

# Appendix C

## Project Team CVs



# Summary of Qualifications and CVs

The following field personnel carried out site investigations for the Bluewater NHA. Curriculum vitae have been included below for each.

## Ecological Land Classification

- Jillian Deman
- Nick Hodges
- James Kamstra
- Jessica Piette

## Amphibians

- Sarah Aitken
- Andrea Dart
- Jillian Deman
- Dave Jolly
- James Kamstra
- Jessica MacKay Ward

## Breeding Bird Surveys

- Scott Connop
- Robert Conohan
- Dave Jolly
- James Kamstra
- Scott Martin
- Gerard Philips
- Rob Tymstra

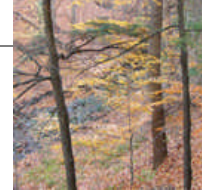
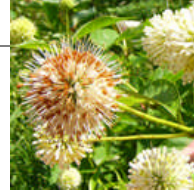
## Winter Raptor Surveys

- Rob Aitken
- Brian Miller



## Rob Aitken *B. Sc.*

*Ecologist*  
*Curriculum Vitae*



Through the completion of environmental programs at Trent University and Sir Sandford Fleming College Mr. Aitken has developed a sound understanding of the natural environment and the tools that are used to evaluate it. He has continued to build on this foundation through the application of these skills while working for organizations in the private and public sector completing inventories and assessments of aquatic and terrestrial ecosystems.

As a member of the Aboud & Associates team, Mr. Aitken is responsible for botanical and wildlife inventories, ELC/vegetation community assessments and GIS Mapping on a wide range of projects.

### **EDUCATION**

- Bachelor of Biology & Environmental Resources Sciences (Honours), Trent University, 2008.
- Environmental Technologist, Sir Sandford Fleming College 2006.
- Natural Resources Law Enforcement Post Graduate Certification, Sir Sandford Fleming College, 2004.
- Ecosystem Management Technician, Sir Sandford Fleming College 2003.

### **Continuing Education & Certification:**

- Ontario Stream Assessment Protocol, OMNR/TRCA (2011)
- Class 2 Backpack Electro fishing Certificate, TRCA (2011)
- MTO/DFO/OMNR Environmental Guide for Fish and Fish Habitat Workshop (2011)
- Asters and Goldenrods Workshop, Royal Botanical Gardens (2010)
- Ecological Land Classification, OMNR (2010)
- Ontario Wetland Evaluation System, OMNR (2009)
- Ontario Stream Assessment Protocol Level 1 Fish Identification (2009)

### **CAREER EXPERIENCE**

Prior to joining Aboud & Associates in 2010, Mr. Aitken worked with the following organizations:

#### **Environmental Scientist**

##### ***Conestoga Rovers & Associates (2008-2010)***

- Hydraulic stream flow monitoring
- Ground and surface water quality monitoring
- Sediment Sampling
- Wetland delineations
- Fish collection and identification
- Collection of aquatic invertebrates using OBBN protocols
- Stream flow, ground water level and precipitation data management and interpretation
- Permits to Take Water and Certificates of Approval

#### **Shell Conservation Intern**

##### ***The Nature Conservancy of Canada (2007)***

- Flora and Fauna inventories
- Classifying ecological communities using the Ecological Land Classification for Southern Ontario
- Monitoring ongoing rehabilitation projects
- Completing site monitoring and management reports

#### **Field Technician**

##### ***The Watershed Science Centre (2006)***

- Hydraulic stream flow monitoring
- Collection of aquatic invertebrates
- Suspended sediment collection
- Stream flow data and precipitation management and interpretation

#### **Greening Co-op Student**

##### ***The Regional Municipality of York (2005)***

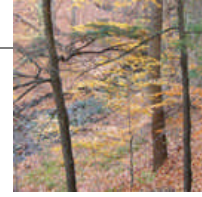
- Assisted in implementing the Region's greening strategy
- Invasive species removal
- Mapping natural features using Arcview GIS
- Street tree planting, mulching, pruning and inventories



# Rob Aitken B. Sc.

Ecologist

Curriculum Vitae



## CAREER EXPERIENCE (CONTINUED)

### Environmental Technician Conservation Halton (2004)

- Collection and identification of aquatic invertebrates
- Collection and identification of fish
- Hydraulic stream flow monitoring
- Classifying ecological communities and performing flora inventories
- Assisted in completing the North Shore Watershed Study Report

### Resources Management Technician Pinery Provincial Park (2001)

- Wild lupine seed collection, preparation and planting
- Preparation work for prescribed burns and Deer Counts
- Invasive species removal
- Native species plantings
- Educating public about rare natural features and species

## AREAS OF EXPERTISE

- Identification of flora and fauna
- ELC / Vegetation Community Assessment
- Vegetation Monitoring
- GIS Mapping

## SELECTED PROJECT EXPERIENCE

### Tree Inventory/Management Plan:

- Lotco II Landscape Plan Street Tree Inventory (Cambridge)
- Street Tree Inventory for Infrastructure Improvement Projects (Cambridge)
- Jefferson Forest Edge Management & Tree Preservation Plans (Richmond Hill)
- 10606 Milton Road Tree Inventory (Pickering)
- Block 12 Phase 3 Trail Tree Inventory (Vaughan)
- Lackner Boulevard Tree Management Plan (Kitchener)

### Tree Inventory/Management Plan (Continued):

- 699 Speedvale Avenue Tree Inventory (Guelph)
- Kleinburg Tree Preservation Plan & Relocation Strategy (Vaughan)
- Kleinburg Edge Management Plan (Vaughan)

### Botanical Inventory / Vegetation Community Assessment:

- Rare species surveys for 407 extension (Durham)
- Windsor Essex Parkway – Species at Risk (SAR) surveys & Botanical Inventories of remnant prairie communities
- Block 12 Large Restore Buffer Vegetation Monitoring (Vaughan)
- ENS Poultry Renewable Energy Application Natural Heritage Assessment (Elora)
- Gordon Street Property Scoped Environmental Impact Study (Guelph)
- Block 5 Woodlot Management Plan (Brampton)
- Mill Pond Park Botanical Inventory & ELC Assessment (Richmond Hill)
- Block 11 Wetland Vegetation Monitoring (Vaughan)

### Wildlife Inventory/Assessments:

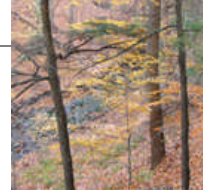
- Heffernan Street Shoreline Rehabilitation Fish Habitat Assessment (Guelph)
- Breeding Bird Surveys for Quarry Expansion (Waterloo Region)
- Breeding Bird Surveys for Proposed Subdivision (Guelph)
- Arkell Dam Restoration Fish Habitat/Natural Heritage Assessment (Guelph)
- Subwatershed Study Snake and Snake Hibernacula Surveys (Fergus)
- Breeding Bird/Snake and Snake Hibernacula Surveys Summit Park (Hamilton)
- Mill Pond Park Breeding Bird Survey (Richmond Hill)



## **Rob Aitken** *B. Sc.*

*Ecologist*

*Curriculum Vitae*



In addition, Mr. Aitken also provides assistance with:

- Data Collection and Entry
- Report Writing
- Peer Reviews

### **VOLUNTEER EXPERIENCE**

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- Botanical inventory/Bird Surveys for the Escarpment Biosphere Conservancy (2011)
- Amphibian Call Surveys for the Marsh Monitoring Program (2011)
- Volunteer Backpack Electro fishing Crewmember Credit Valley Conservation Authority (2009)
- Deer Check Station Flynn's Turn (2004)
- Pinery Provincial Park Pine Removal Program (1998, 1999)

### **PROFESSIONAL AFFILIATIONS**

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- Field Botanists of Ontario
- Ontario Field Ornithologist







# Scott Connop

**Scott Connop** has spent a great deal of the last 35 years doing birding and avian vocal research and leading birding tours. Early in his career, he spent time as a nature interpreter and inventory researcher for the Ontario Ministry of Natural Resources in Algonquin and Pinery Provincial Parks, and worked later for the St. Clair Conservation Authority. He worked on the first Ontario Breeding Bird Atlas as well as follow-up work on the Forest Bird Monitoring Surveys and the Rare Breeding Bird Atlas.

Since then, his expeditionary work has taken him from Skunk's Misery in Southern Ontario to the shadow of Mt. Everest and beyond. In 1986, he formed Turaco Nature, one of the few birding companies in Canada and, in 1995, Turaco became a full-time birding tour company with the goal of offering travel services to birders and naturalists at all levels and specializing in tropical nature trips to such destinations as Mexico, Belize, Costa Rica, India and Nepal, South Africa, Australia, Peru, Ecuador, Venezuela, Arizona, Texas, Churchill, and Alaska. He is a major contributor and associate with Cornell University's MacAuley Library of Natural Sounds and devotes part of his time to writing birding articles and developing his sound library from his work in bird sound recording. This extensive library is used by filmmakers, recording companies, and for training purposes for local and foreign ecotourism. He has recently published three birding identification CD's, Birdsongs of the Himalayas, Birdsongs of Papua New Guinea, and Birdsongs of South Africa, with Birdsongs of the Northern Neotropics scheduled for release by October, 2011.



