

Natural Heritage Information Centre

2012 Newsletter, Volume 17



NHIC winners in the Science and Information Resources Division photo contest. Left photo: House Wren in the wind by S. Dodsworth. Centre photo: Tamarack by S.R. Brinker. Right photo: Painted Turtle at Rondeau Provincial Park by S. Dodsworth.

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Working with conservation partners to track Ontario's biodiversity



Introduction

Records management is a priority for large organizations including the Ontario Ministry of Natural Resources (OMNR).

For over 18 years now, the Natural Heritage Information Centre (NHIC) has officially been managing records on Ontario's natural heritage. We have 13,157 plant and animal species recorded, of which 1,833 species are being monitored as species of conservation concern. The NHIC also manages natural heritage records for 9,545 natural areas in Ontario. Records management is powerful when it puts high quality information and knowledge into the hands of decision makers – conservation authorities, municipalities, provincial ministries, federal agencies, conservation non-government organizations, private sector and citizens.

For the NHIC to effectively support biodiversity conservation and sustainable use of natural resources we recognize that three things must continue:

1. NHIC is a safe and important place to send information. People and organizations trust that sending information to the NHIC is a positive conservation decision.
2. NHIC adds knowledge and value to information. People and organizations can rely upon NHIC science and information management expertise.
3. NHIC is trusted as a broker of information and knowledge. People and organizations are assured that NHIC information and knowledge is available to aid conservation and resource management decision making.

In addition to the specific initiatives outlined in this newsletter, the NHIC received 53,567 observations from our network of conservation partners; serviced 1,885 information requests; and reviewed 157 species at risk status reports and recovery plans in 2011.

This issue is volume 17 of the NHIC newsletter and the 17th consecutive year that our newsletter has been produced. More information about the NHIC can be found at <http://nhic.mnr.gov.on.ca/>.

Throughout this newsletter you will find stories of natural heritage discoveries, partnerships, citizen science, training and information use. At the very best these stories will interest, motivate and inspire you. At the very least they will let you know what we are up to and demonstrate our commitment to working with conservation partners to track Ontario's biodiversity.

In 2011, the NHIC received core program funding from the OMNR Science and Information Resources Division as well as MNR program funding from Species At Risk, Canada-Ontario Great Lakes Agreement, and Climate Change. We also received funding from NatureServe Canada in partnership with the Parks Canada Agency, the Canadian Wildlife Service and the Nature Conservancy of Canada.

Thank you to all our partners and contributors – together our efforts benefit all.

Jim Mackenzie, Co-ordinator,
Natural Heritage Information
Centre

Forensic botany: Rare species surveys in the Lennox and Addington rock barrens

Background

The open rock barrens in southern Lennox and Addington County have been known to Ontario botanists since the 1930's as an unlikely location for the rare Brittle Prickly Pear Cactus (*Opuntia fragilis*). While this species is known in northwest Ontario, adjacent Manitoba and states in the American Midwest, its presence in eastern Ontario some 1,000 km northeast of the nearest occurrence in Wisconsin is somewhat astonishing. It is thought by some to have been introduced in the Mellon Creek area. Is it a native species here or was it introduced?

Surveys of shorelines and bedrock barrens in this area by Brownell et al. (1996) have drawn attention to occurrences of a suite of provincially rare southern species, previously unknown from the area. This group of disjunct, southern vascular plants appears to be restricted to specialized habitats of open, strongly fluctuating lakeshores, and drought / fire prone granitic barrens in the region. Species recently documented here include

Engelmann's Spike-rush (*Eleocharis engelmannii*), Slender False Pimpernel (*Lindernia dubia* var. *anagallidea*), Bear Oak (*Quercus ilicifolia*) and Toothcup (*Rotala ramosior*).

These populations are near the northern limits of their range, far removed from the next nearest populations several hundred kilometers to the south and west. These species likely arrived here sometime during the Hypsithermal Period some 8,000 to 4,000 years ago, when warmer and drier conditions altered the composition of vegetation and favoured the north-east migration of southern species into the area. Sometime after 4,000 years ago this general warming trend deteriorated, returning to cooler and wetter conditions, and a subsequent decline in suitable habitat for these species adapted to warmer environments. Where appropriate microhabitat existed locally, they were able to hang on as their range contracted with the cooling climate. The general southern exposure of bedrock in the Lennox and Addington area, along



Toothcup (*Rotala ramosior*, S1). Photo: S.R. Brinker.

with strongly fluctuating shorelines likely aided their continued persistence here.

Numerous prairie species are also present in this region, including characteristic prairie grasses such as Little Bluestem (*Schizachyrium scoparium*), Indian Grass (*Sorghastrum nutans*), Scribner's Panic Grass (*Dichanthelium oligosanthes* ssp. *scribnerianum*) and Kalm's Brome (*Bromus kalmii*).



Buttonbush Dodder (*Cuscuta cephalanthi*, S2). Photo: S.R. Brinker.

Other prairie species include Woodland Sunflower (*Helianthus divaricatus*), Tall Cinquefoil (*Drymocallis arguta*), Field Thistle (*Cirsium discolor*), Upland White Goldenrod (*Solidago ptarmicoides*)



Open granitic barrens in southern Lennox and Addington County north of Puzzle Lake. Photo: S.R. Brinker.

and Sand Violet (*Viola sagittata* var. *ovata*).

The high number of provincially rare disjunct species, in combination with the distinct prairie element, suggest that Brittle Prickly Pear Cactus is likely a native occurrence in this region and not an introduced species.

Surveys

Over the course of several weeks in September 2011, a number of surveys were undertaken by NHIC staff members in the Puzzle Lake – Kaladar area to document occurrences of one of these southern species in particular - Toothcup (*Rotala ramosior*), to support the

preparation of an update status report for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and to record other occurrences of rare species in the area. Shorelines of several large lakes were surveyed primarily by boat and a number of aerial helicopter-based surveys were also conducted to access more remote inland sites. MNR Peterborough District Ecologist Todd Norris and Assistant Parks Planner Carolyn Bonta assisted NHIC staff with some of the survey work.

A list of provincially tracked species documented during the course of surveys is provided in Table 1, along with their conservation status ranks and at-risk status.

