



Research, Education and Conservation in the Great Lakes Region

**Fall 2010  
Volume 5**

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**Providing Answers to Conservation-  
Based Questions**

Welcome to the fifth edition of the Long Point Waterfowl Newsletter. Long Point Waterfowl's primary mandate is to conduct research that will help facilitate the management and conservation of waterfowl and wetlands in the Great Lakes region.

Long Point Waterfowl also makes substantial contributions to graduate, undergraduate and youth training and development. We also promote our outdoor heritage through various education programs and social media. Long Point Waterfowl staff, students and volunteers made significant progress in all areas of influence over the past year, including:

- Five papers were published or accepted for publication in peer-reviewed journals
- Taught two University of Western Ontario undergraduate courses
- Supervised and supported six graduate students two of which recently graduated
- Received an Ontario Trillium Foundation Grant, allowing for considerable upgrades to our Research & Education Centre
- Nineteen youth (between 12-16 yrs) participated in our Youth Hunting and Wildlife Heritage Workshop
- Twenty-two youth and undergraduate students received field and laboratory training with Long Point Waterfowl staff and students.
- Made various contributions to conservation through our research and advocacy



**Interested in learning more about Long  
Point Waterfowl?**

Please visit our website [www.birdscanada.org/lpw.html](http://www.birdscanada.org/lpw.html).

To be put on the mailing or e-mail list for this annual newsletter or other Long Point Waterfowl news contact us at [LongPointWaterfowl@birdscanada.org](mailto:LongPointWaterfowl@birdscanada.org)



## About Long Point Waterfowl

Long Point Waterfowl is a non-profit, non-government organization dedicated primarily to the study and conservation of waterfowl and wetlands throughout the lower Great Lakes. By making the results of our work available to the public and scientific community, we make substantial contributions to science and are a strong voice for conservation.

Long Point Waterfowl is also committed to supervising and supporting graduate student (M.Sc. and Ph.D.) research on waterfowl- and wetlands- related projects, as well as to providing a diversity of educational opportunities for undergraduate students. Long Point Waterfowl also has a youth mentorship and education program as this is very important to the future development of wildlife biologists and appreciation of our outdoor heritage. Our education program is designed to give students and young aspiring biologists an increased understanding and appreciation of wildlife ecology, management, and conservation.

Long Point Waterfowl is administered by Bird Studies Canada and is supported primarily by Bluff's Club members. Long Point Waterfowl also receives generous support from various other individuals and organizations, including Ducks Unlimited Canada, the Waterfowl Research Foundation, Delta Waterfowl, Ontario Federation of Anglers and Hunters, Kenneth M. Molson Foundation, Order of Good Cheer, Bayou Club, Ontario Power Generation, the Sam Johnson Graduate Scholarship, Wildlife Habitat Canada, Ontario Ministry of Natural Resources, and the Canadian Wildlife Service.



Lisa Kennedy (technician) and Lindsay Ware (graduate student) web tag a duckling

## Long Point Waterfowl's Research & Education Centre

In 2007, Long Point Waterfowl signed a long-term Memorandum of Understanding (now extended until 2027) with the Ontario Ministry of Natural Resources to use a Junior Ranger Camp near Long Point, now named the Long Point Waterfowl Research & Education Centre. Use of this facility is very important for Long Point Waterfowl as it was becoming increasingly difficult to find local housing for our students, technicians and volunteers as well as appropriate venues for the various courses that we teach. The 40 acre facility has accommodation space for approximately 50 people as well as a large kitchen/dining hall, a conference room that can accommodate 100 people as well as numerous buildings to store field equipment. Since 2007 the Research & Education Centre has been used

extensively by Long Point Waterfowl's staff, students, youth and volunteers.

The Research & Education Centre also provides learning and development opportunities for youth and professionals from a broad array of conservation-based organizations within Ontario. For example, during 2010 the Research & Education Centre was utilized by staff working for the Ontario Ministry of Natural Resources, Ducks Unlimited Canada, Delta Waterfowl, Ontario Federation of Anglers & Hunters, Bird Studies Canada, and Norfolk County, as well as by graduate students studying at various universities. Several youth (Ducks Unlimited Greenwing Event, Youth Hunting & Wildlife Heritage Workshop, Simcoe Rotary Club, and Simcoe Scouts) and adult training events (Ecological Land Classification, Delta Waterfowl and Ontario Ministry of Natural Resources) were also held at the Research & Education Centre during 2010.



**All the main Research and Education Centre buildings now meet Ontario Disability Access standards**

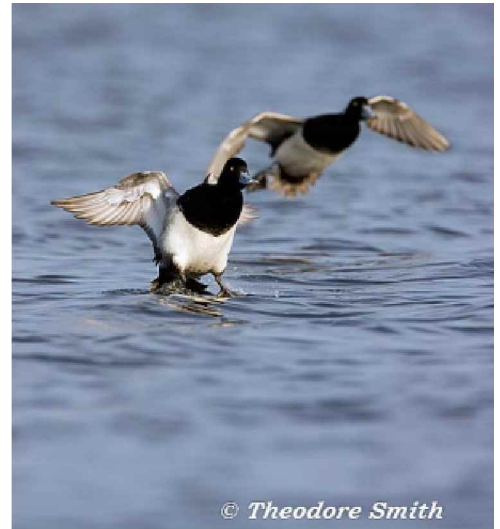


**Thanks to the Ontario Trillium Foundation all bunkhouse washrooms have been modernized**

Since 2007, Long Point Waterfowl has utilized rental fees, private donations and government grants to operate and make extensive upgrades to the facility. Long Point Waterfowl recently received another generous donation from the Ontario Trillium Foundation which enabled us to completely remodel the Bunk House washrooms (including one wheelchair accessible washroom in each building), replace all the windows in the Bunk Houses, re-cover the mattresses throughout the facility and provide wheelchair access to one Bunk House, the Kitchen and Conference Room. We at Long Point Waterfowl would like to thank the Ontario Ministry of Natural Resources for giving us the opportunity to use this facility as well as to the Ontario Trillium Foundation and a number of private donors for their financial support. We are happy to report that most of the major Research & Education Centre upgrades are complete.

## Long Point Waterfowl's Lesser and Greater Scaup Research Program

Long Point Waterfowl initiated its scaup research program in 1999 in response to declining continental scaup populations and the fact that little was known about the staging or wintering ecology of Lesser or Greater Scaup using the lower Great Lakes region. The continental scaup population began declining in the mid-1980s which corresponded with the period in which the number of staging and wintering scaup using in the lower Great Lakes increased substantially, presumably in response to the expansion and proliferation of Zebra and Quagga mussels (hereafter Dreissenid mussels). Several hypotheses were formulated by waterfowl experts to explain the long term population decline and its apparent lack of recovery. Long Point Waterfowl undertook several staff- and student- based research projects between 1999 and 2008 to test predictions of two major hypotheses, the spring condition hypothesis and the contaminants hypothesis, as well as to provide novel information on the staging, wintering and migration ecology of both Lesser and Greater Scaup using the lower Great Lakes.



