Historic and City-Owned Properties

Our organization continues to control termite populations in historic structures, trees, and city facilities by employing baiting technology. Mr. Barry Lyons (Pest Control Inspector 4) has done an excellent job at converting these sites from those that require quarterly inspections to those that require yearly inspections. This is possible through a new bait formulation, which is composed of a high density, highly durable bait matrix and is label rated for servicing stations at a minimum of every 12 months. This bait has the same mode of action as its previously used formulation. That is, individual termites feed on the bait and share the bait with other colony members, which eventually eliminates the entire colony. Table 3 is a summary of all sites at which this new bait formulation has been applied thus far.

Table 3. Properties that were converted to the new bait formulation in 2012.

Site	Location	Termite Activity at Time of Bait Conversion (Y/N)
Parks and Parkways	2830 Gentilly Blvd.	N
Carrollton Cemetery	1701 Hillary St.	N
Decatur Fire Station	317 Decatur St.	N
Latter Library	5120 St. Charles Ave.	N
Historic Oak Trees	City Park	N
Algiers Point Library	3014 Holiday Dr.	N
Harrison Fire Station	773 Harrison Ave.	N
N O Courthouse	2700 Tulane Ave.	N
Planters	Riverfront	Y
Railroad	Riverfront	N
City Hall	1300 Perdido St.	N
Civil District Court	421 Loyola Ave.	N
City Park Tennis	City Park	N
Bella Luna	914 N. Peters St.	N
City Park Administration	City Park	N
Fire Station #7	1441 St. Peter St.	N
Decatur Fire Station	317 Decatur St.	N
Harrison Fire Station	773 Harrison Ave.	N
HDLC	830 Julia St.	N
Madam John's Legacy	632 Dumaine St.	N
Pharmacy Museum	514 Chartres St.	N
Lower Pontalba	500 St. Ann St.	Y
Vieux Carré	334 Royal St.	N
Municipal Training Academy	13200 Old Gentilly Rd.	N
Algiers Fire Station	425 Opelousas Ave.	N
Norman Mayer Library	3001 Gentilly Blvd.	N
Gallier Hall	545 St. Charles Ave.	N

Extension, Technology Transfer and Education

Presentations

Freytag, E. January 18, 2012. Optimizing your camera. NOMTCB Seminar series, New Orleans.

Riegel, C. January 24, 2012. Formosan subterranean termite update. Smokey Mountain Pest Control Association, Pigeon Forge, TN.

Riegel, C. January 25, 2012. Mosquito control. Smokey Mountain Pest Control Association, Pigeon Forge, TN.

Freytag, E. January 31, 2012. Venomous spiders of Louisiana. Dr. Dawn Wesson's Tulane University class. Biocontrol Laboratory, New Orleans.

Thompson, G., C. Harrison, and M. Nguyen. January 31, 2012. Biological control of mosquitoes. Dr. Dawn Wesson's Tulane University class. Biocontrol Laboratory, New Orleans.

Freytag, E. February 7, 2012. Practical guide to the use of inspection tools. GNOPCA and NOMTCB Termite Academy, New Orleans, LA.

Freytag, E. February 7, 2012. Tree treatments. GNOPCA and NOMTCB Termite Academy, New Orleans, LA.

Freytag, E. February 8, 2012. Post construction treatments in the field. GNOPCA and NOMTCB Termite Academy, New Orleans, LA.

Owens, C. February 9, 2012. The label. Termite Academy. New Orleans, LA.

Owens, C. February 9, 2012. Termite foraging. Termite Academy. New Orleans, LA.

Freytag, E. March 8, 2012. Termite biology and control. Northshore Pest Control Association, Abita Springs, LA.

Owens, C. March 8, 2012. Termite biology and identification. Pest Control Technician Workshop. Abita Springs, LA.

Madere, T. March 8, 2012. Rat biology and control. Pest Control Technician Workshop. Abita Springs, LA.

Freeman, A. March 8, 2012. Establishing the prevalence of lymphocytic choriomeningitis virus (LCMV) among House Mice (*Mus musculus*) in New Orleans, Louisiana. 25th Vertebrate Pest Conference. Monterey, CA.

Owens, C. March 22, 2012. Filth flies. GNOPCA Technician Recertification. New Orleans, LA.