Common Name	Scientific Name	Conservation Rank	COSEWIC Status	MNR Status
Snapping Turtle	<i>Chelydra serpentina</i>	G5 S3	SC	SC
Blanding's Turtle	<i>Emydoidea blandingi</i>	G4 S3	THR	THR
Eastern Musk Turtle	<i>Sternotherus odoratus</i>	G5 S3	SC	SC
Northern Ribbonsnake	<i>Thamnophis sauritus</i>	G5 S3	SC	SC
Common Five-lined Skink	<i>Plestiodon fasciatus</i>	G5 S3	SC	SC
Churchmouse Three-awn Grass	<i>Aristida dichotoma</i>	G5 S1		
Buttonbush Dodder	<i>Cuscuta cephalanthi</i>	G5 S2		
Engelmann's Spike-rush	<i>Eleocharis engelmannii</i>	G4 S1		
		G3G4	END	END
Butternut	<i>Juglans cinerea</i>	S3		
Slender False Pimpernel	<i>Lindernia dubia</i> var. <i>anagallidea</i>	G5T4		
Bear Oak	<i>Quercus ilicifolia</i>	G5 S1		
Redtop Panic Grass	<i>Panicum rigidulum</i>	G5 S3		
Toothcup	<i>Rotala ramosior</i>	G5 S1	END	END

Table 1. Provincially tracked species observed during survey work in southern Lennox and Addington County around Puzzle Lake and their associated ranks and status.



Brittle Prickly Pear Cactus (*Opuntia fragilis*) at Mellon Creek area. Photo: W.D. Bakowsky.

Information was gathered on 13 species of which seven are species at risk. Of the 13, two are reptiles, three are turtles, and eight are vascular plants.

These surveys will inform the status of Toothcup in Canada and help improve our knowledge of the status of local populations of these species and inform their overall status in the province. The information gathered will also be useful in planning for the management of Puzzle Lake Provincial Park. Surveys were supported by the Ontario Ministry of Natural Resources and Environment Canada.

Sam Brinker and Wasyl Bakowsky

References

Brownell, V.R., C.S. Blaney, and P.M. Catling. 1996. Recent discoveries of southern vascular plants at their northern limits in the granite barrens area of Lennox and Addington county, Ontario. *Canadian Field-Naturalist* 110(2): 255-259.

Citizen science: eBird as a data source for NHIC records

History of eBird

eBird was started in 2002 by the Cornell Lab of Ornithology with the hypothesis that birders' everyday observations could make a big contribution to our understanding of bird distribution and abundance. It is a real-time, online checklist program using a simple and intuitive web-interface which allows participants to submit and view their bird observations. Registered participants submit their observations by providing either a latitude and longitude or by using the Google Earth-based mapping application to pin-point the location, record the date and time, and a measure of the effort expended to gather their observations. Since 2010 it has been available globally, with regional portals being sponsored and maintained by various federal and local bird agencies. The Canadian portal for eBird, eBird Canada, was introduced in 2006 and is run by the Canadian partner, Bird Studies Canada.

Growth in eBird usage

Since the implementation of various incentives to get birders to enter their sightings (see Wood et al. 2011) the growth of eBird has been staggering. Since the launch of the Canadian portal in 2006, Ontario has seen an increase of just under 1500% in the number of checklists submitted per year despite less organizational promotion in Canada compared to the USA (Figure 1). Similarly, the number of different observers submitting records to eBird is growing quickly, with over 1000 observers submitting Ontario eBird records in 2011. There is strong

month-to-month variation in the number of checklists submissions (Figure 1) as a result of individuals and organizations uploading large data sets. When the number of submitted checklists is viewed for just the month of May, a clearer trend of growth can be seen (Figure 2), with an average annual growth rate of 75%. To put things into perspective, this works out to just over 150 checklists submitted per day in Ontario for May 2011! The growth in eBird, while destined to top-out eventually, currently shows no signs of slowing. The current distribution of eBird data in Ontario is largely concentrated around the heavily populated south (Figure 3).

Data quality

eBird data is ideal for incorporation into the provincial database maintained by the NHIC partly because it comes to us already having gone through a vetting process. A network of regional reviewers maintain filters and check incoming data submitted by users. eBird data is also ideal because it contains all of the information necessary for incorporation into the NHIC databases: date, location (with coordinates), species, observer, and a space for comments related to the observation and breeding evidence.

Current records

A quick search of the eBird database for Ontario's bird species-at-risk returns an impressive 20 000 records (marked as valid) for the period May-August (when most species can be expected to be breeding). While certainly many of these records are of questionable conservation value (for example, birds seen during migration or with

imprecise location information), the overall potential value of this information is immense. We now have a new, regular source of data being collected by a veritable army of citizen scientists.

The NHIC uses eBird data to populate provincial databases for tracked bird species. This data source has already proven to be an especially valuable tool for a number of the more widely-distributed species (e.g. Eastern Meadowlark) recently designated as species-at-risk, for which traditional data sources (i.e. the Ontario Breeding Bird Atlases) are lacking specific location information. eBird is here to stay, and as it continues to grow so too will its value for providing detailed information that can help conserve Ontario bird species.



Eastern Meadowlark (*Sturnella magna*)
Photo: M. Burrell.

Check it out!

Anyone can register with eBird for free. You can start submitting your bird sightings or explore the immense database through the many output tools eBird offers by visiting the eBird website at www.eBird.ca. Don't forget that we still prefer to receive more detailed reports of provincially tracked species through our NHIC web form or our standard reporting

