

February 25, 2016



E-NEWS BLAST **SOUTH LAKE SIMCOE NATURALISTS**

Meetings and Outings

Outings: All regular outings – Note: **Paid-up members may participate (for insurance compliance).**

WINTER 2016

Saturday Feb. 27

**Deer Census in Rouge Valley, Park National
Park area:** SLSN members Call Paul to register 905-722-8021.

We will be meeting at the Rouge Valley Conservation Centre. We meet at the Centre at 9:00 a.m.

Rouge Valley Conservation Centre:

http://www.rvcc.ca/Rouge_Valley_Conservation_Centre.html

The Count times are the same as in the past 9:00 a.m. meet to start and a 4:00 p.m. finish. Participants can do half days only as well, coordinated through

the 9 a.m. meet, and at the afternoon counting at 12:00 noon lunch meet at the Centre.

So, mark your calendar and plan to participate if you can.

Paul Harpley



Meetings: All Meetings start at 7:30 p.m. at the York Region Police Building Meeting Room (Baseline Road between McCowan and Civic Centre Road) unless noted otherwise. Members events (insurance compliance). Visitors welcome.

Tuesday, March 8 **Cottontail rabbit and Snowshoe hare:** Club members research and presentation these important southern Ontario mammals. These animals supply important winter food for our predator animals and although they are small and non-aggressive they have special talents and secret lives. Life history, tracking, range and much more will be explored.

Tuesday, April 12 **Caribou Conservation in Ontario:** Club members research and presentation these important Ontario mammal of woodland and tundra. Presently a hot button Canadian wildlife

management issue. Life history, tracking, range and serious conservation issues in the boreal and much more will be explored.

Tuesday, May 3 **We know that insect species are being Lost across the planet:** Club members research and presentation. This will be a review and analysis of an expose article in the December 2015 “Canadian Geographic” Magazine. *“Insects are by far the most populous species on Earth, and they seem to be disappearing. So why aren’t more people concerned?”* This serious wildlife and planetary conservation issue and needs urgently to be explored by us all. **Please read the article – pp. 51-56 Canadian Geographic, Dec. 2015 at the local library, or on-line for the conversation.**

Note: This is the first Tuesday of the month, as the meeting room is not available the second Tuesday in May.

Conservation Issues

York Region Forest News

This email is to advise you that site preparations for spring tree planting are taking place at the Metro Road Tract. The contactor is undertaking work starting today February 23rd, 2016 and will be completing the project before the end of the month. For the safety of the public and workers please keep clear of the operations.

Ministry review of the Upper York Sewage Solutions Environmental Assessment

In the February SLSN Talon Newsletter (Vol. 26, no. 1) the Region of York/MOEE Summary document, Ministry review of the Upper York Sewage

Solutions Environmental Assessment information was included, and the detailed report can be viewed at,

www.ontario.ca/page/ministry-review-upper-york-sewage-solutions-environmental-assessment#section-6.

Members please review this information. Anyone who wants to contribute to a response from SLSN, please contact me with review comment. The Town of Georgina has asked us for comment and opinion on this initiative. I will be preparing our response soon.

Paul Harpley

Ainslie Hill Project

The Town of Georgina has recently release information on this large development project along the Black River in Sutton including some sensitive and significant forest and field wildlife habitat.

Re: Notice of Application & Request for Comments

Proposed Draft Plan of Subdivision & Amendments

Applicant: Ainslie Hill I Inc. & Ainslie Hill II Inc.

Town Files:01.143/19T-15G03 (Subdv.) & 03.1087 (ZBA)

To Zoning By-Law No. 500

The Town of Georgina has requested comments from SLSN.

We have made previous submissions to the Town on proposed subdivision concepts development, and I am currently reviewing our past information and documentation. The information we originally received from the Town was not at the scale or detail we would require for appropriate comment, and they were requesting this comment in an unrealistically short time frame.