Much of the Long Point Waterfowl's research has been focused on food chain transfer of contaminants, contaminant burdens in scaup and implications for health and survival of Lesser and Greater Scaup. Dreissenid mussels can bioaccumulate some organic contaminants and trace elements. Early studies by Long Point Waterfowl and other researchers have documented that scaup using the Canadian and US sides of the lower Great Lakes consistently consumed Dreissenid mussels and acquired liver selenium concentrations high enough to cause reproductive impairment in captive Mallards. In the mid-2000s, Long Point Waterfowl initiated a long-term satellite telemetry project to obtain more information on migration of scaup from the lower Great Lakes, specifically to determine how much time during spring female Lesser Scaup had available to depurate selenium prior to egg-laying. Hypothetical calculations based on departure selenium burdens in lower Great Lakes females, time spent in migration between the lower Great Lakes and presumed breeding locales and published data on nest initiation times corroborated contaminant burden studies on the breeding grounds that selenium in most birds was below levels associated with reproductive

problems. Similarly, a collaborative study Long Point Waterfowl undertook with researchers from Simon Fraser University and the US Geological Survey Alaska Science Center provided more evidence that selenium likely was not a major factor affecting female Greater Scaup body condition, breeding propensity, or egg/young development after arrival at a major breeding area at the Yukon-Kuskokwim Delta, Alaska.



Xray showing position of satellite transmitter within a scaup's abdominal cavity with external antenna

Much of Long Point Waterfowl's student- based research during the mid to late 2000s has focused on what effects elevated selenium burdens have on health and survival of staging and wintering Lesser and Greater Scaup. Lindsay Ware's M.Sc. research showed that nearly all Greater Scaup wintering at Hamilton Harbor, Lake Ontario had elevated liver selenium levels, but those burdens did not seem to cause



**Scaup Spring Migration Paths 2005-2009**



**Scaup Fall Migration Paths 2005-2008**

individuals to have reduced body condition nor exhibit signs of oxidative stress or visual indicators showing impoverished health. Caroline Brady's M.Sc. research was designed to determine overall health, body condition, and survival of scaup that hypothetically arrive in fall and spend the fall, winter and spring on the lower Great Lakes. Caroline's captive study showed that even individuals that were fed selenium at concentrations much higher than typically available in foods from the lower Great Lakes had acquired very high liver selenium burdens and had high survival rates that were similar to birds in control (background selenium in food) and intermediate (selenium normal for lower Great Lakes scaup foods) selenium dosage groups. Somatic fat reserves were lower in high dosage birds after 10 weeks of selenium exposure (analogous to a fall-staging period on the lower Great Lakes), but similar to control and intermediate birds after 23 weeks (end of winter period) exposure. Indices of oxidative stress and immune responses and other visual measures of overall health also were not negatively affected by increased selenium burdens. Based on Long Point Waterfowl's research (and that done by others to date), it seems that selenium, at least by itself, likely is not a major or widespread factor affecting population dynamics of Lesser or Greater Scaup.

Long Point Waterfowl's scaup research initiative has provided a wealth of information with respect to the contaminants hypothesis and in amassing evidence against selenium as a major contributing factor to the scaup problem in North America. Long Point Waterfowl's scaup satellite telemetry project remains active and will provide novel information about migration pathways and macrohabitat use of birds that typically use the lower Great Lakes during migration. Data from the 46 scaup implanted with satellite transmitters during springs 2005-2008, along with 10 additional birds implanted at Lake Erie in spring 2010, will also be used to evaluate timing of May Waterfowl Breeding Population and Habitat Surveys with respect to scaup migration in a collaborative study with Dr. Al Afton of the US Geological Survey and Louisiana State University. Past movements and those of the scaup implanted most recently can be viewed using "Scaup Tracker" on the Long Point Waterfowl website.



## Importance of the Lower Great Lakes for Staging and Wintering Waterfowl and Potential Impacts of Industrial Wind Turbine Developments

The Great Lakes provide habitat for millions of waterbirds that migrate within the Atlantic and Mississippi Flyways and also provide wintering habitat for significant populations of several species. The Ontario Government, through the Green Energy and Green Economy Act, is promoting the placement of thousands of onshore and offshore industrial wind turbines, most of which are located along the Great Lakes shorelines where large concentrations of waterbirds migrate, stage and winter. Long Point Waterfowl is concerned that placement of industrial wind turbines close to important staging, migratory and wintering habitats could adversely affect waterbirds through direct mortality (collisions) and/or displacement from important and traditionally used habitats. For instance, European studies have shown that waterbird use of traditionally used habitats declines substantially



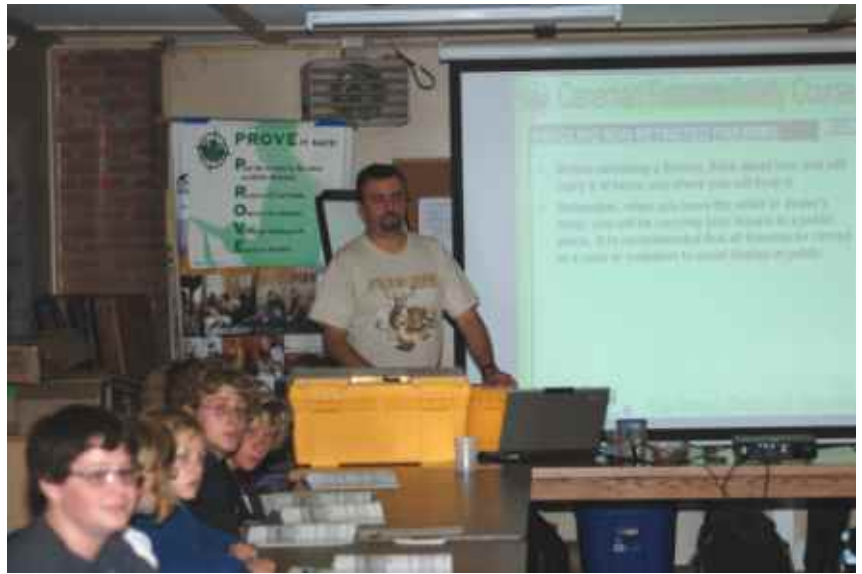
following the construction of closely associated onshore and offshore industrial wind turbines. Based on the potential for adverse impacts on waterbirds, Long Point Waterfowl has urged industrial wind turbine developers to not place turbines in or near important waterbird habitats and have requested that governments provide more restrictive requirements for industrial wind turbine setbacks and pre- and post- construction monitoring.