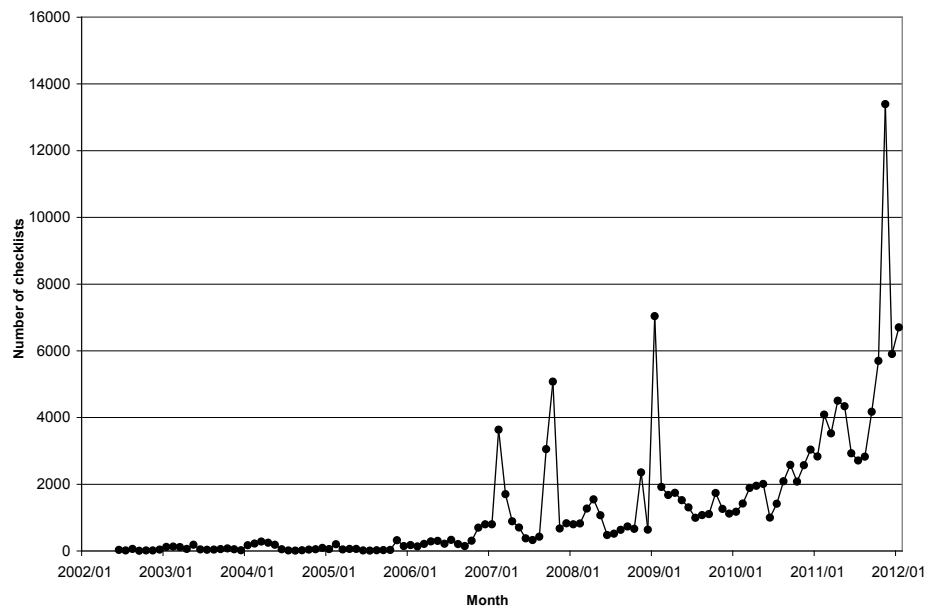


Figure 1. Growth in the monthly number of checklists submitted to the eBird database for Ontario locations for the years 2002-2012. The "spikes" represent individuals and organizations uploading large databases.

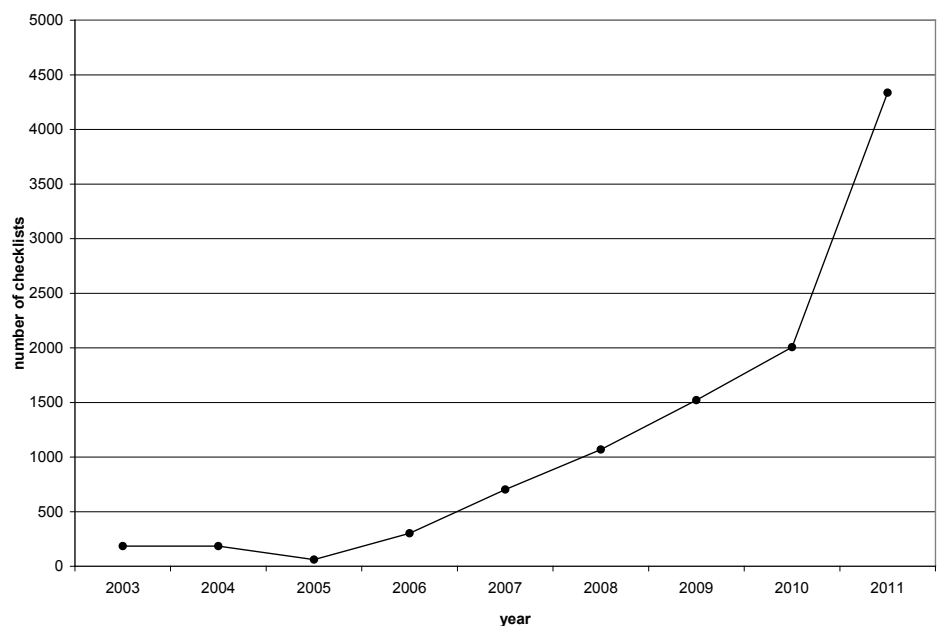


Figure 2. Growth in the annual number of May checklists submitted to eBird for Ontario locations during May in the years 2002-2011. May was chosen as it is a month when most eBird users are not submitting historical records which can skew the annual data (see Figure 1)

spreadsheet, both of which can be found on the NHIC's website.

Mike Burrell

References

Wood, C., B. Sullivan, M. Illif, D. Fink, and S. Kelling. 2011. eBird: engaging birders in science and conservation. *PLoS Biology* 9(12): e1001220.

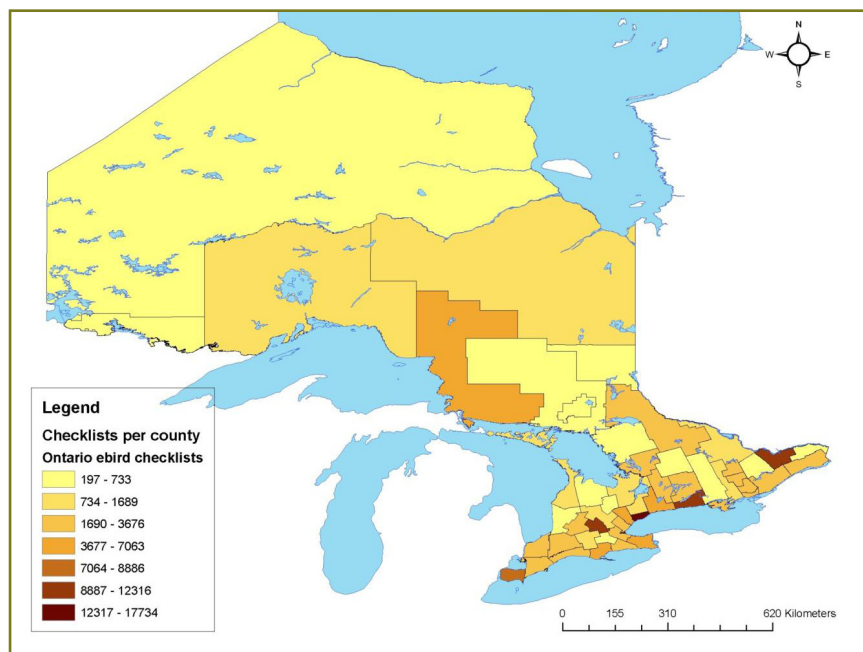


Figure 3. Distribution of all checklist submissions to eBird by upper tier municipality in Ontario, to the end of 2011.

Volunteer botanists: CKL Flora Project

The Kawartha Field Naturalists have embarked on an ambitious five-year project to produce an annotated list of the flora of the City of Kawartha Lakes (CKL; formerly Victoria County). Now in its third year, the CKL Flora Project has already documented hundreds of plant records in CKL including many species not previously recorded in the CKL, a relatively poorly studied region in terms of its flora.

