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FORM 200
Application for an NSERC Scholarship or Fellowship
COVER PAGE

Date: 2001/12/07

Family name of applicant	Given name	Initial(s) of all given names	Personal identification no. (PIN)
Clinchy	Michael	J	

ADDRESSES

Current address	Permanent mailing address (if different than current address)
Department of Zoology University of Western Ontario London, ON CANADA N6A 5B7	5268 Santa Clara Avenue Victoria, BC CANADA V8Y 1W4
If current address is temporary, indicate leaving date	Telephone number at permanent mailing address: (250) 658-1041

Telephone number	Facsimile number	E-mail address
(519) 850-2533	(519) 661-2014	mclinchy@uwo.ca

CITIZENSHIP

[X] Canadian citizen [ ] Permanent resident of Canada [ ] Other

Indicate date of landing as per Form IMM 1000:

Indicate country of citizenship:

LANGUAGE OF CORRESPONDENCE

I wish to receive my correspondence in:

[X] English [ ] French

SIGNATURE

I hereby agree that any award made to me as a result of this application will be subject to the general conditions governing scholarships and fellowships. These conditions are outlined in this Web site in the NSERC *Program Guide for Students and Fellows,* the *Visiting Fellowships in Canadian Government Laboratories* guide, and the description of the NATO Science Fellowships program.

Applicant's signature

Personal information collected on this form and appendices will be stored in the Personal Information Bank for the appropriate program.

NSERC CRSNG *Investing in people, discovery and innovation* / *Investir dans les gens, la découverte et l'innovation*

FORM 200
Application for an
NSERC Scholarship or Fellowship
PART I

Date: 2001/12/07

Family name of applicant	Given name	Initial(s) of all given names	Personal identification no. (PIN)
Clinchy	Michael	J	

ACADEMIC BACKGROUND (include only current and past degree programs)

Degree	Name of discipline	Department, institution and country	Month and year started	Month and year awarded/expected
Bachelor's	Behavioural Ecology	Biology and Psychology Toronto, CANADA	09 / 1983	07 / 1988
Master's	Population Ecology	Biology Queen's, CANADA	09 / 1988	12 / 1990
Doctorate	Population Ecology	Zoolgy British Columbia, CANADA	09 / 1992	11 / 1999

ACADEMIC, RESEARCH AND OTHER RELEVANT WORK EXPERIENCE

Position held and nature of work (begin with current)	Organization and department	Supervisor	Period (mm/yyyy-mm/yyyy)
Post-Doctoral Research Associate Collaborating in food addition and predator reduction experiment on songbirds (Full-time, Seasonal)	University of Western Ontario Zoology	Prof. L.Y. Zanette	01/2000 -04/2002
Post-Doctoral Research Associate Data analysis of the role of immigration in the population dynamics of red squirrels (Full-time)	University of Alberta Biological Sciences	Prof. S. Boutin	03/2001 -05/2001
Post-Doctoral Research Associate Data analysis of cyclic fluctuations in trap-deaths in snowshoe hares (Full-time)	University of British Columbia Zoology	Prof. C.J. Krebs	01/2001 -03/2001
Research Associate Assisted in the design and execution of experiments on the breeding behaviour of poultry (Full-time)	Agriculture Canada Centre for Food and Animal Research	Dr. M.L. Leonard	03/1991 -08/1992

Personal identification no. (PIN)	Family name, given name and initial(s) of applicant
	Clinchy, Michael J

AWARD APPLIED FOR

Type of award	Proposed starting date of award
Postdoctoral Fellowships - PDF	2002/04/01

Proposed degree program (e.g. Masters, Doctorate)	Proposed field of study/research	Research subject code
		4710

Title of proposed research (not required for VF applicants)

Synergistic effects of food and predation on the physiological ecology of songbirds

List ten (10) key words that describe your proposed research. Use commas to separate them. (Not required for VF applicants.)

chronic stress, reproductive success, fluctuating asymmetry, population ecology, behavioural ecology, field experiments, indirect effects, ornithology, risk of predation, ecological methodology

PROPOSED LOCATION(S) OF TENURE (in order of preference)

Institution/organization	Department	Proposed supervisor
Toronto	Division of Life Sciences	Prof. R. Boonstra

SECTION TO BE COMPLETED BY PGS APPLICANTS ONLY

Indicate the number of months of graduate studies (master's and doctoral) you will have completed as of December 31 of the year of application.