Long Point Waterfowl, in collaboration with the Canadian Wildlife Service, also expanded our lower Great Lakes shoreline and offshore surveys to provide more information on which regions of the lower Great Lakes should be protected from industrial wind turbine developments. During the winter and spring of 2009 and 2010 several offshore (1 and 3 kilometers) transects were flown to document the density of waterfowl and other waterbirds using potential offshore wind development areas. Long Point Waterfowl and the Canadian Wildlife Service hope to continue these pre-development surveys this fall to get a better understanding of the density and use of waterfowl and other waterbirds in proposed offshore wind development areas during fall migration.

Long Point Waterfowl in collaboration with the Canadian Wildlife Service and the Seaduck Joint Venture are also planning to surgically implant 20 Long-Tailed Ducks with satellite transmitters this winter as part of a new M.Sc. research project. Locations obtained from these birds will allow Long Point Waterfowl and others to better understand microhabitat use of wintering waterfowl on the lower Great Lakes. This information will also answer questions pertaining to any potential overlap between areas used by waterfowl and sites for potential offshore wind energy development. Please look for an update on these projects in future Long Point Waterfowl newsletters.

## Student Education

Long Point Waterfowl understands that graduate, undergraduate and youth education and training are key investments toward wildlife conservation and management. Through field and classroom instruction, Long Point Waterfowl encourages and mentors the next generation of wildlife researchers and managers. We currently offer a youth program (Youth Hunting & Wildlife Heritage Workshop), an undergraduate course at the University of Western Ontario (Wildlife Ecology & Management), an undergraduate field course (Wetland & Waterbird Ecology), and we annually supervise and support between 4 and 7 graduate students.



**Emad Hazboun instructs participants on hunter safety**

## Youth Hunting and Wildlife Heritage Workshop

Long Point Waterfowl understands the importance of mentoring today's youth in wildlife-related activities and introducing them to principals of wildlife management and our hunting heritage. In 2009 we developed our Youth Hunting & Wildlife Heritage Workshop. This program provides 12-16 year olds the opportunity to participate in hands-on activities that focus on our hunting heritage as well as wildlife conservation and management. The second annual Youth Hunting & Wildlife Heritage Workshop was extremely successful with 19 youth from across Ontario participating in five days of



**Jude St. John, Avery Pro Staff, gives some tips on decoy placement**

instruction, fun, and hands-on activities. Participants took their Ontario Hunter Safety and Canadian Firearms Training courses, participated in retriever training, decoy placement and game cooking, watched a taxidermy demonstration from one of Canada's premier taxidermists (Rick Davis), and shot .22 caliber rifles and shotguns at the Waterford Sportsman's Club. All participants also received a one year membership with Delta Waterfowl, Ducks Unlimited Canada and the Ontario Federation of Anglers and Hunters. Please visit our website for more information and to download an application for the 2011 workshop.

## Undergraduate Teaching

Future wildlife professionals need to have a good understanding of wildlife and habitat management, as well as the role of hunting in wildlife conservation. Management-based wildlife courses are being discontinued at many Canadian universities, and thus, many individuals starting careers in resource management / conservation often are ill equipped to deal with today's management issues. Based on this, Long Point Waterfowl is committed to teaching undergraduate courses that provide students with an increased understanding and appreciation of wildlife and habitat management/conservation. Our undergraduate program also provides students with opportunities to receive training in experimental study design, statistical analysis, and scientific writing through Honors projects.

## Graduate Student Program

It is our philosophy that the best way to conduct leading-edge research and train future waterfowl and wetland professionals is through properly supervised and well-funded graduate students. Long Point Waterfowl is committed to supervising and supporting (financially and logistically) graduate students (M.Sc. and Ph.D.) as they conduct research on waterfowl- and wetland- related projects. Long Point Waterfowl staff annually supervise and advise between 4 and 7 graduate students through the University of Western Ontario. Current graduate projects include studies of: 1)



© Ray St. John

**Participants, instructors and mentors of the 2010 youth workshop**



**Ted Barney demonstrates the palatability of cattail with 2010 field course students**



**Amanda Richmand (honors student) holding a Red-breasted Merganser.**

wintering ecology of Canvasbacks and Redheads on Lake St. Clair (Rob Baden), 2) Least Bittern habitat use (Nick Bartok), 3) current and long-term changes in abundance and distribution of submerged aquatic vegetation and Dressined mussels in Long Point Bay (Robin Churchill), and 4) population dynamics and habitat use of Sandhill Cranes on the north shore of Lake Huron (Everett Hanna). Dave Messmer recently defended his M.Sc. project on effects of wetland density on waterfowl settling patterns in Ontario.

## Wintering Ecology of Canvasbacks and Redheads on Lake St. Clair and the Detroit and St. Clair Rivers

**Primary Investigator:** Rob Baden, M.Sc. Candidate

**Co-supervisors:** Dr. Scott Petrie and Dr. Jack Millar (University of Western Ontario)

The lower Great Lakes have historically been an important staging and wintering area for waterfowl. Recently, increasing numbers of diving and sea-ducks have wintered on the lower Great Lakes, including Lake St. Clair and the Detroit and St. Clair Rivers. Waterfowl that over-winter in northern climates encounter weather conditions that may limit access to food resources.

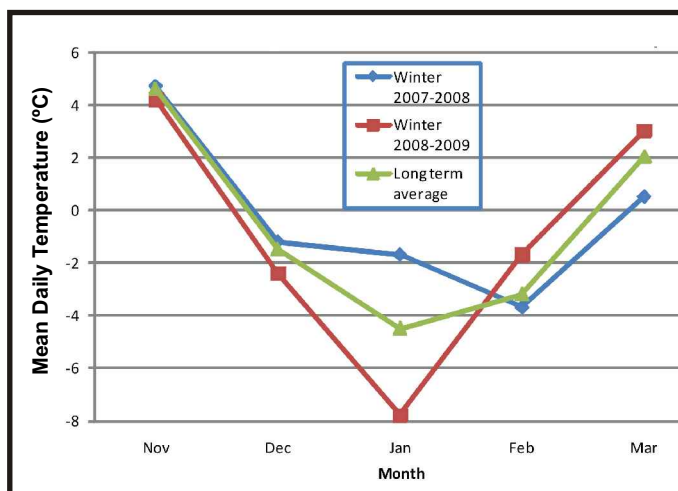


Rob measures a Canvasback prior to dissection  
© Theodore Smith

Rob is investigating the tradeoffs associated with wintering at northern latitudes in two diving ducks, Canvasbacks and Redheads, by analyzing changes in each species' lipid and protein reserves, diet, and foraging behaviours throughout winter. Canvasbacks ( $n = 148$ ) and Redheads ( $n = 66$ ) were collected from Lake St. Clair and the Detroit and St. Clair Rivers from 8 November 2008 to 7 March 2009; birds from a 2008 winter die-off were also included in the study.

