

NEW JERSEY MOSQUITO CONTROL ASSOCIATION, INC. NEWSLETTER

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Dear NJMCA Member: You have been directed by your state to protect your citizens and visitors from mosquito annoyance and disease. If you accept this task you will receive praise from some people and criticism from other individuals who do not know or want to know the value of your work. Additionally, they are not aware of the very strict rules and regulations under which you perform your duties. By your acceptance of this task you acknowledge that you must prove your professionalism through continuing education and acquisition of appropriate licenses. You must also acknowledge that after you have proven your professionalism it will often be overlooked or forgotten the minute you leave the room from a meeting with a critic. Your job at times will have all the trappings of a "Mission Impossible".

We as a community of professionals have faced many challenges in recent years from our critics, many of them self-proclaimed "environmentalist". Many use this word to hide behind, while in reality they are people against the use of insecticides that protect our environment and yes, their quality of life. They, as full time lobbyists, have distorted the truth and cited as "scientific" research questionable findings on the dangers of pesticides and even more recently attacked the use of certain biological control agents as possibly "laying waste to wetlands" throughout the country.

In some instances we even have to deal with the learning curve of our fellow county, state and federal workers. We have for many years thought that doing a good job was sufficient to protect us, to allow us to weather the proverbial storm, the hurricane. The storm we are presently in is not a hurricane that comes and goes relatively quickly but a nor' eastern that pounds you for a much longer period of time. In this case since 1999, going into its third year. Am I making too many analogies? For some yes. For others I hope no.

Even with our work being under attack we know how to survive through our professionalism. I'm not telling you anything you don't already know. For the presenters among us it may involve many more speaking engagements. It involves polishing up our presentations. It doesn't necessarily mean learning new facts, but rather ways in which to present what we already do in a more easily understood manner. For the field people it is having a thorough knowledge of the job and an appearance of professionalism. First impressions are very important and can last a life time.

We need to be constantly reminding ourselves that the general public doesn't know mosquito biology, pesticide chemistry, water management, biological control, source reduction or the importance of surveillance. We need to tell them that we as an

organization, have been practicing integrated pest management before it became known as IPM. Look back at our early proceedings, it is all there.

We have to educate the public so they can tell the difference between a mosquito and another insect. How many times have we heard, "I caught a giant mosquito! I'm sure it is the horrible *Ochleratatus motherbearis*". The horror turns out to be a crane fly.

The opposition is using the public's lack of knowledge against us. The effort we, now and into the future, put into education will pay off many times over. Teach a person what good mosquito control is and you have an ally for life and a supporter. Adulticide their neighborhood for the control of mosquitoes without doing education before hand and it is a toss up. You can talk them down from their anger after the event and possibly make them neutral, or possibly lose them altogether turning them into the opposition because you did not do your homework.

I started out with an attempt at humor and a comparison with the old television series, "Mission Impossible". I truly do not think we have a Mission Impossible situation but we are in a situation that has generated a lot of public relations pressure and the need for educating the public.

Call Rutgers. Call the Office of Mosquito Control Coordination. Call each other. Our strength is in our unity. Use it.

May you all have a good summer.

Rod Schmidt President, New Jersey Mosquito Control Association, Inc.

NEWS FROM THE 88TH ANNUAL MEETING OF THE NJMCA, Inc.

25 Year Service Award: The 25-year service award was presented to **Douglass Guthrie** and **Martin Chomsky**, Monmouth County MEC, **Frank Kracun**, Somerset County Mosquito Control, **Oscar Hutchins**, **Phillip Molinari**, **Mark DiDomenico**, **Lawrence Ferchak**, and **William Evans, Jr.**, Essex County Mosquito Control, **Theodore Piantanida**, Bergen County Mosquito Control, **Elliot Dickman** and **Nicholas DePalma**, Camden County Mosquito Control, **Robert Kent** and **Dr. Leonard Spiegel**, NJ State Mosquito Control Commission, **David S. Adam**, New Jersey Dept. of Health, **Richard Candeletti**, Ocean County MEC.

12 Year Achievement Award: This year the Achievement award was presented to two professionals in the mosquito control family. These individuals have at least twelve years in mosquito control and are about to retire, and they are: **German Mora** of Somerset County Mosquito Control and **Joseph J. Roop** of the Cape May County Mosquito Control Commission.