Freytag, E. March 14, 2012. HAZWOPER certification– what to expect. Louisiana Mosquito Control Association Spring Workshop, Pineville, LA.

Michaels, S. March 14, 2012. Pesticide safety. Louisiana Mosquito Control Spring Workshop, Pineville, LA.

Freeman, A. March 19, 2012. Prevalence of lymphocytic choriomeningitis virus and citizens perception of common diseases and control methods in New Orleans Louisiana. Tulane University School of Public Health Department of Global Environmental Health Science seminar series, New Orleans, LA.

Riegel, C. March 16, 2012. Mosquito biology and control. Biology and Control of Vectors and Public Health Pests workshop. Portland, OR.

Riegel, C. March 20, 2012. NOMTCB technical resources. Greater New Orleans Pest Control Association general meeting, New Orleans, LA.

Freeman, A. March 21, 2012. Prevalence of lymphocytic choriomeningitis virus and citizens perception of common diseases and control methods in New Orleans Louisiana. NOMTRCB Seminar series. New Orleans, LA.

Riegel, C. March 21, 2012. EPA rodenticides regulation. NOMTCB Seminar Series, New Orleans, LA.

Riegel, C. March 22, 2012. EPA rodenticides regulation. Greater New Orleans Pest Control Association recertification. New Orleans, LA.

Riegel, C. April 3, 2012. Rodent control after natural disasters. Centers for Disease Control and Boston University. Boston, MA.

Freytag, E. April 4, 2012. Construction of NOMTCB building. Mosquito Directors meeting. New Orleans, LA.

Madere, T. Apri17, 2012. Biology and control or rodents in buildings. LDAF recertification, Alexandria, LA.

Freytag. E. April 17, 2012. Biology and control of venomous spiders. Louisiana Department of Agriculture and Forestry recertification, Alexandria, LA.

Freytag, E. April 16, 2012. Termite Biology and Control. House Call recertification, New Orleans, LA.

Freeman, A. April 16, 2012. Biology and control of medically important urban rodent species. House Call recertification. New Orleans, LA.

Madere, T. April 24, 2012. General rat and kitchen inspections. French Market Corporation and vendors. New Orleans, LA.

Freeman, A. May 8, 2012. Biology and control of medically important urban rodent species. E & G Recertification meeting. New Orleans, LA.

Owens, C. and C. Riegel. May 21, 2012. Performance of Recruit HD® versus *Coptotermes formosanus* Shiraki in trials conducted by the City of New Orleans Mosquito and Termite Control Board. National Conference on Urban Entomology. Atlanta, GA.

Owens, C. and E. Freytag. June 13, 2012. Termite biology and control. Summer Re-Certification Technicians Class sponsored by Al's Pest Control Service, Inc. NOMTCB headquarters, New Orleans, LA.

Michaels, S. June 20, 2012. West Nile Virus in Louisiana, the Response of a Mosquito Abatement District. NOMTCB Seminar Series. New Orleans, LA.

Freytag, E. June 25, 2012. Mosquito tour and 15 min. talk to graduate students of Dr. Assaf Abdelghani, Professor of Public Health and Tropical Medicine, Tulane University. NOMTCB headquarters, New Orleans, LA.

Riegel, C. August 1, 2012. The New Orleans school IPM program. EPA School IPM, Dallas, TX.

Riegel, C. and E. Bordes. August 20, 2012. Area-wide termite treatment in New Orleans. International Conference of Entomology. Daegu, South Korea.

Riegel, C., September 18, 2012. Mosquito control. Centers for Disease Control Emergency Management. Kansas City, MO.

Riegel, C. October 3, 2012. Rodent control. South Georgia Pest Control Association. Tifton, GA.

Riegel, C., October 4, 2012. Termite biology and control. South Georgia Pest Control Association. Tifton, GA.

Freytag, E. October 8, 2012. Update on Formosan subterranean termites in New Orleans– the last seven years. FAMU Annual Field and Workshop in Entomology. Tallahassee, FL.

Cottone, C. October 9, 2012. Introductory insect anatomy and biology. NOMTCB Pest Control Academy. New Orleans, LA.

Cottone, C. October 9, 2012. Filth flies. NOMTCB Pest Control Academy. New Orleans, LA.

Freytag, E. October 10, 2012. Termite biology and control. NOMTCB Pest Control Academy. New Orleans, LA.

