

OECOLLOQUIUM '74

Dear Colleague:

Please excuse this form letter but since we are trying to reach a rather large number of people we are forced to use this method of communication.

We would like to introduce you to, and solicit your support for, an ANNUAL ONTARIO ECOLOGY COLLOQUIUM (OECOLLOQUIUM). There are at least 200 professional ecologists employed in various Ontario universities and government agencies, and communication within this group is minimal. To remedy this situation we (the ecologists at York University, Department of Biology - D. Cameron, L. Dill, D. Fowle, L. Licht, D. McQueen) propose an annual two-day get together. To start things off we are willing to both organize and host such an event in the Spring of 1974.

The programme we have in mind would begin at 09:00 on Thursday, April 18th and end at 18:00 hours on Friday the 19th. The mornings would be given over to seminars lead by invited speakers, and the afternoons devoted to the presentation of submitted papers with allowance for adequate discussion time. A no-host banquet and bar can be provided on Thursday evening and accommodation is available in York University residence halls.

We hope to design a programme which will appeal primarily to botanists and zoologists interested in ecology (including physiological and behavioural aspects). Hopefully university and government professionals, as well as graduate students, will become actively involved.

If the proposed Colloquium were to be successful, it would be our intention to use such success as an impetus in forming a national ecological society. The history of ecology in Canada, the eminence of many Canadian ecologists, and national scientific priorities suggest that such an organization would be a worthwhile and viable one.

If you are in favour of this proposal, please complete and return the attached form BEFORE FRIDAY DECEMBER 14th, 1973. Would you also circulate this letter and the attached forms among your colleagues and graduate students. This second step is especially necessary because our present list is woefully inadequate.

Thanks for your cooperation.

Please return enclosed form to:

Don McQueen.

Dr. D. J. McQueen,
Convener.

Dr. D. J. McQueen,
Biology Department,
York University,
4700 Keele Street,
Downsview M3J 1P3,
Ontario.

ANNUAL ONTARIO ECOLOGY COLLOQUIUM

Would you please complete and return this form before DECEMBER 14th.
Would you also circulate copies to colleagues and graduate students?
Planning for the colloquium will continue only if sufficient interest
is expressed via the return of these forms.

- (1) I support the concept of an annual Ontario Ecology Colloquium _____
- (2) I would attend such a meeting to be held during April next _____
- (3) I might like to submit a paper _____
- (4) Comments: _____

NAME: _____

Please return to:

POSITION: _____

Dr. D. J. McQueen,
Biology Department,
York University,
4700 Keele Street,
Downsview M3J 1P3,
Ontario.

ADDRESS: _____

Dear Colleague:

Enclosed you will find a short program, a longer program complete with abstracts, a map of York University, an information form, and if you have already registered for the conference, a name tag.

I am happy to announce that we have about 30 papers and, to date, ~~are~~ 100 registrants for the conference. Five scientists have been invited to present research papers which will be presented on Thursday morning and Friday afternoon. The submitted papers will be given in three sessions, two concurrent sessions on Thursday afternoon and one session on Friday morning. On Friday morning there will also be a special session dealing with the effects of pesticides. The York Biology graduate students have organized this series of papers. All papers are of various lengths (as requested by the authors) and at least 5 minutes discussion time have been allotted to each.

This should be an excellent opportunity for ecologists from government, industry and universities to get to know one another. If you or any of your colleagues have not yet registered, please do so ~~by~~ mail or at the registration desk at the conference site.

If I can answer any questions or provide more information please call (416 667-2496) or write.

Don McQueen
Biology
York University

- (1) Housing: Those who have registered for rooms at the university (you will be registered if you sent in a yellow card) can pick up your room assignments and keys at the residence registration desk in the main entrance of Winters College. This is right across the street from parking lot A (34 on your map).
- (2) Parking: Please park in lot A. You can find this lot by entering the campus from Keele Street (see map).
- (3) Lectures: All the lectures will be held in the Stedman Lecture Hall (26 on your map).
- (4) Breakfast Lunch: On Thursday and Friday breakfast and/or lunch can be obtained in the residence dining halls (building 29 or 33) or in Central Square (building 13).
- (5) Supper: Thursday evening there will be a hamburger barbecue (which has been paid for) and bar (which has not). After the barbecue the bar will remain open. The site of both bar and barbecue will be announced at the meeting.
- (6) Telephone: The York emergency number is 667-3333 and the Department of Biology number is 667-2496.
- (7) Late Registration: If you have not registered and would like to attend the meetings, there will be a registration and information desk in the main foyer of Stedman Lecture Hall (26 on your map).