Initial results showed that mean body mass, lipid, and protein levels of Canvasbacks and Redheads were well above values recorded for each species collected during the 2008 winter die-off. Few of the birds collected during 2008/09 had lipid levels less than 10% of their body weight. Increases in body mass and lipid levels during February and early March, prior to spring migration, suggest that food availability was not limiting during the winter of 2008/2009.

Diets of these two diving duck species did not vary much throughout winter. Canvasbacks primarily consumed tubers of wild celery, whereas Redheads consumed muskgrass and the stems and leaves of various pondweed species. Both species foraged almost exclusively in shallow, open water habitats on Lake St. Clair during the fall and early winter, and moved to open, fast water areas of the St. Clair and Detroit Rivers as the lake froze in January. Zebra mussels occurred in a small percentage of the collected birds' diets and were likely ingested accidentally.



Mean daily temperatures during winter 2007/2008 and 2008/2009 in the Lake St. Clair region compared with long term average.

January temperatures during 2008 were warmer than the long term average (see figure), and resulted in a larger number of birds remaining in the Lake St. Clair region until temperatures plummeted in late January and early February. The increased foraging pressure on food resources by staging birds in January, and the below average temperatures in February are likely factors that contributed to the starved birds found during the winter of 2007/2008. January temperatures during 2009 were colder than normal, but moderated above long term averages in February and March. Overall, Canvasbacks and Redheads fared well during the winter of 2008/2009 in the Lake St. Clair region. Access to food resources, limited mainly by ice, appears to be the main obstacle for these over-wintering duck species.

## Habitat Variables Influencing Site Selection of Least Bitterns in Northern Lake Erie Wetlands

**Primary Investigator:** Nick Bartok, M.Sc. Candidate

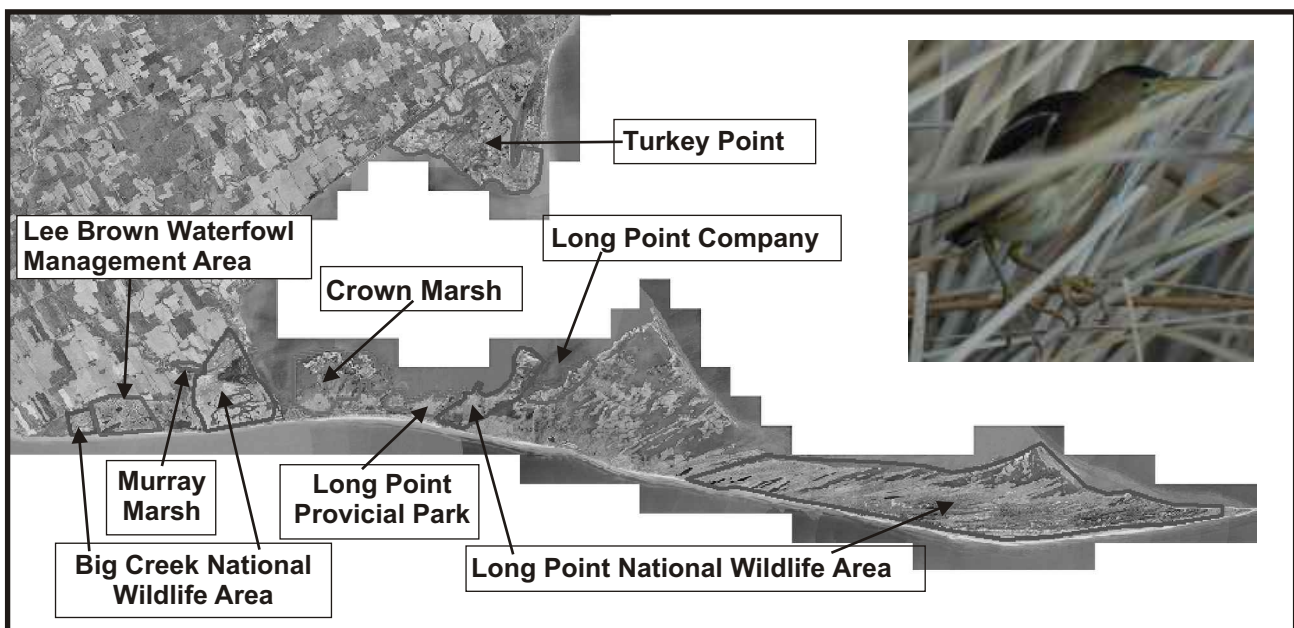
**Co-supervisors:** Dr. Scott Petrie and Dr. Hugh Henry (University of Western Ontario)

Despite that Least Bitterns are found throughout most of the New World, little is known about their population status or habitat use. This lack of knowledge can largely be attributed to their secretive nature and limited research and monitoring. In Canada, Least Bitterns are designated as 'Threatened', as there are only an estimated 1500 pairs in the country. In order to make sound wetland management decisions to protect, maintain or increase bittern populations, a detailed study of habitat use was warranted.



Nick collecting habitat data

The project was initiated at Long Point in summer 2008 and was subsequently expanded in 2009. Nick assessed several wetland habitat variables that might influence Least Bittern site selection. Surveys were completed in 8 wetlands (see below), on 38 survey routes, encompassing 351 survey points. A total of 1,486, 13 minute point counts were completed, with 984 Least Bittern detections (96 individuals in 2008 and 196 in 2009). In 2009, percentage of vegetation cover was estimated at all 351 survey stations using 50m-radius plots and 211 habitat assessments were conducted using transect and quadrat methods. Nick also used GIS to see if there was a relationship between interspersion (ratio of open water to vegetation) and relative abundance of Least Bitterns. Results from the circle plot data suggest that Least Bitterns selected areas with a higher percent cover of cattail and avoided areas with Phragmites, grass/sedge, and trees/shrubs. Results from the habitat assessments suggest that dead cattail and the height of the dead cattail are the main factors associated with Least Bittern presence. Results suggest that wetlands should be managed in a hemi-marsh state (50:50 open water to vegetation) to protect, create or maintain Least Bittern habitat and that expansion of Phragmites could be adversely affecting Least Bitterns. These results will be used to create Best Management Practices and provide data to the Least Bittern Recovery Team.



Long Point Wetland areas used to investigate Least Bittern site selection and habitat use

## Seasonal and Long-Term (1995-2009) Changes in the Distribution and Abundance of Submerged Aquatic Vegetation and Dreissenid Mussels in Inner Long Point Bay, Lake Erie

**Primary Investigator:** Robin Churchill, M.Sc. Candidate

**Co-supervisors:** Dr. Scott Petrie and Dr. Hugh Henry (University of Western Ontario)

Coastal wetlands associated with the lower Great Lakes provide important food and habitat to a variety of wetland-dependant species. There has been substantial drainage of coastal wetlands within the lower Great Lakes region, thereby increasing the importance of remaining habitat for wetland-affiliated organisms. However, remaining wetlands have been altered or degraded by various stressors, including the introduction of exotic plants and invertebrates (e.g., Dreissenid mussels). These introductions can cause changes in the species composition and/or biomass of submerged aquatic vegetation, both of which can affect carrying capacity for staging waterfowl and other aquatic organisms. Therefore, it is essential to periodically monitor and assess changes in the biomass and community composition of submerged aquatic vegetation as well as Dreissenid mussel populations.



