NEW JERSEY MOSQUITO CONTROL ASSOCIATION, INC. NEWSLETTER

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The History Of THE WARREN COUNTY MOSQUITO EXTERMINATION COMMISSION

The Warren County Mosquito Extermination Commission (WCMEC) was established on October 18, 1956 by Warren County Freeholder resolution. The first president of the Commission was Herman Shotwell. Work commenced in 1957 with a $ 2,000 budget. The initial focus was to initiate water management projects in Oxford and Hope Townships and to alleviate adult mosquito populations with truck mounted fogging equipment. The townships were billed for 50% of the costs of these operations. By 1959 a thermal fogger was used for adulticiding utilizing part time labor.

The first water management project, Cat Swamp, started in 1960 in Oxford. A contractor was hired at $12/hr (equipment and operator) to do the ditching. By 1961 contracted aerial spraying of wetlands for larval control was initiated at a cost of $1/acre. The N. J. Division of Fish and Game set up caged trout in nearby streams to monitor non-target effects of spraying the swamps. The first WCMEC vehicle was a used road department truck purchased from the Freeholders for $500 in 1960. Throughout the 1960's seasonal employees were utilized to run the fogging machine while water management projects were completed with contracted equipment and operators. No full-time permanent staff was on board at the time. Throughout the first decade of the WCMEC, Dr. Hagmann and Dr. Pepper of Rutgers University were instrumental in assisting the Commissioners in the development and guidance of the mosquito control program in Warren County. The Soil Conservation Service provided engineering services for water management projects while the State Mosquito Control Commission (SMCC) provided funding and assistance for some projects. In 1969 some prehistoric elk bones (the second most complete skeleton ever found) were unearthed while doing a project in Knowlton Township and are now housed in the Museum of Natural History in New York City.
By the 1970's the project load increased to the point of hiring a part time supervisor of projects. Herb Van Kirk was hired in 1971 through the Emergency Employment Act. In 1972 the Freeholders made this position full-time. In 1977 William Nagle replaced H. Van Kirk as superintendent. In a freak turn of events W. Nagle was shot and killed by a sniper while jogging near his apartment shortly after he was hired. Everett Chamberlain was hired as superintendent in the fall of 1977 to replace W. Nagle. Throughout the 1970's the main focus of the Commission continued to be water management, aerial larviciding and thermal fogging. Part time laborers were hired to assist the superintendent. The WCMEC budget was $40,000. In 1979 E. Chamberlain resigned as superintendent to take a position as Warren County Agricultural Agent and later returned to serve on the Commission itself. Greg Sipple replaced him.

Starting in the early 1980's the water management program was beefed up with the acquisition of a John Deere 350C bulldozer, a Bantam Crane and a Spryte tracked vehicle through the SMCC Equipment Use Program. A full-time equipment operator, Ralph Longyhore, started in 1981. By 1983 the WCMEC budget was $89,000 and a full-time biologist, Bruce O'Reilly, was hired to do the biological sampling that was previously done by Rutgers University. A new 4WD vehicle and a used dump truck were added to the Commission fleet in 1981. The Commission's primary focus remained with water management, adulticiding, which had evolved to ULV spray generation by 1980, and it increased attention to hand larviciding. Aerial larviciding waned during the mid 80's. In 1985 Bruce O'Reilly succeeded Greg Sipple as superintendent and Christine P. Musa was hired as biologist. Various facility changes occurred throughout the 80's with the Commission office located within the County Engineers Office, "Carriage House", Soil Conservation, County

Library Annex, Road Department and finally, in 1988, to our present location in Oxford, NJ in a garage facility once occupied by the County Road Department. In 1985, when our operation moved to the county Road Dept. building, secretarial support was provided by a shared secretarial position with the Department of Weights and Measures. In 1986 Commissioner Duane Copley served as interim superintendent following the departure of B. O'Reilly. C. P. Musa was promoted to superintendent in December of 1986. Seasonal Lab/Field positions were created in 1987 to increase the collection of biological data and bolster the hand treatment of breeding sites. Tom Risch filled the biologist position in 1987 and was succeeded by Robert Duryea in 1988. Randy Buckenmyer filled a full-time inspector position in 1988. The Freshwater Wetlands Act of 1988 greatly limited our water management program. In 1989 the first *Gambusia affinis* were released in Warren County. By 1989 the WCMEC budget had increased to $183,600 and the Commission received its first computer (used), and the SMCC provided a new high power microscope and illuminator for our surveillance program.

