

Summary of Qualifications and CVs

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

Ecological Land Classification

- Rob Aitken
- Jillian Deman
- Sam Gildiner
- Nick Hodges
- James Kamstra
- Scott Martin
- Jessica Piette
- Tom Shorney

Breeding Bird Surveys

- Peter Burke
- Scott Connop
- Robert Conohan
- Dave Jolly
- James Kamstra
- Scott Martin
- Pete Read
- Satu Pernanen
- Gerard Philips
- Rob Tymstra

Amphibians

- Rob Aitken
- Sarah Aitken
- Sam Gildiner
- Shelley Lohnes
- Jessica Piette
- Tom Shorney

Tundra Swans

- James Kamstra
- Rob Tymstra

Valleylands

- Jessica Piette

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

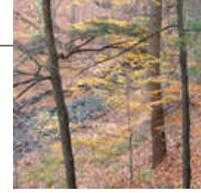
The Regional Municipality of York (2005)

- 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

- 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

- Field Botanists of Ontario
- Ontario Field Ornithologist





Sarah Aitken, B. Sc. Hon., ET Diploma Aquatic Ecologist

Professional History

2008 - present, AECOM, Aquatic Ecologist

2007 – Kawartha Lake Conservation, Fisheries Technician

2004-2006, Gartner Lee Limited, Environmental Technologist

2004 – Credit Valley Conservation, Water Resources Assistant

Education

Environmental Technology, Sir Sandford Fleming College Lindsay, ON 2001 – 2004

Environmental Resource Science (Honours) Trent University Peterborough, ON 2006 – 2008

Years of Experience

With AECOM: 6

With Other Firms: 1

Training

MTO/DFO/OMNR Fisheries Protocol Training for Consultant Fisheries Specialists – January 2010

Canadian Pleasure Craft Operator

WHMIS Training

Fall Arrest Training

Ontario Benthos Biomonitoring Network Certification Course, Ministry of the Environment, April 2005

Electrofishing Certification Level 2 Backpack, September 2010

Sarah Aitken is an Aquatic Ecologist with AECOM. She has over six years of experience in the environmental field in both the public and private sector. Since joining AECOM in 2004, Sarah has worked on a diverse range of projects including environmental monitoring projects, Renewable Energy projects involving storm water management pond monitoring, transportation projects, environmental impact studies, large-scale dewatering projects, construction monitoring projects and several EEM mining programs and lake management studies. Sarah has co-ordinated and implemented a variety of ecological and water resource monitoring activities for various projects and also has experience collecting benthic invertebrates, fish sampling and conducting detailed fish habitat information. She has experience in the collection and analysis of water quality data, stream assessments, various lake sampling techniques, installation of a variety of surface water field equipment, and report writing.

EXPERIENCE

Experience with various lake sampling techniques, including sediment coring, bathymetry, benthic invertebrate sampling, water quality and lake profiling for Brampton Lakes and Fairy Lake.

Completed several Fish community and biomass surveys for various projects including EA's and EIS studies. This included the use of different equipment including; backpack electrofisher, gill nets, hoop nets and minnow traps. Sarah has contributed technical advice to the permitting and approval process of several projects.

Completed several construction monitoring projects including regular site inspection of construction activities near water, fish capture and relocation and turbidity monitoring.

Conducted various water quality sampling programs for both surface water and groundwater systems. Also completed detailed analysis and report preparation with these results.

Sarah has coordinated and implemented several Environmental Effects Monitoring (EEM) programs for several mining projects.

Fisheries and Fish Habitat Assessments

Walpole Island First Nation, Walpole Island Dredge Cut Restoration Project, ON (2009-2010)

Conducted a feasibility study that included assessments of sediment and water quality in order to develop a strategy to restore 14 linear kilometres of aquatic habitat around Potawatomi Island.

Squirrel Island Bridge Replacement, Walpole Island, ON (2009)

Aquatic investigations were undertaken to aid in the assessment of potential effects of a bridge replacement on Squirrel Island between River

Standard First Aid with CPR Level A,
March 2012

Gartner Lee Centres of Excellence –
Fisheries Methods Course, June 2008

Lake Management in a Changing
Environment, North American Lake
Management Society Conference,
November 2008

Taxonomy, Ecology and Control of
Nuisance Algae, Pre-conference
Workshop, North American Lake
Management Society, November 2008

Fish Identification Workshop - Royal
Ontario Museum (2009)

Road South and Squirrel Island Road. Detailed background view and fish habitat mapping was conducted.

Mississauga Road Widening – Huttonville Creek, Mississauga Ontario (2010-Present)

Sarah contributed technical advice to the permitting and approval process for an ESA required permit. This involved the evaluation of different alternatives and their associated impacts and benefits analysis. Sarah also assisted in developing rationale for the different alternatives and compensation plans.

City of Guelph, Arkell Springs Creek AMP Monitoring, Eden Mills Ontario (2008-2009)

Monitored the effects of a long-term pumping project on a coldwater trout stream. Sarah collected data including stream velocities, surface and groundwater interaction, fisheries community information, redd surveys and aquatic habitat assessments.

Monora Creek, Brook Trout Biomass Survey, Ontario (2004-2009)

Conducted annual biomass surveys and spawning surveys to determine if there was an impact on fish populations from groundwater extraction. Temperature monitoring and stream flow monitoring was also conducted on a monthly basis. Sarah also coordinated and prepared annual reports for the client.

City of London, Storm Drainage and Stormwater Management Facility and Servicing - Class Environmental Assessment, White Oak Area, London, Ontario.

Collected aquatic habitat and reconnaissance level fish species presence data from White Oak drain and tributaries and provided recommendations for stormwater management implications. [2009]

Blockline Environmental Impact Study, Kitchener, Ontario (2009-Present)

Sarah collected detailed fish habitat information in Schneider Creek for the Preliminary Design Brief for the extension of Block Line Road from Hanson Avenue to Courtland Avenue East. Sarah assessed the significance of Schneider Creek, the present constraints and opportunities, the potential impacts anticipated as a result of the proposed road extension and provided an Environmental Management Plan for the protection and management of Schneider Creek.

TTC – 407 Subway Station, Toronto, Ontario (2009)

Sarah collected detailed fish habitat information according to the MTO/DFO Fish Habitat Protocol. Fish community surveys were also conducted the length of the study reach.

Waterloo LRT Environmental Impact Study, Region of Waterloo, Ontario (2009-2010)

Conducted detailed fish habitat assessments of all identified watercrossings in study area, specifically looking at crossing locations and downstream habitat. Sarah conducted fish community surveys by electrofishing and minnow traps and assessed the significance of all the watercourse crossings, the present constraints and opportunities, the potential impacts anticipated and mitigation techniques to protect the watercourses.

Environmental and Construction Monitoring

Design-Build of the Elgin Area Primary Water Transmission Main Twinning, Ontario (2010-Present)

Sarah played a large role in coordinating and implementing the field work which included detailed assessment of all potential watercourse crossings, collection of fish habitat information and fish community studies. Sarah maintained contact with regulatory agencies and compiled a detailed report submitted for agency approval. She also worked with Transport Canada to obtain Navigable Waters approvals.

York Region Sanitary Sewer Installation – 16th Avenue, Markham, Ontario (2004-2006)

Sarah coordinated field schedules and implemented field programs for the 16th Avenue Projects, which included stream flows, groundwater levels, maintenance of stream loggers, site investigations, water quality sampling and fish sampling. Sarah was also responsible for peer reviewing data collection from other consulting firms and auditing site selections. She was responsible for organizing high quality field notes for project records, developing rating curves, creating a database for data storage and preparing reports for the client.

York Region Sanitary Sewer Installation – 9th Line, Stouffville, Ontario (2004-2006)

Sarah played a large role in completing a long-term monitoring program which monitored the impacts from dewatering on a coldwater Brook Trout stream. Weekly stream flows, groundwater levels, maintenance of stream loggers, construction monitoring, water quality sampling and fish sampling. She was responsible for data collection and organization, developing rating curves and preparing reports for the client. Sarah also maintained relationships with sub-consultants and the client.

York Region Sanitary Sewer Installation – King Road, King City, Ontario (2004-2006)

Sarah coordinated and implemented field programs for the King Road sanitary sewer installation, which included stream flows, groundwater levels, construction monitoring, wetland monitoring, and site investigations. She was responsible for the taking and organizing field notes for the project records and preparing reports for the client.

Puslinch Culvert 93 Replacement, Puslinch, Ontario (2010)

Coordinated and assisted in construction monitoring of silt fencing and channel removal. Helped develop and implement a fish capture and relocation plan during construction phase.

Huron County Culvert 86-19.7 Bridge Replacement, Huron County, Ontario (2010)

Coordinated and assisted in construction monitoring of silt fencing and channel removal. Helped develop and implement a fish capture and relocation plan during construction phase.

Lake Management Studies

Fairy Lake Water Quality Study, Acton, Ontario (2008-2009)

Sarah coordinated and completed field work analysis of a small urban lake including low flow and rain event sampling, dissolved oxygen lake profiling, water quality measurements and sediment core sampling. She compiled and analysed field data and assisted in the preparation of the final report. Sarah also helped determine options for enhancing the quality of the lake for the client and nuisance geese management options.

Citywide Lake Assessment/Management Study, Brampton, Ontario (2004-2006)

Sarah participated in an extensive monitoring program to collect water quality, fish community data and habitat ecology for several urban lakes within the City of Brampton. Sarah assisted in the data organization and report writing, as well as answering client comments.

West End Community Centre, DFO Compliance Monitoring, Guelph, Ontario (2008-2009)

Project manager for a pond monitoring study (2008-2009) resulting in management recommendations for improvements to water quality, mitigation of nuisance wildlife and suitability of fish stocking. Sarah conducted pond profiling and captured and re-stocked pond with select species.

Woodbine Racetrack Water Quality Monitoring, Etobicoke, Ontario (2004-2006)

Sarah completed monthly surface water quality sampling from various stormwater ponds and the receiving waterbodies.

Mining Projects

Liberty Mines, McWatters Mine, Ontario (2010-Present)

Completed an adult fish survey and detailed habitat mapping to fulfill the regulatory requirements of the EEM Cycle 1 program for assessing impacts on the aquatic environment from mine effluent for the EEM program. Assisted in completing the reports for agency review.

FNX Mining, Podolsky Site, Ontario (Fall 2009)

Provided technical support for the fall field program of the EEM Cycle 1 for the Podolsky Mine Site. Conducted an adult fish survey, benthic invertebrate sampling, as well as sediment and water quality sampling to meet the requirements of the EEM program.

Kirkland Lake Gold, Ontario (2008)

Completed an adult fish survey, benthic invertebrate, sediment and water quality sampling to fulfill the regulatory requirements of assessing impacts on the aquatic environment from mine effluent for the EEM program.

PETER BURKE

PROFILE

Extensive natural history knowledge of wildlife, insect, and vegetation communities within Ontario and beyond. Expert knowledge of birds across North, Central, and South America, including breeding bird surveys, bird banding expertise, bird field guide illustration, and bird tour leading. Expert knowledge of dragonfly and damselfly communities in Eastern Canada, including identification to species of both adults and larvae, and field guide illustration. Professional tour leader for Field Guides, Inc. Professional illustrator for various bird field identification guides, including National Geographic. Extensive work experience as a biologist and consultant for various industries, firms, and academic institutions over the last 25 years.

EXPERIENCE

ILLUSTRATOR, SELF EMPLOYED

Illustration of bird and Odonata (dragonfly/damselflies) for variety of field guides. Work includes National Geographic's Birds of North America (3rd 4th 5th Editions), Birds of Chile (Princeton U. Press), Birds of Peru (Princeton U. Press), Birds of Brazil (in prep.), Land Manager's Guide to Conserving Forest Birds in Southern Ontario (Ontario, MNR), Blackbirds of the Americas: The Icterids (A & C Black Press, UK), The Dragonflies and Damselflies of Algonquin Provincial Park (Friends of Algonquin Park Press).

BIRDING TOUR GUIDE, FIELD GUIDES INC, AUSTIN, TEXAS, USA, EAGLE-EYE TOURS, VANCOUVER, B.C. 1997-2011

Primary and secondary leader for various birding tours across North and South America and the West Indies from Victoria Island to Tierra del Fuego. Identification of birds by sight and sound and navigation through remote areas. Prepare comprehensive trip reports. Ensure day to day logistics for up to 14 participants to ensure the tours run smoothly. Extensive interpersonal skills dealing with diverse clients 24-7. Provide organizational and logistical expertise throughout the tours which run up to 18 days. Extensive use of Spanish.

CONTRACT BIOLOGIST, GOLDER ASSOCIATES, SUDBURY, ON JUNE-JULY 2011

Collected field data using helicopter access across a gradient of representative habitats in the Boreal Forest and Hudson Bay Lowlands. Used point count surveys to record breeding bird richness and densities and aerial surveys for raptors and caribou. Compiled field data and logged Health & Safety Plan (HASP) daily. Gathered data on amphibian, mammalian, lepidopteran, and odonate communities.

CONTRACT BIOLOGIST, SAVANTA ASSOCIATES, ST. CATHARINES, ON JULY 2010, 2011

Completed site surveys for breeding birds and inventoried Mammals, Lepidoptera, Odonata. Prepared comprehensive reports detailing species richness, densities and species of concern if present. Documented all non-avian species in annotated form.

PETER BURKE

CONTRACT BIOLOGIST, GOLDER ASSOCIATES, OTTAWA, ON
APRIL-NOV 2010

Collection of point count data s to detect bird migration and breeding birds within proposed sites for Windfarm energy production in SW Ontario. Visits occurred throughout spring, summer and fall.

CONTRACT BIOLOGIST, NATURAL HERITAGE INFORMATION CENTRE,
MINISTRY OF NATURAL RESOURCES, PETERBOROUGH, ON
JUNE-SEP 2010

Surveyed for rare species of Odonata at numerous sites across Ontario by detection of adult and larval forms. Collected data on site specific information that described biotic and abiotic features. Specimens prepared for museum collection. Report that summarized all species recorded during the surveys.

CONTRACT BIOLOGIST, MNR/TRENT UNIVERSITY, LONDON, ON MAY-
JULY 2001-2011

Participated in yearly breeding bird productivity monitoring studies. Found and monitored nesting success of forest birds in a hardwood community across several logging practices in Algonquin Park and public and private woodlots in SW Ontario. Included monitoring breeding success and banding an endangered species in Canada, Acadian Flycatcher. Collection of data included vegetation surveys to quantify territory and site level structural characteristics. Participated in salamander monitoring surveys using mark-recapture techniques and cover boards. Assisted in Southern Flying Squirrel trapping using mark-recapture and live traps at a variety of sites across southern Ontario.