Robin sampling vegetation during late winter

Robin and his small army of research technicians, co-op students, and volunteers (26 in total) have been diving in Long Point Bay over the past year to collect samples. Robin sampled Inner Long Point Bay (321 sampling stations) during late summer 2009 (end of the growing season and prior to fall migration), March 2010 (late winter and start of spring migration) and in May 2010 (late spring and end of spring migration).

The main focus of this research is to determine the current distribution, biomass, and species composition of aquatic plants and Dreissenid Mussels within Long Point Bay. Robin will also assess



Robin accepting his research grant award from the Ontario Federation of Anglers and Hunters

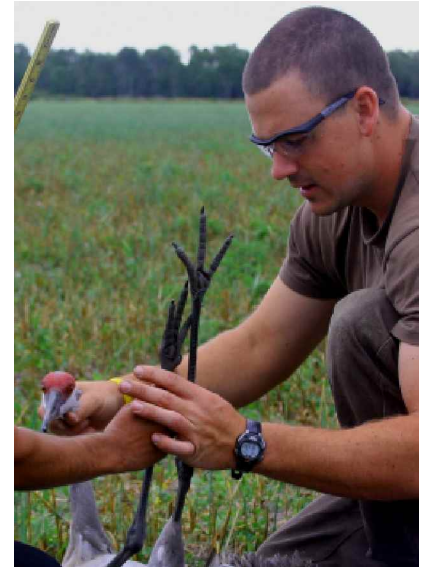
how waterfowl food availability varies throughout the annual cycle. Preliminary results suggest that there are substantial seasonal declines (from late summer to late spring) in both submerged aquatic vegetation and Dreissenid mussel biomass. Furthermore, Robin has noticed a decline in overall numbers of Dreissenid mussels between the mid 1990s and 2009, which could have implications for the distribution and species composition of submerged aquatic plants. This fall Robin will map the distributions of both submerged aquatic plants and Dreissenid mussels to provide a clear view of current conditions as well as how community composition has changed over the past 15 years.

## Habitat Use, Migratory Behaviour, and Vital Rates of Sandhill Cranes on the North Shore of Lake Huron, Ontario.

**Primary Investigator:** Everett Hanna, M.Sc. Candidate

**Co-supervisors:** Dr. Scott Petrie and Dr. Jack Millar (University of Western Ontario)

Greater Sandhill Cranes in the Great Lakes Region of Ontario belong to the Eastern Population; there are five additional populations of Sandhill Cranes in North America. Over the last four centuries the species experienced substantial declines in North America, including significant losses within the Eastern Population. This population has since been reestablished and is causing crop damage, particularly along the North Shore of Lake Huron, Ontario, including Manitoulin and St. Joseph Islands to the south. At present, the Canadian Wildlife Service is investigating the viability of a localized harvest to mitigate these damages. Before making this decision, however, the Canadian Wildlife Service requires specific information pertaining to population dynamics and habitat use. In the fall of 2009, Everett conducted population surveys along the North Shore as well as on both Manitoulin and St. Joseph Islands. These surveys yielded a minimum population estimate of nearly 9,000 birds during October 7-8 and monthly estimates of fall recruitment (mean proportion of hatch-year birds) of approximately 13% and 14% in September and October, respectively.



**Everett attaching a transmitter to a Sandhill Crane**

During 2010, Everett is studying regional variation in crane recruitment, as well as daily and seasonal habitat use and movements of cranes breeding in and migrating through the North Shore region. During July and August 2010, ten cranes were captured and affixed with solar-powered GPS tracking units on Manitoulin Island. The units have an expected life of 3-5 years and will collect four GPS fixes ( $\pm 20\text{m}$  accuracy) per day over their entire life. These data will provide insight to the migratory behaviour of local cranes, including departure and arrival dates. This information will be used in the management and conservation of the species in Ontario and beyond.



**Manitoulin Island roost and field-feeding locations of Sandhill Cranes tracked using solar-powered GPS transmitters during summer 2010**



**Technicians, Aniruddha Dhamorikar (left) and Scott Bossuyt (right), record physical measurements**

In addition to these GPS data, information relating to habitat use, roost site characteristics and use, age-ratios, and population size are also being collected on Manitoulin Island from July to late October.

## Habitat Associations of Breeding Mallard and Canada Goose Pairs Measured at Four Spatial Scales in Southern Ontario, Canada

**Primary Investigator:** Dave Messmer, M.Sc.

**Co-supervisors:** Dr. Scott Petrie and Dr. Jack Millar (University of Western Ontario)

Waterfowl produced in southern Ontario contribute substantially to regional sport harvest. From 1997-2000 Ducks Unlimited Canada conducted an assessment of the productivity of Mallards breeding in southern Ontario. Female Mallards were radio-marked and tracked throughout the breeding season to determine several important vital rates. Overall, recruitment of female ducklings to 30 days post-hatch was higher than reference areas in the prairie pothole region. However, breeding pair densities in southern Ontario are markedly lower. Because pairs returning from wintering areas settle to breed based on habitat availability, the assessment concluded that protecting, enhancing, and restoring wetlands would be the most cost-effective strategy to increase the southern Ontario Mallard breeding population.

The next logical step was to determine which wetland and upland habitat characteristics cause ducks to settle in a given area. Ducks respond to habitat cues viewed at several spatial scales (i.e., from very large landscapes all the way down to the characteristics of a particular wetland). Existing research in southern Ontario was limited by having only evaluated these associations at the wetland scale. Multi-spatial scale studies exist for the prairie regions, however habitats in southern Ontario differ considerably and it was determined that new region-specific information would be needed for effective conservation planning.



Dave discussing his results at the Fifth North American Duck Symposium



Southern Ontario wetland surveyed for breeding waterfowl

In 2008 and 2009 Dave used helicopter surveys of breeding waterfowl in sample sites that represented the various wetland and upland habitat configurations available in southern Ontario. A geospatial database of waterfowl pair locations, wetland types, and upland land use was compiled using survey results, aerial photography, and satellite imagery. From this database Dave sampled habitat characteristics around breeding pairs at several spatial scales (25 km<sup>2</sup>, 500 m and 250 m radius buffers, and wetland-scale).