The CKL Flora Project has received funding support from the Victoria Stewardship Council and is partnering with the Royal Ontario Museum, the Ontario Ministry of Natural Resources' Natural Heritage Information Centre (Mike Oldham is a technical advisor to the project), and Sir Sandford Fleming College. Students in the Credit-for-Product program provided photographs of numerous habitats, while student volunteers from Sir Sandford Fleming College

have also been involved in inventories and pressing of collected specimens and are now entering label data and mounting plant specimens.

These specimens will be permanently housed in the herbarium of the Royal Ontario Museum (TRT). Many private landowners are granting permission for CKL Flora



CKL Flora Project volunteers Anne Barbour, Linda Read, and Margo Holt (left to right) admiring their discovery of Great Plains Ladies'-tresses at the Carden Alvar in September 2011. Photo: Lou Probst.

Project volunteers to visit their property and survey the plant species present.



NHIC botanist, Mike Oldham, accepting boxes of plant specimens for identification from CKL Flora Project co-ordinator, Anne Barbour. Photo: Brian Barbour.

NHIC biologists are contributing to the project by verifying the identification of hundreds of plant specimens collected by CKL Flora Project volunteers as well as providing records from NHIC fieldwork in CKL. Exciting finds by CKL Flora

Project volunteers include new sites for the provincially rare Yellow Bartonian (*Bartonia virginica*; S2), One-sided Rush (*Juncus secundus*; S3), Great Plains Ladies'-tresses (*Spiranthes magnicamporum*; S3?), and Mountain Valerian (*Valeriana uliginosa*; S2). Species apparently new to CKL include Bluntleaf Waterleaf (*Hydrophyllum canadense*; S4), American Bladdernut (*Staphylea trifolia*; S4), Round-headed Bush-clover (*Lespedeza capitata*; S4), Billings' Sedge (*Carex billingsii*; S4), Boreal Bog Sedge (*Carex magellanica*; S5) and Prairie Sedge (*Carex prairea*; S5).



Great Plains Ladies'-tresses (*Spiranthes magnicamporum*; S3?) Photo: W.D. Bakowsky.

This volunteer project should result in a much better understanding of the distribution and status of plants in CKL, information which will aid in their conservation.

Michael J. Oldham

For more information on the CKL Flora Project visit <http://www.kawarthafieldnaturalists.org/CKLFlora.php>

Remote sensing: Provincially tracked plant communities in Ontario

NHIC's Wasyl Bakowsky and Bonnie Henson have been mapping significant plant communities in southern Ontario for over 10 years. This project originated in 2002, and involved mapping rare plant communities as part of the Southern Ontario Land Resource Information System (SOLRIS) project. The final product was a landscape-level GIS coverage of natural, rural and urban areas for southern Ontario (Site Regions 6E and 7E).

During this project, rare plant communities were digitized from polygons mapped on Ontario Base Maps from various OMNR and Ontario Parks reports. Plant communities included cliffs and talus, dunes, alvars, prairies, savannahs and woodlands.

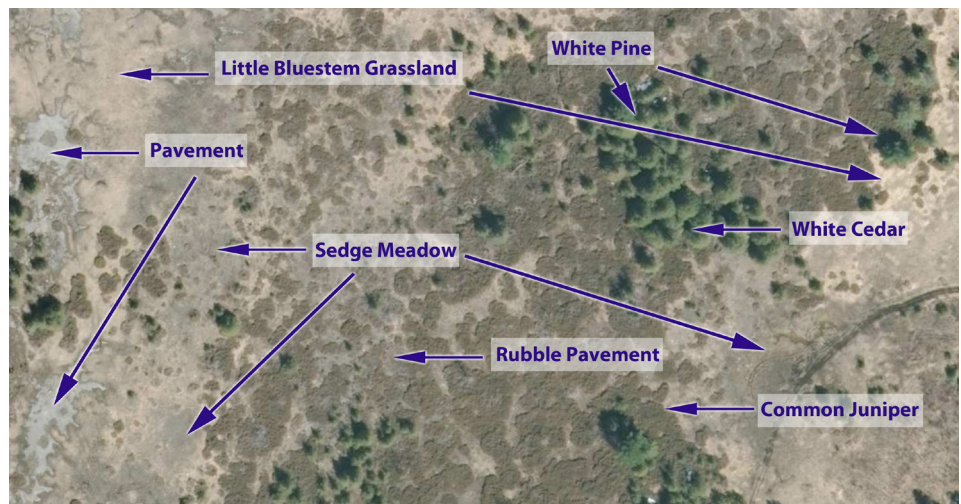
Since then, community digitizing has continued at the NHIC, with improvements in the spatial layers available as a digitizing base, including the Greater Toronto Area (GTA) Orthophotography Project (1995, 1999, 2002) orthophotos, the Southwestern Ontario Orthophotography Project (SWOOP) orthophotos (2006), and more recently Digital Raster

Acquisition Project for the East (DRAPE) orthophotos (2008-2009).

The quality and interpretability of the orthophotos has improved markedly with each succeeding generation of imagery collected. The screen capture below provides an indication of the details which can be interpreted remotely from DRAPE, including alvar grassland dominated by Little Bluestem (*Schizachyrium scoparium*).

By systematically searching the DRAPE imagery in areas of shallow soil over limestone bedrock, numerous locations of native alvar grassland occurrences have been discovered. Some are in locations not previously known to have alvar vegetation, but due to their distinctive signatures, we know that they represent native alvar, and not old field vegetation on shallow soils dominated by introduced species. This level of certainty was never possible in the past, as site visits were required to confirm an intact natural plant community.

Not all alvar grasslands can be identified remotely, some types, such as those dominated by



Poverty Grass (*Danthonia spicata*), cannot be distinguished from old field vegetation. These still require field verification.

The 379 individual polygons created during the SOLRIS project have now increased to almost 1,900. The new polygons are being tagged with plant community labels, and will be imported into Biotics and Land Information Ontario (LIO), where they will ultimately be incorporated into the provincial record for plant community observations and occurrences.

Wasył Bakowsky

Kudos to our summer employees

Kellie Sherman and Andrea Benville joined NHIC as part of the Summer Experience Program.