_____ months of full-time graduate studies _____ months of part-time graduate studies

Indicate if you are attending university at the time of application.

☐ Attending part time ☐ Attending full time ☐ Not attending

Are you applying for tenure of your award abroad?

☐ Yes ☐ No

Personal identification no.(PIN)	Family name, given name and initial(s) of applicant
	Clinchy, Michael J

THESES COMPLETED OR IN PROGRESS

1. Degree	Supervisor	Date degree requirements completed
Ph.D.	Prof. C.J. Krebs	11/1999

Title of thesis
Does immigration 'rescue' populations from extinction?

2. Degree	Supervisor	Date degree requirements completed
M.Sc.	Dr I.K. Barker	12/1990

Title of thesis
Parsitic infections of lesser snow geese (Chen caerulescens caerulescens) from an arctic breeding colony: implications for snow goose demography

SUMMARY OF THESIS MOST RECENTLY COMPLETED OR IN PROGRESS (honours project, master's or doctoral)

Use plain language. Do not reproduce abstract of thesis.

The pivotal role of habitat fragmentation in the current 'extinction crisis' is unquestionable. Nowhere is that crisis more acute than in Australia. Almost half of all the mammalian species extinctions in the past 200 years involve medium-sized Australian mammals. Habitat fragmentation has been invoked as one of the principal mechanisms responsible and the vulnerability of medium-sized species in particular has been cited in support of this hypothesis. The argument is as follows: small mammals are unable to easily disperse between habitat fragments but are buffered from disturbances within each fragment by their high abundance; the low abundance of large mammals makes them very vulnerable to disturbances within a fragment but their greater size makes it easy for them to migrate to more suitable fragments; medium-sized mammals are then caught in the middle, being scarce enough to be vulnerable to extinctions within a fragment and too small to readily disperse between fragments. As a consequence of this argument the focus of conservation efforts has been on establishing movement corridors to facilitate dispersal between fragments by medium-sized mammals. This focus on conservation corridors in Australia has often been invoked as proof of the value of conservation corridors in Europe and North America. Yet, prior to my Ph.D. research, there had been no studies conducted on the role of dispersal in the population dynamics of any medium-sized mammal in Australia.

I conducted a large-scale, spatially and temporally replicated removal experiment on a 'model' medium-sized mammal (Common brushtail possum, Trichosurus vulpecula) in contiguous old-growth Eucalyptus forest in south-eastern Australia. I reasoned that if, as suggested in the literature, habitat fragmentation creates physical barriers that impair dispersal, it follows that dispersal ought to be maximal in contiguous habitat. If dispersal is relatively unimportant in contiguous habitat the impairment of dispersal resulting from habitat fragmentation cannot be invoked as a significant cause of population declines, and movement corridors are therefore of little use.

I removed 19 resident animals from the centres of two replicate 36 ha study grids and monitored the rate of replacement of these residents by dispersers over the following two years. Only one disperser settled in one of the two removal areas. Parentage analysis using microsatellite DNA revealed that this disperser had moved only one home range away from its mother's home range. DNA analysis further revealed that all known daughters of residents settled beside their mothers. Projections from a demographic model I developed showed that dispersal contributed < 1 % to the population growth rate. Comparison between the study grids revealed significant genetic differentiation at a scale of only 2 km, confirming that dispersal is generally insignificant.

