

# Arctic & Boreal Entomology Course 2008



Are you interested in:

- the ecology of insects across one of the world's most important ecotones?
- the diversity, taxonomy and evolution of the insect fauna across the northern limit of trees from boreal forests to the arctic tundra?



## General Scope:

- Interactions of northern insects with biotic and abiotic elements
- Effects of disturbances, including fire, vehicles, and human habitation
- Behavioural adaptations of northern insects

## Format:

- Evening lectures (~5) and discussions
- Field excursions to:
  - tundra & krumholtz
  - boreal forest to glacial moraines
  - treeline
  - rock outcrops to seashores
- Field and related exercises
  - collection methods: pitfalls, Berlese funnels, malaise traps
  - insect and plant identification and curations
  - observation and quantification of adaptation and behaviour
  - diversity and abundance relationships
- Individual projects, designed according to personal interests

## Dates:

- July 7 – 18, 2008
  - Plan to arrive July 6<sup>th</sup> (Sun) and leave July 19<sup>th</sup> (Sat)

## Cost:

- \$1,200 CAD
- Cost includes room and board at CNSC, course supplies, use of equipment, and laboratory space
  - accommodations are modest but comfortable

## Location:

- Churchill Northern Studies Centre (CNSC), Churchill, MB, Canada
- Churchill is on the Hudson Bay, at the northern limit of the trees, in the ecotone of the boreal forest and the tundra
- Churchill can be reached by train or plane
  - trains and plane to Churchill can be taken from Winnipeg, or Thompson



**If you are interested in this course, please e-mail one of the professors at the addresses below, subject: "Arctic Entomology Course"**

### Dr. Peter Kevan

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### Dr. Rob Roughley

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## The course description **Arctic & Boreal Entomology**:

This course is an introduction to the diversity, abundance, and activity of insect life across the northern tree-line. Field visits to look for insects are made to the various habitats for the region, including seaweed strand, intertidal and flooded lands, brackish and fresh water seeps, streams, pools, ponds and lakes, wet and dry tundra meadows, peatlands, krumholtz, glacial moraines within and outside treed habitats, anthropogenically disturbed areas, undisturbed and burned forest. Insect-plant and insect-flower associations are studied in all the appropriate habitats, and the insects, and other micro-arthropods of soils are examined. Great emphasis is placed on the collection of insects by various methods from general and quantified sweep-netting and methods for collecting aquatic insects, and through passive collections methods by pit-fall, malaise, intercept, suction and light traps. Berlese funnels are in play to obtain soil arthropods throughout the course. Specimens collected are preserved by standardized methods, including pinning and preservation in liquid media, and are identified as far as possible as they are curated and labelled. Field observations for insect behaviour and habitat preferences are stressed as important and are placed into the context of adaptations to the northern, and often chilly environment.

Because the sun descends below the horizon for only a few hours each day, the course takes advantage of the long days for field excursions and projects. Lectures take place in the evenings, or on days when the weather precludes extended field work. Topics covered in lectures are, for examples, Adaptations of Northern Insects, The Arctic Insect Fauna, The Changing Insect Fauna of the Churchill Region and Climate Change, Behavioural Thermoregulation by Northern Insects and Plants, Pollination and the Roles of Insects in the Sexual Reproduction of Northern Plants, Why are Aquatic Habitats So Well Used by Northern Insects?, Biting Flies in the North, The Effects of Human Activity on Micro-Arthropods and Soil Communities in the North. Often, these lectures are attended by the general public.

Students taking this course for credit are expected to keep a log book of their activities and what they have learned. They are also expected to take on individual or small group projects, which may be experimental, observational, or faunistic in nature, and present an oral and written report (the latter is normally submitted after the field aspect of the course has concluded). All students are expected to participate in making collections, using the various collecting methodologies available to them, identifying and curating insects that are collected during the course. All students are expected to participate actively in discussions following lectures and field excursion summaries.

**Evaluation** for students taking the course for credit is as follows:

Log-book of activities and what has been learned (20 pages max.) (due date early in Fall semester) = 25%

Insect identification, curation, & labelling (on-site assessment) = 25%

Presentations (on-site assessment) = 10%

Project Report (due date mid Fall semester) = 30%

General Participation (on site assessment) = 10%