Andrea corrected inconsistencies between our natural areas database and MNR's Natural Resources and Values Information System (NRVIS), now Land Information Ontario, organized our library of digital documents and entered information from new reports into the database. Andrea also helped with fieldwork at a Carden Township alvar and in old fields in eastern Ontario.

Kellie worked on tasks related to the NHIC Botany/Herpetology program. Kellie mounted, databased, and filed several hundred plant specimens for the NHIC herbarium and also helped organize and catalogue collected bryophyte and lichen specimens for donation to the Canadian Museum of Nature. All of us at the NHIC wish both Andrea and Kellie success in their careers.

*Michael McMurtry and
Michael J. Oldham*

Access to classified information: Data Sensitivity Training (DTS)

Detailed information on rare species, including their locations, is considered to be medium-classified data under the Ontario Information Security and Privacy Classification Policy. This policy covers the management of all data and information received, created, held by, or retained on behalf of, Ontario ministries and agencies. In order to gain online access to detailed OMNR location information, users need to take the Data Sensitivity Training (DST) course offered by the Natural Heritage Information Centre. To determine if ongoing access is right for your business needs, visit the *Get Information* page on the NHIC website.

Data Sensitivity Training is available online via WebEx, and is delivered by the NHIC on the third Thursday of every month.

To register please send an email to NHICRequests@ontario.ca. You will receive an email confirmation of your training date with instructions on how to connect using WebEx.

Data Sensitivity Training Course Outline

- Introduction to the Natural Heritage Information Centre
- Introduction to rare species, plant community and natural areas data
- How to access NHIC data

Following the training presentations, participants are required to complete practical exercises using the Biodiversity Explorer web application to access natural heritage data. Instructions on using Biodiversity Explorer are provided

and the completion of the exercises allow a user to realize the full capabilities of this interface.

Once trained, participants are added to the NHIC list of trained individuals. This training, along with an approved questionnaire outlining a "need to know" and a licence (for non-Ontario government staff) qualifies the participant to gain access to classified rare species, plant community and wildlife concentration area data in Ontario.

Wasył Bakowsky

Did you know?

One of the oldest records in the NHIC Biotics database was recorded during the war of 1812. The report refers to an unlucky soldier who was bitten presumably by a Timber Rattlesnake during the Battle of Lundy's Lane in 1814.

The source of this record appears to trace back to the personal notes of Dr. J.H. Garnier in which he records a discussion with a man whose grandfather had been present at the battles of Queenston Heights and Lundy's Lane and had seen a fellow soldier who had been bitten by a rattlesnake and subsequently died the very next day!

Conservation Data Centres collaborate to track the spread of an invasive roadside plant

For several years, and unbeknownst to each other, Mike Oldham and John Klymko were independently tracking the spread of the roadside invasive plant, Fetid Dogweed (*Dyssodia papposa*). John, who is now a zoologist with the Atlantic Canada Conservation Data Centre (NHIC's counterpart in Atlantic Canada), was a graduate student at the University of Guelph until 2009. While in southern Ontario he was documenting roadside *Dyssodia* populations through voucher herb-arium specimens and databased GPS localities, as was Mike.



Fetid Dogweed growing along Highway 20 in southern Québec. Photo by John Klymko (with permission from *Northeastern Naturalist*).

In 2009 while travelling between southern Ontario and his new home in Sackville, New Brunswick, John found *Dyssodia* for the first time in Québec, along Hwy. 20 (which Hwy. 401 turns into when it enters Québec) a few kilometres inside the border. Also in 2009, while driving home from a meeting

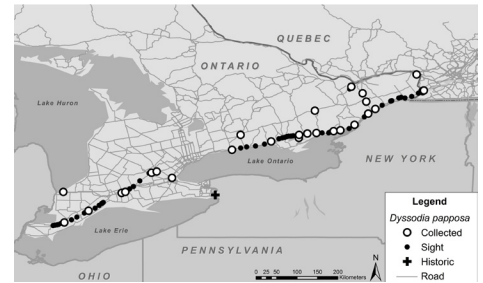
in Winnipeg, Mike found *Dyssodia* in Manitoba for the first time. John and Mike also documented the amazing and rapid spread of *Dyssodia* along southern Ontario highways since the first such observation in 1996 (the single previous Ontario record was an 1883 report of the species being found along a railway in Fort Erie, Niagara Region).

Dyssodia papposa, a member of the Asteraceae or sunflower family, has numerous conspicuous yellow flowers, and forms dense, low (< 30 cm tall) patches in the gravel at the edges of major highways in our province. Up close it has a strong odour due to numerous aromatic glands, which gives it the common name Fetid Dogweed.

Large roadside patches are conspicuous and distinctive, even at highway speeds, when in flower or later as brown or black roadside bands of dying or dead vegetation. *Dyssodia* is native to the western United States where it grows in grasslands, open woodlands and disturbed open areas and is rapidly expanding its range along southern



Fetid Dogweed forms the brown band along both edges of the Hwy. 401 center median in this photo taken on by John Klymko.



Southern Ontario and southern Québec distribution of Fetid Dogweed. Map prepared by Sarah Robinson of the Atlantic Canada Conservation Data Centre (with permission from *Northeastern Naturalist*).

Ontario highways. Our highways are ideal travel corridors for an annual plant that can rapidly reproduce in large numbers, tolerate the harsh roadside environment, and readily disperse by the movement of seeds or roots spread by gusts of air and vehicles including snow plows and mowing machines.

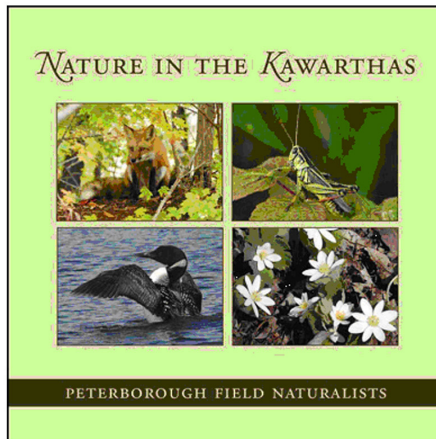
John and Mike pooled their observations and wrote an article for the journal *Northeastern Naturalist* (2011; Volume 18, Number 3, pages 347-356) to alert others of this rapidly spreading plant (email the author for a copy).