My research unambiguously demonstrated that dispersal is of little relevance to the population dynamics of medium-sized mammals in Australia. Contrasts between the demography of my study populations and those in fragmented areas suggested that the latter are more vulnerable to introduced predators. Since the adverse effects of habitat fragmentation are not associated with dispersal, I concluded that this greater vulnerability to predators is most likely responsible for the dramatic number of declines and extinctions.

SECTION 3. SCHOLARSHIPS AND AWARDS

Award	Value ($ p.a.)	Type/ Competition	Location of Tenure	Period Held
▪ McLean Fraser Research Fellowship	2,500	Institutional	University of British Columbia, Vancouver, B.C.	1999
▪ Graduate Student Travel Award	400	Institutional	University of British Columbia, Vancouver, B.C.	1999
▪ Victorian Memorial Graduate Scholarship	14,500	International	University of New England, Armidale, N.S.W., Australia	1994-7
▪ Victorian Memorial Grant in Aid of Research	10,000	International	University of New England, Armidale, N.S.W., Australia	1994-7
▪ Sigma Xi Grant in Aid of Research	600	International	University of British Columbia, Vancouver, B.C.	1993
▪ Univ. of British Columbia Graduate Scholarship	13,500	Institutional	University of British Columbia, Vancouver, B.C.	1992-4
▪ Canadian Wildlife Service Grant in Aid of Research	2,000	National	Queen's University, Kingston, Ontario	1989
▪ Queen's University Dean's Award	11,000	Institutional	Queen's University, Kingston, Ontario	1988-9
▪ Queen's University Graduate Scholarship	10,625	Institutional	Queen's University, Kingston, Ontario	1987-8

SECTION 4. CONTRIBUTIONS TO RESEARCH AND DEVELOPMENT

▪ **Articles Published in Refereed Journals**

1. **Clinchy, M.**, D.T. Haydon, & A.T. Smith. 2002. Pattern is not equal to process: what does patch occupancy really tell us about metapopulation dynamics? IN PRESS *The American Naturalist* (accepted September 2001, 32 pages) (Post-Doctoral).
2. **Clinchy, M.**, C.J. Krebs, & P.J. Jarman. 2001. Dispersal sinks and handling effects: interpreting the role of immigration in common brushtail possum populations. *Journal of Animal Ecology* 70:515-526 (Ph.D.).
3. Johnson, C.N., **M. Clinchy**, A.C. Taylor, C.J. Krebs, P.J. Jarman, A. Payne & E.G. Ritchie. 2001. Adjustment of offspring sex ratios in relation to the availability of resources for philopatric offspring in the common brushtail possum. *Proceedings of the Royal Society of London, Series B* 268:201-205 (Ph.D.).
4. **Clinchy, M.** 1997. Does immigration 'rescue' populations from extinction? Implications regarding movement corridors and the conservation of mammals. *Oikos* 80:618-622 (Ph.D.).
5. **Clinchy, M.**, & C.J. Krebs. 1997. The emperor has no clothes: comments on Hedrick *et al*. and the distinction between field biologists and lab scientists. *Conservation Biology* 11:832-833 (Ph.D.).
6. Leonard, M.L., L. Zanette, & **M. Clinchy**. 1996. The effect of early exposure to the opposite sex on mate choice in White Leghorn Chickens. *Applied Animal Behaviour Science* 48:15-23 (Agriculture Canada).
7. **Clinchy, M.**, & I.K. Barker. 1994. Dynamics of parasitic infections at four sites within lesser snow geese (*Chen caerulescens caerulescens*) from the breeding colony at La Pérouse Bay, Manitoba, Canada. *Journal of Parasitology*, 80:663-666 (M.Sc.).
8. **Clinchy, M.**, & I.K. Barker. 1994. Effects of parasitic infections on clutch size of lesser snow geese from a northern breeding colony. *Canadian Journal of Zoology* 72:541-544 (M.Sc.).
9. Giraldeau, L.-A., J.A. Hogan, & **M. Clinchy**. 1990. The payoffs to producing and scrounging: what happens when patches are divisible? *Ethology* 85:132-146 (B.Sc.).