Our review would include specialists and academic review that will require considerable access. We requested sending pdf files by e-mail, or on computer

disc of back-up detailed information for review. Today, this is standard practice in our experience with Government and Private business. I have solicited digital information and have now secured it.

I have had inquires of concern by members of our organization and the general public in the last week or so apparently resulting from a similar basic information in an ad in the local paper (Georgina Advocate). In this regard we request the Town of Georgina planning department make available copies of the detailed information for public and community review as soon as possible for this large subdivision proposal at the Sutton Library. The Town of Georgina has not done this.

This had been done in the past for a number of subdivision and other development and planning proposals. Former Councillor Ken Hackenbrook organized this a number of times as I recall.

SLSN members can find information in recent Advocate newspaper, and information can be viewed at the Town Offices, and a future Public Meeting by the Town is being planned. Please endeavour to review and make comment on this proposed draft plan of subdivision and advise me of comments. I will be preparing a SLSN response in the next few weeks..

Paul Harpley

SLSN are invited to participate in,

Fair campaign finance laws for Ontario municipalities. Ban all corporate and union donations.

Banning corporate and union contributions to election campaigns is not radical. We want Ontario to catch up with modern election campaign financing practices applied in Canadian federal campaigns, in the City of Toronto, and in the provinces of Alberta, Manitoba, Quebec and Nova Scotia.

Campaign Fairness

YOU'RE INVITED

**= campaign fairness
Conference**



**Lessons from the trenches
of municipal election campaigns**

THURSDAY MARCH 3, 2016, 3PM-5PM

**THE BOX, 89 NIAGARA STREET,
AT KING AND BATHURST, TORONTO, ON**



Join Campaign Fairness in asking the Province of Ontario to ban corporate and union contributions to municipal election campaigns to level the playing field among candidates.

THE PANEL

Robert Eisenberg, Campaign Fairness President and Founder

Professor Robert MacDermid, York University, renown researcher in municipal campaign financing
Ajax Mayor Steve Parish

Vaughan MP Deborah Schulte

David Donnelly, Environmental Lawyer

Moderated by Claire Malcolmson,
Campaign Manager

*Caffeine and refreshments served

RSVP

647-267-7572 or campaignfairness@gmail.com

*For more information about our work, or to get involved,
visit www.CampaignFairness.com*

International Conservation Concern

How Forest Loss Is Leading To a Rise in Human Disease

Resilience

by Jim Robbins, originally published by Yale Environment 360 | TODAY



A growing body of scientific evidence shows that the felling of tropical forests creates optimal conditions for the spread of mosquito-borne scourges, including malaria and dengue. Primates and other animals are also spreading disease from cleared forests to people.

In Borneo, an island shared by Indonesia and Malaysia, some of the world's oldest tropical forests are being cut down and replaced with oil palm plantations at a breakneck pace. Wiping forests high in biodiversity off the land for monoculture plantations causes numerous environmental problems, from the destruction of wildlife habitat to the rapid release of stored carbon, which contributes to global warming.

But deforestation is having another worrisome effect: an increase in the spread of life-threatening

diseases such as malaria and dengue fever. For a host of ecological reasons, the loss of forest can act as an incubator for insect-borne and other infectious diseases that afflict humans. The most recent example came to light this month in the *Journal of Emerging Infectious Diseases*, with researchers documenting a steep rise in human malaria cases in a region of Malaysian Borneo undergoing rapid deforestation.

This form of the disease was once found mainly in primates called macaques, and scientists from the London School of Tropical Medicine and Hygiene wondered why there was a sudden spike in human cases. Studying satellite maps of where forest was being cut down and where it was left standing, the researchers compared the patchwork to the locations of recent malaria outbreaks. They realized the primates were concentrating in the remaining fragments of forest habitat, possibly increasing disease transmission among their own populations. Then, as humans worked on the new palm plantations, near the recently created forest edges, mosquitoes that thrived in this new habitat carried the disease from macaques to people.

