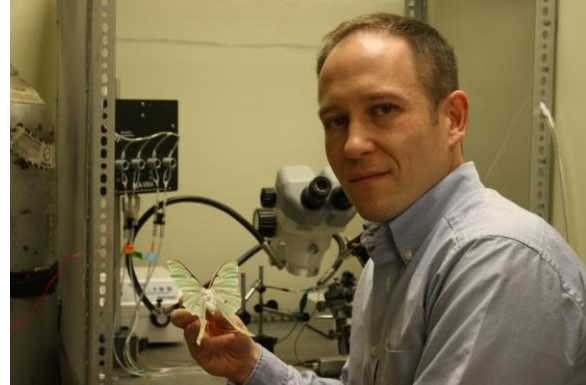


Kirk Hillier, Associate Professor, Biology Acadia University

Dr. Kirk Hillier's Laboratory at Acadia is focused on the neuroethology of insects, particularly the effects of host plant odours and pheromones on insect pests. His previous research has examined insect pest management in berry crops (lingonberries, blueberries and cranberries) with a particular focus on



the use of insect pheromones to develop pesticide-reduced management strategies. Furthermore, Dr. Hillier has studied insect pheromone and host odour processing, genetic and developmental control of pheromone perception and related neuroanatomy, and physiological responses to odours within the insect antennal lobes of Heliothine moths (i.e. Corn Earworm, Tobacco Budworm), a group of insects which cause annual damage costs estimated in the multi-billion dollar range in the United States alone.

Dr. Hillier's lab (<http://www.acadiau.ca/~khillier/>) is currently using cutting edge technology to accelerate the development of novel, inexpensive methods for managing insect pests. This includes the development of the new CABL (Chemical Analysis and Bio-Imaging Laboratory) at Acadia University.

Research Summary: Development of an Integrated Pest Management System for Insect and Mite Pests in Nova Scotia Vineyards

The objective of this proposal is to develop methods for monitoring and surveying insect and mite pests within Nova Scotia vineyards. Data collecting in this initial study will enable development of an integrated pest management (IPM) strategy for the Grape Growing Association of Nova Scotia (GGANS). In order to accomplish this, key pest species distributions and regional life histories will be defined for Nova Scotia. Furthermore, the effects of variable cultural techniques between vineyards, climate and microhabitat will be used to develop economic thresholds for management and control strategies.

Methods will be evaluated for surveying insect populations to enable forecasting of future infestations. This will include the use of pheromone trapping for selected pest species, such as grape berry moth, omnivorous leafroller and red banded leaf roller. Sticky traps and emergence traps will be used to selectively monitor for grape phylloxera. Foliar and vine/spur sampling will be conducted to identify populations of leafhoppers, cutworms, leafrollers, beetle (particularly multicoloured Asian/Harlequin ladybird beetle) and mite species. Selective soil sampling will be conducted to diagnose potential nematode infection. Diseased and stressed plants will be selectively flagged and sampled for diagnosis.