- **Articles Submitted to Refereed Journals**

10. **Clinchy, M.**, A.C. Taylor, C.J. Krebs, P.J. Jarman, & L. Zanette. Microsatellite analysis of the mating system of the common brushtail possum (*Trichosurus vulpecula*) in old-growth *Eucalyptus* forest in Australia. Submitted to *Molecular Ecology*, October 2001 (24 pages) (PhD).

- **Other Refereed Contributions**

11. **Clinchy, M.** 1999. Does immigration 'rescue' populations from extinction? Ph.D. Dissertation, University of British Columbia, Vancouver, B.C.
12. **Clinchy, M.** 1990. Parasitic infections of lesser snow geese (*Chen caerulescens caerulescens*) from an arctic breeding colony: implications for snow goose demography. M.Sc. Dissertation, Queen's University, Kingston, Ontario.
13. **Clinchy, M.** 1988. Individual foraging specialization and mutual parasitism in spice finches (*Lonchura punctulata*): testing the skill pool hypothesis. B.Sc. Dissertation, University of Toronto, Ontario.

- **Non-Refereed Contributions**

14. Zanette, L., J.N.M. Smith, H. van Oort, A.E. Budden, & **M. Clinchy**. 2001. Population, genetic and behavioural effects of food addition and predator removal: results from a large-scale field experiment on Song Sparrows (*Melospiza melodia*). Annual Meeting of the American Ornithologists' Union, University of Washington, Seattle, Washington (Post-Doctoral).
15. **Clinchy, M.** 2001. Metapopulation dynamics in pikas and possums. Invited lecture, University of Alberta, Edmonton, Alberta (Post-Doctoral).
16. **Clinchy, M.**, A.C. Taylor, C.J. Krebs, & P.J. Jarman. 1999. Does immigration 'rescue' populations from extinction? Evidence from a large-scale field experiment on common brushtail possums (*Trichosurus vulpecula*) in Australia. Annual Meeting of the Ecological Society of America, Spokane, Washington (Ph.D.).
17. **Clinchy, M.** 1997. Does immigration 'rescue' populations from extinction? Evidence from a large-scale field experiment on common brushtail possums. Invited lecture, CSIRO Division of Wildlife and Ecology, Canberra, Australia (Ph.D.).
18. **Clinchy, M.** 1996. Behaviour: the forgotten component of the rescue effect - mammals as a model. Annual Meeting of the Ecological Society of Australia, Townsville, Australia (Ph.D.).
19. **Clinchy, M.** 1996. Immigration in populations of the common brushtail possum (*Trichosurus vulpecula*): implications for the rescue effect in the scale of environmental heterogeneity. Annual Meeting of the Ecological Society of Australia, Townsville, Australia (Ph.D.).
20. **Clinchy, M.**, P.J. Jarman, & C.J. Krebs. 1995. An experimental study of the role of immigration in populations of the common brushtail possum (*Trichosurus vulpecula*). Annual Meeting of the Australian Mammal Society, Townsville, Australia (Ph.D.).
21. Lank, D.B., L. Zanette, **M. Clinchy**, & C.M. Smith. 1989. Satellite Ruffs (*Philomachus pugnax*) are not wimps. Annual Meeting of the American Ornithologists' Union, Pittsburgh, Penn. (M.Sc.).

SECTION 5. MOST SIGNIFICANT CONTRIBUTIONS TO RESEARCH

I) Metapopulation Dynamics Cannot be Inferred from Patch Occupancy Data.