CONTRACT BIOLOGIST, NATURAL HERITAGE INFORMATION CENTRE,
MINISTRY OF NATURAL RESOURCES, SYDENHAM/AUSABLE RIVERS,
ONTARIO MAY-SEPT 2003

Surveyed for rare species of Odonata (Dragonflies and Damselflies) along the Sydenham and Ausable Rivers by detection of adult and larval forms. Collected data on site specific information that described biotic and abiotic features. Maintained records in excel spreadsheets. Specimens prepared for museum collection.

FIELD BIOLOGIST, BIRD STUDIES CANADA, LONG POINT, THUNDER
CAPE ON MAY 1991-NOV 1993

Mastered techniques of bird banding, migration monitoring at two bird observatories. Responsibilities included use of outboard motor & watercraft safety, camp maintenance and construction of field buildings. Participated in small mammal trapping to index diversity/abundance within our research station area.

BIOLOGY CONSULTANT, VARIOUS ORGANIZATIONS
1987-1991

Worked for a variety of organizations, including Canadian Forest Service, Canadian Wildlife Service, Environment Canada, Trent University conducting predominantly breeding bird surveys, including waterfowl surveys by helicopter, in various locations across southern and northern Ontario. Prepared reports. Conducted detailed vegetation surveys.

PETER BURKE

INTERPRETIVE NATURALIST, MINISTRY OF NATURAL RESOURCES,
ALGONQUIN PROVINCIAL PARK, JUNE-SEP 1987-1990

Led public walks and evening programs aimed at educating people about the natural history of Algonquin Park. All aspects of natural history (vertebrate, invertebrate, vascular, non-vascular plants, geology) were covered.

EDUCATION

UNIVERSITY OF GUELPH, GUELPH, ON BACHELOR OF SCIENCE, 1991

Completed a Biology degree at the University of Guelph, and an undergraduate thesis studying the effects of logging on two climax forest species in the Temagami area.. Courses included a variety of natural history courses, including herpetology, ornithology, mammalogy, mycology and a comprehensive insect identification course and collection.

SKILLS

Strong natural history background of plant and wildlife communities within Ontario. Expert knowledge of bird communities across North and South America and New Guinea communities. Expert knowledge of butterfly, dragonfly, and damselfly communities across Ontario, and much of eastern North America. Served as Chair for the Ontario Bird Records Committee in 2001. Creation of a Listserve for public use of natural history observations in Middlesex, Oxford and Elgin Counties, 2009. Excellent interpersonal skills, acquired through work as a naturalist and bird tour leader. World renowned illustrator for bird identification guides. Excellent physical condition, strong navigational skills, strong computer skills and use of data processing, data management, word processing on PC and Mac. Valid Class G and F driver's license. Extensive experience working in remote field conditions and navigation using GPS.

PETER BURKE

REFERRALS

Brad Walker
Environmental Scientist,
Golder Associates Ltd.
Sudbury, ON
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Ken Elliott
Forester
Ministry of Natural Resources, ON
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Jan Pierson
Field Guides Inc.,
Austin TX
P: 207-729-5927
Email: jpierson@fieldguides.com

Colin Jones
Natural Heritage Project Zoologist
Natural Heritage Information Centre
Peterborough, ON
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Email: colin.jones@ontario.ca

Don Sutherland
Zoologist
Natural Heritage Information Centre
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Heather Whitehouse
Consultant
Savanta Incorporated
St. Catharines, ON
P: 416-568-7284
Email: heatherwhitehouse@savanta.ca

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



Jillian deMan Terrestrial and Wetland Ecologist

Professional History

AECOM

Terrestrial Ecologist
1997 – present

McSmith Agricultural Consultants,
Field Researcher
05/2002 – 12/2002

Brock University, Senior Lab
Demonstrator (mycology)
01/2003 – 04/2003

Education

Brock University

Honors Bachelor of Science,
Biological Sciences and Earth
Sciences

Years of Experience

With AECOM: 15
With Other Firms: 0

Publications

Digital analysis of lichen
abundance testing EMAN's
Lichen Monitoring Protocol
Leading Edge: The Working
Biosphere, 2004

Professional Development

First Aid Certification, St. John's
Ambulance, 2007

Temperate Wetlands Restoration
Training Course, Ontario Ministry
of Natural Resources, 2005

Class 1 Electrofishing
Certification Course, Watershed
Science Centre, 2004

Wetlands Evaluation Course,
Ontario Ministry of Natural
Resources, 2004

Ecological Land Classification for
Southern Ontario Training
Course, Ontario Ministry of
Natural Resources, 2003

Safety Orientation (06/2009)

Hazard Communication/WHMIS
(09/2009)

Jillian deMan is a terrestrial ecologist with AECOM's Environmental Division based out of Kitchener, Ontario. With the company for over 15 years, her expertise has a wide range of scope within the environmental, engineering and waste management fields enabling her to be involved with numerous projects across Canada that incorporate natural heritage issues/planning and restoration. Consequently gaining familiarity with the Mixedwood Plains, Boreal Shield, Taiga Shield, Atlantic Maritime and Hudson Plains ecozones of Canada. Her technical skills include; wetland boundary delineation, evaluation, monitoring and restoration, soils identification, air-photo interpretation, multi-scale floral inventories, amphibian surveys, woodland evaluations and biomass fish sampling through seine net, minnow trap or electrofishing methods. These skills facilitate in the preparation of Environmental Impact Studies, Constraints and Opportunity Reports, Subject Land Status Reports, Environmental Assessment Evaluations, Restoration Plans, Monitoring Reports and Peer Reviews.

Experience

Environmental Assessments

Region of Niagara, Reece Bridge Replacement Class EA and Preliminary Design, Township of West Lincoln, Ontario. Ecological Lead for a Schedule C Municipal Class EA for the replacement of the Reece Bridge (Twenty Mile Creek). Tasks consisted of terrestrial and ecological assessments including Species at Risk Screening Assessment of Twenty Mile Creek loss of trees and vegetation including rare to uncommon species. The alternative solutions will be evaluated with consideration to aquatic and riparian habitat. [2012]

Region of Niagara, Central Avenue Bridge Replacement Class EA and Preliminary Design, Town of Fort Erie, Ontario. Ecological Lead for a Schedule C Municipal Class EA for the replacement of the Central Avenue Bridge over the CN Rail international corridor. Tasks consisted of terrestrial and ecological assessments of the CN Rail corridor and surrounding area. [2012]

Town of Fort Erie, House Road Bridge and College Road Bridge (Black Creek) Replacement Class EAs. Ecological Lead for two Schedule B bridge replacement projects. Tasks comprised of terrestrial and aquatic assessments of Black Creek and surrounding area. The alternative solutions were evaluated considering potential affects to aquatic and riparian habitat.

Town of Niagara-On-The-Lake, East West Line Bridge (Four Mile Creek) Rehabilitation and Expansion Class EA. Ecological Lead for a Schedule B Municipal Class EA for the rehabilitation and

Basics of Fall Protection
(01/2010)

Defensive Driving Awareness
Training (06/2009)

Field Safety 4 Hour (12/2009)

Office Ergonomics Training
(03/2010)

First Aid (06/2011)

CPR (06/2011)

Hearing Protection (03/2010)

General Excavation Safety
Training (04/2009)

Animal Care and Use, Brock
University, 2002

expansion of East West Line Bridge (Four Mile Creek) that also included the addition of bicycle lanes (accommodated by cantilevers). Investigations addressed potential affects to Four Mile Creek including impacts to riparian zone and water quality.

City of Hamilton, Culvert Replacement Master Plan Class EA, Hamilton, Ontario. Participated in a master plan Class EA for four culverts and two bridges including Valens Road-Spencer Creek, Mud Street - Three Mile Creek, Guyatt Road - Twenty Mile Creek, Studimon Road - Fairchild Creek, and Alberton Road - Big Creek. Assisted in a study of consolidation of culverts, sizing and impacts to aquatic resources. Participated in biomass surveys involving back pack electrofishing.

Niagara Peninsula Conservation Authority, Twelve Mile Creek Fish Habitat and Wetland Enhancement Strategy, St. Catharines, Ontario. Aided in the completion of a Fish Habitat and Wetland Enhancement Strategy for two old oxbows along Twelve Mile Creek. The general goal for this Strategy was to facilitate an economically feasible, self sustaining wetland and recreational fishery (panfish and smallmouth bass) within the Glenridge and Riverview Ponds. Specific tasks included aiding in the creation of three remedial design options for a new bathymetric profile and new outlet structure and/or retrofit of the existing structures for both of the ponds, development of a cost analysis for each design option and recommending appropriate wetland plantings within a detailed planting plan.

Niagara Peninsula Conservation Authority, Duffin Property Wetland Rehabilitation Plan, Welland, Ontario. Lead the completion of a wetland rehabilitation plan for a portion of the Singer's Drain and Niagara Street -Cataract Road Provincially Significant Wetland Complex that had been illegally cleared. The approach to developing the rehabilitation plan was to recommend the most ecologically and economically feasible plan to return the site back to a functioning slough-prairie wetland community. Tasks included the completion of an; excavation plan, planting plan, cost estimate and implementation recommendations. Special regard had to be taken for the surrounding communities within the remaining PSW and for project scheduling since the project had to be complete at a specific time as a condition of a court order.

Hamilton Port Authority, Randle Reef Risk Assessment, Hamilton Harbour, Ontario. Determined the potential associated risks for the confinement of Randle Reef, an underwater coal tar deposit of 630,000 cubic metres. As part of this task, the surrounding fisheries, wetlands, forests and species at risk were assessed and described including conditions of Cootes Paradise. Through this assessment, it was determined how these features could be potentially affected through the confinement of Randle Reef.

Ministry of Transportation, Highway 401 widening Class Environmental Assessment, Mississauga, Ontario. Currently the terrestrial lead to determine baseline conditions along Highway 401 between Credit River and the 403 interchange. Protection/mitigation strategies will have high regard for the threatened Jefferson salamander, which has confirmed habitat in the area.

Windsor Essex Parkway Wetlands Review, Ministry of Transportation, Windsor, Ontario. As one of AECOM's wetlands specialists, Jillian is responsible for reviewing wetlands related documentation for the Windsor Essex Parkway extension on behalf of the Ministry of Transportation. This includes documents pertaining to wetlands delineation, evaluation and compensation.

Region of Niagara, Regional Road 81 Federal EA, City of St. Catharines and Town of Lincoln, Ontario. Ecological lead for a federal EA screening report in support of replacing an existing bridge that spans Fifteen Mile Creek and realignment of Regional Road 81 to the south required to address poor horizontal and vertical alignments. Assessments had regard for the species of special concern milksnake and snapping turtle.

Sam Gildiner

Ecologist

Education

MEM, Forestry, University of New Brunswick, 2011

BSc, Forest Management, University of New Brunswick, 2009

Diploma, Forest Technology, Maritime College of Forest Technology, 2007

Licenses/Registrations

Certified Arborist, Ontario, #ON-1579A, Issued 06/29/2012, Exp. 06/29/2015

Years of Experience

With AECOM: 1

With Other Firms: 7

Professional Associations

International Society of Arboriculture, Active Member

Association of Registered Professional Foresters of Ontario, Active Member

Association of Registered Professional Foresters of New Brunswick, Active Member

New Brunswick Wetland Delineators Association, Executive Committee, 2010 - 2012

Training and Certifications

Bear Awareness Training

CPR and First Aid Training

Fire Extinguisher Training

Mr. Gildiner is a terrestrial ecologist with more than 7 years of experience in the natural resource and environmental consulting field. He has worked throughout eastern and western Canada as a forester, and has worked in central and eastern Canada as an ecological consultant. Mr. Gildiner has experience in wetland science, forest science, habitat management, forest management, soil science, and arboriculture.

Project Experience

Other Category

J.D. Irving Limited, Federal Flood Relief Bridge and Culvert Replacement, Fredericton, New Brunswick. Coordinated assessments of watercrossing affected by storms on crown land. Performed field work with surveyors, engineers, and biologists to determine compensation to forest company. Prepared reports detailing required infrastructure damage and replacement objectives. [04/01/2011-11/10/2011]

Matt Harris and Sons Ltd., Water Source and Supply Assessment - Johnston Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [10/05/2011-10/31/2011]

Matt Harris and Sons Ltd., Water Source and Supply Assessment - Richardson Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [06/29/2011-08/22/2011]

Willow Homes, Water Source and Supply Assessment - Willow Estates, Fredericton, New Brunswick. Coordinated well driller, location of wells, and field technicians to assess the potential for groundwater supply to well systems in a proposed residential subdivision. Managed long term safe yield calculations, water quality testing, and reporting for suitability of an aquifer for proposed development. [07/27/2011-09/01/2011]

Peterson Mini Home Park, Peterson Mini Home Park - Environmental Impact Assessment, Fredericton, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/08/2011-09/22/2011]

Matt Harris and Sons Ltd., Harris Estates - Environmental Impact Assessment, Fredericton, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/14/2011-08/18/2011]

Kria Resources, Nesting Bird Survey, New Brunswick. Conducted field work and reporting for bird nest surveys in northern New Brunswick for a mining project. [06/15/2011-06/22/2011]

Chippin Real Estate, Trail Design and Layout, Fredericton, New Brunswick. Designed and implemented on-the-ground a trail system that highlighted natural features of a significant woodland/wetland complex to increase natural capital of a residential subdivision. [08/02/2011-08/24/2011]

Department of Transportation - New Brunswick, Route 8 Suspended Solids Monitoring, Southern New Brunswick. Conducted total suspended solids monitoring, data management, reporting, and lab testing for water quality monitoring for a new highway alignment. [04/01/2011-11/23/2011]

Department of Transportation - New Brunswick, Route 8 Species at Risk and Nest Surveys, Fredericton, New Brunswick. Conducted field work, mapping, and reporting for habitat descriptions, rare plant surveys, and nesting bird surveys for several borrow pit locations along a highway construction path. [05/17/2011-07/05/2011]

Wassis Estates, Wassis Estates - Environmental Impact Assessment, Wassis, New Brunswick. Coordinated all field work and reporting associated with provincial EIA requirements including wildlife habitat, rare species, wetlands, groundwater, archaeology, and social considerations. [04/06/2011-07/20/2011]

City of New Maryland, New Maryland Water Supply Investigation - Environmental Impact Assessment, New Maryland, New Brunswick. Conducted field work and reporting duties for wildlife habitat assessment and wetland delineation for an area surrounding a proposed well location. [08/03/2011-08/23/2011]

Sunbury Developments, Noonan Estates, Noonan, New Brunswick. Performed field work, data compilation, and mapping duties for vegetation community description and wetland delineations. [08/10/2011-08/24/2011]

Wolastoqiyik Sacred Land Trust, Ecological Forest Management Plan, Burton, New Brunswick. Conducted field work, mapping, data compilation, public presentations, community teaching, and team management for forest management plan prescribing silvicultural interventions to meet community goals. [02/17/2010-11/15/2011]

Hill Developments, Hill Developments - Wetland Delineation, Fredericton, New Brunswick. Performed wetland delineation, mapping, data compilation, and reporting duties for residential subdivision wetland delineations. [07/01/2010-08/10/2010]

OVAC Ltd., Route 11 Wetland Delineations, Northern New Brunswick. Performed wetland delineations, functional assessments, mapping, and data compilation for a linear highways alignment as part of a provincial environmental impact assessment. [06/09/2010-08/04/2010]

Sundbury Developments, Noonan Developments, Noonan, New Brunswick. Performed wetland delineation, mapping, data compilation, and reporting for a residential subdivision. [08/12/2010-09/07/2010]

Department of Transportation - New Brunswick, Lorneville Barge Terminal - Environmental Impact Assessment, Lorneville, New Brunswick. Assisted with rare plant surveys, habitat assessments, electrofishing, and shoreline assessment of a proposed barge terminal as part of an EIA. [08/17/2011-09/14/2011]

Chippin Real Estate, Wetland Delineation, Fredericton, New Brunswick. Performed wetland delineation field work, mapping, data compilation, and reporting duties for a residential development. [07/29/2010-08/18/2010]

Port of Belledune, Port Expansion, Belledune, New Brunswick. Performed suspended solids monitoring in ocean waters during a dredging operation. [05/03/2011-07/05/2011]



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 16th 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.