The 1990's commenced with a heightened effort in public education, hand larviciding, aerial larviciding, and Gambusia affinis stocking of breeding sites. The shared secretarial position was converted to a full time secretary filled by Linda Dickson in 1990. The SMCC owned Spryte tracked vehicle was transferred to Sussex County in 1990. In 1992 a SMCC owned Koehring Excavator was transferred to the WCMEC from Gloucester County and a twenty-ton trailer was provided for our use, while the Bantam Crane was returned to the SMCC. A new office facility was constructed and occupied in 1992 at the Furnace Street site in Oxford N J. As a result of development in the county throughout the 90's there has been a significant increase in the number of breeding sites treated for larval mosquito control. Consequently, there was an increase in seasonal staff to three lab/field assistants. In 1998 a seasonal water management position was created to help with the necessary permitting process. Throughout the 90's many aging vehicles were replaced, spray equipment was upgraded and the computor was also replaced. Presently the fleet is comprised of five 4WD trucks and one tandem dump truck.

The number of breeding sites has increased dramatically over the years from less than 100 in the early 1980's to over 400 by 1992 to over 700 presently. Woodland pools, swamps, ditches and storm water facilities are our primary focus areas. These sites are treated with a variety of products, but the majority of the sites are treated for larval control with aqueous *B.t.i.* and *Gambusia affinis* by ground crews and granular *B.t.i.* and temephos aerially. In September 1998 the death of an exotic pheasant in Pohatcong Township from EEE was the first recorded EEE case in Warren County. By 1999 the WCMEC budget was $328,654. The Commission is comprised of at least three members who have served on Boards of Health and currently includes a County Freeholder, the County Health Officer, a State Department of Agriculture Veterinarian and members with environmental and business backgrounds. Michael Sloane has chaired the Commission since 1987. The Commission operates with five full time staff members: Superintendent, Entomologist, Heavy Equipment Operator, Inspector, Secretary and four seasonal employees.

Robert Duryea, Entomologist, Warren County MEC

An Update on the Distribution of *Aedes japonicus* in the Northeast

The known geographic range of *Aedes japonicus* has been considerably expanded since its recognition as an introduced exotic last fall. The first United States records were taken in New Jersey light traps in 1998 at two widely separated areas in the northeast. The Ocean County. Mosquito Commission collected a single adult female near Colliers Mills in the New Jersey Pine Barrens during the month of September. At about the same time, the Suffolk County. Department of Health Services collected 3 females from two areas on Long Island. Since that time larval populations of *Ae. japonicus* have been located in four different New Jersey counties. Ted Andriatus located larval populations in two tire dumps in Connecticut earlier this year indicating

that the species is established well to the north. More recently, Ben Pagac of the Army Center for Health Promotion and Preventive Medicine reported *Ae. japonicus* in ovitrap collections from an Army base near Chambersburg, PA. This expands the known range of *Aedes japonicus* by a considerable margin and indicates that breeding populations of the species are established from the Mason-Dixon line north into New England.

Larval collections from New Jersey suggest that *Ae. japonicus* has invaded a wide range of container habitats in the state. The mosquito was particularly abundant in automated watering devices at several Standardbred horse farms near New Egypt in Ocean County. Expanded larval surveillance showed that the species was fairly common in a variety container habitats in the Ocean/ Monmouth County area. To date, *Ae. japonicus* larvae have been taken from tires, metal cans, tarpaulins, plastic pipe and milk cartons. The most common associate species in the containers include *Aedes triseriatus, Culex restuans, Aedes atropalpus, Culex pipiens* and *Anopheles punctipennis*. During the month of June, a sizeable infestation was detected in a lake community in Vernon, Sussex County. Larvae were originally found breeding in water that had collected on a tarpaulin used by the road department to cover a pile of sand. Expanded surveillance indicated that the species inhabited virtually every artificial container available in an area of at least 10 mi2. When treeholes in the vicinity were purposely flooded, virtually all yielded sizeable collections of Ae. japonicus larvae. The most recent report of Ae. japonicus comes from Bergen County where larvae were collected from a birdbath and reared through to the adult stage. This documents breeding populations from four New Jersey counties to date, including Ocean, Monmouth, Sussex and Bergen.