Dave was also able to use this data to evaluate habitat associations of temperate-breeding Canada Goose pairs. Canada Goose populations have substantially increased

throughout southern Ontario and much of temperate North America, but to date there has been little research to determine what habitat associations exist. Although anecdotal evidence suggests that Canada Goose pairs are more influenced by smaller scale habitat features (e.g., muskrat huts for nest sites) and family philopatry than Mallards, Dave's results still provide important information on larger scale associations. In addition, Dave was able to use the spatial dataset to test the hypothesis that Canada Goose pairs competitively exclude Mallards from breeding habitat.

For both species Dave developed mathematical models to represent settling patterns at each spatial scale. This process requires that the relationships between habitat variables and corresponding breeding pair responses be explicitly defined. This represents an important objective of conservation planning under the North American Waterfowl Management Plan. Dave's models confirmed that spatial scale of analyses influences results, and that some habitat features are important at several scales.

Mallard breeding pairs were positively associated with densities of temporary open-water (sheet-water), emergent wetlands, and perennial field upland land use (pasture, hayland, idle land) at several spatial scales. These associations would not have been evident if analyses were only performed at the wetland scale as in previous studies. Additionally, riverine wetlands had a relatively large but highly variable effect on Mallard settling patterns.



**Aerial Photo showing 500 meter wetland buffer**

Canada Goose results were more scale-dependent, but densities of riverine, forested and permanent open-water wetlands and the area of emergent wetlands and annually cropped fields were important. Dave's results did not support the hypothesis of competitive exclusion of Mallards. In contrast there was a positive spatial association between the two species at the scales sampled.

By providing an explicit understanding of which habitat characteristics influence where Mallard pairs settle, managers can now predict pair densities based on habitat information and also assess what conservation actions are required to increase carrying-capacity in specific landscapes. Similarly, these results provide a first step in understanding the habitat associations of temperate-breeding Canada Goose pairs and will inform conservation planning in southern Ontario.

Dave completed his M.Sc. at the University of Western Ontario in May 2010. He is presently studying the population dynamics of Lesser Scaup in southwestern Montana with the U.S. Fish and Wildlife Service.

## Graduate Student Publication Highlights

### Seasonal Abundance and Species Richness of Birds in Common Reed, Cattail, and Meadow Marsh Habitats at Long Point, Lake Erie, Ontario (Journal of Wildlife Management. 74:1559-1567).

Shawn Meyer, Shannon Badzinski, Scott Petrie, and Dave Ankney.

Common reed (*Phragmites australis*) is a large, perennial rhizomatous reed that grows in many wetlands across North America. The native genotype of this plant has existed in North America for over 3,000 years while the non-native genotype was introduced from Europe into Eastern North America sometime within the last two centuries. This introduction, in conjunction with other stressors, has allowed non-native common reed to rapidly expand and replace meadow marsh and cattail in many wetlands. This habitat change has affected some wetland functions (e.g., nutrient cycling) thereby potentially affecting many birds that depend on this ecosystem.



Shawn is currently a Waterfowl Biologist with the Canadian Wildlife Service

The objectives of our study were (1) to determine if the number and species of birds using common reed differed from those using cattail and meadow marsh during breeding (May-July) and fall migration (Sept-Nov), and (2) to determine if the size of common reed stands affected bird use. To meet these objectives, we systematically laid out survey stations in three study areas at Long Point, Lake Erie, Ontario. Stations were then assigned a habitat type. Bird surveys were conducted using 10 minute point counts with call playbacks of secretive marsh birds broadcasted during breeding surveys.

Our results showed that common reed provided habitat to many birds, including some wetland birds. We detected more landbirds (e.g., warblers, sparrows) in common reed during the breeding season

and more birds (in general) in common reed during fall migration compared to cattail and meadow marsh. Fewer marsh-nesting birds (e.g., rails), however, used common reed (and cattail) compared to meadow marsh during the breeding season. Finally, bird use of large stands of common reed depended on stand flooding.

Use of common reed by landbirds is not surprising given the physical characteristics of common reed closely emulate those of adjacent shrub and forest habitats; preferred nesting/foraging habitat



Aerial photo showing extensive stands of common reed

of these birds. Moreover, during migration, dense common reed stands may reduce predation risk by impeding predators and provide shelter from harsh weather by providing cover. For marsh-nesting birds, a lack of nest building material in common reed and a high diversity of food (seeds, bugs, frogs) and easy access to these resources in meadow marsh explains the difference in habitat use by these birds. Large stands of common reed particularly edges, however, provide foraging habitat for some wetland birds when water levels are high and stands become flooded resulting in moist soils; preferred foraging habitat of wetland birds, such as Virginia Rails.

Where management of breeding marsh-nesting birds is a conservation objective in the lower Great Lakes, wetland managers should consider reducing coverage of common reed and restoring meadow marsh habitat. Habitat management activities should focus on large stands of common reed, particularly those adjacent to meadow marsh or other diverse habitat types. If common reed cannot be eliminated, we suggest reducing area, increasing amount of edge, and improving stand structural diversity and local habitat diversity to increase its use by marsh-nesting birds. This could be accomplished by creating irregularly-shaped channels and ponds or openings within common reed stands to improve habitat heterogeneity similar to recommendations in other wetland management strategies.

## **Artifact ingestion in sea ducks wintering at northeastern Lake Ontario. (Waterbirds. *In Press*)**

**Michael Schummer, Ian Fife, Scott Petrie, and Shannon Badzinski.**

Lead can accumulate in aquatic habitats through spent shotgun pellets and loss of fishing weights. Research suggests that lead is often concentrated in specific locations because spatial and temporal availability of shotgun pellets and fishing weights is primarily related to wetland substrate type and intensity of hunting and fishing activity. Waterfowl periodically ingest shotgun pellets and fishing weights when foraging for grit to aid in grinding food in the gizzard. Toxicosis from lead ingestion can cause reduced body condition and altered behaviour, potentially resulting in reduced reproductive output or mortality. For these reasons, use of shotgun shells containing lead shot was banned for waterfowl hunting in the United States in 1991 and in 1999 in Canada. To further reduce availability of lead to waterbirds, lead fishing weights were banned within Canadian national parks and national wildlife areas in 1997. Currently, Canada-wide options are being investigated to minimize the risk to waterbirds from lead fishing weights and jigs.

Prior to our study there was no published data on incidences of artifact ingestion in sea ducks at the lower Great Lakes. Nearly a half-million waterfowl are counted annually during the lower Great Lakes January Waterfowl Survey and Long-tailed Ducks, Common Goldeneyes, and Bufflehead are three of the more



Mike is currently conducting post-doctorate research

common species. As part of a larger Long Point Waterfowl research project on sea ducks, lead artifact ingestion was evaluated in 269 Buffleheads, 224 Common Goldeneyes, and 256 Long-tailed Ducks collected at Lake Ontario during winter



2002-03 and 2003-04 (3 and 4 years following the ban on use of lead shot for waterfowl hunting in Canada). Long-tailed Ducks ingested total shot (lead and steel shot combined) more frequently (6.6%) than did Common Goldeneyes (1.8%) and Buffleheads (0.4%). Lead shot was ingested by Long-tailed Ducks (5.1%), but was rare to non-existent in Buffleheads (0.4%) and Common

Goldeneyes (0.0%). One Long-tailed Duck, representing 0.1% of all specimens, ingested one lead fishing weight.