"Bunnie Hajek" Award: Peter E. Pluchino, Jr. was honored as the recipient of the Association's "Bunnie Hajek" Award. Peter, now in his 30th year of service to the Bergen County Mosquito Control Program, was promoted to Division Director of that program on March 1, 2000. He continues to carry out his many duties and responsibilities in the same quiet, unassuming manner, despite intense public and media scrutiny. It is an honor to have such a dedicated, professional upholding the standards of the New Jersey Mosquito Control Association.

Jessie B. Leslie Award: Marc Slaff, President of the Associated Executives of Mosquito Control Workers of New Jersey presented the Associated Executives "Jessie B. Leslie" award to **Martin Chomsky** at the NJMCA's annual business meeting March, 2001. The award was presented to Marty for "meritorious service" to mosquito control work. Marty was honored for, amongst other reasons; working diligently to improve communications (encouraged the establishment of the list serve ARBO_BYTES); keeping abreast of legislation affecting the mosquito control community; serving as active liaison between AMCA and New Jersey mosquito control professionals as Regional Director of the North Atlantic Region of AMCA; leading the move to have AMCA central office return to New Jersey; and for chairing the AMCA/NJMCA annual meeting convention arrangements committee which provided an educational opportunity for the entire NJ and world wide mosquito control community.

Mike Hajek, Awards and Resolutions Committee Chairman

Election Results At the NJMCA, Inc. business meeting held during the Annual Meeting of the AMCA & NJMCA, Inc. at Bally's Park Place Hotel Casino in March, 2001, the following were elected as the officers of the Association: **President, Rod Schmidt** (Middlesex County MEC), **1st Vice President, Christine Musa** (Warren County MEC), **2nd Vice President, Dominick Ninivaggi** (Suffolk County Mosquito Control), **Secretary, Dr. Wayne Crans** (Rutgers MR&C), **Treasurer, Martin Chomsky** (Monmouth County MEC). The following trustees were elected as at-large trustees to the Executive Committee: **Peter Pluchino** (Bergen County Mosquito Control), **Bill Zawicki** (Vector Mgt. Consult. Inc.) and **Marc Slaff** (Morris County MEC). Five regular members of the Association were elected to be at-large trustees to the Associations' Board of Trustees: **Scott Crans** (Rutgers Office of Cont. Ed.), **Lisa Reed** (Rutgers MR&C), **Dr. Donald Sutherland** (Rutgers MR&C ret.), **Bill Zawicki** (Ocean County MEC) and **Peter Bosak** (Cape May County MEC).

"If human beings wore wings and feathers, very few would be clever enough to be crows." - Harriet Ward Beecher

Three crows fly overhead. Five forage in a field, one crow calling from a tree. Four crows furiously mob a Great Horned Owl and their yells bring others to join the fray. All

familiar sights, but few people know the secret lives of crows, one of our most common songbirds.

That's right. The American Crow (*Corvus brachyrhynchos*) and the closely related Fish (*C. ossifragus*), Northwestern (*C. caurinus*) and the Tamaulipas Crows (*C. imparatus*) are all North American songbirds like the mockingbird and robin. **Corvid** (or crow-like) relatives include the Common Raven (*Corvus corax*), the Blue Jay (*Cyanocitta cristata*), or the American Magpie (*Pica hudsonia*). They all perch on limbs with feet that grip automatically and have complex songs produced by complex syringes (voiceboxes). While chirping sparrows or warbling warblers may be our idea of what a songbird should be, the cawing, rattling, and faint singing that crows emit reveal their true passerine origins.

Crows DO sing: very faint, lilting warbles that only a few are lucky to hear. The song is one of at least 25 vocalizations that have been documented. These include the familiar caws as well as rattles, yelps, shrieks and murmurings. Calls are used as threats, as mobbing signals, for maintaining contact with other crows, warnings, to indicate "contentment," and even in signaling dying. Crows can mimic other bird species, and even pick up human words (without the tongue being split). This vocal flexibility is indicative of the intelligence of crows. Ornithologists have long considered corvids, along with parrots, to be at the pinnacle of avian intelligence.

