

ERS 375 Spring 2014

Restoration In Practice in the Long Point World Biosphere Norfolk County, Ontario



Instructor: Brian Craig, ERS Adjunct Professor

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Prerequisites: A general level ecology course or consent of instructor

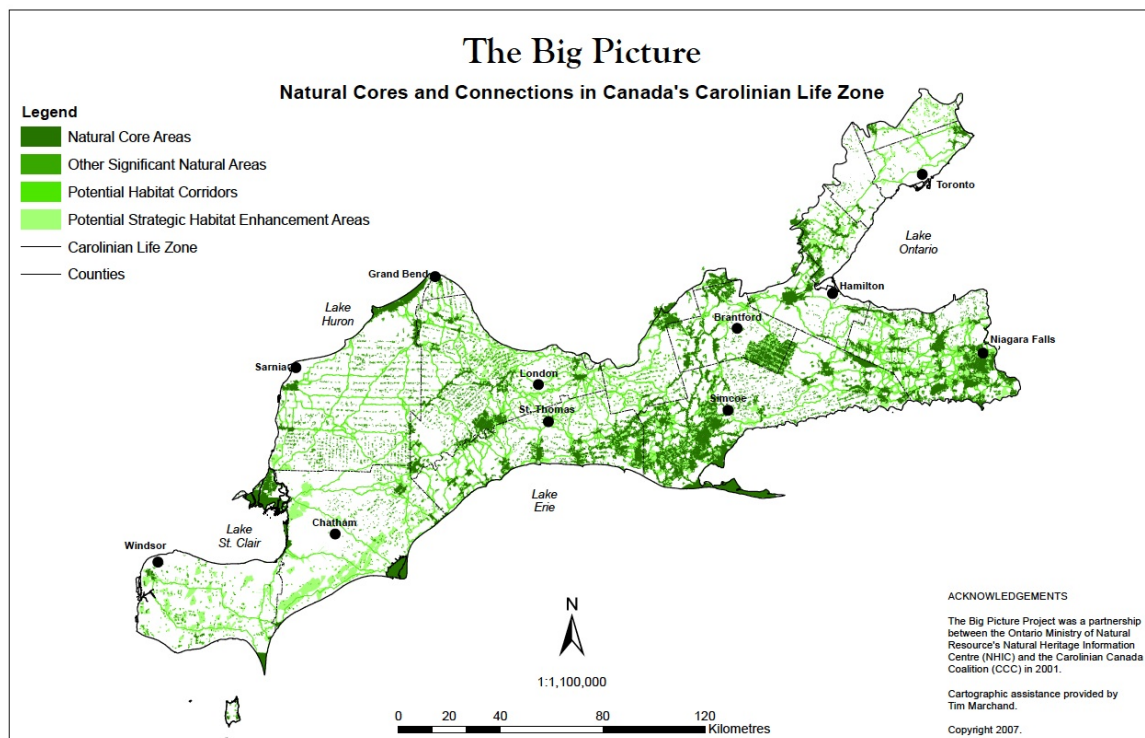
Course Location: Long Point Waterfowl Education and Research Centre, Turkey Point, Ontario