Such phenomena are not uncommon. "In years when there is a lot of land clearance you get a spike in leptospirosis [a potentially fatal bacterial disease] cases, and in malaria and dengue," says Peter Daszak, the president of Ecohealth Alliance, which is part of a global effort to understand and ameliorate these dynamics. "Deforestation creates ideal habitat for some diseases."

The Borneo malaria study is the latest piece of a growing body of scientific evidence showing how cutting down large swaths of forests is a major factor in a serious human health problem — the outbreak of some of the world's most serious infectious diseases that emerge from wildlife and insects in forests. Some 60 percent of the diseases that affect people spend part of their life cycle in wild and domestic animals.

The research work is urgent — land development is rapidly taking place across regions with high biodiversity, and the greater the number of species, the greater the number of diseases, scientists say. They are deeply concerned that the next global pandemic could come out of the forest and spread quickly around the world, as was the case with SARS and Ebola, which both emerged from wild animals.

Mosquitoes are not the only carriers of pathogens from the wild to humans. Bats, primates, and even snails can carry disease, and transmission dynamics change for all of these species following forest clearing, often creating a much greater threat to people.

Throughout human history pathogens have emerged from forests. The Zika virus, for example, which is believed to be causing microcephaly, or smaller than normal heads, in newborns in Latin America, emerged from the Zika forest of Uganda in the 1940s.

Dengue, Chikungunya, yellow fever, and some other mosquito-borne pathogens likely also came out of the forests of Africa.

Forests contain numerous pathogens that have been passed back and forth between mosquitoes and mammals for ages. Because they evolved together, these viruses often cause few or no symptoms in their hosts, providing “a protective effect from a homegrown infection,” says Richard Pollack of the T.H. Chan School Public Health at Harvard. But humans often have no such protection.

What research is demonstrating is that because of a complex chain of ecological changes, the risk of disease outbreaks, especially those carried by some mosquitoes, can be greatly magnified after forests are cleared for agriculture and roads.

A flood of sunlight pouring onto the once-shady forest floor, for example, increases water temperatures, which can aid mosquito breeding, explained Amy Vittor, an assistant professor of medicine at the University of Florida. She is an expert in the ecology of deforestation and malaria, which is where this dynamic is best understood.

Deforestation creates other conditions conducive to mosquito breeding. Leaves that once made streams and ponds high in tannins disappear, which lowers the acidity and makes the water more turbid, both of which favor the breeding of some species of mosquito over others. Flowing water is dammed up, deliberately and inadvertently, and pools. Because it is no longer taken up and transpired by trees, the water table rises closer to the forest floor, which can create more swampy areas.

As agriculture replaces forest, “re-growth of low lying vegetation provides a much more suitable environment” for the mosquitoes that carry the malaria parasite, Vittor says.

The link between deforestation and increases in malaria has been known for some time, but research in the last two decades has filled in many of the details. Much of the work has been done in Peru, where in one region in the 1990s cases of malaria went from 600 per year to 120,000, just after a road was built into virgin forest and people began clearing land for farms.

The cascade of human-induced ecological changes dramatically reduces mosquito diversity. “The species that survive and become dominant, for reasons that are not well understood, almost always transmit malaria better than the species that had been most abundant in the intact forests,” write Eric Chivian and Aaron Bernstein, public health experts at Harvard Medical School, in their book *How Our Health Depends on Biodiversity*. “This has been observed essentially everywhere malaria occurs.”

Mosquitoes can adapt fairly quickly to environmental change. In response to a push to use bed

nets to prevent nighttime bites in malaria-prone regions of the world, for example, researchers are seeing a change in the time of day mosquitoes bite — many now target their human quarry in the hours before bed.

A study by Vittor and others found that one malaria-carrying mosquito species, *Anopheles darlingi*, in a deforested area in Peru was radically different than its cousins in intact forests; the *Anopheles darlingi* in deforested areas bit 278 times more frequently than in an intact forest, according to a study published in the *American Journal of Tropical Medicine and Hygiene* in 2006.