Although it now grows by the millions along southern Ontario highways, so far *Dyssodia* does not appear to pose a threat to agricultural crops or Ontario's biodiversity, unlike some other invasive species.

Michael J. Oldham

NHIC staff contribute to "Nature in the Kawarthas" book

Ontario Natural Heritage Information Centre staff Wasyl Bakowsky, Michael McMurtry, and Michael Oldham each contributed chapters to the recently published book "Nature in the Kawarthas" compiled by the Peterborough Field Naturalists.



Wasyl contributed two chapters, "*Alvars: Life on Limestone Pavements*" and "*Tallgrass Prairies and Savannas: Remnant Grasslands*"; Mike McMurtry authored "*Regional Ecosystems: A Land of Great Diversity*" and Mike Oldham wrote "*Frogs and Toads: Evening Musicians*".

Two additional NHIC staff, Sam Brinker and Simon Dodsworth, contributed photos which appear in the book. Copies of "Nature in the Kawarthas" can be purchased at a local bookstore or directly from the publisher, Dundurn Press (http://www.dundurn.com/books/nature_kawarthas).

Michael J. Oldham

Portion of John K. Morton's library donated to NHIC

Retired University of Waterloo biology professor John K. Morton passed away on 9 January 2011. John Morton was a well-known Canadian botanist and entomologist and made significant contributions to biodiversity knowledge and conservation in Canada. Some of his important contributions include producing Ontario's first published vascular plant checklist in 1990 and an excellent flora of Manitoulin Island, now in its third edition; both these publications were coauthored with Joan Venn of the University of Waterloo. Also interested in Lepidoptera, particularly moths, John rediscovered the globally rare Aweme Borer (*Papaipema aweme*), once thought to possibly be extinct, and a species now listed as Endangered in Canada and Ontario.

Although he was a well-rounded field botanist, John was a specialist in the mint (Labiatae) and pink (Caryophyllaceae) families. He authored treatments of the large genera *Cerastium* (chickweeds), *Stellaria* (stitchworts), and *Silene* (campions) for the multi-volume "Flora of North America" project. John was an ardent conservationist and active with groups such as the Canadian Botanical Association and Field Botanists of Ontario.

In our formative years, Dr. Morton assisted the NHIC considerably as in the creation of our own digital list of the province's vascular plants, answering many questions about the distribution and status of Ontario plants. He also identified or confirmed the identity of hundreds of vascular plant specimens collected by NHIC staff

during fieldwork and deposited in the University of Waterloo herbarium (recently transferred to the Marie-Victorin Herbarium at the Biodiversity Centre of the Université de Montréal at the Montreal Botanical Garden). An article appearing in the NHIC newsletter (Winter 1996/1997), reporting two plants new to Ontario, was authored by Dr. Morton, who was a strong supporter of the NHIC.

Most of John Morton's personal herbarium and some of his floras went to the Royal Ontario Museum. His massive lepidopteran collections and library went to Agriculture Canada (Canadian National Collection of Insects). Foreign floras and systematic monographs (Africa, Europe) went to Agriculture Canada as well. Much of the remaining Ontario and Canadian literature was offered to the NHIC.

More than a hundred books, plant checklists, journal issues, and other scientific publications have been incorporated into the NHIC library and manual files from this significant gift. The NHIC would like to acknowledge the assistance of John Riley and Judith Jones for helping to facilitate this donation.

Michael J. Oldham

Biodiversity inventories in the Sandy Lake area



Typical habitat in the Sandy Lake area. Photo: M.J. Oldham.

From 27 June to 9 July 2011, NHIC biologists Sam Brinker and Mike Oldham joined MNR colleagues, Bill Crins (Natural Heritage, Lands and Protected Spaces Branch) and Zaid Jumeau (Far North Branch) to conduct biodiversity surveys in remote areas of northwestern Ontario, based in the community of Sandy Lake (53.064°N, 93.346°W; Figure 1).

2011 was the third consecutive year NHIC staff assisted with Far North (<http://www.mnr.gov.on.ca/en/Business/FarNorth/index.html>) inventory work. Upon arrival at Sandy Lake, the field crew made a presentation to the Koocheching (Sandy Lake) First Nation Band Council to explain the nature of the proposed surveys and seek their support and approval to conduct fieldwork on First Nation

traditional lands. The presentation was enthusiastically received and members of the Sandy Lake First Nation accompanied MNR staff for some of the field surveys.

The Sandy Lake area is still quite remote and not road accessible during the summer months, hence significant natural heritage features of the area remain poorly documented. Each day the field crew was transported by helicopter to different field sites. Field sites were areas identified in the 1980's during the West Patricia Land Use Planning Project and other previous surveys as having significant natural heritage values, often based on air photo interpretation aerial reconnaissance but little on the ground information. At each of nine survey sites, vegetation plots were sampled using standard OPIAM (Ontario Parks Inventory and Monitoring) program methodology, standardized insect surveys (including malaise traps, pan traps, and sweep netting) and breeding bird survey plots were undertaken,

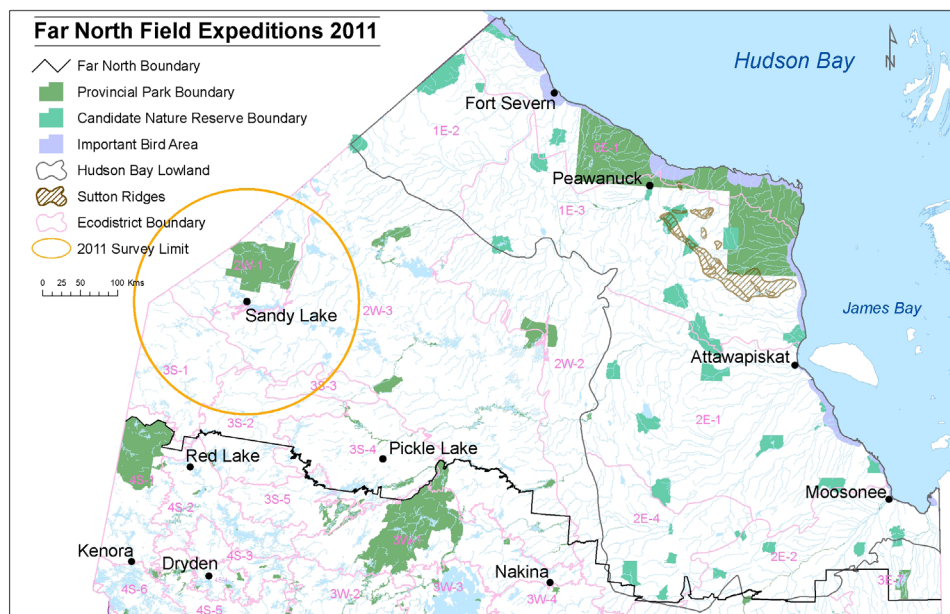


Figure 1. Generalized 2011 field survey limit within the Far North Planning Area of Ontario.