Crows may have developed a large vocabulary because of their lifestyle. American Crows live on territories that they maintain year round. And they live with family members. Thus, a crow territory can consist of Mom and Dad and offspring from previous years as well as the current kids. While extended families are usually 6 members or fewer, some families can be twice that size. They may also take in crows that are not related to the family.

One reason why crows live as families is that older siblings can help raise their younger sisters and brothers. Older siblings can find food (although Mom and Dad feed the nestlings directly). They provide playmates, an important behavior for young crows. And they can watch their younger sibs, warning them of dangers. A crow is far more likely to die before the end of its first year of life than at any other time. It takes a lot of effort from the family to successfully bring a naïve and eternally curious crowlet to adulthood. Families that have siblings to help are more likely to have their offspring survive than not.

We have generally seen crows sitting on their nests in the early part of April. They usually lay between 4 and 6 eggs. The nestlings are altricial - they are helpless for several weeks after hatching (as opposed to chicken, which are precocial and ready to go shortly after hatching). They resemble moldy tennis balls, with loosely attached heads and legs. Eventually their feathers fill out and they open their baby blue eyes. Often the kids leave the nest too early, usually staying near to the nest tree. With the family close by, the kids learn the art of flying and eventually join the family during their daily outings.

The parents remain close to the kids, teaching them the things a crow needs to know in order to survive: what foods to eat, where to find them and what shadow, sound, or movement may mean danger. The family forages in open areas, pointing out delicacies such as white grub or roadkill. The kids watch and learn. Sometimes they play with each other, games like wrestling or "twig-pull" or maybe they'll splash in the water that crows try to include in their territory. Sentries from the family maintain positions high enough to see potential predators. When something suspicious appears, the alert call is given out and the family makes the dash for safety.

Crows are famous for their mobbing abilities. Spotting a Great Horned Owl (*Bubo virginianus*) in the open is too great a temptation for a crow, and the mobbing call is quickly given out. Soon, crows from several territories away converge on the owl, often driving it away. There is serious intent in their mobbing behavior for the owl is a major crow predator, taking adult crows from roost sites in the middle of the night. Other large hawks will also be targets of angry crow mobs.

As summer disappears and the days grow shorter, the kids of the year will either disperse or stay on with the family. Little is known about the dispersion of crow juveniles. We have seen only a few return to their family after having left for a period of time. Those that stay enjoy the safety of the family territory for these are maintained year round. As fall progresses, some family members will join a communal roost for the night, but return to the family territory during the day. They may use the distant roost every night, or vary their behavior, sometimes staying on the territory instead. The young crow is less likely to use this distant roost.

The trip to the distant roost can be fraught with dangers, but the rewards are plenty. For crows at Cook College, the flight to the distant roost is about 18 km (the roost is located at the southern tip of Staten Island). During the way, they stop at areas rich in food. The compost piles at Edgeboro Landfill are a favorite. The piles are cozy places filled with walnuts and other delights, plus there is the added benefit of crow companionship. These are highly social creatures that crave each other's company (no matter how they may squabble). Crows tank up and head off for the roost. The roost may hold tens of thousands of birds. Midwestern roosts claim sizes into the hundreds of thousands or even millions. Part of the occupancy comes from crows that live in more northerly climes. Northern populations migrate. It is simply too cold to be worth the effort of maintaining a territory where you cannot get food for at least part of the winter.

Spring approaches and its nesting season again. And the mosquitoes come out. For crows in the Northeast, mosquito season has meant possibly acquiring West Nile virus, a near death sentence for them. Mortality rates have been astonishingly high - 100 % in the lab and greater than 95 % in the field. Bob McLean and his group at the National Wildlife Health Centers has shown that a crow can die in as little as 4 days after getting the virus. Before dying, the birds settle down, reluctant to move. Chances are pretty good that the crow will die where it spends most of the time: on territory.

While this has made them ideal as sentinels, West Nile has the potential to wreak havoc with their populations. Since corvid sensitivity seems to extend well within this group (to include jays, ravens, and magpies), there should be serious consideration to the loss of populations and perhaps species, such as the Florida Scrub Jay. But we simply do not know what the population response will be. Observing an emerging disease virus search out the best opportunity for hosts has been fascinating, and it may be that crows will eventually play a similar role that their old-world counterparts do: they exhibit higher mortality rates, but immune birds show up toward the end of an outbreak.