James Kamstra, B.Sc., M.E.S. Senior Terrestrial Ecologist

Professional History

04/1989 - present, AECOM,
Senior Terrestrial Ecologist
1988 - 1989, Ministry of
Natural Resources,
Botanist/Endangered Species
Specialist/Park Planner
1976 - 1987, Various
Provincial and National Parks,
Park Interpretive Naturalist

Education

MES, Environmental Studies,
York University
BSc, Biology and
Environmental Science, Trent
University

Years of Experience

With AECOM: 22
With Other Firms: 3

Professional Affiliations

Committee on the Status of
Species at Risk in Ontario
(COSSARO) 2008-2011
Durham Region Environmental
Advisory Committee 2001
2006
Durham Region Land
Stewardship Council 1995
2002
Blue Racer Species Recovery
Team
Eastern Fox Snake and
Eastern Hog-Nosed Snake
Species Recovery Team
Citizens Advisory Panel on
Ontario Endangered Species
Act 2006

Mr. Kamstra has more than 20 years of experience conducting environmental impact studies, biophysical inventories, ecological restoration projects and construction monitoring related to natural environment. Through his extensive field experience, he has become a recognized expert in identifying flora and fauna, assessing ecological significance, and understanding the function of ecosystems. Mr. Kamstra has completed numerous studies on the impact of a wide variety of developments on natural heritage features including residential housing, industrial sites, landfills, gravel pits, mines, golf courses, highways, pipelines, and hydroelectric dams with experience in Ontario, British Columbia, United Arab Emirates, and Belize. He is highly experienced with vegetation mapping, quantified vegetation sampling, wildlife population surveys, and habitat evaluations. Mr. Kamstra is a qualified wetland evaluator and has evaluated several wetlands in southern Ontario. He has particular expertise in the fields of herpetology, ornithology, and botany, and has worked with many of Ontario's species at risk.

Mr. Kamstra has extensive species at risk experience in Ontario. He sat on advisory panel which assisted MNR in developing the Ontario Endangered Species Act 2007 and currently sits on COSSARO, which determines species on the official list. He sits on two recovery teams and has written status reports and recovery strategies for several species. In addition, Mr. Kamstra has first-hand field experience with many species at risk through environmental impact studies.

Experience

Environmental Construction Monitoring

Nobleton Sewer Wetland Creation, Nobleton, Ont. Conducted construction monitoring of sewage treatment plant and associated wetland creation project along Humber River. [2009 -2011]

Clarington Composting Facility, Courtice, Ont. Directed wetland creation and plant salvage during construction of composting facility. Monitored success of plantings. associated wetland creation project along Humber River. [2008]

Magna Golf Course Wetland Post Construction Monitoring, Aurora, Ont. Directed wetland enhancement operations and plant salvage during construction of golf course. Monitored success of plantings as well as success of recolonization by birds, amphibians and vegetation . [2000 - 2005]

Environmental Impact Assessments and Evaluations

Casino Mine, Terrain Ecosystem Mapping, Yukon Territory. Conducted vegetation mapping through aerial photo interpretation and a

detailed program of quantitative field sampling program as part of existing conditions report for Environmental Assessment of proposed gold and copper mine. [2010]

Taseko Aley Mine, Terrain Ecosystem Mapping, B.C.. Conducted vegetation mapping through aerial photo interpretation and a detailed program of quantitative field sampling program for proposed niobium mine in northern Rocky Mountains. [2011 - 2012]

Next Era, Wind Turbine Farm. Detailed natural environment study of existing conditions and assessment for approval of ~200 proposed wind turbines in Lambton and Huron counties. [2011-2012]

Various Clients, Proposed Golf Course Environmental Evaluations. Conducted evaluations for many proposed sites including sites in Pickering, Uxbridge, Port Severn, Sutton, and Aurora. [1992 – 2007]

Various Clients, Provincial Highway Upgrades and Extensions. Performed environmental impact aspect of upgrades and extension for highways including Highway 403 (Hamilton), Highway 401 (Pickering), Highway 69 (Parry Sound), Highway 6 (Manitoulin) (Oakville), Highway 10 (Orangeville), Highway 11 (Sundridge, Bracebridge), and Highway 407 (Durham extension). [1995 – 2008]

Various Clients, Gravel Pit and Quarry Expansion Assessments. Provided environmental impact assessments for proposed pits and expansions at many locations including Erin, Grafton, Guelph, Lakefield, Niagara Falls, Pontypool, Port Colborne, and Trenton. [2000 – 2008]

Smoky Falls Hydroelectric Generating Facilities Upgrade, Cochrane District. Assess impact of replacing existing dam. [1998]

Kempfenfelt Bay, Proposed Residential Area Evaluation, Barrie. Conducted evaluation on two large shoreline properties where large residential complex propose. [1990 – 1996]

MacTier Sewage Treatment Plant Impact Assessment. Conducted assessment of plant on threatened Massasauga Rattlesnakes. [2003]

Richmond Landfill Impact Assessment. Conducted environmental impact assessment on endangered Loggerhead Shrike. [1998 – 2003]

Floral and Faunal Inventories

Rouge Valley Park Biophysical Inventory, Toronto, Ontario. Conducted biophysical inventory for northeast portion of the park to provide baseline data, to evaluate ecological significance and to aid in conservation management. Inventory involved involve documenting flora, fauna, and vegetation communities. [1991]

Severn River Corridor Biophysical Inventory, Muskoka. Conducted biophysical inventory as part of the Muskoka Heritage Areas Program to provide baseline data, to evaluate ecological significance and to aid in conservation management. Inventory involved involve documenting flora, fauna, and vegetation communities. [1991]

Reptile and Amphibian Inventory. Conducted reptile and amphibian inventory of Georgian Bay Islands and St. Lawrence Islands National Parks. [1989 - 1990]

Cambden East Alvar Area of Natural and Scientific Interest. Conducted biophysical inventory to provide baseline data, to evaluate ecological significance and to aid in conservation management. Inventory involved documenting flora, fauna, and vegetation communities. [2001 – 2002]

Breeding Bird Surveys at Proposed Mines - Conducted breeding bird surveys for several proposed mines in remote sites using transects, point counts and area searches. Sites included **High Lake, Nunavut.** [2004], **Tulsequah, British Columbia** [2007], and **Schefferville, Quebec / Labrador** [2011]

Inventory of Species at Risk. Conducted inventory of species at risk in Queen Elizabeth II Wildlands Provincial Park [2005] and Massasauga Provincial Park [2006]

Awenda Provincial Park Life Science Inventory. Conducted complete detailed inventory of vegetation, flora, fauna of park with emphasis on significant features. [2008 – 2009]

Species at Risk Planning

- **COSEWIC Status Report of Queen Snake, Ontario.** [2009]
- **Northern Cricket Frog Recovery Plan.** [2006]
- **Eastern Fox Snake Recovery Plan.** [2006]
- **Status Report of Northern Dusky Salamander, Ontario.** [1990]
- **Blue Racer Recovery Plan.** [1990]

Ecosystem Planning

City of Vaughan, Woodlot Function Assessment. [1993]

Gateway West, Credit River Subwatershed Study. Conducted subwatershed study near Brampton. [1995]

Protection of Natural Heritage Features in King City Community Plan. [2004 – 2007]

Town of Whitchurch-Stouffville, Peer Review of Environmental Impact Studies. Provided peer review of EISs prepared by other consultants. [2000 – 2011]

Town of Whitby, Peer Review of Environmental Impact Studies. Provided peer review of EISs prepared by other consultants. [2000 – 2012]

Ecological Restoration

Wetland Creation, Nobleton. Provided input for wetland creation at outfall of sewage treatment plant. [2008]

Don River Wetland Restoration, Toronto. Provided input to wetland restoration at mouth of Don River. [2007 – 2008]

Magna Golf Course, Wetland Restoration, Aurora. [1997 – 1998]

Oshawa Second Marsh Monitoring Program and Restoration. Developed monitoring program of breeding birds, amphibians, and vegetation in conjunction with habitat restoration. [1993 – 1998]

Wetland Restoration, Vaughan. Performed salvage of wetland vegetation and transplanting to created pond. [1996]

Grenadier Pond Wetland Vegetation Restoration, High Park, Toronto. [1994 – 1995]

Applied Botanical Research

CXY Chemicals, Sodium Chlorate Botanical Research, Amherstburg. Conducted analysis of vegetation stressed by sodium chlorate. [1995 – 1998]

Experimental Program Research. Conducted research to assess benefits of applying sludge from recycled paper to agricultural land. [1992 – 1993]

Forest Tree Health Analysis, St. Catharine's. Conducted analysis of health of forest trees potentially affected by Glenridge Landfill. [1992 – 2006]

International Experience

Environmental Impact Assessment, Abu Dhabi, United Arab Emirates. Assessed impact of proposed city landfill on natural environment. [2008 – 2009]

Chalillo Hydroelectric Dam Impact Analysis, Belize. Analysed impact of hydroelectric dam on endangered Baird's Tapir, Scarlet Macaw, and Morelet's Crocodile. [2000 – 2001]

World Bank, Environmental Consulting, Belize. Provided environmental input into Belize Tourism Strategy. [1997 – 1998]

Various Tour Companies, Ecotour Guiding, Multiple Locations. Guided naturalist history tours to Belize, Bolivia, Brazil, Costa Rica, Ecuador, Guatemala, Guyana, Panama, Peru, Portugal, and Spain for Tours of Exploration, Quest Nature Tours, and Top Flight. [1987 – 2008]

Previous Employment

Flora and Fauna Survey and Park Planning, Ontario. Conducted a floral and faunal inventory of six environmentally significant areas in the Lake Erie Islands. Recommendations for protective management of the sites were presented. Also acted as a park planner in the Thunder Bay District, coordinating an areas of natural and scientific interest (ANSI) program. Responsible for addressing land use conflicts, and mapping

and layout of brochures. [Ministry of Natural Resources, 1988 – 1989]

Various National and Provincial Parks, Interpretive Naturalist.

Worked as an interpretive naturalist with Pukaskwa National Park, St. Lawrence Islands National Park, Algonquin Provincial Park, Ontario, and Shuswap Lake Provincial Park, British Columbia. Performed museum duty, prepared and presented interpretative programs. [1976 – 1987]

Publications

Kamstra, J. and S. Spisani, 2009, A life science inventory and evaluation of Awenda Provincial Park. Ontario Parks, Central Region.

Kamstra, J., 2006, National Recovery Strategy for the Eastern Foxsnake (*Elaphe gloydi*) in Canada. Eastern Foxsnake and Eastern Hog-nosed Snake Recovery Team.

Kamstra, J., 2003, A life science inventory and evaluation of Cambden East Alvar. Ontario Ministry of Natural Resources, Kingston District.

Henshaw, B.H. and J. Kamstra, 2002, Oshawa Second Marsh Breeding Bird and Amphibian Monitoring: 2001 Annual Report and Multi-year Summary. Prepared for Environment Canada and Ducks Unlimited.

Kamstra, J., 1999, Presentation “Wildlife Viewing Around the World” Keynote Address presented at Fourth Ecotourism Conference, Frost Natural Resources Centre, Dorset, Ontario. November 20-21, 1998.

Kamstra, J., 1997, “The Rice Lake Plains” and “Singers and Sunlovers: Reptiles and Amphibians” two chapters in *Oak Ridges Moraine*. STORM Coalition, Boston Mills Press, Erin, Ontario. Pp. 51-54, 73-78.

Emmons, K.M., R.H. Horwich and J. Kamstra et al., 1996, Cockscomb Basin Wildlife Sanctuary: It’s History, Flora and Fauna for Visitors, Teachers and Scientists. Angelus Press Ltd., Belize City, Belize. 334 pp.

Kamstra, J., M.J. Oldham and P.A. Woodliffe, 1995, A life science inventory and evaluation of six natural areas in the Erie Islands. Ontario Ministry of Natural Resources, Chatham District. 160p.

Kamstra, J., 1993. Presentation “A Life Science Inventory of the Lake Erie Islands”. Presented at the Twelfth Annual General Meeting of the Canadian Council of Ecological Areas, Windsor, Ontario. August 1993.

Kamstra, J., 1993, Presentation “Protecting Rare Sensitive Wildlife Species within Development Project”. Presented at the Fifth International Wildlife Symposium, University of Tamaulipas, Ciudad Victoria, Mexico. October 28, 29, 1993.

Kamstra, J., 1993, Presentation “Vulnerability of Reptiles and Amphibians to Transmission Corridors”. Presented at Fifth International Symposium in Right-of-way Management, Montreal, Quebec. Sept. 1993.

Kamstra, J., 1992, Presentation “Vulnerability of Reptiles and Amphibians to Transmission Corridors and Facilities”. Presented at the 54th Midwest Fish and Wildlife Conference, Toronto, Ontario. December

6-9, 1992.

Kamstra, J., 1991, Identification of natural heritage areas along the Severn River Corridor. Gartner Lee Limited for Muskoka Heritage Areas Program. 81p.

Kamstra, J., 1991, Rediscovery of the northern dusky salamander (*Desmognathus fuscus*) in Ontario, *Canadian Field Naturalist* 105(4):561-563.

Kamstra, J. and K. Towle, 1991, A herpetofaunal inventory of St. Lawrence Islands National Park. Gartner Lee Limited for Canadian Parks Service. 59p.

Kamstra, J., 1991, Life science survey of the northeastern portion of the Rouge Valley Park. Ontario Ministry of Natural Resources, Central Region, Aurora, Ontario. 48p.

Kamstra, J., 1990, Status report on the northern dusky salamander in Ontario. prepared for Ontario Ministry of Natural Resources. 20p.