PROGRAM - ONTARIO ECOLOGY COLLOQUIUM '74

THURSDAY, APRIL 25

10:00 - 10:05 ... INTRODUCTION (D. MCQUEEN) STEDMAN D
10:05 - 10:50 ... PAPER (G.A. YARRANTON) STEDMAN D
10:50 - 11:35 ... PAPER (J. BARR) STEDMAN D
11:35 - 12:05 ... ~~JOB~~ OF ECOLOGY (B. CAVERS AND
G. MERRIAM) STEDMAN D
12:05 - 1:00 ... LUNCH
1:00 - 5:00 ... SUBMITTED PAPERS
 SERIES I STEDMAN D
 SERIES II STEDMAN C
5:30 - INTO THE NIGHT ... HAMBURGER BARBECUE (FREE) AND ROOM TO BE
 NO-HOST BAR ANNOUNCED

FRIDAY, APRIL 26

9:00 - 12:00 ... SUBMITTED PAPERS - SERIES III STEDMAN C
 ... SPECIAL PESTICIDE SERIES STEDMAN E
12:00 - 1:00 ... LUNCH
1:00 - 1:45 ... PAPER (G.P. HARRIS) STEDMAN D
1:45 - 2:30 ... PAPER (M.B. FENTON) STEDMAN D
2:30 - 3:00 ... PAPER (H.A. REGIER) STEDMAN D

DETAILED PROGRAM - ONTARIO ECOLOGY COLLOQUIUM '74

THURSDAY MORNING - INVITED PAPERS

10:05 - 10:50 (STEDMAN D) G.A. YARRANTON
PLANT SUCCESSION ON THE GRAND BEND SAND DUNES

Two stages in the succession are recognized and defined. The transition between the stages is heterogeneous, some points passing from stage I to stage II earlier than others. The role of key species such as Juniperus communis and Quercus rubra x velutina in this transition are explored as are contemporaneous changes in soil conditions.

10:50 - 11:25 (STEDMAN D) J. BARR
ECOLOGICAL ASPECTS OF FEEDING BEHAVIOUR IN THE COMMON LOON, GAVIA IMMER

11:25 - 12:05 (STEDMAN D) B. CAVERS AND G. MERRIAM WILL PRESENT AN ADDRESS ON THE PROPOSED CANADIAN JOURNAL OF ECOLOGY AND SYSTEMATICS.

SUBMITTED

THURSDAY AFTERNOON - INVITED PAPERS SERIES I

1:00 - 1:35 (STEDMAN D) M.J. RISK, D. CRAIG
INTERTIDAL ECOLOGY OF THE MINAS BASIN, BAY OF FUNDY

The Minas Basin represents a unique, highly productive intertidal area, dominated by deposit feeding invertebrates. Populations are highly substrate-dependent. Some organisms stabilize the sediment, while others re-suspend and mobilize it.

Proposed tidal-power projects will reduce tidal flushing, possibly leading to mass mortalities of Mya arenaria (soft-shelled clam) due to trophic-group amensalism.

1:35 - 2:05 (STEDMAN D) T.P. HALAPPA GOWDA
STABILITY OF A SMALL MEROMICTIC LAKE

The work of wind necessary to distribute the summer heat income of a small meromictic lake is found to represent only a small fraction of the work done by the wind on the water surface. The stability of the lake appears to be due to the high cliffs that surround the lake, and due to the higher solids concentration of the monimolimnion.