It would appear that Ae. japonicus is well established and has probably been established for some time. A number of behavioral characteristics have apparently allowed the mosquito to go undetected. The species is reluctant to enter light traps and, therefore, evades New Jersey's primary surveillance tool. It does not appear to be an avid human biter, which masks its presence even more. The mosquito closely resembles Aedes atropalpus in the larval stage and shares larval habitat with that container breeder. Two of the counties that have documented the species to date originally identified the larvae as Ae. atropalpus. When the adults were reared they were recognized as exotics. All of these characteristics appear to have contributed to this introduced mosquito becoming established over a fairly broad geographic range. Continued surveillance will, undoubtedly, reveal additional anomalies.
Dr. Wayne J. Crans, Mosquito Research & Control, Rutgers University

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FAQ's on Mosquitoes
Where do mosquitoes go in the winter? Mosquitoes like all insects are cold blooded creatures. As a result they are incapable of regulating body heat and their temperature is essentially the same as their surroundings. Mosquitoes function best at 80 deg F, become lethargic at 60 deg F and cannot function below 50 deg F. In tropical areas, mosquitoes are active year round. In temperate climates, mosquitoes become inactive with the onset of cool weather and enter hibernation to live through the winter. Some kinds of mosquitoes have winter hardy eggs and hibernate as embryos in eggs laid by the last generation of females in late summer. The eggs are usually submerged under ice and hatch in spring when water temperatures rise. Other kinds of mosquitoes overwinter as adult females that mate in the fall, enter hibernation in animal burrows, hollow logs or basements and pass the winter in a state of torpor. In spring, the females emerge from hibernation, blood feed and lay the eggs that produce the next generation of adults. A limited number of mosquitoes overwinter in the larval stage, often buried in the mud of freshwater swamps. When temperatures rise in spring, these mosquitoes begin feeding, complete their immature growth and eventually emerge as adults to continue their kind.
Dr. Wayne J. Crans, MR&C, Rutgers University

PEOPLE IN THE NEWS

Bergen County: Victor Deserio took Dr. Crans' course in mosquito identification and passed the test with a grade of 100%. *Ae. japonicus* is now present in Bergen County - it was collected in Montvale. Division of Mosquito Control employees John Kaffenberger, Ann Maria Grisafi (33 years) and Savino Grootenboer (33 years) received the NJMCA 25 year service award at the 86th annual meeting this past March.

Essex County: Mark DiDomenico, Superintendent Essex County Mosquito Control, got married on July 24th .

Gloucester County: Wayne Wurtz's wife gave birth to the couple's 2nd child recently - another boy. Wayne is an inspector for Gloucester County Mosquito Control.

Union County: Otha Holmes, supervisor and Ernest Testa, Bureau Chief of the Bureau of Mosquito Control both received the NJMCA 25 year service award at the 86th annual meeting of the NJMCA.

DR. LOUIS VASVARY-1930-1999

Dr. Louis Vasvary, Extension Specialist in Entomology at Rutgers University, died May 22, 1999. Lou was a great friend to "mosquito control in New Jersey", one who fully recognized the complexity of our profession, dealing as it does with a multitude of species, habitats, and control options. As an Extension Specialist he had broad responsibility for insect pests of households, landscape (trees, shrubs. and turfgrass), and non-mosquito insects affecting humans (e.g. lice).

Lou offered his knowledge by letter and telephone to individual citizens who sought his advice about their insect problems, and he interacted with many professional organizations and industry. Before retiring in 1994, he had received awards in recognition of research, scholarship and/or achievement from the Arborists Association of NJ, NJ Pest Control Association, NJ Christmas Tree Association, NJ Shade Tree Federation, Pesticide Association of NJ (1989 Distinguished Service Award), Rutgers Cooperative Extension, and NJ Turfgrass Association (1989 Hall of Fame Award). He also was honored by the Rutgers Turfgrass Alumni Association.