The loss of crows in our natural world might make a few happy, such as the farmer who only sees them eating their crops (but fails to see them also consume the injurious insects or rodents). We might not miss them immediately unless we consider how pervasive crows are in our culture. We "eat crow." Crows are seen in TV commercials, and play pivotal roles in movies. We immortalize them in fables (the Crow and the Pitcher) or in mythologies (the Crow as Deliverer of the Sun). Crows symbolize Death or trickery in western cultures while in others they represent the link between the supernatural and the real world.

The next time you're out and about and see a crow cawing away, look around. Chances are that you'll see the rest of the family close by. You might see them cache some food under leaves, or chase a squirrel competing for the same nut. Perhaps you'll see a couple of young crows rolling around the ground with each other. Or closely watching what another is eating and learning to be a crow.

Lisa Reed, Dept. of Entomology Rutgers University

PEOPLE IN THE NEWS

Essex County: Mark DeDominico, Superintendent of mosquito control in Essex County, will be retiring after 25 years of distinguished work in mosquito control. Mark will be replaced by **Larry Furchek** who is into his 29th year doing mosquito control in Essex County. Larry can be reached at (973)-239-0342.

Sussex County: John Holick has taken the position as Superintendent of mosquito control in Sussex County. John comes from the Pennsylvania DEP where he was the West Nile Virus coordinator for their southeast region. John can be reached at (973)239-0342.

Salem & Cumberland Counties Salem and Cumberland County have jointly hired an Entomologist to do mosquito surveillance for both counties. **Heather Lomberk**, who recently received her MS in Entomology from the University of Delaware will be working out of both counties mosquito control offices.

Burlington County: Claudia O'Malley, entomologist of 26 years with the Burlington County mosquito control program will be moving on up to the position of Principal Biologist with the NJ Office of Mosquito Control Coordination. Claudia will be beginning in this position June 4, 2001.

Atlantic County: Bill Reinert has returned to the position of Superintendent for the Atlantic County mosquito control program.

Camden County In the fall of 2000, then President **Howard Emerson** was invited to take part in the Annual Conference of the Northwest Mosquito & Vector Control Association being held in Oregon. Mr. Emerson made a presentation on the impact of the deadly and high profile outbreak of West Nile Fever on local mosquito control operations. Many statistics and anecdotes collected from around N.J. were reported. On his return to N.J. Mr. Emerson described the West Nile virus surveillance workshop already held by the Northwest Association the previous spring. The members of that Association has shown great foresight in preparing for West Nile through staff training, enhanced surveillance-including sentinel chicken flocks, public education and planning. The President was most grateful for the opportunity, education and hospitality.

Also, the Camden County Board of Chosen Freeholders honored their commissioners appointed to the Mosquito Commission for the dedication, preparedness and efficiency they consistently demonstrate. Their accomplishments were described as professional and in keeping with the highest standards of public service set by the county. As a panel of volunteers, their service has been exceptional.

***News Flash**.....First crows positive for WNV found one month earlier than last year....One crow found in Bergen County April 30th and four crows from Middlesex County collected May 2nd, 4th, 8th and 10th all tested positive for West Nile Virus.....mosquito surveillance and testing in those areas and in other areas of the state are ongoing.*

***Ochlerotatus japonicus** (Theobald) by Jamesina J. Scott, Rutgers University*

Subgenus: Finlaya

Type of Life Cycle: Multivoltine Aedes, Ae. triseriatus Type

Typical Habitat: Artificial Container, Treeholes and natural rockpools

Larvae Present: All Season

Head Hairs:

Upper: Multiple

Lower : Multiple

Antenna:

Length: Much shorter than head

Tuft: Multiple, very short, inserted at middle of shaft

Abdominal Hairs (Segments III-VI): 2-2-2-2

Comb Scales: Patch

Siphon:

Index: 2.5

Tuft: 4-6, inserted within pecten row

Pecten: Detached

Anal Segment:

Saddle: Incomplete ring, highly spiculated at distal margin

Preccratal tufts: 2

Other: Upper and lower head hairs are arranged in a straight line.