Kamstra, J., 1988, The shy serpent (black rat snake), *Nature Canada* 17(4):6-8.

Kamstra, J., 1985, Problem and progress in the parks of Latin America, *Park News* 20(4):10-14.

Kamstra, J., 1985, The Judith underwing moth (*Catocala judith*) in Ontario, *Canadian Field Naturalist* 99(3):364.

Kamstra, J., 1983, Northern range extension of the two-lined Salamander (*Eucycea bilineata*) in Ontario, *Can. Field Nat.* 97(1):116.



Shelley J. Lohnes Ecologist

Education

B.Sc. with Honours, Wildlife Biology,
University of Guelph, 2004

Diploma, Arctic and Boreal Entomology,
University of the Arctic, 2004

Years of Experience

With AECOM: <1
With other firms: 9

Professional Associations

Canadian Environmental Certification
Approvals Board, CEPIT
Society for Ecological Restoration
Bird Studies Canada
Ontario Field Ornithologists
American Fisheries Society

Languages

English and French (bilingual)

Training

Fisheries Specialist for the
MTO/DFO/OMNR Protocol
Royal Ontario Museum Fish Identification
Workshop
MTO/MNR Endangered Species Act
Training
OMNR Stream Habitat Assessment
Protocol
Pleasure Craft and Zodiac Operator's
Certification
Electrofishing Crew Leader Backpack
St. John's Ambulance Advanced First Aid
and C.P.R.
Automated External Defibrillator
CN Rail Safety
WHMIS/Transportation of Dangerous
Goods

Shelley Lohnes has nine years of experience conducting aquatic habitat assessments for freshwater ecosystems, wildlife and vegetation surveys for terrestrial habitats, and completing environmental impact assessment in Canada. She specializes in terrestrial and aquatic species at risk survey protocols and wildlife population assessments. Shelley has excellent working knowledge of current environmental legislation and policies. Her experience in both aquatic and terrestrial ecosystems allows her to provide analysis of impacts to the interactions between these two environments. She also has experience in biodiversity monitoring sampling protocols for freshwater phytoplankton and zooplankton, as well as experience in avian, herpetofauna, mammal, invertebrate and fish identification.

Project Experience

Fisheries Inventory and Assessment

- Highway 11 New Interchange at South Entrance to Powassan From 5.7 km South of Highway 534, northerly 5.0 km Detail Design Study (G.W.P. 323-00-00) (2012)
- Total Project Management/Detailed Design Services for Bridge and Hydrology Engineering for Local Road Board Structures; Replacement of Culverts along Nepewassi Lake Road at Highway 69 and Onaping Lake Road at Highway 144, Sudbury Area, G.W.P. 5022-10-00 & 5023-10-00 (2011-2012)
- Fisheries assessment and impact assessment for rehabilitation of culverts crossing Highway 4 from Kippen to Clinton, W.P. 75-85-00. MTO Assignment # 3008-E-0023 (7) (2010-2011)
- Fisheries assessment and impact assessment for Highway 6, Durham to Dornoch, Grey County Fisheries Assessment, MTO Assignment # 3008-E-0023 (5), DFO Authorization # BU-08-3450 (2010-2011)
- Fisheries assessment for the rehabilitation of culverts crossing Highway 4 from Kippen to Clinton, W.P. 75-85-00 (2010-2011)
- Fisheries assessment and impact assessment for structural culvert rehabilitation at Walden Drain, Walker Drain and Kading Drain on Highway 21, Grand Bend; Woodlawn Drain, Highway 403, Brantford; and McKenzie Creek, Highway 6, Caledonia. MTO Assignment # 3008-E-0023 (6) (2010-2011)
- Total Project Management/Detailed Design Services for the Rehabilitation of Highway 37 from the North Limits of Tweed Northerly to Highway 7, GWP 213-00-00 (2008-2009)
- Total Project Management/Detailed Design Services for the Old Gull River Bridge, Highway 35, Rehabilitation of Sharp's Creek Culverts, Highway 11, Replacement of Portage Creek Culvert, Highway 124, and Rehabilitation of Hurricane Creek Culvert, Highway 118 (2008)
- Total Project Management/Detailed Design Services for Consolidated Central Region Traffic Signals Design Assignment, Agreement # 2004-E-0067, (2005-2009)

- Natural Resources Inventory and Assessment for the Hope Side Road Extension Class Environmental Assessment, City of Ottawa (2008-2009)
- Detail Design for Highway 522 from 32.2 km west of Highway 524 easterly 6 km, Ministry of Transportation (2008)
- Fisheries assessment for the Stoney Creek and Powell Drain Erosion Control Project, City of London (2008)
- Stoney Creek and Powell Drain, City of London (2008)
- Fish Salvage for St. Clair/ Lambton intersection reconstruction, Sarnia (2008)
- Mud Creek Stream Habitat Survey, City of Ottawa (2003)
- Rideau River Fisheries Assessment, City of Ottawa, (2003)
- Freshwater Aquaculture Research Program, Department of Fisheries and Oceans (2003)

Wildlife Surveys

- Detailed Design Services for the New Interchange and Extension of existing 4-laning, Highway 17 at the west junction of Sudbury Municipal Road 55, from 20.5 km west of Highway 144, easterly for 6.5km , Sudbury, G.W.P. 156-98-00 (2011-2012)
- Terrestrial Assessment for the Highway 401 and Wonderland Road Interchange, MTO Assignment #3008-E-0023 (14), Ministry of Transportation (2011-2012)
- Terrestrial Assessment for Highway 401 and Highway 6 South, Morriston – Speed Change Lane Extension, MTO Assignment #3008-E-0023 (15), Ministry of Transportation (2011)
- Species at Risk Survey for Rehabilitation of Highway 7 from Maberly to Wemyss, WP 4512-02-00 (2010)
- Avian and Wildlife Assessment for the Rehabilitation of Highway 37 from the North Limits of Tweed Northerly to Highway 7, GWP 213-00-00 (2008-2009)
- Avian and Wildlife Assessment for the Old Gull River Bridge Removal – Highway 35, Rehabilitation of Sharpe's Creek Culverts – Highway 11, Replacement of Portage Creek Culvert – Highway 124, and Rehabilitation of Hurricane Creek Culvert – Highway 118 (2008-2010)
- Avian Assessment for the Rehabilitation of Highway 8 from Seaforth East Limits Easterly to Mitchell west Limits excluding 0.94 km in Dublin, GWP (2008-2009)
- Avian and Wildlife Assessment for the Realignment of Italia Lane, Kingston, GWP 4330-04-01 (2008-2009).
- Avian Assessment for the Glen Miller Bridge, Trenton, USL Concrete (2010)
- Avian Assessment for the Fort York Pedestrian Bridge, City of Toronto, AECOM (2010)
- Avian Assessment for the Ken Whillans Drive Extension, City of Brampton, AECOM (2007/2010)
- Avian and Wildlife Assessment for the Stoney Creek Erosion Control Wetland Natural Resource Impact Assessment, City of London (2009-2010)
- Avian and Wildlife Assessment for the Stoney Creek Sanitary Sewer Environmental Impact Assessment, City of London (2009-2010) Avian and Wildlife Survey for 220 Greyabbey Trail Lake Ontario Shoreline Environmental Impact Assessment, IBI Group (2009-2010)
- Avian Inventory and Assessment for Hope Side Road Extension Class Environmental Assessment, City of Ottawa (2008-2009).

Vegetation Surveys

- Total Project Management/Detailed Design Services for Consolidated Central Region Traffic Signals Design Assignment, Agreement # 2004-E-0067, (2005-2009)
- Total Project Management/Detailed Design Services for the Re-alignment of Italia Lane, Kingston, GWP 4330-04-01 (2008)
- Neyagawa Boulevard Natural Environment Inventory Avian and Vegetation Assessment (2009),
- GO Transit Layover Natural Environment Assessment (2009).
- Hope Side Road Extension Environmental Assessment (2008).
- Highway 8 from Seaforth East Limits Easterly to Mitchell West Limits Excluding 0.94km in Dublin, Ministry of Transportation (2008)
- Stoney Creek and Powell Drain for the City of London (2008)
- Highway 522 from 0.6 km west of Highway 522B in Trout Creek, westerly 19.7 km (2008).
- Dundas Street West Bridge over Humber River Vegetation Removals and Restoration Plan (2008).

Environmental Monitoring and Construction Administration

- Highway 401 - Homer Watson Interchange, Post-Construction Monitoring, Ministry of Transportation (2009-2010)
- Highway 6 Post-Construction Monitoring, Ministry of Transportation (2009)
- Highway 8 Bridge Widening, Fisheries Contracts Specialist, Bot Construction (2009-2012)
- Highway 3 from 1.6 km West of Essex County Road 11 Easterly to 0.2 km East of Essex County Road 34, Cont 2009–3005 , Ministry of Transportation (2009-2010)
- Highway 404 Extension from Green Lane to Queensville Sideroad, HCI (2010-2012)
- Windsor Bridges Cont 2009-3017 , LEA Consulting (2009-2010)
- Highway 6 from Arthur to Mount Forest, Cont 2007-3052, Construction Environmental Inspection and Administration (2010)
- Highway 6 from Mount Forest to Durham, Cont 2008-3008, Construction Environmental Inspection and Administration (2010)
- Highway 11 - Emsdale Cont. 2008-5114, Construction Environmental Inspection and Administration (2009)
- Burk's Falls Environmental Inspection, LBC (2009)
- Highway 7 Peterborough, Cont 2007 - 4005, Fisheries Contracts Specialist, LBC, (2008)
- Ceramics Post-Construction Monitoring (2007-2008)
- Highway 40 at Moore Line, Cont 2007-3044, Construction Environmental Inspection and Administration (2008)
- Mercury Experiment To Assess Atmospheric Loading (METAALICUS), Department of Fisheries and Oceans, (2004)
- Ottawa River Seasonal Biological Monitoring Program at Britannia Beach, Mooney's Bay, Westboro Beach, Petrie Island, City of Ottawa, (2003)
- Surface Water Pesticide Monitoring Program, City of Ottawa, (2003).

Individual Environmental Assessments

- Environmental Impact Assessment for the Dingman Creek Erosion Control Wetland, City of London (2009-2012)
- Environmental Impact Study for the Stoney Creek Erosion Control Wetland, City of London (2009-2010)
- Environmental Impact Study for the Stoney Creek Trunk Sanitary Sewer and Watermain Crossing, City of London (2009-2010)
- Scoped Environmental Impact Assessment for the Temporary Works Yard at Oxford Road 29, Township of Blandford-Blenheim (2009)
- Greyabbey Trail Environmental Impact Assessment, City of Toronto (2009)
- Natural Resource Assessment for the Intersection Improvements at Winchester and Ritson Road North, Region of Durham (2009)
- Neyagawa Boulevard Natural Resource Assessment, Town of Oakville (2009)
- GO Transit Layover Natural Environment Assessment, Town of Markham (2009).

EMAN Projects

- Meteorological Station Daily Monitoring, 2004, Department of Fisheries and Oceans
- Limnological Data Collection for Long Term Ecological Research (LTER) of Boreal Lakes, 2004, Department of Fisheries and Oceans.

Additional Relevant Experience

- Environmental Advisory Committee, City of Guelph, Term ending November 2012
- Meteorological Station Daily Monitoring, 2004, Department of Fisheries and Oceans
- Limnological Data Collection for Long Term Ecological Research (LTER) of Boreal Lakes, 2004, Department of Fisheries and Oceans
- Long term purple loosestrife monitoring project vegetation survey, University of Guelph.
- Effects of disturbed boreal forest habitat on ground-dwelling insect populations, University of Guelph.

Curriculum Vitae

Scott A. Martin

#75 – 39th Street North, Wasaga Beach, ON L9Z 2A3

Tel: 705-429-4936 Mobile: 705-444-4477

Email: smartin@wildcanada.ca

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

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

- **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,** Ridgetown, 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,** Elmvale, 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

- **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

- 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

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

RELATED INTERESTS

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

REFERENCES

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

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

- 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

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

PROFESSIONAL AFFILIATIONS

- Field Botanists of Ontario



SATU PERNANEN

635 Dundee Avenue
Oshawa, Ontario
L1J 2X2

Phone: 905-579-2508
E-mail: s.pernanen@sympatico.ca

FIELD EXPERIENCE:

- Bird survey protocols used –
 - Marsh Monitoring Program
 - Forest Bird Monitoring Program
 - Breeding Bird Survey Route
 - Ontario Breeding Bird Atlas Point Counts
- Searching for birds nests and subsequent monitoring
- Amphibian monitoring using Marsh Monitoring Program protocol
- Ecological Land Classification and other vegetation sampling (e.g. at bird nest sites and random plots)

EDUCATION/TRAINING:

- M.Sc. in Zoology, University of Toronto:
"Behavioural and ecological interactions of Brewer's and Clay-colored sparrows"
- B.Sc. in Zoology (Specialist) and Geography (Minor), University of Toronto
- Ecological Land Classification Training Course, 1 week, Ministry of Natural Resources (MNR)
- Ontario Wetland Evaluation System Training Course, 1 week, MNR
- Temperate Wetland Restoration Training Course, 1 week, MNR
- Project Management in Restoration Projects, 2-day workshop, Society for Ecological Restoration
- Continuing education courses in ArcView (GIS), Access, Environmental Legislation in Ontario

WORK EXPERIENCE:

2008-
present

Biologist

PERNANEN BIOLOGICAL CONSULTING

- Data analysis and report writing – e.g. Bay of Quinte Area of Concern (AOC) coastal wetlands for Environment Canada
- Data gathering and report writing – update Status Report on the King Rail for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); Historical Background Report on McLaughlin Bay for Central Lake Ontario Conservation Authority/MNR
- Data collection – bird and amphibian surveys using the Marsh Monitoring Program (MMP) protocol at Durham Region and Bay of Quinte coastal wetlands for the Central Lake Ontario Conservation Authority (CLOCA) and the Bay of Quinte Remedial Action Plan Restoration Council (BQ-RAPRC), respectively

2002-2008

Wetland Monitoring Biologist

CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

- Co-coordinator (with Environment Canada staff) of multi-partner wetland monitoring project at Durham Region coastal wetlands
- Completed submerged aquatic vegetation sampling at Durham Region and Bay of Quinte coastal wetlands

- Set up Forest Bird Monitoring Program routes at Conservation Areas and conducted bird surveys using this and other protocols
- Completed Ecological Land Classification in wetland and upland vegetation communities
- Assisted with fish community sampling in coastal wetlands using electrofishing boat
- Collected water quality data, sediment samples, macroinvertebrate samples
- Entered and analyzed data using Access, Excel, and ArcView software
- Co-authored and authored reports, chapters and Methodology Handbook for coastal wetlands project