In 1952, he was drafted into the Army, where he served with both the 45th Infantry Division and the 933rd Anti-Aircraft/Automatic Weapons Battalion during the Korean War. After his military service, he entered graduate school at Rutgers where he earned an MSc. and a PhD. His PhD. thesis, with Dr. John Schmitt as advisor, was titled "The Musculature and Nervous System of the Thorax, of the Sound Mechanism of a Typical Pregenital Abdominal Segment of the Male of the Annual Cicada, *Tribicen chloromera* (Walker)". Dr. Schmitt, a renowned morphologist and teacher, was the first entomologist to detect DDT resistance in houseflies in the 1940s. Such are the variety of interests an entomologist may have.

Lou was an avid fisherman and for many years taught an undergraduate course at Cook College, Rutgers , "Entomology for Anglers" focused on those insects which are the food of and a lure for fish.

Surviving are his wife, Catherine, and a daughter, Amy Louise.

D. J. Sutherland, MR&C Rutgers University, Retired

JOB ANNOUNCEMENT

Entomologist II: Typical duties include but are not limited to responsibility for the District's mosquito surveillance, sentinel chicken testing and tick testing programs, other vector surveillance and scientific evaluation of the District's chemical and biological control programs. Duties also include mosquito and tick ID, training field personnel in mosquito and tick ID, ability to take direction and work well with fellow employees and the public, prepare reports, make presentations and complete other assigned tasks as the District requires!

SALARY RANGE: $2,992 - $4,212 / month ($35,906 - $50,544 / year)

TO APPLY: Send a cover letter and resume including five personal references to Butte County Mosquito and Vector Control District, 5117 Larkin Road, Oroville, CA 95965-9250

APPLICATION PERIOD: Beginning June 25th, 1999 and will remain open until the position is filled.

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5 Questions With Dr. George C. Hamilton

1.) *What's keeping you busy this summer?* "I've been working in conjunction with the Department of Agriculture to develop IPM guidelines for growers, to establish criteria for grocery store chains that want to label goods as IPMGrown. Also, we've been looking at the impact of different flowers on predators of the Azalea Lace Bug."

2) *What's the C. stand for in your name?* "Craig."

3) *What's your favorite, or most respected insect?* "My favorite insect would be the mayfly, or mayflies as a group. Most respected would be the Colorado Potato Beetle, because just when you expect it not to do something, it does."

4.) *What would you like to be doing more of?* "I'd like to be doing more research in the field. But I am looking forward to teaching this fall." (Dr. Hamilton will be teaching both Entomology for Anglers, and Agricultural Entomology & Pest Management).

5) *What insect is best suited to be a comic book super hero?* "The praying mantis."

UPCOMING MEETINGS

For Info: www.mosquito.org
Or visit: www.rci.Rutgers.edu/~insects/njmos.htm

Society for Vector Ecology, 31st Ann. Conference, October 3-6, 1999, Radisson Hotel, Ashville, NC, For Info: Dr. Major S. Dhillon, (909)340-9792 Fax(909)340-2515

Pennsylvania Vector Control Assoc., October 13-15, 1999, Four Points Sheraton, Chambersburg, PA, For Info: Carmen Reichard (724)962-5787, or Jacquelyn Hakim (570)420-3525

Northeastern Mosquito Control Association Meeting, December 6-8, 1999 at the John Carver Inn, Plymouth, Massachusetts (incorrectly listed in the June issue of VectorBytes (Van Waters and Rogers) as September 26-28).
Come to the meeting and enjoy not only a great program, but a warm, cozy hotel on the shore of Plymouth Bay. There's lots to do in town including historic sites, the Ocean Spray museum, the "Mayflower II", Plymouth Rock, the Wax Museum, shopping and nearby Plimouth Plantation. Contact Ray Zucker, Secretary for more details (781) 585-4828 or visit www.nmca.org

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MOSQUITO WEEK 1999

The New Jersey Mosquito Expo '99, an NJMCA sponsored event to celebrate National Mosquito Control Awareness Week was held on Sunday, June 20th starting at 10:00AM at the North Pavilion at Island Beach State Park, Seaside Park, Ocean County. More advanced planning and preparation provided added organization to this educational effort and the set-up, displays, demonstrations and subsequent break-down went smoothly.