2:05 - 2:35 (STEDMAN D) M. DICKMAN
SEDIMENT CORE DIATOM AND POLLEN EVIDENCE FOR THE RECENT EUTROPHICATION OF A SMALL MEROMICTIC LAKE

A gradual shift from crenogenic to biogenic meromixis is reflected in numerous changes in the diatom and pollen species composition in a sediment core from a lake in Southern Quebec. Although the lake appears to have been isolated from the Champlain Sea nearly 11,000 years ago, it retained numerous salt tolerant diatom species in its waters for as long as 3,000 years. To date, relict forms from the Champlain Sea are still to be found living under freshwater conditions in this rather unique meromictic lake which is apparently undergoing rapid eutrophication.

2:35 - 3:10 (STEDMAN D) K. KERSHAW
ENVIRONMENTAL-PHYSIOLOGICAL INTERACTIONS IN SUB-ARCTIC
VEGETATION IN N. ONTARIO

The microclimate of raised beaches dominated by lichen heath in northern Ontario has a strong topographic component. Alectoria nitidula, typical of ridge crests, when contrasted with Cladina alpestris of the lower ridge slopes, is shown to be strongly adapted physiologically to the specific ridge-top microclimate.

3:10 - 3:20 COFFEE

3:20 - 3:50 (STEDMAN D) P. COURTNEY
THE EFFECTS OF A RURAL GARBAGE DUMP ON POPULATIONS
OF SMALL MAMMALS

Rural dumps foster high populations of certain small mammals which make use of abundant food and shelter found there. The common dump inhabitants, Mus musculus and Peromyscus leucopus, likely co-exist in dumps to some extent until levels of Mus reach high proportions at which time Mus excludes Peromyscus.

3:50 - 4:20 (STEDMAN D) R.M'CLOSKEY, B. FIELDWICK
ECOLOGICAL SEPARATION OF PEROMYSCUS AND MICROTUS

We examined the ecological separation of locally sympatric Peromyscus leucopus and Microtus pennsylvanicus in a wet prairie community in Ontario. Major niche dimensions quantified were diet overlap, arboreal habitat separation, and horizontal habitat separation. Diet overlap was low, vertical activity of Peromyscus was independent of Microtus presence or absence, and significant structural habitat separation was identified by discriminant analysis.

4:20 - 4:45 (STEDMAN D) J.B. FALLS
INDIVIDUAL RECOGNITION BY SOUND IN MALE BLUE GROUSE

Territorial males responded less intensely to recorded hooting of neighbours than to similar sounds of strangers. Overall strength of response varied with order of presentation of neighbours' and strangers' hoots. Preliminary audiospectrographic analysis of hoots indicates possible bases for individual recognition. Significance of these results will be discussed.

4:45 - 5:10 (STEDMAN D) E.H. ANTHONY
PATTERN GENERATION: AN AID TO INTERPRETING CLUSTER
ANALYSES ?

As an aid to comparative cluster analysis, relative frequencies of analytic groupings are used to specify symbols and generate patterns in matrix form. Transparencies of such patterns used as overlays provide for rapid visual comparison with similar patterns based upon observed values of various ecological factors.

1:00 - 1:20 (STEDMAN C) P. SUFFLING
MAPPING VEGETATION, SNOW AND ICE CONDITIONS IN THE
ARCTIC ISLANDS USING SATELLITE IMAGERY

Repeat coverage multispectral satellite imagery has been used for reconnaissance mapping of environmental conditions in the Arctic. Water bodies and certain vegetation types were differentiated. Ice break up and snow melt patterns were monitored. These observations can be used in studies of bird and wildlife habitat and migration patterns.

1:20 - 1:40 (STEDMAN C) P. BOOTHROYD
PREY SELECTION IN TWO SPECIES OF AVIAN INSECTIVORES,
HIRUNDO RUSTICA AND TYRANNUS TYRANNUS

Different aerodynamic characteristics determined the foraging behaviour of Hirundo rustica and Tyrannus tyrannus. The size and habits of the insects selected were different for the two species. Hirundo rustica foraged for longer time periods than T. tyrannus but consumed less energy in the process. The ecological opportunities for continuous aerial feeders are discussed.

1:40 - 2:05 (STEDMAN C) R. SUFFLING
THE USE OF HIERARCHICAL COMPUTER CLASSIFICATION IN
SERAL STUDIES

Classifications of quadrats in repeated surveys of a clearcut treated with Tordon 101 herbicide showed successional changes. The significance of such trends was assessed by a comparison with expected community changes. The normal succession was partially reversed by treatment, conifers and those species spread by seed being favoured in subsequent years.