Madere, T. October 11, 2012. Tricks of the trade. NOMTCB Pest Control Academy. New Orleans, LA.

Freytag, E. October 11-12, 2012. Formosan termite biology and control and field demonstration on inspecting for termites in trees and foam treatment. Alabama Urban Forestry Association Conference on Formosan termites. Orange Beach, AL.

Riegel, C. October 24, 2012. School IPM. EPA School IPM Working Group. Dallas, TX.

Guidry, E., T. Madere, B. Yokum, E. Freytag, K. Brown, A. Lax, and C. Riegel. November 12, 2012. Statewide survey documenting established colonies of the Formosan subterranean termite within Louisiana parishes. Entomological Society of America annual meeting. Knoxville, TN.

Cottone, C., N.-Y. Su, C. Riegel. November 13, 2012. Ability of Formosan subterranean termite (*Coptotermes formosanus*) colonies to survive prolonged inundation. Entomological Society of America annual meeting. Knoxville, TN.

Michaels, Sarah. November 13, 2012. Characterization of the resurgence of West Nile virus in New Orleans, Louisiana – 2012. American Society of Tropical Medicine and Hygiene. Atlanta, GA.

Riegel, C. November 14, 2012. Rodent biology and control. LPMA Licensee recertification. Kenner, LA.

Michaels, Sarah. December 5, 2012. Response to the resurgence of WNV in New Orleans, LA 2012. Louisiana Mosquito Control Association Annual Meeting. Lafayette, LA.

Bordes, E. and C. Riegel. December 5, 2012. 2013 Mosquito Academy. Louisiana Mosquito Control Association Annual Meeting. Lafayette, LA.

Meetings

Michaels, Sarah. National Pollution and Discharge Elimination System (NPDES) Permit at the New Orleans Sewerage and Water Board Administration building.

Freytag, Ed. January 9, 2012. Attended the HAZWOPER 40 hour course. The class was taught by Bruce McClue and Davian Williams. Dillard University, New Orleans, LA.

King, Princeton, and Foster, E. February 26 – March 1 American Mosquito Control Association Annual Meeting. Austin, TX.

Harrison, C. April, 2012. Spring Garden Show. New Orleans City Park.

Freytag, Ed and T. Madere. April 28 to May 5, 2012. American Wood Protection Association annual meeting. Nashville, TN.
Freytag, Ed, C. Owens, Guidry, E. May 20-May 23, 2012. National Conference on Urban Entomology. Atlanta, GA.

Timmy Madere. May 28, 2012. Participated and assisted in a Discovery Channel videotaping of termites, roaches and spiders. It was aired on the Science Channel. New Orleans, LA.

Riegel, C. Carrie Owens, Ed Freytag, Joyce Brown, Angelo Anderson, Timmy Madere, and Steve Ollar attended. July 19, 2012Bedbug Workshop on inspection and treatment. Presented by Dr. Dini Miller, Associate Professor at Virginia Tech University. Presented at Metairie Manor, Metairie, LA.

Freytag, Ed, J. Brown, S. Ollar, P. Smith, and J. Hamilton. July 23, 2012. Louisiana School IPM Coalition Workshop. Iberville Math Science & Arts Academy, West Campus. Plaquemine, LA.

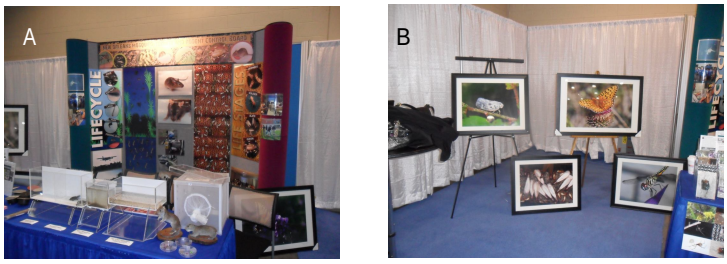
Freytag, Ed, King, P., C. Harrison. October 16-20, 2012. Pest World at the National Pest Management Meeting. Boston, MA

Dr. Carrie Cottone (Owens) and Mr. Eric Guidry attended the Annual Entomological Society of America Meeting in Knoxville, Tennessee from November 11-14. Dr. Cottone presented "Ability of Formosan subterranean termite colonies to survive prolonged inundation." Mr. Guidry presented his poster entitled, "Statewide survey documenting established colonies of the Formosan subterranean termite within Louisiana parishes" and was awarded first place in the undergraduate student poster competition for the President's Prize within the medical, veterinary, and urban entomology section.