Thirty six representatives were present from the following agencies/organizations to make this event possible: Atlantic, Camden, Cape May, Middlesex, Monmouth, Morris, Ocean, Sussex and Warren Counties, Rutgers Entomology, the State Mosquito Control Commission, NJ Division of Fish Game and Wildlife, and Wellmark, Intl. Officers of the NJMCA, AMCA and the Associated Executives of Mosq. Work in NJ were in attendance. Representatives from Island Beach State

Park were helpful as host of this event. Thank you to all who came and contributed time and effort that day, especially in light of the fact that it was also Father's Day.

A distribution company was used for the first time to get the press release to the media. For a reasonable fee, the press release was put into standard format and sent to all daily and weekly newspapers, television and radio contacts throughout the state and neighboring large cities (Philadelphia and New York) by the means (fax, hard copy etc.) desired by each contact. This was a tremendous time saving measure. Names were added to the press release and those individuals were contacted for additional information on the event etc. when desired by the media source in addition to contact made with Ocean County MEC for mosquito information in general. The event was filmed by and aired on News 12 New Jersey. Reporters came from the Philadelphia Inquirer and the Asbury Park Press, which resulted in articles. Local press coverage included more newspaper articles, television coverage (some using archival footage) and radio interviews.

The new NJMCA canopy made its debut providing the necessary cover for displays including the live mosquitoes from Rutgers, literature contributed from around the state, Union County's mounted NJ Light Trap and a Mosquito Week proclamation from Governor Whitman. Also set up was a tent with aquariums of various larvivorous fish, a transfer demonstration of *Gambusia* from the Fish & Game fish truck to a transfer tank on a Monmouth County MEC truck, Ocean County MEC's helicopter, and buzzer board game and Wellmark's briquet toss, Alice Crans' (with Topaz) heartworm display and demonstrations, Warren County MEC's mosquito life cycle bean bag toss and tent with an equine encephalitis display & mosquito coloring station, Atlantic County tent with samples under the microscope and nice photo display on a wooden backdrop, Cape May County MEC's dipping pools, all-terrain vehicle and tent with light traps and literature, and Camden County MEC's hovercraft with gutter and tire displays. Face painting was provided free of charge. Also, the winning posters from the NJMCA 1999 statewide poster contest were on display and four winners came to the event with their families for the presentation of their awards by NJMCA President Judy Hansen.

While the park was packed on the day before, overcast skies and a rainy forecast kept large crowds away the day of the Expo. Contact was made with many state residents though and the media coverage reached many more. Plans are in place to have the event in the same location in 2000 on the first day of "National Mosquito Control Awareness Week" which is Sunday, June 25th and will mark the 100th anniversary of Major Walter Reed's historic research. Submission has also been made to have the event publicized in the various state publications (NJ Calendar of Events etc.) for the year 2000.
Christine Musa, Warren County MEC

TIPS AND TECHNIQUES
Searching the Internet
I sometimes spend hours trying to find information on the World Wide Web. Are there any tips for using search engines to get better results?
The sheer volume of information on the web is, by its very nature, cumbersome and unwieldy. Users have turned to search engines such as Alta, Vista, Lycos, and Netscape to help them sift through the mountains of information. Unfortunately some people find that the searches turn up many unrelated sites and miss other valuable sources.
With the aid of the following searching syntax, you should see dramatic improvements in your results.

1. The use of quotations denotes a phrase expression which requires that all the words within quotes must be matched at a website to produce a hit.
2. Use of the word OR between two words or phrases will produce all sites with a match to either

one of the words or phrases.
3. Use of the word AND between two words or expressions will produce sites that include both words or expressions.
4. Parenthesis are used to organize a complex search. For example "labor (or labour) AND union" will produce a different result than "labor union" or "labour union."
5. The asterisk symbol will allow searches to contain incomplete words. For example, a search for imag* will yield results for sites with the word image, imagine, imagination, imaging, images, imagery, etc.

Each search engine has its own searching technique, so the same search may return different results on different engines. If you do not get the information you are seeking in the first three pages of results, you can:
1. Try a different engine
2. Redefine your search
3. Try a multiple search engine site such as Internet Sleuth and MetaCrawler which run a search across five or more search engines simultaneously.