2:05 - 2:30 (STEDMAN C) J. CARNIO
A LABORATORY STUDY OF THE EFFECTS OF SOME CLIMATIC FACTORS ON THE DEMOGRAPHY OF THE TERRESTRIAL ISOPOD PORCELLIO SPINICORNIS SAY

The demography of P. spinicornis was modelled using growth, survival and reproduction parameters modified by temperature, humidity, and day length. Simulations using the laboratory based demographic model and field temperatures for 1971-72 suggested that a P. spinicornis population should slowly increase in numbers. But when the 1971-72 temperatures were decreased by an average of 0.77°C the simulation population decreased. This suggests that minor temperature fluctuations could regulate the numbers of P. spinicornis.

2:30 - 2:50 (STEDMAN C) S. SKIDD
ACTIVITY AND DISTRIBUTION OF URBAN GRAY SQUIRRELS

The distribution and activity of the eastern gray squirrel was studied (Sciurus carolinensis) in five urban areas. The separate and combined effects of weather, seasonal period, time of day, and physical characteristics of each area were studied.

2:50 - 3:10 (STEDMAN C) D. FARQUHAR
GEOGRAPHIC COLOR VARIATION AND THERMOREGULATION IN GREY SQUIRRELS

The black phase of the grey squirrel was compared with grey and intermediate colored phases in its thermoregulatory ability. The resting oxygen consumption was measured over a range of 55 degrees. Black squirrels had significantly lower thermal conductance below 23 degrees C. The ecological significance of these findings is discussed.

FRIDAY MORNING - SUBMITTED PAPERS - SERIES III

9:00 - 9:25 (STEDMAN C) J.S. MAINI
ECOLOGY AND THE GENERAL PUBLIC

The general public, although increasingly concerned with ecological implications of industrial and urban activities, has limited understanding of ecological principles. For public education, the Canadian Forestry Service is preparing ECOTOUR maps along Trans-Canada Highway, which interpret landscape ecology by integrating features of natural and human history. Initial public response is enthusiastic.

9:25 - 10:00 (STEDMAN C) K. WINTERHALDER
RECLAMATION OF INDUSTRIAL BARRENS IN THE SUDBURY AREA

The soil of a barren area near Coniston, Ontario, is very acid, low in nutrients and higher than normal in copper and nickel content. Direct planting of trees has proved unsuccessful, but a grass sward can be established if the soil is amended. Woody species then become established spontaneously.

10:00 - 10:25 (STEDMAN C) L.M. CUNNINGHAM, T.C. HUTCHINSON
HEAVY METAL DISTRIBUTION IN HAMILTON, ONTARIO

The occurrence of heavy metals was investigated in the city of Hamilton, Ontario. Residential, industrial and business areas were selected for study. Soil and vegetation samples were collected at set distances from roadsides in these areas. The samples were analyzed for cadmium, lead and nickel. Data will be presented and discussed with respect to location and traffic density.

10:25 - 10:35 COFFEE

10:35 - 11:00 (STEDMAN C) L.M. WHITBY
THE EFFECTS OF SMELTER EMISSIONS ON THE SOILS OF
THE SUDBURY REGION

Extensive soil contamination in the Sudbury Area has been caused by emissions of sulphur dioxide and heavy metals. High concentrations of copper and nickel have accumulated in the soils, but striking changes in the nature of the organic matter are evident. The organic matter structure, chelating ability and mobility in the environment will be discussed.

11:00 - 11:25 (STEDMAN C) R.M. REED
SULFATE INPUTS VIA RAINFALL FOR A RED PINE FOREST
NEAR SUDBURY, ONTARIO

Sulfate inputs in rain samples collected under a Pinus resinosa canopy near Sudbury, Ontario were determined to evaluate the movement of sulfur pollutants into an ecosystem subjected to high pollution loads. Sulfate inputs were found to be highest in through-fall samples with incident precipitation contributing a large proportion of this input.