A 5% ingestion rate has been suggested as an acceptable threshold for lead shot in American Black Ducks and Mallards. About 2% of Long-tailed Ducks in our study had ingested > 1 lead pellet, a number deemed necessary to cause substantial mortality in waterfowl. Ducks foraging over limestone rock substrate more commonly ingested lead shot than did those feeding over silt or gravel bottoms. One adult female Long-tailed Duck foraging over limestone rock substrate ingested 42 lead pellets indicates that lead persists and can be abundant at some locales at Lake Ontario.

**Collecting sea ducks on Lake Ontario**

Thus, ducks that specialize on prey associated with hard substrates may continue to ingest artifacts more than ducks using soft substrate marshes. Nonetheless, our results suggest lead toxicosis from spent shotgun shell pellets is presently non-existent to low in sea ducks wintering at northeastern Lake Ontario and that further restrictions on use of lead fishing tackle may have little implication for sea ducks in this region.



## Long Point Waterfowl Volunteers, Research Technicians and Co-op Students during 2010.

Long Point Waterfowl would like to acknowledge the enormous effort over the past year by all of our volunteers, research technicians and co-op students. Without their contributions we could not have conducted the projects presented in this newsletter. Thanks!

### Volunteers

Rob Baden, University of Western Ontario  
 Nick Bartok, University of Western Ontario  
 Jordan Bayne, University of Western Ontario  
 Brian Bell, Ontario Ministry of Agriculture, Food and Rural Affairs  
 Danny Bernard, Canadian Wildlife Service  
 Bill Blackwell, Board member, Ontario Federation of Anglers and Hunters  
 Stephen Bucciarelli, Predator Bird Services  
 Matthew Bossuyt, East Elgin High School  
 Robin Churchill, University of Western Ontario  
 Shauna Cowan, Canadian Raptor Conservancy  
 Rick and Daphne Davis, R. Davis Taxidermy  
 Brad Demeyer, Norfolk Environmental Stewardship Team  
 Darrell Dennis, Canadian Wildlife Service (retired)  
 John Diebolt, Ontario Ministry of Natural Resources (retired)  
 Sarah Dobney, Valley Heights Secondary School  
 Dan Elliot, Ontario Ministry of Natural Resources  
 Kate England, University of Western Ontario  
 Jim Etherington, Board member, Ontario Federation of Anglers and Hunters, Ontario Fish & Game Commission  
 Ian Fife, Trent University  
 Paul Gagnon, Long Point Regional Conservation Authority  
 Nick Gee, Walsh Public School  
 Greg Grabas, Canadian Wildlife Service  
 John Haggamen, Canadian Wildlife Service  
 Ed Hanna, DSS Management Consultants, Inc.  
 Everett Hanna, University of Western Ontario  
 Emad Hazboun, Hunter Education Instructor  
 Mark Hendry, Trent University  
 Randy Jennings, Ontario Federation of Anglers and Hunters  
 Tammy Johnson, U.S. Fish & Wildlife Service  
 Dave Kennedy, Long Point Waterfowlers Association  
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 Melanie Kotulak, Trent University  
 Nick Lantz, University of Western Ontario  
 Kim Law, University of Western Ontario  
 Stu Mackenzie, University of Western Ontario  
 Sara McDonald, Valley Heights Secondary School  
 Dave McLachlin, Ducks Unlimited Canada  
 Josh Morse, Tollgate Central School  
 Tori Morse, Tollgate Central School  
 Francisca Munoz, Ontario Ministry of Agriculture, Food and Rural Affairs  
 Sarah Perry, Valley Heights Secondary School  
 Jason Reaume, Balmoral Club  
 Laura Robson, Ottawa University



**Mark Morse, Niagara College co-op student, refurbishing a hen house**

Kevin Rogoza, University of Western Ontario  
 Doc Rolofson, Long Point Waterfowlers Association  
 Sarah Roule, East Elgin Secondary School  
 Jim Sackrider, Norfolk Environmental Stewardship Team  
 Paul and Sandra Sherman, Tee Pee Farms  
 Lyle Smith, Ontario Provincial Police (retired)  
 Keelin Stanbury, University of Western Ontario  
 Jude and Ray St. John, Avery Outdoors  
 Stewart Sweeney, Ontario Ministry of Agriculture, Food and Rural Affairs  
 Morris and Ray Sylvain, Big Point Club  
 Dr. Greg Thorn, University of Western Ontario  
 Morgan Van Laeken, Norfolk Environmental Stewardship Team  
 Lena Vanden Elsen, University of Western Ontario  
 James Vanos, Canadian Wildlife Service  
 Connie Walker, University of Western Ontario  
 Waterford Sportsman's Club  
 Katelyn Weaver, University of Western Ontario  
 Casey Whitelock, University of Western Ontario  
 Megan Woods, Holly Trinity High School  
 Andrea Wishart, University of Western Ontario

### Research Technicians

Scott Bossuyt, East Elgin Secondary School  
 Spencer Hockley, Norfolk Environmental Stewardship Team  
 Bill Mark, Environmental Isotope Laboratory, University of Waterloo

### Co-op Students

Kelsey Beer, East Elgin Secondary School  
 Olivia Bergen, East Elgin Secondary School  
 Aniruddha Dhamorikar, University of Western Ontario  
 Ben Goden, Sir Sanford Fleming Collage  
 Kevin Johnson, Holy Trinity High School  
 Kyle Mauthe, Sir Sanford Fleming Collage  
 Mark Morse, Niagara Collage  
 Rachel Watt, Niagara Collage

## Staff, Board & Advisors

### Staff

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 Dr. Shannon Badzinski, Scientist  
 Ted Barney, Biologist  
 Jim Cook, Research Technician/Avian Energetics  
 Lab Coordinator  
 Kerrie Wilcox, Avian Energetics Lab Contract  
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 Rick Davis, Research & Education Centre  
 Chef/Taxidermy Demonstrator

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 Dr. Mark Gloutney, Ducks Unlimited Canada  
 Mr. Shawn Meyer, Canadian Wildlife Service



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### Moving on....

Dr. Shannon Badzinski, Long Point Waterfowl Scientist, is moving onward in his career. Shannon has accepted a Senior Population Management Biologist position with the Ontario Region of the Canadian Wildlife Service. Shannon has been with Long Point Waterfowl since 1997 when he started his PhD. studies on staging Tundra Swans at Long Point. Shannon has been a major contributor to all of Long Point Waterfowl's research and education programs and he will be missed. However, Long Point Waterfowl staff look forward to collaborating with Shannon in his new position at the Canadian Wildlife Service and we wish him success in his future endeavours!