Michaels, S. and P. King. December 4-6. Louisiana Mosquito Control Association Annual Meeting. Lafayette, LA.

PEST WORLD 2012 EXPO/BOSTON

NOMTCB Inspectors attended the Pest World Expo held in Boston, MA. NOMTCB had a booth to provide information regarding pest control and to promote the sales of concrete core caps, photos, and the Pest Control and Termite Academies (Figs. 42A, 42B).



Figures 42. A) NOMTCB 2012 exhibit display at NPMA. B) The photographs for sale were taken by Ed Freytag,

Community/Garden Show

NOMTCB inspectors participated in the 2012 Spring Garden Show at City Park Botanical Gardens on April 14-15, 2012. NOMTCB won first place in the Government Agency Division and third place in Design Excellence (Figs. 43 and 44).

Figure 43. NOMTCB display board was updated for upcoming shows.

Figure 44. Mosquito display used for garden shows.

Meeting and Continuing Education

Princeton King, Ed Freytag, and Claudia Riegel attended a 40-hour HAZWOPER class at Dillard University the week of January 9th. They are certified and can respond to pesticide spills.

Several NOMTCB inspectors attended The Wildlife Expo in Atlanta on February 9-12, 2012 to further education in wildlife control.

There have been several seminars and presentations presented at our administration office located at 2100 Leon C. Simon Drive, including a driver safety class, rabies and wildlife class, rodenticide rules and regulations updates, and a hantavirus class.

NOMTCB inspectors also attended The Greater New Orleans Pest Control Association re-certification class on March 22, 2012 to be re-certified. This is a class that all technicians are required to take to re-new their LDAF licenses. The class lectures included a presentation on general pests, commercial vertebrate, termite control and WDIR (wood destroying insect report).

Sarah Michaels attended the Arboviral working group meeting held at the Louisiana State University Veterinary School in Baton Rouge, LA.

The NOMTCB and the Greater New Orleans Pest Control Association Termite Academy was held February 7-9th. Dr. Nan-Yao Su (University of Florida) and Dr. Peter Lacks (Fig. 45) (Michigan Tech. University) were two of our guest speakers and we had another successful academy.

Figure 45. Dr. Lacks discussed the anatomy of wood and the basics of wood treatments.

In August, Ed Bordes and Claudia Riegel traveled to Daegu, South Korea for the International Conference of Entomology. Claudia Riegel was invited by Dr. Su (University of Florida) to present in a symposium about area-wide termite management. The presentation was called, "Area-wide Termite Management in New Orleans, LA." At the meeting, they had the opportunity to meet with many researchers and cooperators.

Following the meeting, they travelled to Seoul to the Korea Forest Research Institute. Claudia Riegel was invited to present a seminar to their scientists (Fig. 46). The City of New Orleans Mosquito and Termite Control Board is one of the few municipal organizations that conduct termite work. We are unique in that we have a robust operational and research program. There has been much interest by other cities and governments about the French Quarter and Operation FullStop (USDA funded termite program).

Dr. Hey-rim Han (Fig. 47) sponsored our visit. We had the opportunity to meet with Dr. Dong-heub Lee and Dr. Won-Joung Hwang. They study *Reticulitermes speratus* which has caused tremendous damage to many of their ancient temples. The variety of effective products including baiting systems is not available in Korea at this time. The scientists very interested in the way we approach termite treatments in our historic structures.

Figure 46. Claudia Riegel and Ed Bordes spent time at the Korea Forest Research Institute. A group picture was taken after the seminar.

Figure 47. Dr. Hey-rim Han explains to Ed Bordes how they rear *Bursaphelenchus xylophilus* (pine wilt nematode) in the laboratory.

Figure 48. Dr. Dini Miller (right) and Molly Stedfast (graduate student) (center) giving a presentation on how to set up and use the dusting equipment.