These tips should make your future searches more productive.
Rod Schmidt, Superintendent, Middlesex County MEC

A DROUGHT EMERGENCY with an *Aedes vexans* EMERGENCY...?
After having no significant rain in weeks, we had a sudden rash of complaints from the public. Fortunately, our adult monitoring is widespread and showed a simultaneous increase in *Aedes vexans* in a New Jersey Light Trap. As mosquito control workers, we all know how important it is to manage this mosquito - the number one problem species in the Fresh Floodwater Group. With the complaints confirmed and species identified, it was time to find the source of the problem - but where do large quantities of fresh water come from, every few days, when it isn't falling from the sky? A good inspector should never overlook the obvious and so our inspector went to the city water department nearest the problem. Sure enough, the city had a contractor repairing some of the wells in the woods behind the plant and their schedule for flushing the system resulted in periodic flooding and drying down of larval habitat favorable to the synchronous hatching of successive broods.
So while it isn't raining, you can have someone give you a few million gallons of water when you least expect it.
William McCombs, I.D. Specialist, Camden County MEC

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40 Years Ago
? July 20 - Pheasant flock deaths observed. Continue till Oct. 23rd - killing hundreds of birds in 10 counties.
? August 6 - Horse deaths begin - 56 horses in 12 counties ill - 4 survive - last case October 14th .
? August 17 - First human case of mystery disease
? September 23 - "A mysterious affliction has claimed 13 victims in southern part of state in the last 10 days - six have died." N.Y. Times
? September 24 - US Public Health Service orders two physicians and a veterinarian to aid state.
? September 25 - State Dept. of Health confirms human illnesses and deaths due to Eastern Equine Encephalitis. Intensified mosquito spraying by plane and truck in effected regions.
? October 15 - Last human case in 6 county area brings death toll to 2l.
- New Jersey in 1959 -
Howard Emerson, Superintendent, Camden County MEC

Aedes excrucians (Walker)
By Dr. Wayne J. Crans, Rutgers University

AMCA REPORT
Martin S. Chomsky North Atlantic Regional Director
There are a lot of things happening with the AMCA. I am pleased to report that New Jersey is an important part of the action. We were the only State or Regional coalition to have submitted a proposal to house the central office of the American Mosquito Control Association. This doesn't mean that we will become the host state for the AMCA. We are one philosophy (having your own employees with perhaps an Executive Director) competing against twelve association management companies. As a member of the options committee, I am presently involved in reviewing the management company proposals. Our role is to furnish the BOD the three best proposals. These will be evaluated by the BOD at the interim BOD meeting, which will be held from September 23, 1999 to September 26, 1999 at Bally's Park Place Hotel, Atlantic City. Bill Zawicki has indicated that the Friday session (9/24/99) will be dedicated to exploring the future of AMCA, including a lengthy discussion on management options. All members are invited to attend this session.

On behalf of the partnership consisting of Rutgers, the State University of New Jersey (RU), Cook College, Rutgers Cooperative Extension, the New Jersey Agricultural Experiment Station (NJAES), the New Jersey State Mosquito Control Commission (SMCC), the New Jersey Mosquito Control Association (NJMCA), Associated Executives of Mosquito Control Work in New Jersey (AEMCWNJ), the New Jersey State Office of Mosquito Control Coordination (OMCC) and the twenty county mosquito control agencies of New Jersey, I am pleased to propose the relocation of the Central Office of the American Mosquito Control Association (AMCA) to Rutgers University, New Brunswick, New Jersey.

The proposal includes the provision of approximately 1,500 square feet of office and meeting room space plus necessary storage space for archival material. This offer of space would include heat and electricity. It is my understanding that the intention is to make Rutgers a permanent home for AMCA and to that end RU would be willing to negotiate additional terms to the agreement.

Obviously the relationship between RU and the AMCA would result in additional prestige for both organizations. Ideally, having the AMCA located on the campus of RU would attract more potential mosquito researchers to Rutgers, and the AMCA would benefit by having a higher degree of professional appeal by being on the campus of a major university.

New Brunswick, New Jersey, is on the northeast metropolitan corridor that links Boston to Washington, DC. In addition to its central location, New Jersey offers accessibility to a talent pool of potential Executive Director (E.D.) level individuals. Certainly a supply of adequate housing exists if the E.D. would relocate from another area of the country.