11:25 - 11:50 (STEDMAN C) D. JOHNSON

RABIES - A LIMITING FACTOR IN THE GROWTH OF WILD CARNIVORE POPULATIONS

An example exists in Ontario of a viral disease acting as a long-term limiting factor on a vertebrate population. Rabies has been endemic in foxes and skunks for 20 years with cycles occurring every 1, 3, and 10 years. Evidence suggests that genetic, physiological, virological and ecological factors are interacting to maintain a dynamic equilibrium. The Ontario Ministry of Natural Resources is developing a biological control system for wild rabies through immunization with an oral vaccine.

FRIDAY MORNING - A SPECIAL SESSION OF INVITED PAPERS

9:00 - 9:45 (STEDMAN E) K.D. DAVEY
REFLECTIONS ON THIRD GENERATION PESTICIDES

9:45 - 10:00 COFFEE

10:00 - 10:45 (STEDMAN E) R. DOWNER
INSECT HORMONE ANALOGS AS INSECTICIDES

10:45 - 11:30 (STEDMAN E) D. FRANK
PESTICIDE RESIDUES AND RESIDUE ANALYSIS

FRIDAY AFTERNOON - INVITED PAPERS

1:00 - 1:45 (STEDMAN D) G.P. HARRIS
THE COMPLEXITY OF ECOLOGY AND THE ECOLOGY OF COMPLEXITY

1:45 - 2:30 (STEDMAN D) M.B. FENTON
THE FEEDING ECOLOGY OF INSECTIVOROUS BATS

The effects of taste, avoidance behaviour by the prey, and Batesian and Mullerian mimetic assemblages on prey selection by insectivorous bats are discussed. Morphology of the bats, and the amount of food consumed by them are also presented. Echolocation is considered to be a prime factor involved in the origin and evolution of bats.

2:30 - 3:00 (STEDMAN D) H.A. REGIER
TRANSDISCIPLINARY ECOLOGY

The recommendation to break out of disciplinary constraints in approaching large "complex" problems has been made hundreds of times by individuals, institutions, governments, and international agencies. Most attempts to date have been relatively unsuccessful. Some alternatives to the usual interdisciplinary approaches will be sketched.

PROGRAMME ADDITIONS

- (1) Dr. D. L. Gibo will replace Dr. K. Kershaw in Series I
(Series I - Stedman D - 2:35-3:10) D. L. Gibo

TITLE: Kin selection in the social wasp Polistes fuscatus:
A laboratory test.

ABSTRACT: Two of the basic conditions that would allow kin selection to operate in foundress groups of Polistes fuscatus were examined in laboratory populations. Neither condition was met. Consequently, kin selection is not an adequate mechanism for the maintenance of the subsocial behaviour observed during colony founding in this group.

- (2) The following paper has been added to Series II.

(Series II - Stedman C - 3:10-3:40) M. A. Lock.

TITLE: The fate of dissolved organic carbon that leaches out of autumn-shed leaves in streams.

ABSTRACT: Freeze-dried water leachates of sugar maple leaves were added to a series of stirred hard-water (100 mg/l Ca^{++}) regimes to give an initial concentration of dissolved organic carbon (D.O.C.) of 35 mg/l . The disappearance of D.O.C. from the water column was followed over a 7 day period.

In water to which .01% sodium azide had been added (a metabolic poison), the concentration of D.O.C. was reduced to 70% of the initial level within 2 days and then remained stationary. In water to which a suspension of stream detritus had been added, the D.O.C. concentration was reduced to 88% of the initial level within 1 day and then remained stationary. However, in water overlying a natural stream bottom core, the D.O.C. concentration was reduced to 20% of the initial level in the first 12 hours and then to 0% within 2 days. The concentration of D.O.C. in the control (distilled water plus sodium azide) remained at the initial level over the 7 day period.

It appears therefore, that the major mechanism for removal of D.O.C. from the water column resides in the stream bottom cores and only 10-30% of the uptake occurs in the water-column (through physical/chemical processes and heterotrophic activity). Preliminary experiments indicate that the uptake of D.O.C. by the stream bottom cores is primarily due to adsorption.

As approximately 30% by weight of autumn-shed leaves are water soluble, this material and its incorporation into the energy pathways of the stream is of considerable importance and is discussed.

- (3) The barbecue will be held in Winters Junior Common Room.