Habitat fragmentation has been called the single most important issue in conservation biology. As a consequence of habitat fragmentation more and more species now exist as a series of spatially disjunct populations separated by inhospitable habitat. This has led to an exponential growth in the study of metapopulation dynamics in the past 10 years. A metapopulation is a 'population of populations' linked by dispersal. Species management plans often rely heavily on projections from metapopulation dynamic models that are based on one of more surveys of the presence or absence of the species in a series of suitable habitat patches. Results from such simple surveys of patch occupancy are frequently used to infer the existence of metapopulation dynamics even when there is little or no direct evidence regarding

the role of dispersal in the population dynamics of the species in question. In Publication 1 above, my co-authors and I used patch occupancy data from what has been called "the best-known mammalian example of a classical metapopulation" to show that the same patterns of patch occupancy that are cited as incontrovertible evidence of metapopulation processes can as easily be generated by a plethora of other simple processes. Moreover, re-analysis revealed that supplementary evidence cited as proof of metapopulation processes in this system, is largely trivial. Given that data from one of *the* classic examples of a metapopulation is open to question, we conclude that metapopulation dynamics cannot be legitimately inferred from patch occupancy data alone. This paper is sure to have a far-reaching effect on the study and application of metapopulation dynamics theory. *I conceived of and initiated the study, conducted all of the statistical analyses, and wrote the paper. DTH constructed the simulation models used in the paper, and ATS collected the original data.*

II) Does Dispersal 'Rescue' Populations from Researchers?

Since metapopulation processes cannot be inferred from patch occupancy data alone it is necessary to directly measure the role of dispersal. Dispersal is particularly difficult to quantify and doing so often requires frequent and intensive disturbance of the resident population. In a study designed to directly measure dispersal, my co-authors and I found that adverse effects on resident populations that resulted from our efforts to quantify dispersal, actually inflated the significance of dispersal. Publication 2 above cautions against the possibility that studies of the significance of dispersal may often *cause* dispersal to appear significant when it would otherwise be inconsequential in undisturbed populations. These results have important implications regarding the quality of evidence necessary to convincingly demonstrate the existence of metapopulation processes. *I conceived of, designed, and executed the study, conducted all of the statistical analyses, and wrote the paper. My co-authors supported the project and provided helpful comments on various drafts of the paper.*

III) Immigration May Not Always Be Additive.

For more than 20 years metapopulation dynamic models have uniformly assumed that the sole effect of a disperser entering a population is that the population size is thereby increased by 1. In mammals, males rarely contribute to parental care, obviously do not give birth, and generally compete with females for limited resources. The addition of more males will in the main have adverse effects on reproduction, thereby lowering population size. Publication 4 above reviews the abundant behavioural data showing that the entrance of dispersers into populations can entail adverse effects on residents, including acts of infanticide against resident young. In addition to questioning the dogma that dispersal is always additive, this paper proposed the novel hypothesis that by enhancing dispersal, movement corridors for conservation may actually have detrimental effects on the populations they are meant to preserve. This paper was discussed in the *Annual Review of Ecology and Systematics* (1999, 30:83) and has been frequently cited in papers addressing the pros and cons of conservation corridors. *I conceived of the hypotheses and conducted the literature review, and I am the sole author on the paper.*

- **Collaboration with Other Researchers**

All research is collaborative research. I have been fortunate to be able to collaborate with a wide range of researchers from Australia, Britain, Canada, and the U.S. I have worked with graduate students, postdoctoral researchers, and senior faculty members. I have included a list of my major collaborators and their current research institutions: Dr I.K. Barker, Ont. Vet. College, U. Guelph; Dr. R. Boonstra, Div. Life Sciences, U. Toronto; Dr. S. Boutin, Dept. Biological Sciences, U. Alberta; Dr. L.-A. Giraldeau, Dept. Biology, U. Quebec at Montreal; Dr. D.T. Haydon, Dept. Zoology, U. Guelph; Dr. P.J. Jarman, Dept. Ecosystem Management, U. New England, Australia; Dr. C.N. Johnson, Dept. Zoology, James Cook U., Australia; Dr. C.J. Krebs, Dept. Zoology, U. British Columbia; Dr. M.L. Leonard, Dept. Biology, Dalhousie U.; Dr. A.T. Smith, Dept. Biology, Arizona State U.; Dr. J.N.M. Smith, Dept. Zoology, U. British Columbia; Dr. A.C. Taylor, Dept. Biological Sciences, Monash U., Australia; Dr. J.C. Wingfield, Dept. Zoology, U. Washington; Dr. L.Y. Zanette, Dept. Zoology, U. Western Ontario.