# Robert L. Conohan

## Wildlife Biologist

### Professional History

AECOM Environment  
AECOM Canada/Gartner Lee Limited  
Louisiana State University  
Ontario Ministry of Natural Resources  
City of Ottawa

### Education

B.S. (Environmental and Resource  
Science) Trent University

Dip. (Ecosystem Management  
Technology) Sir Sandford Fleming  
College School of Natural Resource  
Sciences. Lindsay, Ontario Canada

### Registrations

Licenses:  
Blunt-nosed Leopard Lizard Level I,  
California

### Years of Experience

With AECOM: 6  
With other firms: 3

### Technical Specialties

Avian Field Surveys  
Burrowing Owl Surveys  
Desert Tortoise Surveys  
California Red-legged Frog Monitoring  
Blunt-nosed Leopard Lizard Surveys  
Mammal Surveys/trapping  
Bat Surveys  
Fisheries Surveys  
Habitat Assessments  
Wildlife Management  
Inventories for rare and endangered  
wildlife  
Vegetation Mapping  
Wetland Delineation

### Professional Affiliations

Association of Field Ornithologists  
Raptor Research Foundation  
Cooper Ornithological Society  
Wilson Ornithological Society

Robert Conohan is a Wildlife Biologist with the Camarillo office of AECOM Environment. Mr. Conohan has approximately nine years experience working as a field biologist with an expertise in conducting wildlife surveys. He specializes in conducting avian surveys for raptors and nesting songbirds and has conducted extensive biological investigations in Santa Barbara, Ventura, San Bernardino, Kern, Riverside and Imperial Counties as well in Ontario Canada. Mr. Conohan has participated in a variety of projects including environmental assessments, environmental impact studies, natural science inventories and habitat assessments for rare and endangered species and wetland delineations. Many of these projects were highly complex linear projects which required the identification and mapping of sensitive floral and fauna species, characterization of site-specific constraints to development, and the identification of mitigation opportunities. Prior to employment with AECOM Environment, Mr. Conohan acquired experience working as a Biologist for AECOM Canada (formally Gartner Lee Limited) as well as with government and non-government organizations, including various positions with the Ontario Ministry of Natural Resources and Louisiana State University. He has been practicing falconry steadily for 16 years and is currently a member of the Raptor Research Foundation, Association of Field Ornithologists, Wilson Ornithological Society, and the Cooper Ornithological Society.

### Representative Project Experience

#### Biological Inventory and Monitoring

**Avian Biologist, Proposed Solar Power Facility, Riverside County California.** Conducted protocol level, ground based Golden Eagle surveys for a proposed solar thermal facility near Blythe, CA.

**Principle Avian Biologist, Proposed Wind Power Facility, Grand Bend, Ontario Canada.** Conducted extensive avian surveys on three proposed wind power facilities in south-western Ontario Canada.

**Field Biologist, Waterfowl Research Project, Louisiana State University.** Participated in a research project to study the behaviour and habitat selection of wintering waterfowl in Southwest Louisiana. Birds were trapped using rocket nets and then tracked using telemetry systems during day and night to monitor their behaviour and habitat use.

Ontario Hawking Club; past Executive Director  
North American Falconry Association

**Training and Certifications**

HAZWOPER  
Blunt-nosed Leopard Lizard Identification Workshop  
2007 Bird Strike Committee Conference  
Butternut Health Assessment Workshop  
AECOM Burrowing Owl Protocol Survey for Imperial County Workshop  
Ecological Land Classification  
GLL Centres of Excellence Introduction to Environmental Assessment  
GLL Centres of Excellence ArcPad  
GIS Field Data Collection  
CAQWV Chemical Immobilization of Wildlife  
OMNR Problem Bear Management Course  
Canadian Wildlife Service Waterfowl Banding Permit

**Lead Field Biologist, Waterfowl Banding Program, Ontario Ministry of Natural Resources, Ontario, Canada.** Responsible for capturing; identifying, aging, sexing and banding waterfowl caught using an airboat. Maintained a database of all banded birds and also managed field program and was responsible for piloting the airboat.

**Field Biologist, Proposed Solar Thermal Power Facilities, Riverside and Kern County California.** Conducted extensive protocol level surveys during 2009 and 2010 for Burrowing Owl and Desert Tortoise. Also completed pre-construction clearance surveys and burrow investigation for kit fox and badger in winter of 2011 and biological monitoring of construction activities in summer of 2011

**Field Biologist, Proposed Solar Power Facility, San Bernardino/Riverside County California.** Conducted approximately 60 hours of field surveys for desert tortoise, burrowing owl and Mohave ground Squirrel. Looked for signs of these species and assessed habitat potential on several parcels of land proposed for solar power development as well as preservation areas to provide mitigation.

**Field Biologist, Desert Avian Surveys, Imperial Valley, California.** Conducted avian desert point count surveys for a long term biological monitoring project. The field surveys required identifying bird species through visual observations as well as their calls.

**Principal Biologist, Proposed Bio-Fuel Power Facility, Kern County, California.** Conducted field studies which included vegetation mapping, habitat assessment, burrowing owl and San Joaquin kit fox surveys. Also prepared Biological section of the Technical Study Report, as well as a burrowing owl and San Joaquin kit fox presence/absence report and coordinated with the agencies to determine appropriate compensatory mitigation ratio for the site.

**Principal Biologist, Awenda Provincial Park, Natural Science Inventory, Ontario, Canada.** Conducted vegetation mapping, small mammal trapping, bat assessments and nesting bird inventories as part of a natural science inventory for a provincial park in Ontario.

**Principal Biologist, McMahon Woods, Winter Wildlife Tracking Study, Ontario, Canada.** Conducted winter tracking surveys to inventory and assess wildlife use of a proposed development site which is adjacent to an Area of Natural and Scientific Interest. Identified wintering birds and raptor stick nests within the study area.

**Field Biologist, Proposed Wind Power Facility, London Ontario, Canada.** Conducted an inventory to identify waterfowl and raptors within the study area.

**Principal Biologist, North Valley Developments, Bird Monitoring Study, *Town of Newmarket Ontario Canada.***

Conducted an avian monitoring study focused on identifying the possible impacts of a recently developed residential area on the adjacent forested and wetland community.

**Field Biologist, Queen Elizabeth II Species at Risk Study, *Ontario, Canada.*** Conducted field searches for rare reptile (five-lined skink) and plant species in a new Provincial Park in central Ontario Canada.

**Field Biologist, Biological Monitoring of Landfill Operations, *County of Santa Barbara.*** Conducted weekly biological monitoring of nesting birds and California red-legged frogs during new construction and routine operations at a county of Santa Barbara landfill. Established buffers around nesting birds and participated in the capture and relocation of frogs off the site.

**Field Biologist, Biological Monitoring of Soil Testing Activities. *County of Santa Barbara.*** Conducted biological clearance surveys in support of soil testing activities near Gaviota, CA. Area was surveyed for nesting birds and rare plants prior to initiation of work

**Environmental Assessments**

**Principal Biologist, Highway 26 Environmental Assessment. *Ontario, Canada.*** Wrote terrestrial section for the natural inventory report. In addition, conducted extensive ecological land classification and nesting bird inventories for the study area.

**Principal Biologist, Highway 24 Environmental Assessment, *Ontario Canada.*** Wrote vegetation section for the natural inventory report. Also conducted extensive ecological land classification and nesting bird inventories for the study area.

**Principal Biologist, Southeast Collector Trunk Sewer Environmental Assessment, *Ontario Canada.*** Conducted nesting bird surveys, amphibian surveys and ecological land classification for the study area.

**Principal Biologist, Highway 407 East (Extension), *Government of Ontario in Durham Region.*** Conducted extensive Ecological Land Classification surveys; spring breeding and winter bird surveys as well as amphibian surveys.

**Principal Biologist, QEW Niagara, Highway Widening Environmental Assessment, *Ontario Canada.*** Responsible for the assessment and reporting of existing natural heritage conditions and the assessment of possible impacts.

**Project Biologist, South East Collector Sewer Environmental Assessment, *Whitby Ontario Canada.*** As one of the field biologists, conducted nesting bird and electrofishing surveys, as well as vegetation community mapping and stream habitat assessments.

### **Site Assessments and Impact Studies**

**Project Manager/Principal Biologist Chiavatti Developments Environmental Impact Study. Ontario Canada.** Work included conducting field studies (birds, amphibians, vegetation mapping, and wetland delineations); communications with client and conservation authorities and writing the final impact assessment report.

**Principal Biologist, Environmental Impact Assessment, Proposed Widening of Davis Drive, Town of Newmarket Ontario.** Prepared terrestrial features section of the report; conducted vegetation and bird surveys.

**Project Manager/Principal Biologist, Environmental Impact Study Report, Invar Building Corporation. Ontario Canada.** Wrote Environmental Impact Statement report; conducted vegetation surveys, coordination and assisted in negotiations with conservation authority and municipal as well as Provincial regulatory agencies. Evaluated site significance and sensitivity of terrestrial features, described impacts and proposed mitigation alternatives at potential development site. Also helped develop a plan for the conservation of Butternut on the site.

**Project Manager/Principal Biologist, Environmental Impact Statement, Trillium Place Ontario Canada.** Managed the project and conducted fieldwork such as wildlife inventories, vegetation mapping and wetland boundary delineation. He also prepared the Environmental Impact Statement report and managed communications with client and provincial agencies.

**Principal Biologist, Block 10 Tree Assessment, City of Vaughan Ontario.** Conducted a vegetation inventory and assessment of onsite terrestrial features; identified mitigation opportunities.

### **Wildlife Management**

**Avian Protection Plan, 2010.** Prepared the Avian Protection Plan for a proposed solar thermal power facility in Blythe, CA.

**Burrowing Owl Translocation and Management Plan, 2010.** Prepared a burrowing owl translocation and management plan for a proposed solar thermal power facility in Blythe, CA.

**Avian Management Biologist, Bird Control International. Ontario Canada.** This position involved the humane removal of nuisance bird species using live traps as well as falconry techniques.

**Nuisance Bear Management Biologist, Ontario Ministry of Natural Resources, Peterborough District.** Reported and responded to human-bear conflicts within the district. Duties included regular communication with the public and assisted by trapping and immobilizing black bears in situations where the public are experiencing nuisance bears. Also conduct Bear Management presentations to stakeholders and municipalities and developed Bear Hazard Assessment Reports for municipalities in the area.