Course Maximum: 14 students

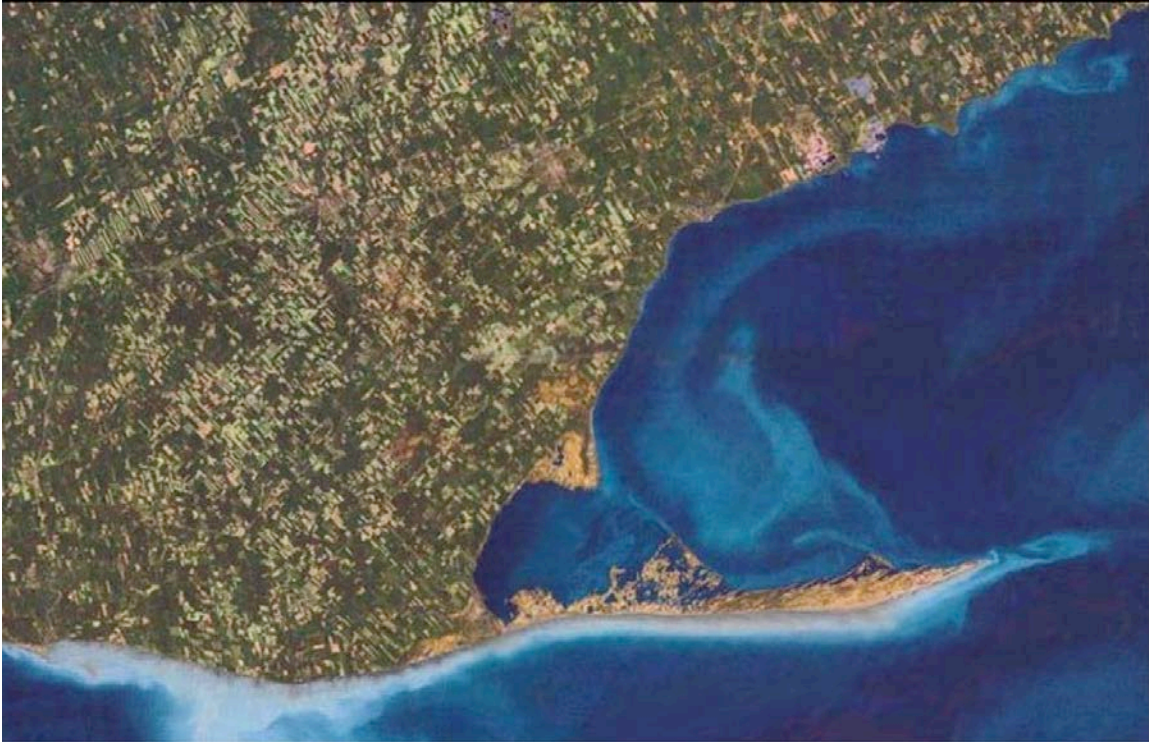
1. Field Course Overview

In the field critical examination, coupled with engaging on site discussions of the successes and challenges of a restoration project with professional restoration practitioners responsible for the planning, implementation and monitoring of a project, will provide a platform for learning, and the subsequent application of, the principles of ecological and ecosystem service restoration.

The Long Point World Biosphere is located in the heart of the Carolinian Life Zone in Norfolk County, Ontario. The landscape has over 25 percent forest cover, greater than any other County in the Carolinian Life Zone. The landscape also purportedly hosts more species at risk than any other area in Canada.



Home to some of the most fertile land in Ontario, Norfolk County is a top producing area for farm fresh produce in Ontario and the most diversified agricultural region in Canada. Norfolk County is Canada's leading growing region of asparagus, sweet corn, cucumbers, peppers, cabbage, strawberries, sour cherries, ginseng and pumpkin. The agricultural industry is the leading economic activity in Norfolk County contributing over \$415 million to the local economy.



Long Point, the southern reaches of Norfolk County, is renowned as a staging area for waterfowl during migration. The wetlands along Big Creek and the marshes adjoining Long Point Inner and Outer Bay provide waterfowl nesting habitat. Long Point Inner and Outer Bay are also renowned for some of the best small and largemouth bass fishing in North America. Hence, there has been strong support from government agencies, non-government organizations, private foundations, and private landowners for restoration to enhance the ecological integrity of the landscape; improve ecosystem services that support agricultural production; and to improve habitat for hunting and fishing.

Ecological goals vary: the recovery of a functionally integrated landscape; the preparation of suitable habitat for a particular species; the enhancement of ecosystem services vital to economic sustainability. Achievement of these goals contributes to the health of ecosystems, landscapes, and the entire planet. (SER 2004) The goals of restoration projects in the Long Point World Biosphere are as diverse as the organizations, agencies, funders, and individuals implementing and supporting the restoration, but all are contributing to improving the health of the landscape.

Following morning readings, lectures and discussions there will be field trips to restoration sites to examine restoration progress and meet professional restoration practitioners who are responsible for planning, implementing, and monitoring the restoration project. Site visits will include:

1. Establishment of drainage control structures in a swamp / wetland to enhance surface water storage, wetland habitat and ground water recharge. Project leads: Private landowners, Ontario Ministry of Natural Resources, Norfolk County Drainage Department.
2. Dredging ponds and natural wetland habitats in the Long Point Crown Marsh to enhance wildlife populations. Project Leads: Long Point Waterfowlers' Association, Ontario Ministry of Natural Resources, and Long Point Waterfowl.
3. Port Rowan Sewage Lagoon Naturalization. Project Lead: Norfolk County
4. Forest Connectivity, Wildlife Habitat and Carbon Sequestration in the Long Point World Biosphere. Projects Leads: Ontario Power Generation, Long Point Region Conservation Authority and Long Point World Biosphere Foundation
5. Restoring the hydrological connection between the Big Creek National Wildlife Area and Long Point Inner Bay and the installation of ecopassages to mitigate road kill. Project Lead: Long Point Causeway Improvement Project Steering Committee
6. Big Creek National Wildlife Area marsh impoundments for increasing wildlife diversity and controlling the growth and spread of invasive plant species. Project Lead: Canadian Wildlife Service
7. Restoration of agricultural lands to wetland, forest, prairie and sand barrens. Project Lead: Nature Conservancy of Canada
8. Enhancing Ecosystem Services on farmland. Project Lead: Norfolk County Alternative Land Use Services (ALUS) Steering Committee.
9. Wetland Restoration. Project Lead: Bird Studies Canada
10. Riparian wetland enhancement along Big Creek. Project Leads: Murray Marsh Club and Bayou Club
11. Reintroduction of Wild Turkeys in Ontario. Project Leads: Ontario Ministry of Natural Resources and Ontario Federation of Anglers and Hunters
12. St. Williams Nursery and Ecology Centre: operates over 400 acres of field production and 10 acres of greenhouse space in Southern Ontario making it the largest source-identified native plant nursery in the province.
13. Highway 407 East Extension Project – Vegetation compensation / replacement ecological restoration. Project Lead: Allan Arthur, Project Restoration Ecologist, St. Williams Nursery and Ecology Centre. Note: Final site visit will be at 407-east extension east of Toronto prior to returning to University of Waterloo.



We will also spend a half day planting trees for the Ontario Power Generation / Long Point Region Conservation Authority/ Long Point World Biosphere Reserve Forest Corridor and Carbon Sequestration Project. The Long Point Region Conservation Authority Lands and Water Manager will provide proper tree planting instruction.



Please note that Site visits #2 and #10 will be conducted in single kayaks or canoes depending upon water levels. Paddling safety instruction will be provided as well as kayaks and canoes, paddles, and PFD's (life jackets).

2. Important Course Dates

Pre Field Trip Meeting – Tuesday, May 6, 2014 at 5:30 p.m. at foyer outside of Dr. Stephen Murphy's office

Introductory Course Meeting – Tuesday May 20, 2014 at 10:00 a.m. EV2 2006

Depart from University of Waterloo - Tuesday, May 20, 2014 at 11:00 a.m. for the Long Point Waterfowl Research and Education Centre, Turkey Point, Ontario

Return to University of Waterloo on Thursday May 29, 2014 at end of day

Assignment 1 and 2 due Thursday June 6, 2014 by email before 11:59 p.m.

Assignment 3 due Tuesday, July 17, 2014 by email before 11:59 p.m.

3. Feld Course Primary Learning Objectives

Successful completion of the this field course will include the ability to:

- Describe the motivations for ecological restoration
- Describe the ecological consequences of impairment
- Describe the ecological attributes that demonstrate the recovery of an impaired ecosystem.
- Identify and describe reference models for restoration
- Critically evaluate the success of restoration projects
- Acquire and improve field identification skills of plants used for the purposes of restoration
- Synthesize lessons from site visits in terms of general practice of ecological restoration
- Apply the Guidelines for Developing and Managing Ecological Restoration Projects (SER 2004)
- Use all of the above skills in a consultant style report (professional communication) and in creative design for an ecological restoration project.

Please note that several of the objectives are similar to Dr. Stephen Murphys' ERS 211 Environmental Analysis & Solutions IV: Restoration Ecology as this course provides an opportunity to apply knowledge gained from ERS 211 and to examine and critique actual examples of restoration projects in Norfolk County.

4. Field Course Ancillary Learning Objectives

- To provide students with the opportunity to meet professionals engaged in ecological and environmental management and administration, scientific research, environmental monitoring, and protection of the natural environment.
- To provide students with an understanding the United Nations Education, Cultural, and Scientific Organization's (UNESCO) biosphere reserves program.
- To establish a learning community that nurtures both individual creativity and mutual assistance, and operates successfully at both the pedagogical and social levels.
- To provide opportunities for students to experience the gifts of nature linking our mental, physical, and spiritual health.

5. Course Evaluation

1. Site Visit Journal. (40%) You will be required to keep a journal for each site visit and capture who, what, where, when, why, how, and the success and challenges of each restoration project. Journal entries should be no longer than 500 words for each project. The journal will be submitted one week after course completion using MS Word and be under 10 megs in size. Incorporating up to 3 pictures for each site visit would be an asset to your journal.