- **Recommendations to Industry**

Industry-wide changes in rearing conditions were adopted by poultry producers, as a result of recommendations made on the basis of research my supervisor (Dr. M.L. Leonard, now at Dalhousie University) and I conducted while working for Agriculture Canada.

SECTION 6. APPLICANTS STATEMENT

a) Research Experience

I first became interested in pursuing a career in biological research as a result of taking a number of exceedingly interesting courses on animal behaviour during my undergraduate degree in psychology, at the University of Toronto. The psychology department at the University of Toronto placed a strong emphasis on rigorous, experimental, hypothesis testing; something which has benefited me throughout my scientific career. My B.Sc. Honours thesis on intraspecific parasitism of foraging skills in flocks of Spice Finches (*Lonchura punctulata*) sparked my interest in the population level consequences of behaviour. Greater time spent feeding increased both one's food intake and the likelihood of being parasitized by conspecific 'scroungers'. My M.Sc. research extended this reasoning to heterospecifics. The more time spent feeding the more likely one is to ingest true parasites. The benefits of greater feeding, in terms of reproduction and survival, may then be negated or reversed by heavier parasitic infections. I tested this hypothesis by examining the effects of parasitic infections on the clutch size of lesser snow geese (*Chen caerulescens caerulescens*). I had no prior experience working on parasites. Rather, I knew the question I wanted to address, approached a collaborator (Dr. I.K. Barker) who could assist me in learning the skills necessary, taught myself those skills, and thereby accomplished my goal.

Following my M.Sc., I worked as an Associate Researcher at Agriculture Canada. This gave me the opportunity to hone my existing abilities by assisting in the design and execution of a series of experiments on the breeding behaviour of domestic poultry, aimed at increasing egg production.

My Ph.D. research integrated all of the aforementioned elements of my earlier training together with a growing concern for the environment by forging links between behavioural ecology, population ecology and conservation biology. One of the many things I learned during my Ph.D. was that the effects of predators cannot be ignored. Whereas I had, during my M.Sc., considered the interaction between foraging behaviour and parasites, it was clear from my Ph.D. research that the interplay between behaviour and vulnerability to predators explains the pattern of declines among the > 50 species of medium-sized mammals in Australia that have been adversely affected by European settlement in the past 200 years. This vulnerability to predation was made abundantly obvious by the significant increase in mortality resulting from the physiological stress induced by capture and handling - which effectively mimics a non-lethal predation event, like being caught by a predator and then escaping.

While I was completing my Ph.D. my supervisor, Prof. C.J. Krebs, and his colleagues (Prof. R. Boonstra, U. Toronto; Prof. S. Boutin, U. Alberta) were publishing the results of a large-scale study that was the first to experimentally demonstrate synergistic effects of food and predation on the demography of mammals. Immediately following my Ph.D. I began collaborating with Prof. L.Y. Zanette (U. Western Ontario) in establishing a study to test for comparable effects in birds. Both my previous experience and Prof. Zanette's convinced us that physiologically- or behaviourally-mediated interactions between food and predation were sure to be the norm among most terrestrial vertebrates, and we were intent on establishing a large-scale, long-term experiment that would allow us to fully explore all aspects of this interaction. We have obtained dramatic evidence of synergistic effects, and in 2001 we began investigating the likely behavioural mechanisms by collaborating with Dr A.E. Budden (PDF, U.B.C.) in a study of the anti-predator and foraging activities of nesting females. In 2002 we will begin addressing the role of physiological stress in generating the observed synergism.