## Andrea Dart, ET

Environmental Technician

### Education

Diploma, Environmental Technology, Sir Sandford Fleming College, 2004

### Years of Experience

With AECOM: 5

With Other Firms: 3

### Training and Certifications

40 Hour Hazwoper Training  
RAQS Fisheries Contract Specialist

Certified Inspector of Sediment and Erosion Control

Excavation and Trenching Safety Awareness

Asbestos Awareness

Health and Safety Personal Protective Equipment Training

Working at Heights

Confined Space Entry

Confined Space Awareness

Fall Prevention Training

WHMIS Training

CPR and First Aid Training

Transportation of Dangerous Goods Certificate

Operator in Training of Water Treatment

Operator in Training of Wastewater Treatment

Operator in Training of Water Distribution

Operator in Training of Wastewater Collection

Pleasure Craft Operator Certificate

Ontario Stream Assessment Protocol Certified with Level 1 Fish I.D

Ms. Dart is an environmental technician with over five years of experience in the environmental consulting business. She has been the lead field coordinator and team member for many large-scale projects. Ms. Dart has been responsible for managing compliance monitoring, environmental assessments, data evaluation, quality control, and liaison with subcontractors and the public. She has been the deputy project manager on multiple projects. She has written landfill, aggregate, and sections of environmental assessments and monitoring reports, as well as field methodologies. She has worked in headwater streams, rivers, lakes, wetlands, landfills, quarries, and contaminated sites. Ms. Dart is a member of the Woodlot Association, Willow Beach Naturalist Club, Friends of Presqu'ile Park, and became an Ontario Stream Steward in 2011. Within her first year at AECOM, Ms. Dart won the Top Contributor award.

### Project Experience

**Regional Municipality of York, 16th Avenue Trunk Sewer Phase II, Markham, Ontario.** Lead field coordinator. Conducted streamflows and electrofishing. Collected surface water samples, field chemistry, wetland moisture measurements, benthic invertebrates, and temperatures. Installed mini piezometers and collected water levels. Worked with the telemetry system uploading data into database. Compiled data and created the graphical presentation for the monthly reports, created stage discharge curves, and wrote the surface water section. Organized the extensive field work and coordinated several employees. [2006-2010]

**Regional Municipality of York, West Rainbow Creek Sanitary Sewer Project, Markham, Ontario.** Lead field coordinator. Conducted a mussel rescue, electrofishing, and streamflows. Collected water levels, surface water samples, field chemistry, temperatures, and monitored the discharge water quality. Compiled data and created the graphical presentation for reports. Created TSS and turbidity relationship curves and wrote sections of the report. [2009-2010]

**Ministry of Transportation Ontario, 407 East Environmental Assessment and 407 East Foundation Design Study, Markham, Ontario.** Lead field coordinator. Collected streamflows, water levels, field chemistry, temperature, surface/residential water samples, as well as hundreds of residential water well surveys. Conducted stream reconnaissance; installed and set up level loggers and barologgers, which were downloaded regularly and created detailed graphs with this information. Performed pump and hydraulic conductivity testing; developed boreholes and collected groundwater samples; compiled data and created the graphical presentation for reports; and organized all data into spreadsheet and graphs used for the report. [2008-2009]

**NextEra, Wind Energy Centre, Natural Heritage Assessment Report.** Conducted extensive amphibian surveys throughout season and conducted rapid Ontario stream assessments. As well, assisted with Ecological Land



Classification. Compiled data and created the graphical presentation for reports.[2011-present]

**Regional Municipality of York, Upper York Sanitary Sewer, Environmental Assessment.** Conducted amphibian surveys at multiple locations. Conducted fish habitat assessments and rapid Ontario stream assessments. Crew member for electrofishing at multiple locations. Weekly temperature logger downloads.[2011-present]

**Regional Municipality of York, Southeast Collection Trunk Sewer, Environmental Assessment.** Conducted amphibian surveys, benthic collection and rapid Ontario stream assessments at multiple locations. Conduct weekly sediment and erosion control inspections. Conduct extensive water level measurements and wetland monitoring. Compiled data and created the graphical presentation for reports.[2010-present]

**CN Rail, Credit River Expansion Project, Georgetown On.**

Liaison with contractor and client. Overseeing restoration planting in accordance with design drawings and making further recommendations if applicable while on site.[2011-2011]

**Confidential Client, Groundwater Investigation and Remediation Work, Toronto and Guelph, Ontario.** Field staff that conducted extensive groundwater sampling, water levels, field chemistry, low flow sampling, and LNAPL and DNAPL bailing. [2006-present]

**Holcim, Permit To Take Water and Certificate of Approval Monitoring, Mississauga, Colborne, Peterborough, and Port Hope, Ontario.** Lead field that conducted water levels from mini piezometers, boreholes, and residential wells. Collected field chemistry; sediment samples from Lake Ontario; and surface water, residential, and groundwater samples. Also conducted a surface water tracer test in Lake Ontario. Compiled data and created the graphical presentation for reports as well as prepared and wrote the quarterly and annual reports. [2006-present]

**Township of Georgina, Landfill, Georgina, Ontario.** Deputy project manager. Collected gas readings water levels and groundwater samples from boreholes. Also collected surface water samples, field chemistry, and streamflows. Compiled data and created the graphical presentation for reports, as well as prepared and wrote the annual report. Created the 2010 budget. [2008-present]

**County of Simcoe, Tosorontio, Alliston, Mara and Essa Landfills, County of Simcoe, Ontario.** Deputy project manager to manage and complete all required field work such as groundwater levels, groundwater samples, gas readings, surface water samples, field chemistry, streamflows, residential samples, and leachate seep observations. Liaison with landfills site supervisors; compiled data and created the graphical presentation for reports, as well as prepared and wrote the annual reports. [2010-present]

**Bram West Landowners Association, Block 40-3 Environmental Impact Study, Mississauga, Ontario.** Lead field coordinator that collected water levels, field chemistry, and streamflows. Conducted a habitat assessment; completed surveying for top of pipe elevations for the new mini piezometers;



performed pump and hydraulic conductivity testing; developed boreholes and collected groundwater samples; and compiled data and created the graphical presentation for reports.

**Awards**

Making a Difference award, 2010

Top Contributor award, 2006

National Garfield Weston Merit Scholarship award





## Nick Hodges Ecologist

### Education

Fish & Wildlife Technician Diploma  
(Letter of Academic Achievement)  
Sir Sandford Fleming College  
Lindsay, ON 2000

Terrain & Water Technician Diploma  
(Letter of Academic Achievement)  
Sir Sandford Fleming College  
Lindsay, ON 1999

### Years of Experience

With AECOM: 5  
With Other Firms: 5

### Professional Affiliations

Field Botanists of Ontario  
Society for Ecological Restoration - Ontario  
Chapter

### Training & Certifications

Class 1 Electrofishing Certification, 2010  
Temperate Wetland Restoration, 2008

Fish Species-at-Risk Identification  
Workshop - Royal Ontario Museum, 2007

Introduction to Project Management  
Effectivation 2007

MTO/DFO/OMNR Fisheries Protocol, 2006

Canadian Pleasure Craft Operator, 2006

Ecological Land Classification for Southern  
Ontario, 2005

Electrofishing Crew Leader (2nd Class  
backpack certification), 2007, 2001

RAQS certification: Fisheries Assessment  
Specialist, 2003

RAQS certification: Fisheries Contracts  
Specialist, 2003

Fish Identification Workshop - Royal  
Ontario Museum, 2001

WHMIS Training

First Aid and CPR Training

Fall Protection Training

Nick Hodges is an Ecologist with ten years of consulting experience with expertise in natural heritage evaluation, environmental assessment and ecological restoration. Nick has helped clients understand specific natural heritage functions in the context of provincial and federal policies as they relate to development proposals. He has helped facilitate regulatory approvals under the *Planning Act*, *Ontario Environmental Assessment Act*, *Canadian Environmental Assessment Act*, *Fisheries Act*, and *Conservation Authorities Act*. Nick's broad understanding of terrestrial and aquatic ecology has allowed him to effectively manage multi-disciplinary projects.

### Experience

#### Environmental Impact Studies, Feasibility Studies

EIS and Feasibility Studies integrate vegetation, wildlife and species at risk with fisheries and aquatic habitat to guide development proposals in accordance with provincial planning policies and objectives. Project experience includes:

**EIS to support Replacement of Bridge Structure on Middlebrook Road, Wellington County (2008-2010)** Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

**Impact Assessment for Elora Wastewater Treatment Plant Expansion (2007-2010)** Conducted an assessment of significance and impact assessment on natural features and functions as they relate to the Provincial Policy Statement and Grand River Conservation Authority policies for wetlands.

**EIS to support Replacement of Bridge Structure, Town of Erin (2009)** Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

**Hayes Bridge Replacement EIS, Municipality of Trent Hills (2008)** Conducted Ecological Land Classification for surrounding lands to document existing conditions and identify potential impacts to an adjacent Provincially Significant Wetland as a result of a proposed bridge replacement. Developed mitigation measures to avoid and minimize potential impacts to both wetland and watercourse.

**Nature Park EIS, Haliburton County (2007)** Conducted a fisheries and aquatic habitat assessment and provided mitigation recommendations for a proposed recreational park in Haliburton County.

**Advanced Compost Corporation Feasibility Study, Guelph (2006)** Conducted an inventory of natural heritage features to identify

preliminary environmental macro-constraints to a proposed composting facility. Identified natural heritage policy considerations and provided recommendations for further field investigations required to support a development application.

**EIS to support Replacement of Bridge Structure on Speed River Tributary (2006)** Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

**Beaver Valley Woodlands EIS, Municipality of Grey Highlands (2005-2006)** Project Manager for EIS prepared for a proposed housing subdivision intended to qualify as a Zero-Carbon development. Policy issues included presence of nationally endangered species and species of conservation concern. Provided design and mitigation recommendations to align project with objectives of Provincial Policy Statement.

**Whiting Street Feasibility Study, Town of Ingersoll (2005-2006)** Project Manager for EIS prepared for a proposed commercial development abutting locally significant wetlands. Hydrogeologic investigation aided characterization of wetland as an impacted fen. Provided recommendations for wetland buffers and mitigation measures.

