

# Mosquitoes and fleas and ticks, oh my!

By Skid Crease

Between the West Nile virus, Chikungunya, dengue fever, plague, and Lyme disease, I began to wonder if Mother Nature was trying to kill me.

It really hit home when my veterinarian upped the starting date for my dog's flea and tick medications. Seven years ago, I was applying the first drops at the end of May. This year, I opened the first tube at the end of April. Now we are doing two different applications on the 1st and 15th of the month until November.

Our climate is dramatically changing. Farmers are well aware of something called degree growing days, that magical 6°C temperature threshold when plants take off. The growing season was generally estimated to be between the start and finish of that gradient. That season has now extended earlier into the spring and later into the fall. Along with unpredictable rainfall patterns. This is occurring in eastern North America, where the global temperature rise lags behind the rest of the planet (thank you Arctic Amplification), so imagine the rapidity of change on the rest of the globe where warming is increasing even more dramatically. Add to that the non-stop global travel network where people and products and all their little micro-biomes crisscross the planet on a daily basis.

In 2013, the UN Intergovernmental Panel on Climate Change (IPCC) published its Fifth Assessment. I don't know who in ?Our Government?? read the report, even the Executive Summary would have been nice, but it hasn't been acted upon. As with the recent Truth and Reconciliation Commission report and recommendations, ?Our Government?? remained seated.

The IPCC 5th Assessment was released on March 30, 2014. They designate items ranging from Very High Confidence to Low Confidence based on the scientific reports they have received.

They concluded with Very High Confidence that accelerating climate change will exacerbate existing human health problems, especially in developing countries with low income. For all areas of the globe, rich and poor, there would be an increase in injury and death due to more intense heat waves and fires, under-nutrition due to diminished food production, and increased risks from food and water borne diseases, with the most vulnerable most at risk.

At the bottom of that concerns list appeared vector-borne diseases, the ones that our insects and bugs share with us. How is it that a disease named West Nile virus got to North America, or that malaria appeared in New York State, or that the plague was reported in Oregon, or that Chikungunya made its way across the oceans to the Caribbean, or that Lyme disease got to Avril Lavigne?

As precipitation patterns change, as temperature isotherms inch northward, so do all the little critters that occupy those ecosystems and microclimates. With over 7 billion human host bodies from which to choose, life is good if you're an insect or a bacteria.

Recently, in the GTA, it was reported that the black-legged tick that carries Lyme disease had made it into several Toronto area parks. And yes, Avril, even as far north as Kenora. If you want to get a handle on this disease, which involves a complicated life cycle for a very determined little bacterium via mice, deer, and other hosts, go to Entomology Today for a comprehensive report by Hannah Foster. After you read this report you will be in awe of the ecological connections that drives every creature to reproduce, and sometimes at our expense.

[entomologytoday.org/.../understanding-the-complex-life-cycle-of-the-blacklegged-tick-to-combat-lyme-disease/](http://entomologytoday.org/.../understanding-the-complex-life-cycle-of-the-blacklegged-tick-to-combat-lyme-disease/)

The World Health Organization recently gave this summary for government planning at all levels to deal with climate change:

1. Develop health measures for adaptation.
2. Strengthen the capacity of health monitoring and minimize the public health impacts.
3. Promote effective engagement of the health sector to reduce risks.
4. Adopt intersectoral climate change policies, such as for urban planning, transport, energy supply, food production, and water resources.
5. Advocate for decisions that provide opportunities for improving health.

A few weeks ago, I was delighted to renew contact with one of my favourite students, now Dr. Pamela Taylor, a family doctor in the eastern GTA. I was amazed to learn the depth of studies that she had gone through to earn the many academic credentials that had allowed her to practice both in England and in Canada.

I asked her how a family doctor was going to deal with this new world of insect vector diseases and other climate related health concerns. She had no answer. With all that training, no family doctor is prepared yet to educate their patients and communities on this new concern, the human health impacts caused by accelerating climate change. No drug companies promote it, no corporations

advertise it, and no government as yet prepares for it.

I dedicate this column to my student, Dr. Pam, and hope that our provincial and federal governments will provide her with the resources to research, prepare for, and be able to deal with the coming flood of human health concerns unleashed by accelerating climate change.

In the meantime, if you dare to go outdoors, wear light coloured clothing, drink lots of tonic water, wash with lavender soap and shampoo with tea tree oil shampoo, keep your pants tucked in, apply sunscreen and repellant, and wear your hat and sunglasses. And have a nice day. It's still better outdoors!

Skid Crease is an award-winning outdoor and environmental educator, a keynote speaker, a storyteller, an author, and a community volunteer. He taught with the North York and Toronto District School boards for 35 years, and officially 'retired' from the Faculty of Education, York University, where he was a Course Director and Environmental Science Advisor. Skid has worked with scientists from Environment Canada (pre-2005), NASA, and the Hadley Centre for Climate Prediction and Research in a quest to put an understandable story behind the wealth of their scientific data.