2002-2008

Contract Biologist

ENVIRONMENT CANADA

- Conducted breeding bird surveys including vegetation assessments at Oshawa Second Marsh
- Entered and analyzed data and prepared annual summary reports

1999-2002

Assistant Scientist

ONTARIO POWER GENERATION (OPG) - ELECTRICITY PRODUCTION

- Provided briefs of federal Species at Risk Act as it evolved
- Conducted review of Natural Heritage Information Centre (NHIC) database of species at risk and natural areas for all 68 Hydroelectric stations operated by OPG
- Conducted biological assessment at Lakeview site (terrestrial & water bird surveys)
- Coordinated planting of 3000+ native trees at Nanticoke site
- Wrote "how-to" procedures on various biodiversity enhancement projects
- Conducted mercury audit at Lakeview Generating Station and prepared report

1998

Biological Technician

CANADIAN WILDLIFE SERVICE

- Dissected and analyzed Bald Eagle pellets to identify prey remains
- Compared prey remains to specimens in Royal Ontario Museum collection to facilitate identification

1997

Field Technician

CANADIAN WILDLIFE SERVICE/DUCKS UNLIMITED CANADA

- Conducted surveys (May-July) at various Ontario marshes for King Rails and other marsh birds, including vegetation surveys
- Data entry, assisting in field work coordination, using GPS technology

1996

Biological Technician

CANADIAN WILDLIFE SERVICE (CCIW)

- Twice weekly counts (March-May) of all water birds at three Durham Region wetlands
- Entry of all data collected

1995

Field Research Assistant

ILLINOIS NATURAL HISTORY SURVEY

- Discovered 85 nests of > 20 deciduous forest bird species
- Monitored nests throughout breeding cycle
- Sampled vegetation around nests and at random points

1994 **Field Research Assistant**
UNIVERSITY OF ALBERTA

- Set up and monitored insect and bird sampling stations
- Conducted extensive vegetation sampling

COMPUTER AND DATA ANALYSIS SKILLS:

- Analyzed large data sets using univariate/multivariate parametric/non-parametric statistical techniques/tests
- Software packages used include Word, Excel, Access, PowerPoint, JMP, ArcGIS, SigmaPlot

VOLUNTEER POSITIONS:

2007-2009 **Bird Counter**
DURHAM REGION BREEDING BIRD COUNT

- Identify and record all birds observed within a certain area

2005-present **Bird Counter**
CHRISTMAS BIRD COUNT

- Identify and record all birds observed within a certain area

2001-2005 **Atlasser**
ONTARIO BREEDING BIRD ATLAS

- Identify and attempt to confirm birds breeding in 10 x 10 km square (5-year project)
- Conducted point count bird surveys

2001-2006 **Bird Surveyor**
BREEDING BIRD SURVEY

- Surveyed birds at 50 points along a route in Central Ontario

1995-1998 **Atlasser**
ONTARIO TREE ATLAS PROJECT

- Identified tree species and counted individual trees in 10 x 10 km square

April 1995 **Environmental Technician**
TORONTO AND REGION CONSERVATION AUTHORITY (TRCA)

- Determined potential Red-shouldered Hawk (RSHA) breeding habitat from aerial photos and previous nesting locations within the TRCA region
- Submitted report to TRCA on methodology and results

PRESENTATIONS:

- "Using Regional Coastal Wetland Monitoring to Support Restoration and/or Adaptive Management at a Site Level", International Association of Great Lakes Research, May 21, 2009, Peterborough, Ontario.
- "Durham Region Coastal Wetland Monitoring Project: 5-Year Status and Trends", poster, 13th Annual International Conference on the St. Lawrence River/Great Lakes Ecosystem, May 17, 2006, Cornwall, Ontario.
- "Durham Region Coastal Wetlands: How are they doing?", Durham Region Field Naturalists, October 31, 2005, Oshawa, Ontario.
- "Nest-site characteristics of sympatric Brewer's Sparrows and Clay-colored Sparrows", poster, 73rd Annual Meeting of the Wilson Ornithological Society, April 10, 1992, Kissimmee, Florida.

PUBLICATIONS/REPORTS:

Grabas, G.P., E.A. Blukacz-Richards and S. Pernanen. *In press*. Development of a submerged aquatic vegetation community index of biotic integrity for use in Lake Ontario coastal wetlands. *Journal of Great Lakes Research*, published online March 29, 2012.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2011. COSEWIC Assessment and Status Report on the King Rail *Rallus elegans* in Canada.

Environment Canada – Canadian Wildlife Service. 2010. A Status Report on the Bay of Quinte Area of Concern Fish and Wildlife Related Beneficial Use Impairments: Coastal Wetlands. Prepared by S. Pernanen, Pernanen Biological Consulting, March 2010.

Pernanen, S. 2009. Oshawa Second Marsh - 2009 Breeding Bird Monitoring Summary. Prepared for the Central Lake Ontario Conservation Authority, October 2009.

Pernanen, S. 2008. Oshawa Second Marsh - 2008 Breeding Bird Monitoring Summary. Prepared for Environment Canada, October 2008.

Central Lake Ontario Conservation Authority. 2008. Lynde Creek Watershed Existing Conditions Report – Wetlands, Chapter 18. June 2008.

Pernanen, S. 2007. Oshawa Second Marsh - 2007 Breeding Bird Monitoring Summary. Prepared for Environment Canada, September 2007.

Environment Canada and Central Lake Ontario Conservation Authority. 2007. Durham Region Coastal Wetland Monitoring Project: Methodology Handbook. March 2007. (*Updated previous edition*)

Pernanen, S. 2006. Marsh Bird and Vegetation Community Response to Water Level Management at Oshawa Second Marsh – 2005. Prepared for Environment Canada, February 2006.

Pernanen, S. 2006. Oshawa Second Marsh - 2006 Breeding Bird Monitoring Summary. Prepared for Environment Canada, September 2006.

Pernanen, S. 2005. Oshawa Second Marsh - 2005 Breeding Bird Monitoring Summary. Prepared for Environment Canada, September 2005.

Pernanen, S. 2005. Oshawa Second Marsh Breeding Bird Monitoring: Pre- and Post-Management Summary. Prepared for Environment Canada, March 2005.

Pernanen, S. 2004. Oshawa Second Marsh - 2004 Breeding Bird Monitoring Summary. Prepared for Environment Canada, September 2004.

Environment Canada and Central Lake Ontario Conservation Authority. 2004. Durham Region Coastal Wetland Monitoring Project: Year 2 Technical Report. March 2004. (*Prepared several sections*)

Pernanen, S. 2003. Oshawa Second Marsh - 2003 Breeding Bird Monitoring Summary. Prepared for Environment Canada, September 2003.

MEMBERSHIPS:

- Field Botanists of Ontario (FBO)
- Ontario Field Ornithologists (OFO)

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.



Jessica Piette H. B.ES Terrestrial Ecologist

Professional History

05/2007 - present, AECOM,
Ecologist
05/08/2001 - 05/2003, Agriculture
and Agri-Food Canada Research
branch
05/07/1999 - 05/2001, A Fleur D'eau
Gardens

Education

Bachelor's Degree, Environment and
Resources Studies, University of
Waterloo

Diploma, Environmental Assessment
– University of Waterloo

Years of Experience

With AECOM: 5

Training and Certifications

Ecological Land Classification for
Southern Ontario Training Course,
Ministry of Natural Resources, 2007

Ontario Wetland Evaluation Training
Course, Ministry of Natural
Resources, 2008

First Aid Certification, St. John's
Ambulance, 2007

Environmental Impact Assessment
Diploma, University of Waterloo,
2004

Ms. Piette is a terrestrial ecologist with AECOM's Ecological Services Group working in Kitchener, Ontario. Her technical skills include wetland boundary delineation, and evaluations, soils identification, air-photo interpretation, vegetation inventories, community descriptions, amphibian surveys, and woodland evaluations. She is trained and has experience in the application of Ecological Land Classification (ELC) of Southern Ontario, and the Ministry of Natural Resources Wetland Evaluation guidelines. These skills facilitate in the preparation and data collection to complete environmental impact studies, constraints and opportunity reports, subject land status reports, tree preservation reports, environmental assessment evaluations, and natural heritage studies.

Experience

Environmental Impact Studies

Orfus Realty, King Township Property – Natural Heritage Constraints & Opportunities Report, King Township, Region of York. Completed terrestrial field investigations including aerial photography interpretation, the delineation of vegetation into Ecological Land Classification (ELC) units, the collection of a comprehensive floral species list and the delineation of on-site wetland communities following the Ministry of Natural Resources Wetland Evaluation Protocol for insertion into the final Natural Heritage C&O document. Completed a Species at Risk (SAR) Screening to identify any potential SAR as well as their associated habitat located within the study area.

City of London, Southcrest Storm Sewer and Outfall Replacement – Environmental Impact Study, London, Ontario. Completed terrestrial field investigations to determine existing site conditions. This included the delineation of vegetation communities into Ecological Land Classification Units, as well as a tree inventory along the proposed storm sewer alignment and outfall location. Completed a Species at Risk (SAR) Screening to identify any potential SAR as well as their associated habitat located within the study area. Following data collection completed the corresponding sections within the EIS report.

City of London, South West Area Plan – Natural Heritage Report, London Ontario. Completed terrestrial investigations for 24 unevaluated vegetation patches within the City of London in order to determine their significance within the Natural Heritage System. Investigations included aerial photography interpretation as well as site specific investigations. Following data collection the City of London's woodland evaluation guidelines, and/or wetland

evaluation guidelines were applied accordingly.

City of London, Meadowlily Area Plan – Natural Heritage Study, London Ontario – Conducted terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification and the collection of a comprehensive floral species list for insertion into the Meadowlily Area Plan – Natural Heritage Study Report.

City of Kitchener, Blockline Road Extension, Kitchener, Ontario – Conducted terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification, the collection of a comprehensive floral species list and the delineation of on-site wetland communities following the Ministry of Natural Resources Wetland Evaluation Protocol for insertion into the final Environmental Impact Study document.

Regional Municipality of Waterloo, Rapid Transit Initiative, Transit Project Assessment Process, Environmental Impact Assessment. – Carried out terrestrial field investigations, including aerial photography interpretation, the application of Ecological Land Classification and the collection of a comprehensive floral species list along the proposed Light Rail Transit (LRT) Route. This was completed in order to assess the significance of the existing natural heritage features, to present potential development constraints, as well as, provide direction for specific design considerations of the LRT.

GMS Mortgage, Huron Shores – Environmental Impact Study, Lampton County. Assisted in the delineation of wetland communities, plant identification and the completion of necessary report updates.

St. Joseph's Health Care, St. Thomas Regional Mental Health Care Centre - Scoped Environmental Impact Study. Completed terrestrial field investigations for existing site conditions for the development of a Regional Mental Health Care Centre facility on lands located adjacent to Hepburn Drain and lands designated as Significant Woodland and Significant Valleyland. This included the delineation of vegetation communities into Ecological Land Classification (ELC) units, as well as a tree inventory for the subject lands for insertion into the final document.

Sifton Properties, Wilton Grove Road Environmental Impact Study, London, Ontario. Assisted in the completion of vegetation inventories to determine existing conditions. Completed the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), created corresponding vegetation profiles, as well as assisted in the preparation of the final report. Completed salamander monitoring using cover boards as described by EMAN-Parks Canada National Monitoring Protocol for Terrestrial Salamanders.

Sydney Tar Ponds Agency, Sydney Tar Ponds Baseline Avifauna Environmental Effects Monitoring Report, Sydney, Nova Scotia. Assisted in the collection of background information as well as in the completion of the Avifauna baseline report.

Sifton Properties, Hardy Road Environmental Impact Study, Brantford, Ontario. Aided in the completion of vegetation inventories to determine existing conditions, completed background research on native prairie species for Brant County and created a detailed plant list. Participated in restoration efforts in association with the Ministry of Natural Resources regarding on-site tufa and a remnant prairie community.

Sifton Properties, Fanshawe Ridge – Environmental Impact Study, London, Ontario. Helped in the data collection to determine existing site conditions and constraints to development to be inserted in the final EIS document. This included aerial photography interpretation, vegetation community delineation into Ecological Land (ELC) Classification units, and the collection of a detailed floral species list. The onsite Fanshawe Ridge Provincially Significant Wetland boundaries were refined using the protocols set out in the Ministry of Natural Resources Wetland Evaluation Guide.

GMS Mortgage, Huron Shores Environmental Impact Study, Lampton County, Ontario. Aided in the delineation of a wetland community.

Labrador Iron Mines, Labrador Iron Mines Environmental Impact Study, Schefferville, Quebec. Aided in the completion of the baseline breeding birds report.

Sifton Properties, Wickerson Road Environmental Impact Study, London, Ontario. Created corresponding vegetation profiles for Ecological Land Classification communities. Assisted in the completion of the final report. Completed amphibian surveys, using the “point-count” techniques as described in the Great Lakes Marsh Monitoring Program, as well as completed salamander monitoring using cover boards as described by EMAN-Parks Canada National Monitoring Protocol for Terrestrial Salamanders.

Valente & Theocharis, 14873 Medway Road Constraints and Opportunities Report, London, Ontario. Aided in the completion of vegetation inventories to determine existing site conditions. Contacted local and provincial authorities requesting background information on the subject lands. Assisted in the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and assisted in the completion of the final report.

City of Woodstock, Woodstock Woodlands Environmental Impact Study, Woodstock, Ontario. Assisted in the completion of vegetation inventories, the description of vegetation communities using proper Ecological Land Classification units, according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and in the completion of the final report. Completed a wetland evaluation for two of the patches using the Ministry of Natural Resources Southern Ontario Wetland Evaluation System.

Sifton Properties, Denfield Property DAR, London, Ontario. Aided in the completion of vegetation inventories to determine existing site conditions. Contacted local and provincial authorities requesting background information on the subject lands. Assisted in the description of vegetation communities using proper ELC units and assisted in the completion of the final report.

Sifton Properties, Fratscko Lands Advisory and Environmental Impact Statement, London, Ontario. Aided in completion of field investigations to determine existing site conditions. Completed vegetation inventories and helped complete preliminary amphibian surveys, using the "point-count" techniques as described in the Great Lakes Marsh Monitoring Program.

Downham, Downham Property Environmental Impact Statement, London, Ontario. Assisted in completion of vegetation inventories for the subject property. Prepared community descriptions and profiles using ELC units.

City of Woodstock, BB2D Wetland Environmental Impact Statement, Woodstock, Ontario. Assisted in collection of vegetation inventories and prepared a detailed list with all common and Latin floral names. Contacted local and provincial authorities requesting background information.

Sifton Properties, Old Victoria Road Environmental Impact Statement, London, Ontario. Aided in gathering of vegetation inventories according to Ecological Land Classification units (ELC) and delineation of wetland boundaries. Contacted local and provincial authorities to obtain necessary background information.