**EIS to support Sleepy Hollow Golf Course Expansion, Stouffville (2004)** Classified vegetation according to Ecological Land Classification protocols to support EIS.

**EIS to support Crompton Lot Severance, Penetanguishene (2002)** Conducted assessments of fish community and fish habitat to support EIS for lot severance.

### **Ecological Restoration**

Forest, wetland and fish habitat restoration (including bioengineering and naturalization plantings) involve production of planting plans, identification of appropriate native species, cost estimation and preparation of tender bids, project management, site supervision and implementation. Project experience includes:

**Confidential Client, Guelph (2008-2010)** Developed an experimental approach to forest restoration of a contaminated site.

**Walpole Island First Nation (2008)** Conducted Phase 1 of a feasibility study, including sediment and water sampling, in order to commence a strategy to restore 14 linear kilometers of fish habitat.

**Environmental Monitoring and Restoration, Confidential Client (2007-2008)** Obtained soil and water samples before and after clean up of a mine tailings release to a wetland. Assessed and mapped impacts to vegetation and provided recommendations for restoration options.

**Various Projects, York Region (2006 – 2008)** Responsible for coordinating and designing ecological restoration improvements for 16<sup>th</sup> Avenue Trunk Sewer Construction projects. Designed and implemented stream bank bioengineering, wetland restoration and

lowland forest restoration. Developed riparian planting plans to improve buffer zones on Bruce Creek and increase ecological function of the riparian corridor.

**9th Line Tributary D Restoration, Town of Markham (2005)**

Developed an ecological restoration plan for stream bank, wetland and forest restoration to mitigate an open cut crossing of a tributary of the Rouge River.

**Keele Street and Highway 7 Stream Restoration and Bioengineering Works, City of Vaughan (2004)** Implemented stream bank bioengineering and riparian/floodplain plantings.

**Black Ash Creek Flood Control –Bioengineering and landscaping, Town of Collingwood (2004)** Installed 1000s of bareroot shrubs and live stakes along Black Ash Creek.

**Humber River Tributary Aquatic Habitat Restoration for Airport Road Widening, Regional Municipality of Peel (2004)** Constructed new reach of creek channel to reinstate fish habitat and riparian vegetation.

**Laurel Creek Bank Stabilization and Live Crib Wall Construction, University of Waterloo (2004)** Installed biologs and riparian shrub plantings for shoreline stabilization project.

**Hansen Boulevard/Creek Realignment and Bioengineering Construction and Supervision, Town of Orangeville (2003)** Provided supervision of natural channel realignment and installation of riparian shrubs.

**Aquatic Plant Installation, Richmond Green Park, Town of Richmond Hill (2003)** Installed aquatic plantings for large stormwater management pond facility.

**Wood Boulder Reef Construction, Matheson, MTO (2003)** Constructed wood boulder reefs on lake ice for subsequent submersion as part of fish habitat compensation plan.

**Live Crib Wall Construction for Lynde Creek Stabilization, Town of Whitby (2003)** Constructed live crib wall along Lynde Creek to support bank and slope stabilization project.

**Creek Channel Realignment and Live Crib Wall Construction and Supervision, Pottageville, Region of Peel (2003)** Constructed live crib wall along Pottageville Creek to support bank stabilization project.

**Mosquito Creek Channel Realignment and Live Crib Wall Construction and Supervision, City of Ottawa (2003)** Constructed live crib wall along Pottageville Creek to support bank stabilization project.

**Carruthers Creek Channel Realignment and Landscaping, Ajax, Ministry of Transportation (2003)** Supervised construction of natural channel design for Carruthers Creek realignment.

**Construction of Ecological Enhancements for Stormwater Pond, Town of Erin (2002)** Constructed a stormwater management pond and installed native plantings to stabilize side slopes and gravel baffles.

**Willow Park Ecology Centre Wetland, Boardwalk and Trail Construction (2001)** Installed aquatic plants to enhance wetland habitat, and constructed viewing platform and trail system for recreational activities in urban park.

**Doon Mills South Stormwater Pond Enhancement Plantings (2001)** Installed aquatic plants and riparian vegetation to enhance stormwater management pond.

### **Transportation Class EA**

Fish community and aquatic habitat evaluations were undertaken in order to assess potential impacts from proposed highway construction projects and mitigation measures were developed. Project experience includes:

**Detailed Design for Highway 401 Widening, Mississauga, MTO (2011)** Conducted fisheries assessment and associated documentation as per MTO/DFO/MNR protocol.

**Preliminary Design for Highway 24, Cambridge, MTO (2007)** Participated in collection of aquatic ecosystem and amphibian data to support EA.

**Preliminary Design for Highway 8, Stratford, MTO (2007)** Participated in collection of aquatic ecosystem and amphibian data to support EA.

**Planning Study and Preliminary Design for Highway 401 from Brock Road to Courtice Road, WP 242-86-00, MTO (2004-2005)** Assisted with preparation of Class EA documentation for highway improvements.

**Preliminary & Detail Design for Highway 11/502, GWP 407-00-00, Fort Frances, MTO (2001-2004)** Conducted all phases of Class EA process, including agency consultation, for preliminary and detail design.

**Detailed Design for Highway 11/17, GWP 524-00-00, Thunder Bay, MTO (2004)** Conducted all phases of Class EA process, including agency consultation, for preliminary and detail design.

**Detailed Design for Highway 546, WP 513-00-01, MTO (2003-2004)** Prepared Class EA documentation for highway improvements.

**Detailed Design for Highway 651, WP 512-00-01 and WP 137-97-01, MTO (2003-2004)** Prepared Class EA documentation for highway improvements.

**TPM – Preliminary Design for Highway 401/Lakeridge Road Interchange Widening from Carruthers Creek to Highway 12, WP 128-99-00, MTO (2002-2003)** Assisted with preparation of Class EA documentation for highway improvements.

**TPM – Preliminary Design for Highway 401 Widening from Westney Road to Harwood Avenue, WP 170-00-00, MTO (2002-2003)** Assisted with preparation of Class EA documentation for highway improvements.

**Preliminary Design for Reconstruction of Ravenshoe Road from Prout Road to Lakeridge Road, Region of York (2001-2002)**

Conducted natural science field inventories to support preliminary design for highway improvements. Conducted literature search for highway wildlife collision mitigation options.

**Aboriginal / Métis Consultation and Technical/Peer Review**

**Métis Nation of Ontario (2010)** Prepared an 80 page report titled 'Ecological Values of the Boreal Forest' intended to provide MNO with an accessible information resource relating consequences of natural and anthropogenic change in the Boreal Forest on Metis Way of Life.

**Métis Nation of Ontario (2009)** Provided technical ecological review, on behalf of the Metis Nation of Ontario, of Hydro One's Bruce to Milton Hydro Corridor Twinning EA. Provide client with advice on effectiveness of proposed ecological restoration on large scale project.

**Walpole Island First Nation (2008)** Retained by WIFN to provide technical review of Shell Canada's EA for the proposed Sarnia oil refinery. Reviewed issues on biodiversity, species at risk, provincially significant wetlands, fish habitat, hunting access, and potential impacts to livelihood of community members. Participated as a member of joint consultation group consisting of representatives of WIFN, federal and provincial governments and Shell Canada.

**Biodiversity Studies**

**Biodiversity Plan Development, Sudbury (2007-2008)** Assisted in development of Xstrata Nickel's Biodiversity Plan for the Sudbury Smelter and Nickel Rim South site to fulfill company mandate and to initiate biodiversity reporting under Mining Association of Canada (MAC) programs. The Biodiversity Plan included an inventory of existing corporate initiatives related to land reclamation and biodiversity as well as recommendations and targets for future biodiversity studies and community outreach.





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## Dave Jolly, B.Sc., Senior Terrestrial and Wetland Biologist Profile Summary

**Mr. Jolly** has over 15 years of knowledge and expertise in terrestrial and aquatic/wetland ecology and biology working in Ontario in a senior management capacity. He has worked with numerous government and non-government agencies as well as in the private sector; the Ministry of Natural Resources (MNR), the Canadian Wildlife Service, Conservation Authorities, environmental consulting firms, school boards, politicians, government agencies, scientists, the public sector, etc. He has familiarity with the environmental consulting and planning process for provincially and federally listed Species at Risk and is skilled with all aspects of project development, procurement and delivery. He is certified and sanctioned by the MNR to perform ELC and wetland evaluations for southern Ontario and has reviewed numerous reports conducted by Terrestrial/Aquatic and Wetland Biologists. He is particularly skilled at bringing people of many talents and backgrounds together to orchestrate complex projects ranging in size from several weeks to several years. His real expertise lies in terrestrial, wetland & aquatic ecology knowledge, drafting & developing new field projects, environmental laws and policies as well as terrestrial/wetland/aquatic resources of the 5 forest regions of Canada. Mr. Jolly has been awarded numerous government contracts and is a fully qualified instructor in GIS, flora & fauna field identification techniques, Ecological Land Classification, Wetland evaluation and staff management.

## Education & Professional Certifications

### Ontario Wetland Evaluation Systems (OWES)

**Certification**, Beacon Environmental, 2008. Certified and sanctioned by the Ontario Ministry of Natural Resources

**Management/Leadership Trainer**, EARTHQUEST Biological Field School, 2006 - present

**Ecological Land Classification (ELC) Certification**, Gartner Lee Ltd., 2004. Certified and sanctioned by the Ontario Ministry of Natural Resources

**Travel and Tourism Diploma**, Westervelt Travel Institute, 1993

**B.Sc.**, Ecology and Evolution, University of Western Ontario, 1992

**Bird Studies Canada**, (member)

## Experience Profile

### Principal/Director/Senior Terrestrial Biologist & President

EARTHQUEST Environmental Consultants

2008 - present

### Senior Instructor & President

Exempt from registration by the Ontario Ministry of Training, Colleges and Universities & approved by the EARTHQUEST Biological Field School

2004 - present

### GIS Instructor/Program Developer

Northern College, 2008

EARTHQUEST Biological Field School, 2007 - present

### Instructor/Program Developer

Everest College, 2010 - present

### Project Coordinator & Executive Director

EARTHQUEST (Canada) for the Environment

1995 - 2010

### Terrestrial Biologist

Fieldlife Environmental Consultants  
1988 - 1994

## Publications

Over 30 publications in scientific journals, reports and videos as well as a number of scientific conferences. Authored 5 field guide books on local, regional and provincial flora and fauna. Co-authored 2 recovery management plans for SAR flora and fauna.