GEOGRAPHIC DISTRIBUTION: The first North American specimens of *Ochlerotatus japonicus* were adults recovered from light trap collections in Ocean County, NJ and Suffolk County, NY in September 1998. The larvae were first discovered in automatic horse watering devices in Ocean County, NJ the following spring. Presently, breeding populations of *Oc. japonicus* are known in 13 of NJ's 21 counties. In addition to NJ it has also been collected from CT, DE, MA, MD, NY, OH, PA, RI, and VA.

SEASONAL DISTRIBUTION: Present all season long. The earliest recorded larval collection was made on March 27, 2000 in Bergen County, NJ. The latest larval collection was made on 12 November 2000 in Somerset County, NJ. The adults have been collected with gravid traps from early May through late October.

LARVAL HABITAT: The larvae of *Oc. japonicus* are typically found in small-volume containers of relatively clean, clear water. They are most often recovered from artificial containers, including bird baths, buckets, plastic milk jugs, wheelbarrows, animal watering containers, and tires. They have also been collected from natural containers such as treeholes in Sussex County, and rockpools in Warren County. Within their native range, they are occasionally collected from ground water, and Bergen County has collected *Oc. japonicus* larvae from standing water in tire ruts. It has also been collected from cement storm drains in New York.

COMMON ASSOCIATE SPECIES: *Oc. japonicus* has been found in container habitats with: *Aedes albopictus*, *Anopheles punctipennis*, *Oc. atropalpus*, *Oc. triseriatus*, *Culex pipiens*, *Cx. restuans*, *Cx. salinarius*, *Cx. territans*, and *Toxorhynchites rutilus septentrionalis*. More than likely, the larvae of *Oc. japonicus* will eventually be found with the remaining container breeding mosquito species in New Jersey, which include: *Anopheles barberi*, *Ochlerotatus hendersoni*, *Orthopodomyia signifera*, and *Orthopodomyia alba*.

LARVAL IDENTIFICATION: There are two major characters which separate *Ochlerotatus japonicus* larvae from all other North American mosquitoes: its highly spiculated anal saddle, and the upper and lower head hairs which are multiple (tufts) and arranged in a straight line. *Ochlerotatus japonicus* larvae are relatively easy to separate from associated container species. The *Culex* species are easily recognized and can be separated in the dipper by their longer air tubes. *Ochlerotatus atropalpus* most closely resembles *Oc. japonicus* in general body shape, and, using the standard North American

mosquito identification keys, *Oc. japonicus* will be misidentified as *Oc. atropalpus* based on their detached pecten teeth and the tuft inserted within the pecten row. Fortunately, these two species are easily separated under the microscope by their head hairs and the difference in spiculation on the anal saddle as described above. *Ochlerotatus triseriatus* larvae have a darker coloration, a characteristic serpentine motion and an elongate body shape which are useful in screening field collections but should not be relied upon for separation of early instars. There are several useful characteristics to quickly isolate the *Oc. japonicus* larvae from field populations of *Oc. triseriatus*. *Ochlerotatus triseriatus* has much smaller gills and the ventral pair is considerably shorter than the dorsal pair. The anal gills of *Oc. japonicus* are much longer than the saddle and are equal in size. Be aware, however, that gills frequently break off in preserved specimens. As a result, gill characteristics are most useful when observing living specimens. *Ochlerotatus triseriatus* has a single row of comb scales that are arranged in an extremely irregular fashion, while the comb scales of *Oc. japonicus* are arranged in a patch. The upper and lower head hairs of *Oc. triseriatus* are single and arranged in a box-like formation, while in *Oc. japonicus* they are all multiple and aligned in row. The lateral hairs on the saddle are useful because they can be observed in living specimens without special orientation. The lateral hairs are very long in *Oc. japonicus* and 5-7 branched in *Ae. triseriatus*.

IMPORTANCE: We do not yet know what the impact of *Oc. japonicus* will be in New Jersey. It does not seem to be an aggressive human-biting mosquito like New Jersey's other exotic mosquito, *Aedes albopictus*. Laboratory studies have shown that *Oc. japonicus* is a very efficient vector of West Nile virus, but its actual role in the natural transmission of this virus has yet to be determined. It is worth noting, however, that West Nile virus was isolated from *Oc. japonicus* collected in New Jersey and New York state during the 2000 surveillance season. This may indicate that *Ochlerotatus japonicus* could provide an important link between people and West Nile virus in the United States.