Kenmore Home, Bierens Property, London, Ontario. Assisted in description of vegetation communities by creating vegetation profiles and detailed plant lists. Contacted local and provincial authorities obtaining necessary background information.

Renewable Energy

NextEra Energy Canada, Bluewater Wind Energy Centres and Transmission Line Renewable Energy Project, Grand Bend, Ontario. Completed terrestrial site investigations, including delineations of vegetation communities into Ecological Land Classification (ELC) units, amphibian surveys following the Marsh

Monitoring Protocol. Completed the woodland evaluations following the protocols set out in the Natural Heritage Assessment Guide for Renewable Energy Project Table 8: Significant Woodland Evaluation Criteria and Standards.

Wetland Restoration

ORE Development, Highbury Business Park Wetland Creation, London, Ontario. Aided with the vegetation inventory and monitoring of the area.

Wetland Monitoring

City of London, Uplands North Storm Water Management – Wetland Monitoring Program – Baseline Data, London, Ontario. Completed baseline data collection for a 3 year monitoring program within a wetland located adjacent to a storm water management pond. This included the selection and establishment of 5 permanent monitoring quadrats within the study area as well as a tree health assessment for existing trees within the wetland. Conducted amphibian surveys following the Marsh Monitoring Protocol for inclusion into the baseline report. Following data collection completed Baseline Wetland Monitoring Report.

City of London, Forest City Wetland Forest City Stormwater Management Facility Westminster Wetland Complex Assessment of Reported Die-back. Conducted wetland assessment of Westminster Wetland complex including boundary delineation and a detailed floral species list for insertion into the final document.

City of London, Uplands North Storm Water Management – Wetland Monitoring Program – Year 1 Monitoring, London, Ontario. Completed Year 1 data collection for a 3 year monitoring program within a wetland located adjacent to a storm water management pond. This included vegetation monitoring within the 5 permanent monitoring quadrats within the study area as well as a tree health assessment for existing trees within the wetland.

Class Environmental Assessments

Regional Municipality of York, Upper York Sewage Solutions Environmental Assessment – Natural Environment Baseline Conditions Report. Completed terrestrial field investigations using a combination of Rapid Ecological Land Classification (ELC), and a comprehensive floral species list for the entire study area. This was completed in order to determine existing conditions as well as provide constraints to the overall selection of the preferred alternative.

Township of Woolwich, Municipal Class Environmental Assessment for the Proposed Replacement of Floradale Road Structure # 050106 – Collected necessary background documentation from local agencies. Completed terrestrial field

investigations using a combination of Ecological Land Classification (ELC), and a comprehensive floral species list, and conducted impact assessment for insertion into the final EA document.

Niagara Region, Municipal Class Environmental Assessment for the Proposed Reece Bridge Replacement – Collected necessary background documentation from local agencies. Completed terrestrial field investigations using a combination of Ecological Land Classification (ELC), and a comprehensive floral species list, and conducted impact assessment for insertion into the final EA document.

Go Transit, Expansion of Rail Service from Oshawa to Bowmanville on the Lakeshore East Corridor: Natural Environmental Conditions Report. – Completed terrestrial field investigations using a combination of Rapid Ecological Land Classification (ELC), and a comprehensive floral species list for 14 land parcels within the study area. This was completed in order to determine existing conditions as well as in the prevention and reduction of potential negative effects associated with the overall design, construction implementation and long-term operation of the rail expansion to natural heritage features.

San Gold Corporation, Bissett Gold Mine Tailings Pond Expansion, Bissett, Manitoba. Aided in the completion of vegetation inventories to determine existing conditions.

City of Toronto, Toronto Island Water Main Extension EA, Toronto Ontario. Aided in the completion of vegetation inventories.

City of London, Sunningdale Stormwater Management Pond EA, London, Ontario. Aided in the collection of vegetation inventories and background information.

City of Woodstock, Water-Wastewater EA, Woodstock, Ontario. Assisted in the collection of existing conditions to aid in selection of a preferred alternative, and in the completion of a memo reporting these findings.

City of Grimsby, Russ Road Extension EA, Grimsby, Ontario. Aided in the collection of field data, including vegetation inventories. Assisted in the completion of the memo reporting the investigation results.

City of London, Bradley Avenue Trunk Water Main Class EA, London, Ontario. Collected vegetation inventory for the section of Bradley Avenue from Jackson Road to Airport Road, by identifying tree species, calculating its DBH, dripline, and assessing its health. Also assisted in writing the methods, findings, and significance sections of the initial report.

City of London, Western Road Widening, London, Ontario. Aided in the compilation of field data to determine existing site conditions. Completed vegetation inventories and finalized initial memo to the client.

City of Milton, Alternate Water Supply Class EA, Milton, Ontario. Helped refined preferred route by taking notes and photographs then compiling the data into report form.

Manitoulin Island, Islandwide Waste Management Plan, Manitoulin, Ontario. Aided in collection of background information by contacting Manitoulin's landfill and transfer station representatives and asking a series of predetermined questions pertaining to their waste practices. Also contacted were the marinas and aquaculture farms of the area.

City of London, Old Oak SWM Pond, London, Ontario. Aided in gathering of field data by completing vegetation inventories and community descriptions, as well as, completing a detailed floral list for the study area.

City of Guelph, Burke Well, Guelph, Ontario. Aided with compilation of vegetation inventories and community descriptions.

Mining

Labrador Iron Mines, Labrador Iron Mines, Environmental Impact Study, Schefferville, Quebec. Assisted in the completion of vegetation community delineations by aerial photography interpretation followed by ground truthing using the Canadian Vegetation Classification System. Compiled a detailed plant species list for each of the three specific areas of interest. Helped in the completion of the baseline breeding birds report.

San Gold Corporation, Bissett Gold Mine Tailings Pond Expansion, Bissett, Manitoba. Helped in the completion of vegetation inventories to determine existing conditions for the expansion of the tailings ponds.

Bancroft Uranium, Bancroft, Ontario. Completed the delineation of vegetation communities using aerial photography interpretation followed by field investigations.

Sydney Tar Ponds Agency, Sydney Tar Ponds – Baseline Avifauna Environmental Effects Monitoring Report, Sydney, Nova Scotia. Assisted in the collection of background information as well as in the completion of the Avifauna baseline report.

Subject Land Status Reports

City of London, Highbury and Highway 401 Expansion, London, Ontario. Completed vegetation inventories to determine existing conditions. Completed the description of vegetation communities using proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), and completed the final report.

Sifton Properties, Fanshawe Ridge Wetland Subject Land Status Report, London Ontario. Aided in the completion of field investigations, including vegetation inventories, community delineation into proper Ecological Land Classification units according to the Ministry of Natural Resources: Ecological Land Classification System (Lee et al, 1998), the delineation and staking of the wetland boundary, and in the completion of the final report.

City of Woodstock, Parkinson SWM Pond Cleanout, Woodstock, Ontario. Participated in the initial amphibian's survey for the study area. Assisted in field investigations by collecting vegetation samples and prepared detailed community descriptions for the final report.

Tree Preservation Plans

City of Mississauga, Hanlan Feedermain Environmental Assessment, Mississauga Ontario. Completed a tree inventory along each proposed feedermain route in order to assist in the identification in the preferred route. This included noting trees species within proximity to alternative alignments, potential impacts from proposed works. As well detailed tree data was collected including identification of dominant species, measuring diameter at breast height, assessing health, calculating height, and measuring the dripline along alternative routes as well as a description of existing riparian vegetation along various watercourse crossings.

Sifton Properties, Hopedale Tree Preservation Plan, London Ontario. Collected tree inventory data by identifying individual species, measuring diameter at breast height, assessing health, calculating height, and measuring the dripline in order to complete a Tree Preservation Plan.

Toronto Island Watermain extension – EA, Toronto Ontario. Aided in the collection of tree data. This included the identification of tree species, measuring the diameter at breast height, calculating height, assessing health and measuring the dripline. This information was then used to complete a Tree Preservation Plan.

City of London, Innovation Park Phase 4, London Ontario. Completed significant woodland/wetland boundary staking using the dripline of edge trees. Completed vegetation inventories and tree inventory noting species, diameter at breast height, health and height. This information was used to determine the existing conditions of the subject property in order to complete a Tree Preservation Plan.

Environmental Monitoring

Bancroft Uranium, Bancroft, Ontario. Completed the delineation of vegetation conditions using aerial photography interpretation followed by field investigations.

Woodland Assessments

Pen Equity Corporation and Goal Ventures Inc., Subject Land Status Report. London Ontario. Conducted necessary site investigations to complete a woodland evaluation following criteria set out by the City of London.

Sifton Properties, Van Horik Woodland Assessment, London, Ontario. Assisted in the completion of field investigations, which included the collection of detailed plant lists and the delineation of different communities within the woodland using the Ministry's Ecological Land Classification System.

Pete Read-Faunal Related Resume to 2011

Education: Hons. B.Sc. Zoology / Ecology. (University of Western Ontario)

Experience:

Projects marked with ** indicate I was working as part of Dave Martin's Environmental Consulting team of faunal surveyors

2012

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2011

Avian studies for Wind Turbine Projects on Amherst Island.

Avian studies for rail and storage yard development in Sept Isle, Quebec.

Various avian studies for AECOM in London and area, and for 404 extension.

**Observations at Eagle nests in South-western Ontario for post wind turbine construction (Chatham-Kent)

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2010

**Faunal studies at sites for wind turbine projects (Haldimand and Norfolk)

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Toronto Metropolitan Zoo. (continuing program).

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2009

**Faunal surveys at sites for wind turbines (Middlesex, Bruce, Grey, Norfolk and Haldimand)

**Faunal surveys in 37 woodlots in Tecumseh, Essex County.

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2008

**Field studies, mostly road surveys of avifauna for wind turbine projects(Chatham-Kent, Middlesex, Lambton)

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2007

**Field studies of avifauna for wind turbine projects (Chatham-Kent, Middlesex)

**took part in surveys and habitat assessments for Acadian Flycatchers and Hooded Warblers at various sites in Elgin, Middlesex, Oxford and Lambton Counties

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service. (continuing program).

Acted as "expert" bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2006

**Field studies of avifauna for wind turbine projects (locations, migration watches) in Dover Township and near Amherstburg.

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service (continuing program).

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2005

Crew Leader for Boreal inventories of birds (locations, habitats, point counts) and wildlife in different regions of North Western Ontario employed by Federation of Ontario Naturalists (Ontario Nature), Boreal Initiative, and Atlas of Breeding Birds for a joint study. In charge of program, transportation, accommodations, communications with First Nations People on trip, final reports, etc.

Bird survey work (locations, habitats, point counts) as one of the summer field work crew leaders in area near Algonquin Park, hired by Atlas of Breeding Birds for Ontario.

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service(continuing program)

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2004

Crew member for Boreal Forest inventories of birds (locations, habitats, point counts) and other wildlife during summer field season, in North Western Ontario, employed by Federation of Ontario Naturalists (Ontario Nature), Boreal Initiative, and Atlas of Breeding Birds for a joint study.

Collection of nest records, habitat studies, banding, blood sampling of Acadian Flycatchers for the Acadian Flycatcher research program in South Western Ontario run by Dr. Bonnie Wolfenden, York University.

Designing and Constructing Enclosures and Consulting for Loggerhead Shrike Recovery Program employed by Wildlife Preservation Canada and Canadian Wildlife Service.

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2003

Breeding bird survey work (locations, habitats, point counts) studying in area near Temagami, North Bay, Sudbury regions for Atlas of Breeding Birds and Federation of Ontario Naturalists (Ontario Nature).

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2002

** Faunal surveys at Clear Creek, Chatham-Kent, for the Nature Conservancy of Canada

** Faunal surveys for the Fort Erie Natural Areas Inventory for Dougan and Associates

** Faunal surveys at Bickford Oak Woods, Lambton, for Ontario Ministry of Natural Resources

** Amphibian surveys at Komoka PP Reserve, Middlesex,

** Surveys for Acadian Flycatcher and Hooded Warblers at southwestern Ontario Core sites for Canadian Wildlife Service

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2001

** Faunal Surveys for Komoka Provincial Park

** Habitat assessment and nest productivity of Acadian Flycatcher in southwestern Ontario for Canadian Wildlife Service and Ontario Ministry of Natural Resources

Acted as “expert” bird hike leader in May at Point Pelee NP for Friends of Point Pelee

2000

** Surveys for Acadian Flycatcher and Hooded Warblers at southwestern Ontario Core sites for Canadian Wildlife Service

1999

** Searched for Acadian Flycatchers at ravine and upland forest sites in Elgin, Middlesex and Lambton Counties for Bird Studies Canada.

1998

** Searched for breeding Acadian Flycatchers, Hooded Warblers and other VTE species at known sites in southwestern Ontario and noted habitat features at breeding territories. Bird Studies Canada, Canadian Wildlife Service, World Wildlife Fund Canada

1997

** Searched for breeding Acadian Flycatchers, Hooded Warblers and Prothonotary Warblers and other VTE species at known sites in southwestern Ontario and noted habitat features at breeding territories. Bird Studies Canada, Canadian Wildlife Service, World Wildlife Fund Canada

Additional...

1975+ Organizer or co-ordinator for the following projects:

- * London Peregrine Project (1995-2005) MNR advisor and co-ordinator of volunteers for monitoring nest site
- * Ontario Breeding Bird Atlas (2001-2005) member of Atlas Co-ordinators team, Region 4
- * London Audubon Christmas Bird Count (since 1983) co-ordinate and compile, as well as participate
- * Audubon Field Notes (since 1983) contributor/editor for Middlesex County
- * Middlesex Bird Records Compiler and Committee Chair –recording and compiling bird records for Middlesex County and chairing the evaluations of record committee (1983+)
- * Compiled Bird Checklist for Komoka Provincial Park for Ontario Parks (1985)

1975+ Participated as a volunteer in the following data collection/monitoring programs

- * Audubon Christmas Bird Counts (40+ counts since 1975)
- * Atlas of the Mammals of Ontario for Middlesex (1990-1992)
- * Atlas of the Breeding Birds of Ontario (1985-1987)
- * CWS Breeding Bird Surveys (10+ years, 3 routes)
- * CWS Forest Bird Monitoring (Skunk's Misery Forest 1990 to 2001)
- * CWS Species at Risk Studies (1990s)
- * CWS Endangered Species Studies (2001)
- * Mcllwraith Field Naturalists of London Thames River Breeding Bird Census (1985 - 90)
- * Mcllwraith Field Naturalists of London Life Science Inventories (Skunk's Misery, Komoka P.P. Reserve)

Related Natural History Experiences

2005 Member of interpretive staff for Akademik Ioffe, cruise ship to Antarctica for Peregrine Tours

1995-1997 Teacher at Outdoor Education Facilities in London, Ontario (JK-OAC)

2001+ Trip Leader for Worldwide Quest Nature Tours (Cuba, Costa Rica, Iceland, Amazon).