## Project Experience

**Senior Consultant**, Orchestrated various wind turbine projects in southwestern Ontario. Supervised and trained staff in all aspects of field logistics, mapping and GIS work involved with bird surveys at 10 sites being considered for wind turbines. Trained staff of Avalon Professional Consultants of Ontario in Ecological Land Classification methodology. Provided mapping and GIS services.

**Senior Wetland Evaluator**, Obtained permits & supervised/managed full wetland evaluations of a sub-catchment basin (over 2500 hectares) in Brant County for the Grand River Conservation Authority (GRCA). Also conducted a full wetland evaluation of a sub-catchment basin (over 500 hectares) in Elgin County for the Catfish Creek Conservation Authority (CCCA). Contacted land owners to obtain permission to access private property. Assisted with wetland evaluation work of over 500 hectares in Parry Sound and Nipissing Counties, Ontario for Beacon Environmental Consultants

**Senior Terrestrial and Wetland Biologist**, Currently working with First Nations/Metis groups in Ontario to develop and conduct green energy projects such as wind and solar farms. Will be hired to perform ELC, wetland evaluation, Environmental Assessments, GIS work, flora and fauna surveys.

**Senior Ecological Land Classifier**, Managed field crews and obtained permits to conduct full ELC surveys of over 400 hectares in Brant and Waterloo Counties, Ontario for the GRCA, 140 hectares in Elgin County, Ontario for the CCCA, 590 hectares in Haldimand County for Ruthven National Historic Site, 55 hectares in Oxford County for the Federation of Ontario Naturalists, 215 kilometers between Tobermory and Owen Sound plus several hectares in Niagara County, Ontario for Human Resources Skills Development Canada and the Bruce Trail Conservancy and 12 hectares in Middlesex County for the City of London, Ontario and the Upper Thames River Conservation Authority. Mr. Jolly has ELC classified over 60 ecosite types within these natural areas.

**Senior Field Botanist**, Applied practical working field knowledge of over 2000 vascular plant species comprising over 180 families and 570 genera to projects from 43 counties within the 5 forest regions of Ontario. Able to field identify vascular plants to the family, genus and species level within 5 seconds or less without the aid of field guides or reference materials. Mr. Jolly's floral inventory rate is ½ ha/hr.

**Senior Biologist**, Coordinated all field logistics, environmental policies and implementation involved with studying the impacts of wind turbines on the behaviour of nesting Bald eagles (*Haliaeetus leucocephalus*) at a Natural Heritage Site (NHE) in Norfolk County, Ontario. Worked in partnership with the Ontario Ministry of Natural Resources (MNR). Work led to recommendations to alter the Endangered Species Act to move the minimum distance that structures can be built to nesting sites of endangered species.

**Species at Risk Biologist**, Developed sustainability and restoration, recovery and management plans for the endangered Wood poppy (*Stylophorum diphyllum*). Hired and trained staff to conduct preliminary field studies on the natural history of Wood poppies. Assisted with drafting a recovery strategy technical report. Work led to a recovery management plan for the Wood poppy population in Canada. Recovery and management of the threatened Eastern spiny softshell turtle (*Apalone spiniferus spiniferus*). Assisted with drafting a recovery strategy technical report & organized a walk-a-thon event to raise funds for surveying the Thames and Sydenham rivers in southwestern Ontario in search of nesting and basking sites. Captive recovery and rehabilitation program for the endangered Eastern loggerhead shrike (*Lanius ludovicianus migrans*) population. Trained field biologists and assisted Wildlife Preservation Trust-Canada with selecting project interns for field component of project. Conducted targeted field surveys for recovery plans on threatened Least bittern (*Ixoprychus exilis*) and endangered southern Ontario populations of the Bald eagle (*Haliaeetus leucocephalus*).

**Senior Wetland Biologist**, Supervised students and staff on behalf of Lower Trent, Quinte Conservation and Bird Studies Canada in wetland monitoring of bird and amphibian populations at 4 large integral coastal wetlands (over 5000 ha) in the Bay of Quinte. Followed Marsh Monitoring Program (MMP) protocol to conduct point counts at over 50 designated stations to monitor targeted amphibians and birds such as Least bittern (*Ixoprychus exilis*). Worked with Bird Studies Canada & Lower Trent Conservation to train students and interns to work on MMP projects. Contacted and secured permission from land owners to access wetland monitoring sites.

**Pinehurst Conservation Area natural areas inventory**, Volunteer Terrestrial Ecologist in natural areas inventory of all flora, fauna and mushrooms at a Conservation Area within the Grand River watershed. Work led to awarding of additional contract work by the Grand River Conservation Authority.

**Volunteer Field Ornithologist**, Participated in numerous Christmas Bird Counts (CBC) for London region and Ontario Breeding Bird Atlas Survey (OBBA); 1980 - 1985, 2000 - 2005; CBC - 1985 - present.

**Expedition Leader**, Led and organized over 20 research/conservation expeditions to birding “hotspots” along the north shore of Lake Ontario, Lake Erie and the Bruce peninsula.

**Publisher, Editor, Photographer**, Designed, published and marketed several field guide books on flora and fauna of the Bruce Trail system (215 km. of trail systems between Tobermory and Owen Sound, Ontario), birds and plants of Ontario. Completed volume 1 for a publication on Ontario Species at Risk plants (sponsored by TD/Canada Trust's Friends of the Environment Foundation).

**Senior Instructor/Program Developer**, Developed marketing materials and strategies to teach and train professionals and practitioners in methodology and protocol of performing ecological studies, environmental laws, GIS, flora and fauna identification, including Species at Risk, ELC, OWES, site assessments, project management, staff leadership, bird & fauna surveys, field research and conservation methodology and protocols. My clientele list has included; Alderville First Nations, Everest College, Northern College, the Alberta Biodiversity Monitoring Institute, Canadian Wildlife Service, Hullet Provincial Wildlife Area, Quinte Conservation, Ministry of the Environment, GWS Services, Plan B Natural Heritage, Natvik Ecological, Avalon Professional Consultants of Ontario and Azimuth Environmental Consultants.

**Project Director**, Wrote complex proposals and obtained sponsorship and support to operate projects from Service Canada, Human Resources Development Canada, the Ministry of Training, Colleges and Universities, Ministry of Agriculture Food and Rural Affairs (OMAFRA), Agriculture Canada, the Jane Goodall Institute-Canada, TD/Canada Trust's Friends of the Environment Foundation, Wildlife Preservation Trust-Canada, Ontario Lottery Corporation, Ecologists environmental consultants, La Suerte Field Biological Station, Service Civil International, International Primate Sanctuary of Panama, Volunteers for Peace, the Thames Valley District School Board, the University of Guelph, the University of Western Ontario, Northern College, the Hearst Economic Development Corporation, World Wildlife Fund-Canada, Lakehead University, Catfish Creek Conservation Authority, Alderville First Nations, Grand River Conservation Authority and the Upper Thames River Conservation Authority.

**Senior Project Manager & Director**, Submitted recommendations to establish Cavendish Park in London, Ontario as an Environmentally Sensitive Area (ESA). Coordinated and reviewed field work, ELC and reporting requirements based on 13 years of field data and 48 years of avifauna data. Supervised Project Manager site evaluations and provided consultation and guidance for an ESA report currently being prepared for the City of London. Work resulted in publications entitled “[Preliminary Biological Inventory of the Flora and Fauna of the Cavendish Park Study Area](#)” and “[The Birds of Cavendish Park and surrounding area of London, Ontario, Canada](#)”.

**Senior Terrestrial Field Biologist/Ecologist**, Provided supervision and mentoring of intermediate and junior staff to organized & conduct field work in 43 Counties of Ontario in search of all vascular plants (ie. trees, shrubs, wildflowers, grasses, sedges, rushes, ferns and club mosses). Work with supporting organizations to maintain and coordinate a 55 000 record ACCESS database representing 150 families, 525 genera and 1088 plants of Ontario, including 102 Ontario Species at Risk (SAR) species. Database will be used to produce R ranks to determine rarity levels of vascular plants within Site Regions (regional rarity). Lead GIS Technician in charge of mapping all SAR plants in ACCESS database utilizing ArcView 9.3 platform. These maps will be used for the SAR plants of Ontario book, sponsored by TD/Canada Trust Friends of the Environment Foundation.

**Senior Biologist**, Senior Biologist in charge of all flora and fauna field surveys and natural terrestrial, aquatic and wetland inventories at Pinecroft, near Aylmer, Ontario. Reported all rare bird species to the Natural Heritage Information Center (NHIC) and Ontbirds. Work has resulted in several publications entitled “[The Birds of Pinecroft and surrounding area of Aylmer, Ontario](#)”, “[The Asters and Goldenrods of Ontario](#)” and “[Tree/shrub Plant Genera of Ontario](#)”.

## Technical Experience

### Rockwood Conservation Area natural areas inventory,

**Rockwood, Ontario**, Volunteer Terrestrial Ecologist for the Grand River Conservation Authority; responsible for surveying 240 hectare study area. Based on a flora inventory rate of 1 hectare per half hour surveyed over 300 vascular plants and 50 bird species in a 2 hour period. Discovered several rare fern species.