Zaid Jumeau tending a malaise trap. Photo: M.J. Oldham.

and species lists, specimen collections, photographs, and incidental records were compiled.

The areas visited were in portions of Ecoregions 2W and 3S, situated on the Precambrian Shield where the underlying bedrock is predominantly gneissic or granitic

with thin layers of till, and many low-lying portions covered by glaciolacustrine silt and silt clays deposited by glacial Lake Agassiz. The vegetation is pronouncedly boreal, and the entire area is susceptible to fire. As expected due to its location and habitats, relatively few rare species were encountered, compared to previous surveys near the Hudson and James Bay coasts (see previous 2010 NHIC Newsletter article http://nhic.mnr.gov.on.ca/MNR/nhic/documents/spring2010/Newsletter2010_FINAL.pdf). However some of the sites visited were within 100 km of the Manitoba border and a number of western species, poorly known in Ontario, were documented. For example Parsley Fern (*Cryptogramma acrostichoides*; S2) was documented at five of nine survey sites and Alaska Paper Birch (*Betula neoalaskana*; S2?) was encountered at all nine sites. Due to its widespread occurrence in

the Sandy Lake area, Alaska Paper Birch has been re-ranked to S4 and will be no longer be tracked as a species of provincial conservation concern by the NHIC. Other botanical fieldwork highlights include the NHIC-tracked species Ryegrass Sedge (*Carex loliacea*; S1), Field Sedge (*Carex conoidea*; S3), Vasey's Rush (*Juncus vaseyi*; S3), Auricled Twayblade (*Listera auriculata*; S3), Rough-fruited Fairybells (*Prosartes trachycarpa*; S1), and McCalla's Willow (*Salix maccalliana*; S3). Several plant species were found north of their previously documented northern limits in the province, including Chestnut Sedge (*Carex castanea*), Spotted Coralroot (*Corallorhiza maculata*), Beaked Hazel (*Corylus cornuta*), Trailing Arbutus (*Epigaea repens*), Oak Fern (*Gymnocarpium dryopteris*), Richardson's Alumroot (*Heuchera richardsonii*), Inland Rush (*Juncus interior*), Green Muhly (*Muhlenbergia racemosa*), Sensitive



Chalk-fronted Corporals (*Ladona julia*) perched on a birch trunk adjacent to the lichen, *Parmelia sulcata*. Photo: M. J. Oldham.

Fern (*Onoclea sensibilis*), White-grained Mountain Rice (*Oryzopsis asperifolia*), American Common Reed (*Phragmites australis* ssp. *americanus*), and Highbush Cranberry (*Viburnum opulus* ssp. *trilobum*).

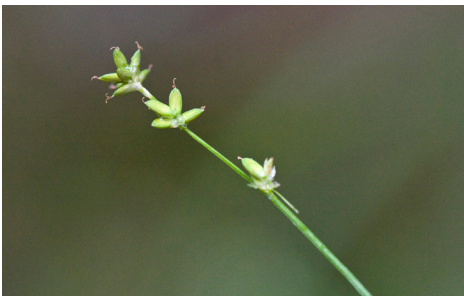
Odonata (dragonflies and damselflies) were a focal group for insect collecting and several species were found north of records mapped in the Ontario Odonata Atlas (<http://nhic.mnr.gov.on.ca/MNR/nhic/odonates/atlas.html>), including Variable (Interrupted) Darner (*Aeschna interrupta interrupta*), Racket-tailed Emerald (*Dorocordulia libera*), Hagen's Bluet (*Enallagma hageni*), Spiny Baskettail (*Epiptera spinigera*), Moustached Clubtail (*Gomphus adelphus*), Dragonhunter (*Hagenius brevistylus*), Eastern Forktail (*Ischnura verticalis*), Chalk-fronted Corporal (*Ladona julia*), Dot-tailed Whiteface (*Leucorrhinia intacta*), and Brush-tipped Emerald (*Somatochlora walshii*). Most of the many insects collected during



Parsley Fern (*Cryptogramma acrostichoides*; S2). Photo: S.R. Brinker.



Parsley Fern (*Cryptogramma acrostichoides*; S2). Photo: M.J. Oldham.



Ryegrass Sedge (*Carex loliacea*; S1) Photo: S.R. Brinker.



Rough-fruited Fairybells (*Prosartes trachycarpa*; S1) Photo: M.J. Oldham.

fieldwork have yet to be identified.

Bryophytes and lichens collected during vegetation plot sampling and incidentally have been submitted to experts for identification. Two lichenicolous fungi, *Bachmanniomyces uncialicola* and *Abrothallus usneae*, collected during Sandy Lake fieldwork and identified by lichenologists James C. Lendemer and Chris Lewis, have not been previously reported from Ontario. The nationally and provincially Threatened Flooded Jellyskin (*Leptogium rivulare*) was documented at two widely separated locations in the study area, one along the Severn River, and another along the Stout Lake – Crooked River Mouth system. Previously, the most northerly occurrence of this lichen in Ontario was from the Algoma District, some 800 kilometres to the southeast. Another interesting find was Sulphur Dust Lichen (*Chrysothrix chlorina*) which forms bright yellow crusts on acidic siliceous rocks, often found in protected areas under overhanging



Sulphur Dust Lichen (*Chrysothrix chlorina*; S2) growing on a boulder near the Roseberry River. Photo: S. R. Brinker.

ledges or on vertical or inversely slanted surfaces. It was documented from a north-facing cliff near the Roseberry River, a northern extension of its Ontario range.