The AMCA is fortunate in that two Past Presidents of the Association, Dr. Don Sutherland and Judy Hansen, plus our current President, Bill Zawicki are from New Jersey. These individuals are still important presences in organized mosquito control activities. There are also numerous former and current AMCA committee chairs, regional directors and committee members who have expressed an interest in volunteering their services to AMCA on a limited basis. Each of them has a wealth of historical knowledge about AMCA and would certainly offer their time and

expertise in their respective areas without cost to the AMCA in order to assure the orderly transition of the Association.

Rutgers University has a long history of a strong educational program in entomological research (see Appendix II). It is where Dr. John B. Smith wrote the first mosquito control laws in the United States. Rutgers continues to be a major presence in Mosquito Research and Control offering degrees in entomology. There are presently a significant number of students pursuing advanced degrees in mosquito research. In addition to the commitment of the Department of Entomology we also offer the vast resources of Rutgers Cooperative Extension and the NJAES. The NJAES and Rutgers Cooperative Extension are under the direction of Dr. Bruce C. Carlton, one of the researchers responsible for the development of Bti.

The Rutgers management team is impressive. In addition to Dean Carlton, Dr. George C. Hamilton is Chair of the Department of Entomology. Dr. Wayne J. Crans is the Director of Mosquito Research & Control. Dr. Zane R. Helsel is the Dean of Outreach and Director of Cooperative Extension. Dr. Thomas J. Orton is the Director of Department of Extension Specialists and the NJAES representative to the NJ SMCC. The University is committed to an expanded role in applied and biological mosquito and vector research.

New Jersey is the initial home of organized mosquito control in the United States. The first statewide association of mosquito professionals, NJMCA, was founded in 1913 (see Appendix II). It should also be pointed out that the Eastern Association of Mosquito Control Workers, which eventually became the AMCA, was founded in Atlantic City in 1935. The first President of that association was Dr. Thomas J. Headlee, Chair of the Department of Entomology, Rutgers University.

We continue to have two very strong state associations that are prepared to assist in the establishment of a viable AMCA headquarters facility. The NJMCA and AEMCWNJ members are willing to financially support the orderly transition and relocation of the current central office from Lake Charles, LA, to New Jersey. New Jersey will also provide the supplies and sweat equity necessary to configure the space to AMCA requirements.

Upon a cursory review of the AMCA budget it is apparent that the relocation of the association to RU would result in an immediate cost savings to the AMCA of at least $25,000. These funds could be used to augment the funding for whatever management option the Board of Directors (BOD) decides to implement or simply to reduce the annual operating budget.

WHAT AND WHEN IS MOSQUITO DAY?

The following bit of information was taken off the internet (Mosquito-L) during an international discussion on "mosquito day".

For those who don't know, August 20th was named Mosquito Day by Ronald Ross.

On this day in 1897, in Secunderabad, India, Ross dissected anopheline mosquitoes which had fed on a malarious patient called Husein Khan on August 16th. From August 17th-21st, Ross dissected the mosquitoes, and on Aug 19th identified some 'peculiar vacuolated cells' on the stomach of the mosquito. The next day (20th) he dissected another mosquito, and found many of these cells on the stomach wall of the mosquito. He concluded that these were the malaria parasite stages in the mosquito (we now know them as oocysts).

The significance of this is that until then, no-one had any idea of how parasites in the blood of malarious patients was transmitted via mosquitoes. There were many theories - for example that infected water carried the parasite from drowned mosquitoes into people when they drank it.

Further experiments by Ross showed that the oocysts contained sporozoites, which later on appeared in the salivary glands, and that these salivary gland parasites were able to produce

malaria infection (in this case, of birds). It is for this work that Ross was awarded the Nobel Prize for Medicine in 1902. There is a plaque commemorating the discovery in Secunderabad.
You can find out more about Ronald Ross in the biography written by Ted Nye and Mary Gibson: Ronald Ross: Malariologist and Polymath, pubd. 1997 (Macmillan Press, UK).
Lisa Ranford-Cartwright, Ph.D., University of Edinburgh, Institute of Cell, Animal and Population Biology, King's Buildings, West Mains Road, Edinburgh, Email: L.ranford-cartwright@ed.ac.uk

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Tools of the Trade

Twin engine Aztec applying larvicides to large areas.

Amphibious rotary excavator doing Open Marsh Water Management for mosquito control on salt marsh.