### Niagara Escarpment World Biosphere Reserve, Tobermory to Owen Sound, Ontario

Organized over 100 students and volunteers over several research/conservation expeditions beginning in 1999 to fully catalogue and document all flora and fauna; vascular plants, birds, amphibians and reptiles, mushrooms, butterflies and moths, dragonflies & damselflies along 215 km of the Bruce Trail system in Bruce & Grey counties. Discovered several SAR reptiles such as Massasauga rattlesnake (*Sistrurus catenatus*), Milk snake (*Lampropeltis triangulum*) and Eastern ribbon snake (*Thamnophis sauritus*). Also discovered SAR plants such as Round leaved ragwort (*Senecio obovatus*) and Ontario goldenrod (*Solidago simplex* var. *ontarioensis*). Work led to a publication entitled “[A Hiker's guide to the flora and fauna of the Niagara Escarpment World Biosphere Reserve: Tobermory to Owen Sound, Ontario](#)”.

### Sexual Dimorphism in Brown-headed cowbirds

Captured Brown headed cowbirds (*Molothrus ater*) for field study on sexual dimorphism for the University of Guelph.

### Ecological Land Classification & Bird Survey Certification for professionals

Trained junior staff from Avalon Professional Consultants of Ontario in ELC and bird survey methodology. Trained the manager of Hullet Provincial Wildlife Area and Natvik Ecological in ELC. Trained intermediate staff from Azimuth environmental consultants in bird field survey techniques, identification and census methodology.

### Misting netting passerine birds, Long Point, Selkirk & Ruthven Park, Ontario

Volunteer Field biologist involved with banding approximately 600 birds representing over 140 species, including raptors and owls over several summers and springs between 1983 - 1985; 2001 - 2003, 2009 & 2010.

### Middle Island flora and snake inventory, Point Pelee

**National Park, Lake Erie, Ontario**, Chief surveyor in charge of assisting Park staff with a targeted search for 9 Ontario SAR plants believed to exist on an island with over 200 species of SAR flora and fauna, including nesting provincially rare Black crowned night heron (*Nycticorax nycticorax*) and Great egret (*Ardea alba*). The island is choked by over 5000 Double crested cormorant (*Phalacrocorax auritus*) nests and their guano is affecting the survival rate of all SAR flora. Discovered populations of provincially rare Spring avens (*Geum vernum*), Yellow corydalis (*Corydalis flavula*), Spreading chervil (*Chaerophyllum procumbens*) and Scorpion weed or Small seeded forget me not (*Myosotis macrosperma*). Dave was also in charge of snake surveyors searching for the endangered Lake Erie Water snake (*Nerodia sipedon sipedon*).

**Mist netting Carolina wrens, London, Ontario**, Hired equipment and staff to colour code band resident Carolina wrens (*Thryothorus ludovicianus*) at a 12 hectare study area in London, Ontario.

### Silver Creek Valleylands Study, Elgin County, Ontario

Hired by the Catfish Creek Conservation Authority in 1984 to conduct an erosion control study of the cultural and biophysical attributes of the Silver Creek sub-watershed. Report published by the Ontario Ministry of Natural Resources led to identification of primary fish habitat & spawning areas as well as areas of risk relating to erosion control and prevention. Assisted with land/watershed plans. Successfully obtained landowner permission to re-survey Silver Creek watershed for 25th anniversary of first study and conducted a complete ELC, Wetland evaluation, GIS as well as flora and fauna survey.

### Environmental laws, policies and permits for protection of Meadowlily Woods Significant Natural Area (SNA) Wood poppy population

Alerted private landowners, the MNR, the City of London and the Upper Thames River Conservation Authority when the habitat of endangered Wood poppies (*Stylophorum diphyllum*) were decimated by light logging operations and dumping fill. Monitoring efforts and preliminary field surveys led to formation of recovery management team and amendment of Official Plan for the City of London.

### Tequanya Conservation Area environmental survey Grand River Conservation Authority

Volunteer Species at Risk Biologist for Grand River Conservation Authority at a conservation area in Haldimand County, Ontario. Surveyed all flora and fauna, including snakes and amphibians. Discovered endangered Prothonotary warblers (*Prothonotaria critica*) and provincially rare Forked chickweed (*Paronychia canadensis*).

### GIS Trainer & Instructor for professionals

Trained staff from the Canadian Wildlife Service, the Ministry of the Environment, Grand River Conservation Authority and Quinte Conservaiton in ArcView 9.3 applications at the GIS Technician level.

### Senior Field Botanist, flora inventory, Sandbanks

**Provincial Park**, Conducted a full vegetation field survey of all vascular plants at Sandbanks Provincial Park. Discovered 324 plant species and added 11 new species to official park list. Publication submitted to Zone Ecologist for Site Region 6E.

### Project Director, flora and fauna inventory, Port Burwell

**Provincial Park**, Organized an international volunteer team from Japan, Germany and Belgium to perform vegetation & snake surveys at Port Burwell Provincial Park. Discovered Eastern hognosed snake (*Heterodon platirhinos*). Resulted in a publication submitted to the Zone Ecologist and NHIC.

### Project Manager, Glencolin Tract ELC, Catfish Creek

**Conservation Authority**, Hired junior staff to perform a complete ELC, flora and fauna survey and inventory of the Glencolin Tract - a 25 hectare natural area owned by the CCA in Elgin County, Ontario.

### Agrimony Project, OMAFRA

Project Supervisor. Organized a two year study with the Ontario Ministry of Food and Rural Affairs (OMAFRA) - Simcoe Station to investigate an alternative or supplementary crop to the declining tobacco industry. Conducted full ELC field surveys at 8 natural sites across Ontario and compared ecosites, soil types, pH, moisture regimes, phosphate, nitrate and phosphorous levels to determine the ultimate growing formula for farmers. Conducted studies on plant height vs. density in 5 natural areas. Studied the medicinal properties of plants growing in natural areas. Medicinal product will be patented for distribution to the public once growing formula has been firmly established.

### SAR Biologist

Principal in charge of SAR field surveys for all vascular plants (ie. Trees, shrubs, wildflowers, grasses, sedges, rushes, ferns and club mosses) within Site Regions 6E and 7E covering approximately 24 counties. Responsible for submitting over 300 SAR plant records to the NHIC in 2010.

### Program Developer, Everest College

Currently working with Everest College to develop an environmental curriculum designed to provide practical field skills in ecological and habitat restoration. If approved the program will be offered to people wishing to obtain a background in order to find and maintain work in ecological and habitat restoration. Also working with a partner to develop an Environmental Assessment online certification course.

### Dopko Site, Bruce Trail Conservancy

Project Supervisor on behalf of the Bruce Trail Conservancy. Responsible for conducting a complete ELC and vegetation survey of a property near Grimsby in Niagara County, Ontario

### Byng Island Conservation Area, Grand River Conservation

**Authority**, Project Supervisor responsible for obtaining permits to conduct full ELC and vegetation surveys. Discovered provincially rare Black gum (*Nyssa sylvatica*) stands and inclusions within a 12 hectare deciduous forest type.

# Curriculum Vitae

## Scott A. Martin

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Email: [smartin@wildcanada.ca](mailto:smartin@wildcanada.ca)

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### **SUMMARY OF QUALIFICATIONS**

- professional ecologist with over 27 years of field experience
- fully versed in studying the complexities and dynamics of both terrestrial and wetland ecological systems
- able to conduct a wide array of biological inventory and analysis studies, from breeding birds and herpetofauna to botany, and more
- trained, certified and experienced in Ecological Land Classification, Ontario Wetland Evaluation System for both Southern and Northern Ontario, Butternut Health Assessment, as well as other biological monitoring and management protocols

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### **SAMPLE OF RELEVANT EXPERIENCE**

- Contracting and sub-contracting of professional ecological services such as EIS, ELC, Wetland Evaluation, Breeding Bird Studies, Herpetile monitoring, Peer Review and general biological inventory and analysis: 1989-present; AECOM, Azimuth Environmental Inc., R.J. Burnside Inc., Saar Environmental, Tarandus Associates Ltd., and others, as well as to government agencies, municipalities and private business and individual clients
- Ecological Land Classification of Len Gertler Memorial Loree Forest Proposed Provincial Park: 2011; Ontario Ministry of Natural Resources (Ontario Parks)
- Vegetation Cover Study, Ecological Land Classification and Vegetation Management Plan for Land Force Central Area Training Centre Meaford: 2010; Department of National Defence

- Bivouac Sustainability Study for Land Force Central Area Training Centre Meaford: 2010; Department of National Defence
- Preparation of Terms of Reference / Statements of Work for three proposed academic research projects at LFCATC Meaford (Bivouac Sustainability Study; Benthos Biomonitoring Study; Vegetation Cover Study and Vegetation Management Plan): 2009; Department of National Defence.
- Life Science Checksheet for Port Burwell Provincial Park: 2009; Ontario Ministry of Natural Resources (Ontario Parks)
- EIS Peer Reviews for applications to develop aggregate pits; 2007-2008; Tiny and Clearview Townships, Simcoe County, ON and the Municipality of Grey Highlands, Grey County, ON.
- Life Science Checksheet for Inverhuron Provincial Park: 2007; Ontario Ministry of Natural Resources (Ontario Parks)
- Species at Risk Bird Surveys and Management Planning at Land Force Central Area Training Centre Meaford: 2005 and 2007; Department of National Defence.
- Inventory and Assessment of a Federally and Provincially Endangered Plant Species in Three Niagara Escarpment Provincial Nature Reserve Parks: 2005; Ontario Ministry of Natural Resources (Ontario Parks).
- Census of the Cerulean Warbler (*Dendroica cerulea*) Population in Awenda Provincial Park: 2005; Ontario Ministry of Natural Resources (Ontario Parks).
- Biological Study Toward an Environmental Assessment for the Construction of an Instinctive Shooting Battle Range at Land Force Central Area Training Centre Meaford: 2005; Department of National Defence.
- Species at Risk Critical Habitat Surveys and Management Planning at Land Force Central Area Training Centre Meaford: 2004; Department of National Defence.
- Conduct many volunteer, “citizen science” natural history surveys and submit records for Bird Studies Canada and other groups, including: Ontario Breeding Bird Atlas, Ontario Nest Records Scheme, Ontario Grassland Birds Survey, Nocturnal Owl Survey, Marsh Monitoring Program, Project Feeder-watch, Christmas Bird Count, Monarch Watch, Ladybird Beetle Survey, Ontario Herpetofaunal Survey, and others

## RELATED EMPLOYMENT

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- **Sr. Ecologist / Principal, WILD Canada Ecological Consulting,**  
Wasaga Beach, ON (1989 to Present)

Provide a wide variety of Ecological Consulting services to government agencies such as the Department of National Defence and the Ontario Ministry of Natural Resources; Municipalities; fellow Environmental Consulting firms, including AECOM, Azimuth Environmental Inc., Burnside and Associates Inc., Saar Environmental, Tarandus Associates Ltd. and others; and private business and individual clients.