My Ph.D. focused on dispersal and I continue to be fascinated by questions concerning dispersal. Prior to the second field season of my study with Prof. Zanette I began collaborating with Prof. Boutin in analyzing the role of immigration in the population dynamics or red squirrels (*Tamiasciurus*

hudsonicus), based on his 15-year data set from the southwest Yukon. Since this is a computerized data set we are able to return to the analyses whenever our schedules permit. The similarities between red squirrels and the species I studied in Australia are proving to be quite striking.

My early work on parasites predisposed me to being interested in exploring the physiological stress effects of capture and handling which I documented during my Ph.D. At the beginning of this year I worked with Prof. Krebs in documenting evidence of handling stress associated with the large-scale experiment on synergistic effects in mammals that he conducted with Profs. Boutin and Boonstra. I am delighted to now have the opportunity to collaborate with Prof. Boonstra in studying natural causes (food, predators) of physiological stress, and the effects these may have on reproduction and survival. Given my extensive experience, the infrastructure I have developed together with Prof. Zanette, and the quality of my collaborators, I have no doubts about my ability to accomplish the goals I have laid out within the time-frame of a post-doctoral fellowship.

b) Relevant Activities

- **Supervisor**

As I have not yet held a faculty position, I have not supervised students in an official capacity. However, in the course of my current Post-Doctoral research I contributed extensively to the supervision of an undergraduate Honours student (N. Howard). I assisted this student with the development of hypotheses and the design of experiments, and trained and directed this person in the field. During my Ph.D., I trained and supervised 3 full-time, graduate research assistants (P. Forest, C. Frosch and W. Perry) and 19 part-time, undergraduate research assistants (A. Collins, G. de Biasi, L. Falloon, N. Gammie, P. Hancock, R. James, R. Martin, N. Noble, J. Rapp, L. Redman, B. Rollo, R. Scrivener, M. Stanford, P. Thomas, S. Tremont, J. van der Lee, W. Weir, S. Wright and G. Young). I also coordinated and supervised the collection of data by an undergraduate ecology class of > 200 students, and an undergraduate engineering class of 16 students, during a series of weekend field trips.

- **Teaching and Workshops**

Sessional Lecturer, Conservation Biology, University of British Columbia, 1999
Teaching Assistant, Vertebrate Ecology, University of British Columbia, 1998-1999
Teaching Assistant, Conservation Biology, University of British Columbia, 1998
Workshops on Wildlife Management in Developing Countries, U. of New England, Australia, 1997
Teaching Assistant, Wildlife Biology, University of New England, Australia, 1994-1996
Teaching Assistant, Population Ecology, University of British Columbia, 1993
Teaching Assistant, Community Ecology, University of British Columbia, 1993
Teaching Assistant, Introductory Ecology, Queen's University, 1989-1990
Teaching Assistant, Introductory Genetics, Queen's University, 1988-1989

- **Committee Membership**

During my Ph.D., I was Co-Chair of the University of New England, Dept. of Ecosystem Management's Distinguished Visitors Committee, from 1995-1997. The Committee's function was to select, invite and coordinate visits to the Dept. by internationally renowned guest lecturers.

c) Research career

My immediate goal is to obtain a faculty position at a Canadian university, both because I enjoy teaching and have always been well-liked by my students, and because an academic career is best suited to helping me continue to conduct highly innovative and exciting research. My record shows that I have dynamic abilities in designing experiments and executing them and then disseminating this information through publications and presentations. My publications, and the interest that these have generated among my colleagues, demonstrate my ability to think critically, independently, and creatively. As my record demonstrates, I am adept at assembling teams of collaborators with expertise that complements my own, and I look forward to working with graduate students in my own research lab.