2001+ Trip Leader for Friends of Point Pelee

1980+ Numerous hikes for various nature clubs such as the Ontario Field Ornithologists, Ontario Nature / Federation of Ontario Naturalists, Nature London / Mcllwraith Field Naturalists, and Canadian Nature Federation.

1980 -1990 Teacher of birding interest courses with associated field trips for Fanshawe College and University of Western Ontario

Recent Publications.

Read, P. *McCowan's Longspur: New to Ontario*. In Ontario Birds, August 2006, Volume 24, number 2. Ontario Field Ornithologists.

Domm, J. 2002. *Guide to London Birds*. (selected and wrote London Birding Hot Spots). Lorimer Publ.

Read, Peter. 2000 *American Anhinga, Anhinga anhinga summers at Delaware Sportsman's Conservation Pond*. In Ontario Birds, December 2000, Volume 18 number 3. Ontario Field Ornithologists.

Read, P. and David Martin. *Bird Checklist for Middlesex County*. compiled 1990, revised 1996, 2003, 2009. Nature London aka Mcllwraith Field Naturalists of London

J.C. Findlay. 1984, revised 1990s. *A Bird-finding Guide to Canada* (selected, wrote and revised section on London, St. Thomas and Sarnia) Hurtig Publ

Read, Peter. From 1983+ *Annual Summary of Birds Reports for Middlesex County*. In: The Cardinal. Nature London / The Mcllwraith Field Naturalists of London.

Read, Peter. From 1983+ *Seasonal Bird Reports*. In: The Cardinal, 4 times a year. Nature London / The Mcllwraith Field Naturalists of London.

Read, Peter. From 1983+ *many articles including trip reports, news items, but also birding articles such as... Osprey Nesting in Middlesex , Sharp-shinned Hawk Rescue, Peregrine Falcon Nesting, etc.* In: The Cardinal. Nature London / The Mcllwraith Field Naturalists of London.

Awards

The Conservation Award in recognition of outstanding contributions to conservation from The Mcllwraith Field Naturalists of London, 1996

Ministry of Natural Resources Great Lakes Raptor Recovery Program in recognition of outstanding contributions to the restoration, recovery and conservation of raptor populations in the great lakes basin, London Project Peregrine, 1996

Ontario Field Ornithologists certificate of appreciation, Sept 2000

Federation of Ontario Naturalists (Ontario Nature) for outstanding commitment to nature as teacher, volunteer, birder and researcher, May 2002

The W. E. Saunders Award of Merit in recognition of outstanding contributions to The Mcllwraith Field Naturalists of London, November 2004

Nature London Special Recognition Award in recognition of 26 years on the Board of Directors for Nature London/Mcllwraith Field Naturalists of London, November 2009

Related Affiliations/Memberships/Positions:

American Birding Association member
Canadian Nature Federation member
Ontario Nature / Federation of Ontario Naturalists member
Friends of Point Pelee member
Long Point Bird Observatory/Bird Studies Canada member
Nature London / Mcllwraith Field Naturalists of London-former Chairperson Birding Wing 1985-2009
-Vice president 2010-2011
-President as of Sept. 2011

Ontario Field Ornithologists-Life/charter member
Woodland Advisory Committee for the County of Middlesex-member since 2007
Komoka Provincial Park Advisory Committee (completed 2005)

References (others as needed)

1. Quest Nature Tours- 1-800-387-1483
2. Dave Martin- 1-519-269-3262
3. Ian Platt- 1- 519- 438-3330



Tom Shorney Ecologist

Professional History

07/25/2011 - present, AECOM, Ecologist
03/20/2011 – 07/22/2011, Quiet Nature, Restoration technician
06/2008 – 12/17, 2010, Natural Resources Canada, Great Lakes Forestry Centre, Ecological Technician

Education

Diploma, Ecosystems Management Technology, Sir Sandford Fleming College

Years of Experience

With AECOM: 4 months

Training and Certifications

Ecological Land Classification Certification 2012

First Aid Certification, St. John's Ambulance 2012

Diploma, Ecosystems Management Technology, Sir Sandford Fleming College

WHIMIS training

Canadian Pleasure Craft Operator

Tom Shorney is a Terrestrial Ecologist with 4 years of field experience, with a keen interest in Birds and Amphibians. Since having joined the AECOM team in the summer of 2011, Tom has participated in both small and large scale projects. The majority of Tom's experience in the consulting industry has involved assisting in Ecological Land Classification field work, as well as general stream measurements. He has had a major role in preparing Environmental Impact studies, and utilizing the Natural Heritage Information Centre for background species research.

Experience

Renewable Energy

NextEra Energy Canada

Along with a team of ecologists, several terrestrial investigations were conducted over a large spatial area for the purpose of wind energy. Specific investigations involved Ecological Land Classification (ELC) surveys, Significant Wildlife Habitat surveys, and wetland investigations. During the breeding season for amphibians, day searches and night call surveys were conducted. Monitored the distance of turbine locations to natural features during the micro siting process.

Class Environmental Assessments

Huron Bridge, City of Kitchener

Performed terrestrial field investigations including the characterization of the surrounding vegetative communities along Schneider creek and prepared a photographic log.

Cooksville Creek Erosion Control Study, EA

Assisted in characterizing the terrestrial environment using Ecological Land Classification (ELC) techniques. Compiled a complete floral species list of plants in the area. Performed aquatic field investigations including stream depth, stream width, mineral composition of stream bottom, bank stabilization, and photo log. Contacted area officials regarding Species at Risk, and prepared the existing conditions portion of the report.

Reece Bridge Restoration Project, EA

Assisted in field investigations such as classifying the terrestrial environment using Ecological Land Classification guidelines; and gathered specific background information using Natural Heritage Information Centre (NHIC).

Forest City, City of London

Performed field investigations pertaining to Stormwater Management Facility. Project required Aerial Photograph interpretation, NHIC search for background information, and the close contact with city and conservation authorities. Played key role in preparing the report.

Cedar Creek, City of Woodstock

Conducted a complete tree survey within study area including components such as: species, Diameter at breast height (DBH), tree condition, distances from stream, and GPS waypoints. Conducted background search and was in contact with provincial authorities.

Monitoring**Uplands North Storm Water Management – Wetland Monitoring Program, City of London**

Assisted in the preparation of a 3 year monitoring program which track the potential affects that development of a Storm Water Management Pond may have on the surrounding wetland. 5 plots were constructed in randomly selected areas, where vegetation communities will be closely monitored as well as, Water depth, water quality and tree health.

Upper York Sewage Solutions, The Regional Municipality of York, EA

Played a role in the completion of terrestrial investigations such as classifying vegetative communities and preparing a photographic log.

Kitchener Waste Water Treatment Plant

Assisted in the completion of terrestrial investigations which included photo interpretation, vegetation inventories which included using the ELC protocol, identified and measured trees and photographic log.

Highway 2 Rapid Bus, Regional Municipality of Durham, Existing Environmental Conditions

Performed terrestrial investigations along entire study which included classification of vegetative communities using ELC units, roadside tree inventory, photographic log and general notes. Supplied background information using the Natural Heritage Information Centre's (NHIC) Biodiversity explorer, and assisted in the preparation of the report.

Barrie-Oliver, Class Environmental Assessment

Performed Background information research using the Natural Heritage Information Centre's (NHIC) Biodiversity explorer, as well as prepared a Species at Risk (SAR) table which outlines the species, their preferred habitat and when the species was last spotted.

Species at Risk Assessment for Highway 81

Developed an information card for area citizens pertaining to the identification features of the Chimney Swift, which is listed as a Species at Risk.

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 banded 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
- 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

Breeding Bird Species List

Appendix D: Breeding Birds Survey D

| Common Name | Scientific Name | | | | | | | | | | | | | | | | | | |
|--|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 216 | 216 | 190 | 190 | 210 | 210 | 210 | 210 | 189 | 189 | 189 | 199 | 177 | 177 | 177 | 398 | 267 | 260 |
| | | Visit 1 | Visit 2 |
| Great Blue Heron | <i>Ardea herodias</i> | | | | | | | | | | | | | | | | | | |
| Green Heron | <i>Butorides virescens</i> | | | | | | | | | | | | | | | | | | |
| Canada Goose | <i>Branta canadensis</i> | | | | | | | | | | | | | | | | | | |
| Wood Duck | <i>Aix sponsa</i> | | | | | | | | | | | | | | | | | | |
| Mallard | <i>Anas platyrhynchos</i> | | | | | | | | | | | | | | | | | | |
| Turkey Vulture | <i>Cathartes aura</i> | | | | | | | | | | | | | | | | | | |
| Red-shouldered Hawk | <i>Buteo lineatus</i> | | | | | | | | | | | | | | | | | | |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> | | 1 | | | | 2 | | 1 | | | | | | | | | | |
| Wild Turkey | <i>Meleagris gallopavo</i> | | | | | | | | | | | | | | | | | | |
| Killdeer | <i>Charadrius vociferus</i> | 1 | 1 | | | | | 1 | 1 | 1 | | | | 1 | | | | | |
| Spotted Sandpiper | <i>Actitis macularia</i> | | | | | | | | | | | | | | | | | | |
| American Woodcock | <i>Scolopax minor</i> | | | | | | | | | | | | | | | | | | |
| Rock Pigeon | <i>Columba livia</i> | | | | | | | | | | | | | | | | | | |
| Mourning Dove | <i>Zenaidura macroura</i> | | | | | | | | | | | | | | | | | | |
| Black-billed Cuckoo | <i>Coccyzus erythrophthalmus</i> | 1 | | | | | | 1 | | | | | | | | | | | |
| Yellow-billed Cuckoo | <i>Coccyzus americanus</i> | | | | | | | | | | | | | | | | | | |
| Ruby-throated Hummingbird | <i>Archilochus colubris</i> | | | | | | | | | | | | | | | | | | |
| Red-headed Woodpecker | <i>Melanerpes erythrocephalus</i> | | | | | | | | | | | | | | | | | | |
| Yellow-bellied Sapsucker | <i>Sphyrapicus varius</i> | | | | | | | | | | | | | | | | | | |
| Red-bellied Woodpecker | <i>Melanerpes carolinus</i> | 1 | | | | 1 | | | | | | | | | | | | | |
| Downy Woodpecker | <i>Picoides pubescens</i> | | | | | | | | | | | | | | | | | | |
| Hairy Woodpecker | <i>Picoides villosus</i> | | | | | | | | | | | | | | | | | | |
| Northern Flicker | <i>Colaptes auratus</i> | 1 | | | | | | | | | | | | | | | | | |
| Pileated Woodpecker | <i>Dryocopus pileatus</i> | | | | | | 1 | | | | | | | | | | | | |
| Eastern Wood-Pewee | <i>Contopus virens</i> | 1 | | | 2 | 2 | 2 | | 1 | 1 | | | 1 | 2 | 1 | 2 | 1 | 1 | |
| Yellow-bellied Flycatcher ¹ | <i>Empidonax flaviventris</i> | | | | | | | | | | | | | | | | | | |
| Willow Flycatcher | <i>Empidonax traillii</i> | | | | | | | | | | | | | | | | | | |
| Least Flycatcher | <i>Empidonax minimus</i> | | | | | | | | | | | | | | | | | | |
| Eastern Phoebe | <i>Sayornis phoebe</i> | | | | | | | | | | | | | | | | | | |
| Great Crested Flycatcher | <i>Myiarchus crinitus</i> | 1 | | | | 1 | | 2 | 2 | 3 | 2 | | | 2 | | 1 | | | |
| Eastern Kingbird | <i>Tyrannus tyrannus</i> | | | | | | | | | | | | | | | | | | |
| Horned Lark | <i>Eremophila alpestris</i> | 2 | 3 | 1 | | | 2 | 1 | | | | | | | | 2 | | 1 | |
| Purple Martin | <i>Progne subis</i> | | | | | | | | | | | | | | | | | | |
| Tree Swallow | <i>Tachycineta bicolor</i> | | | | | | | | | | | | | | | | | | |
| N. Rough-winged Swallow | <i>Stelgidopteryx serripennis</i> | | | | | | | | | | | | | | | | | | |
| Barn Swallow | <i>Hirundo rustica</i> | 1 | 3 | | | | | | | | | | | | | | | | |
| Blue Jay | <i>Cyanocitta cristata</i> | | | | | | | | | | | | | | | | | | |
| American Crow | <i>Corvus brachyrhynchos</i> | | | | | | | | 2 | 2 | 1 | 1 | | | 2 | 5 | 2 | | |
| Black-capped Chickadee | <i>Parus atricapillus</i> | 1 | | | | | | | | | | | | | | | | | |
| White-breasted Nuthatch | <i>Sitta carolinensis</i> | | | | | | | | | | | | | | | | | | |
| House Wren | <i>Troglodytes aedon</i> | | 1 | | | | | | | | | | | | | | | | |
| Blue-gray Gnatcatcher | <i>Polioptila caerulea</i> | | | | | | | | | | | | | | | | | | |
| Wood Thrush | <i>Hyllocichla ustulata</i> | | 1 | | | | | | | | | | | | | | | | |
| American Robin | <i>Turdus migratorius</i> | | 4 | | | | | | | | | | | | | | | | |
| Gray Catbird | <i>Dumetella carolinensis</i> | 1 | 1 | | | | | | | | | | | | | | | | |
| Brown Thrasher | <i>Toxostoma rufum</i> | | | | | | | | | | | | | | | | | | |
| Cedar Waxwing | <i>Bombusilla cedrorum</i> | | | | | | | | | | | | | | | | | | |
| European Starling | <i>Sturnus vulgaris</i> | | | | | | | | | | | | | | | | | | |
| Yellow-throated Vireo | <i>Vireo flavifrons</i> | | | | | | | | | | | | | | | | | | |
| Warbling Vireo | <i>Vireo gilvus</i> | | | | | | | | | | | | | | | | | | |
| Red-eyed Vireo | <i>Vireo olivaceus</i> | 2 | | | | | | | | | | | | | | | | | |
| Yellow Warbler | <i>Dendroica petechia</i> | | | | | | | | | | | | | | | | | | |
| Chestnut-sided Warbler | <i>Dendroica pensylvanica</i> | | | | | | | | | | | | | | | | | | |
| American Redstart | <i>Setophaga ruticilla</i> | | | | | | | | | | | | | | | | | | |
| Ovenbird | <i>Seiurus aurocapillus</i> | | | | | | | | | | | | | | | | | | |
| Mourning Warbler | <i>Oporornis philadelphia</i> | | | | | | | | | | | | | | | | | | |
| Common Yellowthroat | <i>Geothlypis trichas</i> | | | | | | | | | | | | | | | | | | |
| Northern Cardinal | <i>Cardinalis cardinalis</i> | | | | | | | | | | | | | | | | | | |
| Rose-breasted Grosbeak | <i>Pheucticus ludovicianus</i> | 2 | | | | | | | | | | | | | | | | | |
| Indigo Bunting | <i>Passerina cyanea</i> | 2 | 2 | 1 | 4 | 2 | 7 | 4 | 4 | 1 | 2 | | | | | | | | |
| Eastern Towhee | <i>Pipilo erythrophthalmus</i> | | | | | | | | | | | | | | | | | | |
| Chipping Sparrow | <i>Spizella passerina</i> | | | | | | | | | | | | | | | | | | |
| Field Sparrow | <i>Spizella pusilla</i> | | | | | | | | | | | | | | | | | | |
| Vesper Sparrow | <i>Pooecetes gramineus</i> | 1 | | | | | | | | | | | | | | | | | |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> | | | | | | | | | | | | | | | | | | |
| Song Sparrow | <i>Melospiza melodia</i> | 3 | 4 | 2 | 2 | | | | | | | | | | | | | | |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i> | | | | | | | | | | | | | | | | | | |
| Common Grackle | <i>Quiscalus quiscula</i> | | | | | | | | | | | | | | | | | | |
| Brown-headed Cowbird | <i>Molothrus ater</i> | 1 | | | | | | | | | | | | | | | | | |
| Baltimore Oriole | <i>Icterus galbula</i> | 2 | | | | | | | | | | | | | | | | | |
| American Goldfinch | <i>Carduelis tristis</i> | 1 | 1 | | | | | | | | | | | | | | | | |
| House Sparrow | <i>Passer domesticus</i> | | | | | | | | | | | | | | | | | | |
| Number of Species | | 18 | 13 | 4 | 16 | 12 | 23 | 10 | 14 | 22 | 19 | 5 | 24 | 11 | 21 | 16 | 9 | 5 | 12 |
| Number of Individuals | | 25 | 27 | 5 | 26 | 18 | 54 | 25 | 23 | 42 | 27 | 9 | 52 | 18 | 48 | 24 | 11 | 7 | 18 |