Services include Ecological / Biological Inventory and Analysis such as Breeding Bird Surveys and Amphibian Surveys; Ecological Land Classification; Wetland Evaluation; EIS/EA Peer Review; Butternut Health Assessment, Habitat Restoration, Creation, Naturalization and Management; Native Plants Propagation and Seed Collection; Natural History Interpretation, Presentations, Research and Writing; and more. For 11 years, WILD Canada operated one of Ontario's oldest and largest native plant nurseries, producing over 260 species of native plants for habitat restoration and creation projects.

- **National Co-ordinator, Audubon Cooperative Sanctuary System of Canada,**  
Collingwood, ON (1997 to 2004)

Co-ordinated and Managed all activities for national, charitable environmental organization, educating and encouraging over 450 member land owners and managers across Canada to become actively involved in protecting and enhancing wildlife habitats, and conserving and sustaining natural resources on their properties

Provided Environmental Education and Stewardship Assistance to members working to environmentally manage over 25,000 hectares of property. Responsible for all Fund Raising, Proposal Writing and Reporting, Creation and Maintenance of member property database and Fostering Partnerships with various NGOs and trade organizations.

- **Park Naturalist: Point Pelee National Park,** Leamington, ON (1992 to 1993);
- **Chief Park Naturalist: Rondeau Provincial Park,** Ridgeway, ON (1987 to 1991)
- **Park Naturalist: Pinery Provincial Park,** Grand Bend, ON (1986);
- **Naturalist: Wye Marsh Wildlife Centre,** Midland, ON (1985);
- **Naturalist: Tiny Marsh Provincial Wildlife Area,** Elmvalle, ON (1984)

Biological Monitoring (birds, herpetiles, plants and other life forms)  
Management of Natural Resources of Parks  
Conducted Natural History Interpretation Programs  
Researched and Assisted in Development, Updating and Communication of Management Plans  
Wrote Reports and Proposals  
Supervised and Trained staff

## EDUCATION AND SPECIALIZED TRAINING

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- **B.Sc. (Natural Sciences),**  
Lakehead University, Thunder Bay, ON (1988 – 1992)  
Specialized in Ecology
- **H.B.O.R. (Honours Bachelor of Outdoor Recreation, Parks and Tourism)**  
Lakehead University, Thunder Bay, ON (1988 – 1992)  
Specialized in Natural Areas Planning and Management
- **Parks and Forest Recreation Technician**  
Fleming College, Lindsay, ON (1986 – 1988)  
Specialization split between Parks Management, Fish and Wildlife Management and Forest Management
- Ecological Land Classification for Southern Ontario (OMNR)
- Ontario Wetland Evaluation System for both Southern Ontario and Northern Ontario (OMNR)
- Ontario Natural Heritage Information Centre (NHIC) Data Sensitivity Training (OMNR)
- Certified Butternut Health Assessor (Forest Gene Conservation Association - FGCA)
- Certified Seed Collector (Forest Gene Conservation Association - FGCA)
- Ontario Managed Forest Tax Rebate Program Plan Reviewer (OMNR)

## RELATED VOLUNTEER EXPERIENCE

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- Steering committee for the Nottawasaga Watershed Improvement Program (N-WIP), a pilot project of Environment Canada's Lake Huron Framework for Community Action, working towards the rejuvenation of the Lower Nottawasaga River Watershed as part of the greater Lake Huron-Georgian Bay watershed (2008 – present)
- Board of Directors of Tallgrass Ontario, a provincial, charitable NGO dedicated to restoration, stewardship and education of the globally imperilled tallgrass prairie and savannah habitats in Ontario (2007 – present)
- Vice Chair and founding member of Wasaga Beach's Healthy Community Citizens' Network, an official Town advisory committee to assist with environmental and community health issues (2007 – present)
- Have delivered hundreds of presentations on birds and birding, habitat creation and management, general ecology, native plants and natural landscaping to Field Naturalist Clubs and Horticulture Societies, as well as at large industry and public trade shows such as the Cottage Life Show and Canada Blooms

- Guest expert and columnist many times regarding natural history, such as birds and native plants, for national, regional and local television and radio programs, magazines and newspapers

## **RELEVANT MEMBERSHIPS**

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- Field Botanists of Ontario
- Society for Ecological Restoration
- North American Native Plant Society
- Tallgrass Ontario
- Federation of Ontario Naturalists

## **RELATED INTERESTS**

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- Birding
- Botany
- Nature Photography
- Native Plant Gardening
- Hiking
- Fishing

## **REFERENCES**

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Available upon request.





## Brian Miller

*Fish and Wildlife Technician Dip.  
Ecologist  
Curriculum Vitae*



An honours graduate of the Fish and Wildlife Technician Program at Sault College, Mr. Miller's passion for the natural world is evident in his skill set that is continuously growing through his continuing education and certification.

As a member of the Aboud & Associates team, Mr. Miller is responsible for botanical and wildlife inventories and monitoring and ELC vegetation community assessments for a wide range of projects and ecosystems.

### EDUCATION

- Fish and Wildlife Technician Program (Hon), Sault College, 2006.

#### Student Awards:

- Academic Merit Award, 2006

#### Continuing Education & Certification:

- 2011 – TRCA Sedge (*Carex* spp.) Identification Workshop
- 2011 - OMNR Natural Heritage Assessment Training for Renewable Energy Projects
- 2010 - Field Botanist of Ontario (FBO) Trip Sparrow Lake Aquatic Plant Identification
- 2010 - FBO Spring Hawthorn Identification Workshop, Middlesex Co.
- 2009 - FBO Aster and Goldenrod Identification Workshop, Ojibway Prairie
- 2009 - OMNR Butternut Health Assessment Workshop, Endangered Species Act, 2007
- 2009 - FBO Woodland Sedge Identification Workshop, Royal Botanical Gardens
- 2009 - OMNR Class 1 Electrofishing Course, Institute for Watershed Science
- 2009 - Royal Ontario Museum Fish Identification Workshop
- 2008 - Ecological Land Classification (ELC) for Southern Ontario Training Course
- 2007 - BOT\*3710 (Classification and Morphology of Plants), University of Guelph
- 2007 - Natvik Ecological Restoration Workshop

- 2007 - Cook Forest State Park Old Growth Forest Workshop, Pennsylvania
- 2006 - Environment Canada's Ecological Monitoring and Assessment Network (EMAN) Training
- 2006 - Ducks Unlimited/Bird Studies Canada Marsh Monitoring Workshop
- 2005 - Ontario Nature AGC
- 2005 - Ontario Woodlot Association AGM
- 2004 - Beech Bark Disease Workshop
- 2004 - Moose Workshop, Sault Ste. Marie

### CAREER EXPERIENCE

Prior to joining Aboud & Associates in 2006, Mr. Miller worked with the following organizations:

#### Terrestrial Monitoring Assistant

##### ***Credit Valley Conservation Authority (2006)***

- Vegetation sampling and tree health assessment following EMAN's terrestrial ecosystem monitoring protocols
- Vegetation sampling in forest, swamp, marsh, bog and shallow water communities
- Field identification and voucher specimen collection of vascular flora
- Preparation of collection reports and databases

#### Forest Technician

##### ***Williams and Associates Forestry and Environmental Consulting (2004-2005)***

- Tree marking in woodlots and plantations
- Supervision of prescribed burning to promote oak regeneration
- Supervision of harvest operations

##### ***Springbank Garden Centre, London (2004)***

- Landscape Installation
- Customer Service

### AREAS OF EXPERTISE

- Identification of flora and fauna
- ELC / Vegetation Community Assessment
- Vegetation Monitoring



## Brian Miller

*Fish and Wildlife Technician Dip.  
Ecologist  
Curriculum Vitae*



### **SELECTED PROJECT EXPERIENCE**

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#### **Botanical Inventories / Surveys & Vegetation Community Assessments (ELC):**

- Rare species surveys Highway 407 extension (Durham Region)
- Windsor Essex Parkway – Species at Risk (SAR) surveys & Botanical Inventories of remnant prairie communities (Windsor)
- Baseline Inventory & Vegetation Community Assessment of private woodlot (Oshawa)
- Mill Pond Park Botanical Inventory & ELC Assessment (Richmond Hill)
- Block 11 Wetland Vegetation Monitoring (Vaughan)
- CPA Subwatershed Study (Fergus / Elora)
- Block 5 Woodlot Management Plan (Brampton)
- Kleinburg Edge Management Plan (Vaughan)
- Subwatershed Studies (North Waterloo and West Cambridge)
- Shell Canada Proposed Heavy Oil Refinery Expansion Project (Lambton County)
- Block 12 Large Restored Buffer Vegetation Monitoring (Vaughan)

#### **Tree Inventories & Assessments:**

- Regional Road 13 Reconstruction (Durham Region)
- Town of Milton Tree Inventory Data Collection (Milton)
- Kleinburg Tree Preservation Plan & Relocation Strategy (Vaughan)
- Block 39 - Vellore Village Woodlots 7, 8 and 9 Tree Preservation Plans (Vaughan)
- Jefferson Forest Edge Management & Tree Preservation Plans (Richmond Hill)

#### **Wildlife Surveys:**

- CPA Subwatershed Study (Fergus/Elora) – Breeding Birds, Amphibian Calls, Snake and Hibernacula, Butterflies and Dragonflies
- Mill Pond Park Breeding Bird Surveys (Richmond Hill)
- 1897 Gordon Street EIS Breeding Birds and Amphibian Calls (Guelph)

In addition, Mr. Miller provides assistance with:

- Report Writing & GIS Mapping
- Literature and Peer Reviews
- Monitoring Program Design
- Herbarium Maintenance

### **VOLUNTEER EXPERIENCE**

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- 2011 - Botanical inventory of an 13.5 ha Nature Reserve (Nordin Property) owned by the Escarpment Biosphere Conservancy
- 2010 – Botanical Inventory of wetlands on the Ignatius Jesuit Centre of Guelph lands.
- 2004 - American Badger Den Searching with Ontario Ministry of Natural Resources staff in Komoka Provincial Park
- 2003 & 2005 - Deer Check Station – St. Joseph Island
- 2003 - Lake Huron North Shore Elk Restoration Project – Elk Enclosure Construction
- 1999 & 2000 - Pinery Prov. Park Deer Count

### **PUBLICATIONS & PRESENTATIONS**

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B. Miller. (2006). Little Basswood Lake Survey Report. Submitted to the Ontario Ministry of Natural Resources – Blind River, Ontario. Fisheries Section.