"In the forest, we found almost no breeding whatsoever, and no biting by the adult mosquitoes," Vittor said. That's probably because the ecology of the deforested landscape — short vegetation and deep water — favored their breeding, and they need human blood to grow their eggs.

The types of mosquitoes that do well in this radically altered ecosystem are more "vector competent," which means their systems are particularly good at manufacturing a lot of the pathogen that causes malaria. A study in Brazil, published in the *Journal of Emerging Infectious Diseases* in 2010, found that clearing four percent of the forest resulted in a nearly 50-percent increase in human malaria cases.

The ecology of the viruses in deforested areas is different. As forests are cut down, numerous new boundaries, or edges, are created between deforested areas and forest. A mosquito called *Aedes africanus*, a host of the yellow fever and Chikungaya viruses, often lives in this edge habitat and bites people working or living nearby. Other primates, which are also reservoirs for the pathogens, gather in the borders of these different ecosystems, providing an ongoing source of virus for the insects.

Insects are not the only way that deforestation can exacerbate infectious diseases. For some unknown reason, the species of snails that can better adapt to warm open areas that occur after a forest is cut down are better hosts for parasites called flatworms, some of which cause schistosomiasis, a disease which damages human organs.

Scientists are concerned that these outbreaks exacerbated by human alteration of landscapes could cause the next pandemic. The Roman Empire once stretched from Scotland to Africa and lasted for more than 400 years. No one knows exactly why the empire collapsed, but one contributing factor may have been malaria. A mass grave of babies from that era, excavated in the 1990s, found, through DNA analysis, that many of them had died from malaria, according to a study published in 2001 in the journal *Ancient Biomolecules*. Some researchers speculate that the malaria outbreak may have been exacerbated by deforestation in Rome's surrounding Tiber River Valley to supply timber to the growing city.

Once a disease has left a forested region, it can travel in human beings, crossing the world in a matter of hours by airplane before the person even shows symptoms. How well it does in its new homes depends on several factors.

Once Zika traveled to Brazil from Africa, for example, it flourished because *Aedes aegypti* mosquitoes hang out around people and love to lay their eggs in small containers of water. Many people in Brazil's large slums store water in buckets, and standing water also collects in tarps, old tires, and trash.

A key question about the Zika virus is whether it will enter the primate populations in South America, which means it might become a permanent resident and an ongoing source of infection. "Is it going to set up shop there?" asks Vittor. "We don't know."

Mosquitoes aren't the only creatures that bring fever out of the forest. Angolan free-tailed bats were believed to harbor the Ebola virus that broke out and killed more than 11,000 people last year. And AIDS, which has killed more than 25 million people worldwide, came from people eating bush meat, likely chimpanzees.

A wild card in this disease scenario is the rapidly changing climate. If spring comes early, mosquitoes hatch earlier and summer populations are larger. In Southeast Asia, the spike in temperatures during El Niño weather cycles correlates with dengue fever outbreaks, because the warmer weather allows mosquitoes to breed faster and expand the population, which spreads the virus further, according to a study last year in the *Proceedings of the National Academy of Sciences*.

Part of the solution is to recognize and understand these connections and teach people that keeping nature intact has protective effects. And where people do cut down forests or build roads, numerous steps can be taken to lessen the chance of mosquito-borne disease outbreaks — education campaigns, more clinics, health training, and medical monitoring.

Another piece of the puzzle is to know what pathogens the world might be up against in the future as they come out of the forest. Ecohealth Alliance is [cataloging wildlife-borne viruses in wild places](#) where there is new encroachment into undisturbed nature and health care is poor or non-existent. The goal is to better understand how these viruses might spread and to potentially develop vaccines.

"If we could deal with the trade in wildlife and deforestation we wouldn't need to stop an outbreak," like Zika or Ebola, said Daszak, the organization's president. "We would have already dealt with it."

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