Bed bug training

In July, members of our organization were invited to participate in training sessions on novel bedbug treatments using diatomaceous earth. Members of NOMTCB that took part in this training included Dr. Claudia Riegel (Director), Dr. Carrie Owens (Research Entomologist), Mr. Ed Freytag (Research Entomologist), Mrs. Joyce Brown (Rodent Supervisor), Mr. Angelo Anderson (Pest Control Inspector 4), Mr. Timmy Madere (Pest Control Inspector 4), and Mr. Steve Ollar (Pest Control Inspector 2). The presentations were given by Dr. Dini Miller and her graduate students from Virginia Tech (Fig. 48).

Figure 49. Inspecting and treating a sofa for bedbugs.

This treatment involved dusting baseboards, light switches, and ceiling voids with diatomaceous earth within a community living center that had a recent history of bedbug infestations (Fig. 49). Diatomaceous earth has been used in novel treatments of several pest insects. It is a dust that is non-toxic to humans, but is capable of scratching the outer wax layer of an insect's body, causing the insect to lose water, desiccate, and die. Learning novel methods of bedbug treatments is of increasingly great importance, as bedbugs gain more notoriety as an urban pest and become more resistant to traditional treatment methods.

Centers for Disease Control and NOMTCB two day workshop

Captain Mike Herring, Captain Mark Miller, Martin Kalis, and Vince Rathke from the Centers for Disease Control partnered with NOMTCB and the Greater New Orleans Pest Control Association to hold a two day public health workshop. The focus was on vector management, water management, and food safety after a disaster. Participation by environmental health workers was excellent. Nearly sixty people were present for the workshop each day.

Publications

Non-peered review:

Martin, Gerald, Harrison, C., Nguyen, M., Sackett, S., Thompson, G., Carroll, M. and Riegel, C. The New Orleans Experience: Using Gambusia to Control Mosquito Larvae in Abandoned Swimming Pools. Wing Beats, Vol 23, No 1; 27-35. http://wingbeats.floridamosquito.org/WingBeats/pdfs/Vol23No1.pdf

Peer-reviewed:

Owens, Carrie, N.-Y. Su, Husseneder, CE., Riegel, C. and Brown, KS. 2012. Molecular genetic evidence of Formosan subterranean termite (Isoptera: Rhinotermitidae) colony survivorship after prolonged inundation. Journal of Economic Entomology. 105: 518-522.

Moise, I. K.S. Brown, C. Riegel, E. Kalipeni, and M. Ruiz. 2012. Geographic Assessment of unattended swimming pools in post-Katrina, 2006-2008. Annals of the Association of American Geographers. In press: 1-16.

Abstract

Characterization of the resurgence of West Nile Virus in New Orleans, Louisiana 2012

SR Michaels[1,2], DM Chisenhall[3], RC Christofferson[3], C Riegel[1], DM Wesson[2], CN Mores[3]

[1]City of New Orleans Mosquito and Termite Control Board, New Orleans, LA,

[2]Tulane University, Department of Tropical Medicine, New Orleans, LA,

[3]Louisiana State University, Department of Pathobiological Sciences, Baton Rouge, LA.

In April 2012, West Nile virus (WNV) was detected in *Culex quinquefasciatus* collected from Orleans Parish, the earliest detection of the virus in the parish since its introduction in 2002. *Culex quinquefasciatus* population numbers were above average following a mild winter, early spring and near-drought conditions. By mid-June, overall minimum infection rates were 14.62, virus was detected at 14 of 25 trap locations throughout the city and the evidence for differential efficiency in vertebrates. This report evaluates the impact of higher than average early season temperatures and genomic variations on the resurgence of WNV incidence in New Orleans, LA.

National Television

In January, a film crew from the Discovery Channel was here to film a show called "Insects in the City." They called upon the expertise and knowledge of the NOMTCB to aid in their project. Technical advice and support was provided by Director, Dr. Claudia Riegel, Termite Supervisor, Ed Freytag, Mosquito Supervisor, Sarah Michaels, Pest Control Inspector IV, Eric Guidry, and Timmy Madere. The show aired December 8, 2012 on the Science Channel.

Community Service

NOMTCB and members of the Greater New Orleans Pest Control Association assisted in the inspection for bed bugs at the Ronald McDonald House on Canal Street (Fig. 50). A monitoring program was initiated and bed covers were donated.

Figure 50. NOMTCB inspectors participated in bed bug inspection at Ronald McDonald house.