

Importance of King's research station growing

By Mark Pavilons

The value of King's Koffler Scientific Reserve is apparent, and the facility is quickly becoming one of the leading research centres in North America.

The reserve's biggest booster, Dr. Art Weis, provided an overview to a full house at the annual general meeting of Concerned Citizens of King Township (CCKT) recently.

Our ecosystems are vitally important and constantly changing. The fate of such systems, in fact our very planet, remains a hot topic of discussion and research. And discoveries made at Jokers Hill in King are part of the blueprint for the future.

After a successful career south of the border, Dr. Weis came to the University of Toronto to lead work at Koffler and establish the facility as a biological station. Here, the importance of species of flora and fauna and how they grow, are in correlation with humans. We are part of the eco-system and any changes that occur impact our species as well.

Weis pointed out that many students – undergrads, grads and post-grads alike – become scientists after conducting work at Koffler. One current study by student Emmanuelle Frechette centres around visual stress indicators of white pines, as they (artificially) experience a rise in temperature (global warming). By monitoring the xanthophyll levels – the yellowish pigment in green plants – can provide insights into the long-term effects of global warming. This, Dr. Weis observed, can give us another tool to evaluate the state of Canadian forests, as temperatures continue to rise in the coming decades.

Sexual equality among spotted newts and their fight for a limited food supply, is another study occurring at the reserve. Student Stephen DeLisle is determining how the size, abilities and parasite cycles of both males and females of the species affect its success in natural ecosystems and in terms of swaying evolution.

Invasive species, in the form of the European fire ant, have been found to be a benefit to our ecosystem, according to research conducted by post doctoral scholar Dr. Kirsten Prior. The seeds of wild ginger and bloodroot are particularly attractive to both native and newcomer ant species. Micro eco-systems were created to closely monitor just how the creatures consume and disperse the seeds. It was found the European "invaders" are more efficient than the native critters and actually aid in plant reproduction.

The reserve is "growing" future generations of scientists who will become the guardians to our environmental future. Koffler is "extremely important," Dr. Weis said, providing a perfect site and opportunity to research and education.

The facility has experienced "explosive growth" in the last few years and today as many as 35 international projects and 125 people are using the site on a regular basis. There are roughly 30 on-site on any given day.

The site is poised for a much-needed expansion and they're in the planning stages for the coming 10 years of progress. Dr. Weis stressed they need to build the proper infrastructure – buildings, residences, kitchen facilities – to house the influx of researchers. They also require apartments for families, who call the reserve their home for months at a time. When complete, Dr. Weis said the planned buildings will actually occupy a smaller footprint than the current structures.

Funding is key to the future success of the reserve. Dr. Weis noted various funding agencies do provide money for equipment and tools, but not "housing." The public can help make a difference. For more, visit ksr.toronto.ca.

The Koffler Scientific Reserve at Jokers Hill hosts research in ecology, evolution, genetics, environmental science and cognate areas of study. Principal investigators are normally affiliated with an accredited university in Canada or abroad, or with a governmental ministry. Applications for use from private corporations and community organizations are also considered.

While some of their projects seek solutions to specific challenges, the major research thrust is addressing fundamental questions: What limits the geographic ranges of species? What makes a recently introduced species go invasive? How do patterns of mating and reproduction contribute to population persistence? When can natural selection act fast enough to buffer the effects of environmental change? These are interesting questions in their own right, but in this age of environmental uncertainty, the need for answers is urgent.

Given King Township's penchant for sustainability, this is an amazing resource for ensuring the sustainability of us all.

If you'd like more on the reserve, contact Weis at arthur.weis@utoronto.ca.