Number of National Species at Risk: 2
 Number of Provincial Species at Risk: 0
 Number of S1 to S3 (provincially significant) Species: 0
 Number of regionally significant OWES species (6):
 Number of regionally significant OWES species (7):
 KEY
¹ National Species at Risk are those listed by COSEWIC = Cc
² Provincial Species at Risk are those listed by COSSARO = I
³ SRANK (from Natural Heritage Information Centre) shown o
⁴ Area Sensitive Species according to OMNR (2000) Significa
⁵ Late Migrant, Non-breeding

Appendix E

Weather Conditions During Site Investigations

Appendix E. Climate Data for Goshen Breeding Bird Surveys - 2011

Weather station - Goderich

Climate identifier – 6122847

| Field Date | Max Temp (°C) | Min Temp (°C) | Total Precip (mm) | Speed of Max Gust (km/h) | Average Wind Speed (km/hr) |
|------------|---------------|---------------|-------------------|--------------------------|----------------------------|
| 5/25/2011 | 17.2 | 5.1 | 9.3 | 48 | 12 |
| 5/26/2011 | 17.1 | 7.9 | 4.9 | 37 | 13 |
| 5/27/2011 | 15.3 | 8.2 | 0 | 32 | 14 |
| 6/2/2011 | 12.4 | 5.1 | 0 | 52 | 21 |
| 6/18/2011 | 25 | 12.4 | 0 | 33 | 10 |
| 6/20/2011 | 25.6 | 14.2 | 0 | 32 | 11 |
| 6/21/2011 | 27.8 | 17.5 | 0.7 | 52 | 14 |
| 6/24/2011 | 17.1 | 14.2 | 3 | 0 | 12 |
| 6/26/2011 | 19 | 10.3 | 0 | 0 | 9 |
| 6/27/2011 | 23.3 | 11.8 | 3.3 | 0 | 11 |
| 6/28/2011 | 21 | 13.3 | 0 | 43 | 17 |
| 7/1/2011 | 26.8 | 8 | 0 | 0 | 9 |
| 7/2/2011 | 29.5 | 19 | 0 | 46 | 13 |
| 7/3/2011 | 22.4 | 13 | 0 | 0 | 7 |
| 7/4/2011 | 22.2 | 11.2 | 0 | 0 | 7 |
| 7/5/2011 | 27.1 | 11.9 | 0 | 32 | 11 |
| 7/6/2011 | 23.9 | 14.5 | 0.9 | 41 | 11 |
| 7/7/2011 | 21.1 | 11.8 | 0 | 0 | 6 |
| 7/8/2011 | 23.9 | 11.3 | 0 | 0 | 7 |
| 7/9/2011 | 25.4 | 11.9 | 0 | 0 | 6 |
| 7/10/2011 | 28.7 | 19.8 | 0 | 0 | 13 |

Appendix E. Climate Data for ELC and Vegetation Community Surveys - 2011 and 2012

Weather station - Goderich

Climate identifier – 6122847

| Field Date | Max Temp (°C) | Min Temp (°C) | Total Precip (mm) | Speed of Max Gust (km/h) | Average Wind Speed (km/hr) |
|------------|---------------|---------------|-------------------|--------------------------|----------------------------|
| 5/30/2011 | 27.9 | 11.8 | 0 | 0 | 9 |
| 6/1/2011 | 19.3 | 10.6 | 0 | 43 | 19 |
| 6/2/2011 | 12.4 | 5.1 | 0 | 52 | 21 |
| 7/12/2011 | 26.1 | 17.4 | 0 | 41 | 10 |
| 7/13/2011 | 21.1 | 12.2 | 0 | 43 | 19 |
| 7/19/2011 | 27.5 | 18.7 | 0 | 0 | 7 |
| 7/20/2011 | 30.3 | 19.4 | 0 | 39 | 17 |
| 8/10/2011 | 21.2 | 16.9 | 7.1 | 48 | 22 |
| 8/11/2011 | 23.2 | 15.1 | 0 | 39 | 16 |
| 8/12/2011 | 24.9 | 18.2 | 0 | 0 | 11 |
| 8/15/2011 | 22.9 | 11.5 | 0 | 41 | 15 |
| 8/16/2011 | 23.2 | 11.4 | 0 | 41 | 7 |
| 9/7/2011 | 19.5 | 11 | 0 | 37 | 18 |
| 9/8/2011 | 22.8 | 14 | 0 | 32 | 14 |
| 9/9/2011 | 23.8 | 13.3 | 0 | 0 | 13 |
| 9/15/2011 | 12.7 | 6.6 | 4.5 | 50 | 20 |
| 9/21/2011 | 22.8 | 11.5 | 0.3 | 44 | 15 |
| 9/22/2011 | 19.5 | 13.7 | 0 | 35 | 13 |
| 9/23/2011 | 15.5 | 13 | 20 | 32 | 9 |
| 9/27/2011 | 20.3 | 12.4 | 3 | 0 | 7 |
| 10/3/2011 | 12.6 | 8.8 | 4.9 | 0 | 11 |
| 10/4/2011 | 15.8 | 4.7 | 0 | 0 | 8 |
| 10/5/2011 | 18.9 | 5.7 | 0 | 0 | 9 |
| 10/13/2011 | 16.9 | 13.2 | 4.3 | 0 | 9 |
| 10/14/2011 | 15 | 10.4 | 11.4 | 61 | 24 |
| 11/7/2011 | 13.6 | 9.9 | 0 | 37 | 20 |
| 11/8/2011 | 16 | 8.9 | 0 | 0 | 9 |
| 11/9/2011 | 16.4 | 6.3 | 1.5 | 70 | 24 |
| 11/29/2011 | 3.4 | 0.3 | 34.8 | 54 | 23 |
| 12/12/2011 | 2.5 | -3.2 | 0 | 32 | 14 |
| 12/13/2011 | 4.5 | 0.2 | 0 | 0 | 10 |
| 4/16/2012 | 20.2 | 3.8 | 0 | 67 | 32 |
| 4/17/2012 | 4.9 | -1.4 | 0 | 39 | 20 |
| 4/18/2012 | 13.6 | -2.8 | 0 | 33 | 15 |

| Field Date | Max Temp (°C) | Min Temp (°C) | Total Precip (mm) | Speed of Max Gust (km/h) | Average Wind Speed (km/hr) |
|------------|---------------|---------------|-------------------|--------------------------|----------------------------|
| 4/19/2012 | 11.3 | 6.9 | 0 | 41 | 18 |
| 4/23/2012 | 7.4 | 3.3 | 0 | 67 | 30 |
| 4/24/2012 | 8 | -1.3 | 0 | 65 | 28 |
| 4/25/2012 | 12.8 | -2.8 | 0 | 0 | 7 |
| 4/26/2012 | 9 | 2.5 | 0.4 | 59 | 24 |
| 4/27/2012 | 5.8 | -4.7 | 0 | 48 | 24 |
| 4/30/2012 | 10.2 | 3 | 5.7 | 44 | 19 |
| 5/1/2012 | 11.7 | 6.1 | 0.6 | 0 | 7 |
| 5/2/2012 | 21.8 | 4.5 | N/A ¹ | 0 | 17 ² |
| 5/3/2012 | 27.3 | 9.1 | 26.2 | 56 | 13 |
| 5/7/2012 | 16.2 | 9.9 | 7.5 | 43 | 14 |
| 5/8/2012 | 15.7 | 7.3 | 0 | 0 | 7 |
| 5/9/2012 | 12 | 6.1 | 0 | 39 | 12 |
| 5/17/2012 | 12 | 0.7 | 0 | 0 | 9 |
| 5/18/2012 | 20.6 | 3.6 | 0 | 0 | 8 |
| 5/31/2012 | 14.6 | 7.6 | 0 | 39 | 16 |
| 6/5/2012 | 17.2 | 8.8 | 0 | 0 | 13 |
| 6/6/2012 | 17.4 | 8.7 | 0 | 0 | 7 |
| 6/7/2012 | 19.1 | 8.6 | 0 | 0 | 8 |
| 6/11/2012 | 27.8 | 19.8 | 1.3 | 35 | 14 |
| 6/13/2012 | 15.7 | 9.4 | 0 | 41 | 20 |
| 6/28/2012 | 32 | 18.9 | 0 | 0 | 11 |
| 6/29/2012 | 27.9 | 15.2 | 0 | 0 | 9 |
| 7/3/2012 | 26.5 | 20 | 4.6 | 46 | 15 |
| 7/4/2012 | 28.2 | 19.5 | 0 | 33 | 12 |
| 7/5/2012 | 29 | 17.4 | 0 | 0 | 8 |
| 7/12/2012 | 26.8 | 9.6 | 0 | 0 | 8 |

¹ At the time of this report, Environment Canada's National Climate Data and Information Archive did not have this information available.

² At the time of this report, Environment Canada's National Climate Data and Information Archive did not have the wind speed from 12 p.m. to 2 p.m. The average wind speed, therefore, was calculated using the wind speed data available.

Appendix F

Ecological Land Classification (ELC) Abbreviations

ELC ABBREVIATIONS

Cultural Plantations

CUP1a: Eastern Cottonwood Deciduous Plantation Type
CUP1b: Bur Oak Deciduous Plantation Type
CUP1c: Black Walnut - Red Oak Deciduous Plantation Type
CUP2a: White Pine - Carolina Poplar Mixed Plantation Type
CUP2b: White Pine - White Ash - Trembling Aspen Mixed Plantation Type
CUP3a: Scots Pine - White Pine Coniferous Plantation Type
CUP3c: Colorado Spruce Coniferous Plantation Type
CUP3d: White Pine - Red Pine - Scots Pine - Balsam Fir Coniferous Plantation Type
CUP3e: White Pine - Red Pine - Norway Spruce - White Spruce Coniferous Plantation Type

Cultural Thicket Communities

CUT1h: Green Ash Mineral Cultural Thicket Type
CUT1i: Green Ash - Manitoba Maple Mineral Cultural Thicket Type
CUT1j: Hawthorn - Apple - Buckthorn Mineral Cultural Thicket Type
CUT1k: Hawthorn Mineral Cultural Thicket Type

Cultural Woodland Communities

CUW1b: Ash - Basswood Mineral Cultural Woodland Type
CUW1c: Green Ash - Apple - Hawthorn Mineral Cultural Woodland Type
CUW1d: Black Walnut Mineral Cultural Woodland Type
CUW1e: Sweet Cherry - White Elm Mineral Cultural Woodland Type
CUW1h: White Elm Mineral Cultural Woodland Type
CUW1m: Green Ash - Hawthorn Mineral Cultural Woodland Type

Forest Communities

FOD4a: Dry - Fresh White Ash - Paper Birch - Cottonwood - White Cedar Deciduous Forest Type
FOD4b: Dry - Fresh Basswood - White Elm - Bitternut Hickory - White Ash Deciduous Forest Type
FOD4c: Dry - Fresh White Ash - Paper Birch Deciduous Forest Type
FOD4d: Dry - Fresh Trembling Aspen Deciduous Forest Type
FOD4e: Dry - Fresh Large-tooth Aspen Deciduous Forest Type
FOD4f: Dry - Fresh White Ash - Basswood Deciduous Forest Type
FOD4g: Dry - Fresh Green Ash Deciduous Forest Type
FOD5b: Dry - Fresh Sugar Maple - White Ash - Basswood Deciduous Forest Type
FOD7d: Fresh - Moist White Elm - Ash - Hawthorn Deciduous Forest Type
FOD7e: Fresh - Moist Green Ash - White Elm Deciduous Forest Type
FOD7f: Fresh - Moist Basswood - White Elm - Freeman's Maple - Green Ash Lowland Deciduous Forest Type
FOD9a: Fresh - Moist Bitternut Hickory - Basswood - Ironwood - Bur Oak Deciduous Forest Type
FOD9b: Fresh - Moist Shagbark Hickory - White Ash - Beech Deciduous Forest Type
FOD9c: Fresh - Moist Bitternut Hickory - Basswood Deciduous Forest Type
FOD9d: Fresh - Moist Shagbark Hickory - Green Ash Deciduous Forest Type

FOD9e: Fresh - Moist Shagbark Hickory - Sugar Maple - American Beech - Blue Beech Deciduous Forest Type

Marsh Communities

MAM2a: Missouri Willow Mineral Meadow Marsh Type

Deciduous Swamp Communities

SWD2a: Shagbark Hickory - Green Ash Deciduous Swamp Type

SWD4a: Swamp Maple - Green Ash Deciduous Swamp Type

SWD4b: Green Ash - Trembling Aspen Mineral Deciduous Swamp Type

SWD4c: Cottonwood Mineral Deciduous Swamp Type

Thicket Swamp Communities

SWT2a: Green Ash - Freeman's Maple Mineral Thicket Swamp Type

SWT2b: Grey Dogwood - Red Osier Dogwood - Sandbar Willow Mineral Thicket Swamp Type

Appendix G

Bat Monitoring Report