Although the Sandy Lake area did not produce as many rarities as previous Far North trips, our fieldwork resulted in improved knowledge of the distribution of many plants and animals in this poorly studied region. Our findings will be shared with local First Nations and will hopefully help protect the significant biodiversity of this part of Ontario.

Michael J. Oldham and
Sam Brinker

Did you know?

Did you know that the NHIC is currently tracking the location and condition of 1,833 species of conservation concern in Ontario?

Did you know that you can find species listings for Ontario on the new NHIC web site?

Did you know that in addition to all the MNR and conservation partner agency data and atlas information that comes into the NHIC, we also periodically scan on-line conservation databases like eBird to harvest information gathered from conservation minded citizens across Ontario.

NHIC data uploaded to Land Information Ontario

The Natural Heritage Information Centre (NHIC) announces the release of the updated classes for provincially tracked species occurrence and observation data in the Ontario Land Information Warehouse (OLIW). This new version includes all NHIC provincially tracked species occurrence data and observations that have undergone an initial review by NHIC biologists. In total, there are 23,512 species occurrences available and 185,999 observations for provincially tracked species of conservation concern, including species at risk.

If you require access to these layers, contact Land Information Ontario staff for details at lio@ontario.ca. These data represent the assembly of decades of information collected by volunteers, researchers, consultants, and NGO, federal government and provincial government staff. Metadata records, including links to updated Standard Interchange Format reports and Data Management Models, are available for these layers at Discovering Ontario Data <https://www.applimetadata.lrc.gov.on.ca/geonetwork/srv/en/main.home>

If you have any questions about these layers, not answered by the online documents, please contact NHIC at nhicrequests@ontario.ca.

Sandy Gemmiti

NHIC collaborates with University of Guelph and Nature Conservancy of Canada in surveys of arthropods in southern Ontario

In 2011, the NHIC, the Nature Conservancy of Canada (NCC) and the University of Guelph Insect Collection (UGIC) collaborated on a survey for arthropods at four sites in southern Ontario. The primary focus of this survey was to identify a significant proportion of the arthropod diversity present at the selected sites and to determine the relative significance of the species present with respect to the integrity of the habitat and hence the relative conservation importance of sites and their constituent habitats.

Together with NCC and UGIC, the NHIC identified a number of candidate sites for survey on the Rice Lake Plains and the Norfolk Sand Plain, north of Lake Erie. The four sites chosen for survey in 2011 were Peter's Woods Provincial Nature Reserve and the NCC Barr property on the Rice Lake Plains in Northumberland County, and Turkey Point Provincial Park and the NCC Cronmiller property on the Norfolk Sand Plain in Norfolk County. The 2011 survey is intended to serve not just as an inventory of the faunas of these specific sites but also as a template for future surveys to document the current composition of, and ongoing changes to, Ontario's arthropod fauna.

At each of the four survey sites two sampling stations were established. Sampling began in May and continued into October. At each station the sampling protocol comprised a Malaise Trap with an accompanying series of pan traps, and an additional series of



Malaise trap erected in forest habitat.



Lingren funnel trap in oak woodland/savannah.

pan traps set nearby. The traps were checked and their contents emptied at two-week intervals, at which time additional collection techniques were employed, including: sweep-netting to further sample surrounding vegetation; the collection and sifting of litter through Burlese funnels to detect small arthropods present in the duff layer and upper soil horizons; Lindgren funnel traps to sample species associated with downed, woody debris; beating, to dislodge species from dense vegetation (e.g. tree boughs) or specific plant species; light trapping using UV or metal-halide light sources to detect

nocturnal species; 'bait' trapping using a variety of baits, including carrion and dung, to opportunistically sample a specific fauna otherwise uncommonly to rarely encountered; and raised emergence traps to sample specific habitats (e.g. mammal burrows) for emerging species.

Collected material was cleaned and prepared (e.g. critical point drying), mounted, labeled and identified. In all approximately 14,000 specimens were collected of which 9,653 specimens have been mounted and labeled. A total of 3,344 specimens have already been identified to genus or species levels and recorded within NHIC databases.

Preliminary results indicate that the 2011 collections contain many new Canadian and Ontario records, as well as many restricted, rare or rarely collected species. General findings indicate that three of the forest sites sampled (Cronmiller, Peter's Woods, and at a site within Turkey Point) support a rich diversity of taxa associated with fungi and decaying wood expected or indicative of mature, 'older-growth' forests. Coleoptera represent a large proportion of this diversity and of these the Staphylinidae (rove beetles) is the most diverse with many significant species present.

Samples from the open savannah sites (Barr and Turkey Point) show an insect fauna comprised of a mixture of woodland and grassland species, dominated by the species of the major groups (Hymenoptera, Orthoptera, Hemiptera and Diptera) normally associated with these open habitats. The specifics of the new Canadian and Ontario records will be detailed within a future scientific journal publication.

The NHIC has also been a collaborator in surveys for arthropods in the Black Oak savannah of the Alderville First Nation on the Rice Lake Plains south of Rice Lake. In both 2010 and 2011 pan traps were used to sample arthropods in both recently burned and unburned oak savannah between June and September. Among the many specimens collected and currently being processed were 10 specimens of the provincially rare Black Pursweb Spider, *Sphodros niger*. This rarely collected and apparently very rare spider is known from only a dozen occurrences in Ontario, and with the exception of the Alderville Black Oak Savannah, nowhere in Ontario has its presence been recorded in over 10 years.



The Black Pursweb Spider (*Sphodros niger*) has a conservation rank of S1. It is the only Ontario spider that belongs to a group of arachnids that includes tarantulas. Pursweb spiders spin long, purse-like silk tubes extending from a subterranean burrow, usually horizontally along grass stems, tree trunks or rock faces with much of the exposed silk camouflaged with bark and other detritus. Prey which touch or cross the silk tube are impaled through the tube from the inside by means of the long fangs and then dragged into the tube through a slit cut in the tube wall. The species appears to be both rare and rarely detected. This spider lives in grasslands, prairies and open, grassy woodlands often near water. In Ontario, the species is known currently from 22 specimens from a dozen locations extending from Windsor north to the vicinity of Belleville. Photo: Alan Cressler

Donald Sutherland

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