## Publications, Reports, & Theses (2007-present)

### Publications

- Ashley, P, K. Hobson, S. VanWilgenburg, N. North, N, and S. Petrie. *Accepted*. Linking Canadian harvested juvenile American Black Ducks to their natal areas using stable isotope (D, <sup>13</sup>C <sup>15</sup>N) methods. *Avian Conservation Ecology*.
- Schummer, M.L., I. Fife, S.A. Petrie, and S.S. Badzinski. *In Press*. Artifact ingestion in sea ducks wintering at northeastern Lake Ontario, *Waterbirds*.
- Ware, L.L., S. A. Petrie, S. S. Badzinski, and R. C. Bailey. *Accepted*. Contaminant concentrations in greater scaup (*Aythya marila*) wintering on Lake Ontario. *Archives of Environmental Contamination and Toxicology*.
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- Ashley, E. P., A. Kosloski, and S. A. Petrie. 2007. Incidence of intentional vehicle-reptile collisions. *Human Dimensions of Wildlife* 12:1-7.



**Jim Granger, Long Point Wetland Manager and Habitat Improvement Specialist**

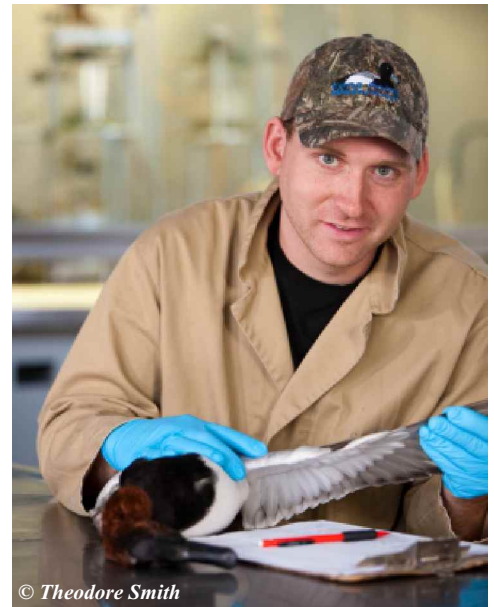


**Rick and Dalphine Davis, Rick is the Research and Education Centre Chef and the Long Point Waterfowl Taxidermy Demonstrator**

- Bowen, J. E., and S. A. Petrie. 2007. Incidence of artifact ingestion in Mute Swans and Tundra Swans on the lower Great Lakes. *Ardea* 95:135-142.
- Raeside, R. A., S. A. Petrie and T. D. Nudds. 2007. Waterfowl abundance and diversity in relation to season, wetland characteristics, and land use in semi-arid South Africa. *African Zoology* 42:80-90.
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- Barney, T., S. S. Badzinski, and S. A. Petrie. 2007. Population size and habitat use of Ring-necked Pheasants five and three years after rehabilitation in Lambton and Elgin Counties, Ontario, Canada. Unpublished report for the Ontario Ministry of Natural Resources, Aylmer District. Long Point Waterfowl and Wetlands Research Fund, Port Rowan, Ontario. 29pp.
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**Jim Cook, Long Point Waterfowl Research Technician, working in the Avian Energetics Lab**

## Dissertations and Theses

- Messmer, D. J. 2010. Habitat characteristics correlated with the settling patterns of breeding Mallards and Canada Geese in the Mixed Woodland Plain of Southern Ontario. M.Sc. Thesis. University of Western Ontario.
- Brady, C. M. 2009. Effects of dietary selenium on the health and survival of wintering Lesser Scaup. M.Sc. Thesis. University of Western Ontario.
- Stempka, J. J. 2009. Factors influencing utilization of artificial nesting cylinders by Mallards and Wood Ducks in Northwest Pennsylvania and Southern Ontario. M.Sc. Thesis. University of Western Ontario. London, Ontario.

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- England, K. 2009. Activity-budgets and habitat use of field-feeding Sandhill Cranes (*Grus canadensis*) during late-summer and fall in central Ontario.
- Richman, A. 2009. Nutrient reserve dynamics of non-breeding Mute Swans (*Cygnus olor*) on the Lower Great Lakes. B.Sc. Honors Thesis. University of Western Ontario. London, Ontario.
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- Ware, L. L. 2008. Selenium uptake and effects in greater scaup (*Aythya marila*) wintering on western Lake Ontario. M.Sc. Thesis. University of Western Ontario. London, Ontario.
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**See the Long Point Waterfowl website for a complete list  
(<http://www.birdscanada.org/lpw.html>)**



**Delta Waterfowl Board of Directors held a recent meeting at our Research & Education Centre.**

## **Long Point Waterfowl Newsletter Credits**

**Primary Authors & Editors:** Shannon Badzinski, Ted Barney, & Scott Petrie

**Layout:** Kathy Jones

**Graphics:** Unless otherwise noted, all graphics are the property of Long Point Waterfowl.



**Rob Olson, President of Delta Waterfowl, and Scott Petrie after a successful hunt in Manitoba last fall**

## Healthy Wildlife = Healthy Youth = A Healthy Future for All

Did you know? Engaging in outdoor, nature-focused activities can help prevent and correct many physical, mental, emotional, educational, and social issues faced by youth.

Help Wildlife Habitat Canada inspire and educate youth to become involved with nature by purchasing the inaugural Canadian Youth Wildlife Habitat Conservation Stamp.

Created through a partnership between Wildlife Habitat Canada and the Robert Bateman *Get to Know* contest, this year's stamp features the artwork of 14-year-old Ivy Liu from British Columbia, and depicts a Black Bear and a Kermode Bear, also known as the "Spirit Bear". Proceeds from the sale of the stamp will go towards creating a grant program that will fund activities aimed at engaging youth with nature, particularly through wildlife habitat conservation programs undertaken by youth themselves.

The Youth Wildlife Habitat Conservation Stamp is a self-adhesive commemorative stamp sized sticker, rather than a postage stamp. This enables youth to display the stamp on iPods, computers, binders, luggage tags, bookmarks, pencil/paint boxes, etc. It is a highly visual way for youth to show their support for wildlife and biodiversity conservation in Canada.

You can help encourage youth to connect with nature by purchasing the 2010 Canadian Youth Wildlife Habitat Conservation Stamp. For more information about Wildlife Habitat Canada and the Youth Conservation Stamp please visit [www.whc.org](http://www.whc.org) or call 1-800-669-7919.



*Without habitat, there is no*



*wildlife... it's that simple!*

# We Appreciate Your Support!

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An official tax receipt will be issued for donations of \$25 or more.

Please contact Scott Petrie if you would like to discuss planned giving, memorial gifts, tribute gifts or montly giving alternatives.



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