

Minutes of the Franklin Township Environmental Commission meeting May 6, 2019

The meeting was called to order at 7:06 PM, and the Sunshine Law Notice read.

The roll was called. **Present were:** W. Andrews, S. Jaracz, J. Johnson, C. MacIvor, D. Pydeski, A. Schmidt, D. Triggs, and P. Walitsky; Council liaison T. Chase; and prospective member R. Rezani.

Chair's report: W. Andrews circulated the letter he sent to the Clyde family.

T. Chase introduced Dr. Alvaro Toledo, assistant professor in the Rutgers Dept. of Entomology and Centers for Vector Biology and Lipid Research, as seminar speaker.

Dr. Toledo began with what ticks are: small, parasitic arachnids [group also including spiders], subclass Acari. They are divided into three families: hard ticks, soft ticks, and the single-species family Nuttallellidæ. The life cycle comprises four stages: egg, larva, nymph, adult. They may have one, two or three hosts in their lifetime. The most important for disease concerns, the deer tick *Ixodes scapularis*, has a three host life cycle. The egg is picked up by a white-footed (deer) mouse, where it develops into a nymph and goes into diapause over the winter. In the spring it passes to a second host (usually another mouse), where it develops into an adult, which passes to a third host (deer, humans) where they mate and produce eggs.

He described the mouth parts, and how to remove a tick, pulling up with forceps to remove the mouth parts as well as the body of the tick.

The deer tick carries disease organisms *Borrellia burgdorferi* and *B. miyamoto*, *Babesia*, and *Anaplasma phagocytophilum*. The Lone Star tick carries *Ehrlichia*, and the American dog tick [the larger and more frequently seen tick] carries *Rickettsia*, the causative organism of Rocky Mountain spotted fever, and rarely *Francisella*, which causes tularemia. Lyme disease, caused by *B. burgdorferi*, is far and away the commonest disease in New Jersey, with over 3000 reported cases each year; babesiosis, ehrlichiosis and anaplasmosis cases are in the low hundreds, and Rocky Mountain spotted fever and tularemia are almost unknown in New Jersey. Of the 50 counties in the U.S. with the most Lyme disease cases, twelve are in New Jersey.

Fifty thousand cases of Lyme disease are reported yearly in the U.S. (and many more unreported). Originally almost all were along the East Coast (Maryland to Massachusetts), but it is now more widespread, with a second focus around Minneapolis. Lyme disease is the most prevalent tick-borne disease in the Northern Hemisphere.

B. burgdorferi is a Gram-negative spirochete [organism with an extended spiral shape]. Its flagellæ are inside the cell, where their rotation enables the cell to move but they are shielded from antibodies. This explains the difficulty of developing a vaccine against it and lack of protection by prior infection.

B. burgdorferi is *not* transmitted tick to tick through eggs; larvæ pick it up from an infected mouse. Tick nymphs most often transmit the organism, because they are small and hard to see. *B. burgdorferi* inhabits the midgut of the tick, but when it senses that the tick has taken in a blood meal it migrates to the salivary glands of the tick, where it upregulates proteins needed for

infection. Thus it takes 24 hours or more to infect the host, so that early removal prevents infection. Symptoms of infection include the 'bull's eye' rash (erythema migrans) in 70% of cases; arthritis (pain in joints); neurological signs due to infiltration into the nervous system (12% of cases); carditis in 1% of cases. Detection of infection is mainly by the rash, confirmed by detection of antibodies (two-tiered serology); culturing is too slow (21 days) and molecular methods (polymerase chain reaction) are not helpful because the organism is disseminated in tissues, not primarily in the blood whence samples are taken. It can be used to confirm presence of *B. burgdorferi* in a tick.

Incidence by age of the victim: it is commonest in children, then at age 45-49.

Other tick-borne diseases include human granulocytic anaplasmosis, caused by *Anaplasma phagocytophilum*, an intracellular bacterium, transmitted by *I. scapularis* and *I. pacificus* [West Coast tick species]. It has flu-like symptoms, followed by serious symptoms such as respiratory failure, if not treated. Therefore it should be treated with antibiotics without waiting for confirmation! It is commonest in Minnesota and Maine. Human Ehrlichiosis is transmitted by the Lone Star tick; symptoms and need for treatment are similar to anaplasmosis. Babesiosis is caused by *Babesia microti*, an intracellular parasite, transmitted by ticks and rarely by blood transfusions. It is seen mainly in older people and the immunocompromised.

Prior infection does not protect against *B. burgdorferi*. A vaccine against Lyme disease in humans was developed, but was cumbersome (requiring three shots per year) and unprofitable, and is no longer available for humans, though it is available for dogs.

Engorgement (filling of the ticks with blood) takes 24-48 hours for nymphs, up to two weeks for adult females.

To protect your yard against ticks: mow the lawn, plant deer-repellant plants, use tick repellants (DEET), keep woodpiles (which harbor mouse nests) away from the house.

The regular meeting then proceeded. Minutes of the April 15 meeting: A. Schmidt noted details of the wood fiber spoons he brought. With this correction the minutes were approved.

J. Johnson found the e-mail address previously used to receive comments and queries from the public: franklinenvcom@gmail.com. A new password is needed.

Plans: one, for two four-story buildings on Hamilton St, one mixed use, one purely residential, with underground detention basins.

Sustainable Jersey: S. Jaracz reported on McAfee School's Green Team. A. Schmidt reported on county anti-idling programs, with inspectors checking likely sites and requesting site owners to put up anti-idling signs.

Old business: T. Chase reported on an e-mail from Heather Fenyk detailing amounts of trash picked up in the April 13 clean-up: 1.58 tons of bagged trash, 0.4125 tons of bagged recyclables, 80 fork lift tires, 6 regular car tires, 225 lb scrap metal, 250 lb bulk (unbagged) trash.

C. MacIvor moved to approve sending A. Schmidt's letter on the 206 compressor station to the Home News and the Star-Ledger. The motion was approved, D. Triggs abstaining (because of his DEP employment).

S. Jaracz distributed brochures for electric buses. He reported that the electric vehicle show attracted 34 vehicles, plus the three township Bolts. Franklin Reporter & Advocate live-streamed the show.

A representative for the Princeton Environmental Commission contacted T. Chase and Bob Vornlocker about how to purchase electric vehicles for their town. (There is a state contract for Bolts.) S. Jaracz will try to arrange for electric vehicle dealers to be at the Environmental Commission's day at the farmers' market offering rides, which are most persuasive for prospective purchasers. D. Triggs will contact Tara Kenyon about this.

J. Johnson reported on her search for a source and funding for reusable shopping bags (which might be given out at Franklin Day) - she hasn't found either yet - and Sustainable Highland Park's survey of local use of plastic bags. We should look into such a survey for Franklin

D. Triggs and A. Schmidt suggested having electric cars in the Memorial Day parade. S. Jaracz will contact parade organizer Bob LaCorte about this.

P. Walitsky reported a new resident of Canal Walk with a Tesla 5 and 3.

J. Johnson raised the possibility of the Environmental Commission having its own Facebook page; T. Chase to contact Bob Vornlocker about this.

The meeting was adjourned at 9:26 PM.