### **PROFESSIONAL AFFILIATIONS**

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- Field Botanists of Ontario



# Gerard Phillips

## Birding Biography.

- **1976-** Began birding in Republic of Ireland age 12.
- **1980's - early 1990's** birding much of southern Europe (including birding trips to Israel).
- **1993-** Immigrated to California USA
- **1994-1995** birding extensively throughout California including many birding trips to Arizona and Baja California (Mexico).
- **1996- 1997** conducted fieldwork for *US Fish and Wildlife* ran a MAPS (Monitoring Avian Population/Survivorship) project at *Hopper Ranch NWR Santa Barbra*.
- Field work *Point Reyes Bird Observatory* including 2 month daily point count/surveys throughout Cleveland, San Bernardino and Angels Crest forests, and also bird banding at *Point Reyes Station* and the *South Farralon Island* with renown master bander/author Peter Pyle.
- Banding birds at the *Big Sur Ornithological Lab* in Monterey.
- **1998-2005** Moved to upstate New York USA employed seven (7) years by the *Onondaga Audubon* at *Derby Hill Bird Observatory* NY monitoring spring bird migration.
- **2002-2005** was a voting member of *NYSARC* (NYS Avian Records Committee). A position testament of my advanced birding skills/knowledge.
- **2006-2010** Immigrated to eastern Ontario and utilized my knowledge of Canadian birds by sight and sound surveying for the *Ontario Breeding Bird Atlas Project*.
- Leading annual spring field trips at Point Pelee teaching students from *Durham High School Outdoor Education Program* how to identify Ontario's birds by sight and sound.



# Robert Tymstra, BES

## BIOGRAPHY

Mr. Tymstra is an avian wildlife specialist who graduated from the University of Waterloo with a Bachelor of Environmental Studies degree. Birding experience includes numerous bird surveys, expeditions, banding, and migration monitoring in numerous countries. Since 2004, Rob has specialized in conducting avian surveys for wind turbine projects and has provided services for M.K. Ince & Associates, Prowind, and AECOM.

## EXPERIENCE

- Participated in bird census work all over the world for 40+ years. Expert in bird identification, having birded in over 60 countries, accumulating a list of over 5000 species of birds.
- Regional Co-ordinator for Ontario Herpetological Atlas and Ontario Mammal Atlas.
- Worked two summers as Nature Interpreter at Algonquin Provincial Park.
- Led bird survey expeditions in Hudson Bay Lowlands for Ontario Breeding Bird Atlas (Opinnagau, Albany, and Attawapiskat Rivers). Completed several sections in Southern Ontario for Breeding Bird Atlas 1981-95 and 2001-2005.
- Researcher and camp leader for a Habitat Based Wildlife Assessment of Ekwan Point, Longridge Point, and Western James Bay coast. Field work involved walking line transects & conducting point counts.
- Initiated an on-going distributional study of the birds of the little-known islands and waters of James Bay. Website: [www2.ebtech.net/~birdman](http://www2.ebtech.net/~birdman)
- Participated in and wrote papers on two World Wildlife Fund expeditions in remote areas of Nepal and Bhutan documenting birds and wildlife. On another expedition in Yunnan, China, helped rediscover *Sclater's Monal*, a rare pheasant not seen by westerners since WWII.
- Worked on Butler's Garter Snake surveys with James Kamstra for AECOM 2008-2010, capturing, marking individuals, and monitoring populations in Sarnia and Lambton County.

## Memberships and Associations:

- Board of Directors: Pelee Island Bird Observatory, Lambton Wildlife, Inc.
- Ontario Field Ornithologists member
- Explorers Club fellow



# Appendix D

## Weather Conditions During Site Investigations

## Appendix D. Climate Data for Bluewater Breeding Bird Surveys - 2011

Weather station - Goderich  
Climate Identifier - 6122847



| Field Date | Max Temp (°C) | Min Temp (°C) | Total Precip (mm) | Spd of Max Gust (km/h) | Average Wind Speed (km/hr) |
|------------|---------------|---------------|-------------------|------------------------|----------------------------|
| 05/27/11   | 15.3          | 8.2           | 0                 | 32                     | 14                         |
| 05/28/11   | 18.1          | 10.7          | 0                 | 39                     | 15                         |
| 05/29/11   | 20.1          | 13.9          | 3.9               | 33                     | 10                         |
| 05/30/11   | 27.9          | 11.8          | 0                 | 0                      | 9                          |
| 05/31/11   | 29.7          | 17.4          | 0                 | 56                     | 22                         |
| 06/01/11   | 19.3          | 10.6          | 0                 | 43                     | 19                         |
| 06/21/11   | 27.8          | 17.5          | 0.7               | 52                     | 14                         |
| 06/22/11   | 26.7          | 16.6          | 22.3              | 39                     | 18                         |
| 06/23/11   | 20.9          | 16.5          | 1                 | 35                     | 15                         |
| 06/24/11   | 17.1          | 14.2          | 3                 | 0                      | 12                         |
| 06/26/11   | 19            | 10.3          | 0                 | 0                      | 9                          |
| 07/01/11   | 26.8          | 8             | 0                 | 0                      | 9                          |
| 07/02/11   | 29.5          | 19            | 0                 | 46                     | 13                         |
| 07/03/11   | 22.4          | 13            | 0                 | 0                      | 7                          |
| 07/04/11   | 22.2          | 11.2          | 0                 | 0                      | 7                          |
| 07/07/11   | 21.1          | 11.8          | 0                 | 0                      | 6                          |
| 07/08/11   | 23.9          | 11.3          | 0                 | 0                      | 7                          |
| 07/10/11   | 28.7          | 19.8          | 0                 | 0                      | 13                         |



## Appendix D. Climate Data for ELC and Vegetation Community Surveys - 2011

Weather station - Goderich  
Climate Identifier - 6122847



| Field Date | Max Temp (°C) | Min Temp (°C) | Total Precip (mm) | Spd of Max Gust (km/h) | Average Wind Speed (km/hr) |
|------------|---------------|---------------|-------------------|------------------------|----------------------------|
| 5/12/2011  | 26.3          | 10.2          | 0                 | 54                     | 14                         |
| 5/13/2011  | 23.3          | 12            | 37.2              | 37                     | 13                         |
| 5/26/2011  | 17.1          | 7.9           | 4.9               | 37                     | 13                         |
| 5/31/2011  | 29.7          | 17.4          | 0                 | 56                     | 22                         |
| 6/29/2011  | 16.7          | 8.5           | 0                 | 41                     | 16                         |
| 7/4/2011   | 22.2          | 11.2          | 0                 | 0                      | 7                          |
| 7/5/2011   | 27.1          | 11.9          | 0                 | 32                     | 11                         |
| 7/7/2011   | 21.1          | 11.8          | 0                 | 0                      | 6                          |
| 7/18/2011  | 27.6          | 19.6          | 3.2               | 78                     | 11                         |
| 7/19/2011  | 27.5          | 18.7          | 0                 | 0                      | 7                          |
| 8/8/2011   | 24.6          | 16.9          | 0                 | 35                     | 13                         |
| 8/17/2011  | 25.7          | 13.7          | 0                 | 33                     | 13                         |
| 8/18/2011  | 25.2          | 14.5          | 0                 | 0                      | 9                          |
| 8/19/2011  | 25.6          | 13            | 0                 | 0                      | 8                          |
| 9/1/2011   | 24.8          | 17            | 0                 | 32                     | 11                         |
| 9/2/2011   | 30.4          | 19.4          | 0                 | 46                     | 13                         |
| 9/7/2011   | 19.5          | 11            | 0                 | 37                     | 18                         |
| 9/27/2011  | 20.3          | 12.4          | 3                 | 0                      | 7                          |
| 9/28/2011  | 22.3          | 11.8          | 0                 | 32                     | 12                         |
| 10/6/2011  | 20.5          | 9.6           | 0                 | 0                      | 10                         |
| 10/18/2011 | 12.3          | 7             | 0                 | 43                     | 15                         |
| 10/19/2011 | 10.5          | 6.9           | 29.4              | 57                     | 24                         |
| 10/20/2011 | 10.3          | 7.7           | 13.5              | 52                     | 20                         |
| 11/4/2011  | 9.2           | -0.8          | 0                 | 35                     | 14                         |
| 11/5/2011  | 10.7          | 0.1           | 0                 | 33                     | 14                         |
| 11/22/2011 | 2.2           | -3.5          | 2.8               | 61                     | 26                         |
| 11/23/2011 | 6.4           | -0.4          | 0                 | 37                     | 16                         |
| 11/28/2011 | 3.7           | 2             | 2                 | 35                     | 13                         |