2. Participation and learning (20% of mark). You will be assessed on your general experience in our learning community, your cooperative performance in the field, your conscientious participation as a member of the team, your contribution to maintaining the camp and necessary activities, and any special creative touches or contributions. You will submit 2 short statements. One, no more than one page long, should list your contributions to the course. The second, up to two pages, should reflect on your learning outcomes. Learning outcomes can be varied, from the methods and techniques you have learned, experiences in the field, coming to appreciate nature, learning to observe, etc.

3. Individual consultant style report on a proposed restoration project of your choice. (40%) Your report should demonstrate your understanding and ability to apply all of the components necessary to undertake an effective and efficient restoration project. The report will be submitted 4 weeks after course completion using MS Word and be under 10 megs in size

6. Course Readings

Clewell, Andre F. and James Aronson. 2007. *Ecological Restoration: principles, values, and the structure of an emerging profession*. Washington D.C. Island Press [Available for ~\$30.00]

Society for Ecological Restoration International Science & Policy Working Group. 2004. *The SER International Primer on Ecological Restoration*. www.ser.org & Tucson: Society for Ecological Restoration International. [free download available on line]

Selected journal articles on ecological and ecosystem service restoration and management will be provided 4 weeks prior to the beginning of the field course to review and discuss prior to field trips.

7. Course Fee

The cost is \$570.00 to defray accommodation fees, the majority of your food costs, and transportation. Cheques payable to the University of Waterloo with your student number on the back and completed course fee form must be submitted to Patti Bester prior to the pre-field trip meeting.

8. Permissions and Forms

If the field trip from May 20, 2014 to May 29, 2014 conflicts with another course of yours, you must obtain a signature from the other instructor on a “resolution of conflict form” in order to participate on the field trip.

The Faculty of Environment field trip guidelines apply. You must sign the agreement before departure.

10. Preparing for the Course

Accommodation has been booked at the Long Point Waterfowl Education and Research Centre, which provides comfortable dorm style rooms, a conference room, library, and complete kitchen and dining hall.

<http://longpointwaterfowl.org/research-and-education-centre/about-the-rec/>

You will need to bring your own bedding and items for your personal needs. Several changes of warm clothing, hiking boots - waterproof, good ankle support - sandals, shoes, rainwear - preferably hat, coat, and pants - bug repellent, sunscreen, and a flashlight are very important. Bring a small backpack and water bottle for our field excursions and Tupperware/reusable containers to pack your field lunch. There will be opportunities for swimming, so include swimwear. The weather in Turkey Point in May is usually warm, but it can be unpredictable and you should be prepared for cooler and rainy conditions. Please be economical with your baggage because space is limited in the vans.

We will rent vans. The minimum age for drivers is 21. There will be three vans and we will need a roster of four volunteer drivers. Our daily return travel distance will be about 60 km on quiet roads. Please let the course instructor know if you will be available to drive one of the vans.

You are encouraged to bring extras to enhance the course: Frisbees and other toys or games, musical instruments and song books.

Your course fee will provide for about 90% of your food. We will have breakfast in camp and make our own individual lunches from camp provisions, and prepare 8 of our evening meals as a group. There will also be ample food for snacking. You are welcome to bring anything special for yourself. The one evening meal eaten out will be at your own expense – we will keep costs reasonable. We will maintain a tasty menu and attempt to keep you happy and well fed.

Please make sure that you have all your needed prescriptions or medical support with you. We will carry a basic first aid kit. Please inform the course instructor of any special health or medical conditions that he should know about (e.g., chronic fatigue, migraines, acute phobias, anaphylactic reactions, dangerous allergies etc). All such information will be kept strictly confidential.

Assistance for Students with Disabilities

If you require special assistance, please ensure that I am aware of your needs through the Office for Persons with Disabilities (<http://www.studentservices.uwaterloo.ca/disabilities>).

Plagiarism and Academic Integrity

You will be held responsible for adhering to UW policy on academic integrity, as outlined in the following guidelines from the office of the Associate Dean of Undergraduate Studies. Plagiarism and other violations of academic integrity will not be tolerated. If you wish to quote material in your assignments, you must place it in quotation marks (or paraphrase it in your own words); otherwise, this is plagiarism. If you have any questions about what is appropriate, consult Brian Craig.

Academic Integrity: To create and promote a culture of academic integrity, the behaviour of all members of the University of Waterloo is based on honesty, trust, fairness, respect and responsibility.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, <http://www.adm.uwaterloo.ca/infosec/policies/policy70.html>

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.html>

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 – Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals, <http://www.adm.uwaterloo.ca/infosec/Policies/policy72.html>

Turnitin: Plagiarism detection software (Turnitin) will be used to screen assignments in this course. This is being done to verify that use of all materials and sources in assignments is documented.