Natural Heritage Information Centre Newsletter

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Science and Research Branch
Natural Resources Information Section

Puzzle Lake area. Photo: Sam Brinker.

Algonquin to Adirondacks landscape analysis

By Bonnie Henson

This past year the Natural Heritage Information Centre (NHIC) partnered with the multi-national Algonquin to Adirondacks (A2A) Collaborative to analyze the natural heritage features of this region, which are experiencing increasing development pressure. The goal of the project was to provide information and map the natural heritage systems in the region to support land use planning, stewardship activities, land securement programs and other conservation efforts by planning authorities, conservation groups, community organizations, and residents in the A2A region.

The A2A Collaborative is a non-profit organization that promotes conservation and connectivity in the A2A region. The A2A region extends from the southern edge of Adirondack Park in upper New York State to the northern edge of Algonquin Provincial Park in Ontario. This area has been identified as an important north-south corridor connecting the Appalachian forests of the northeastern United States to the

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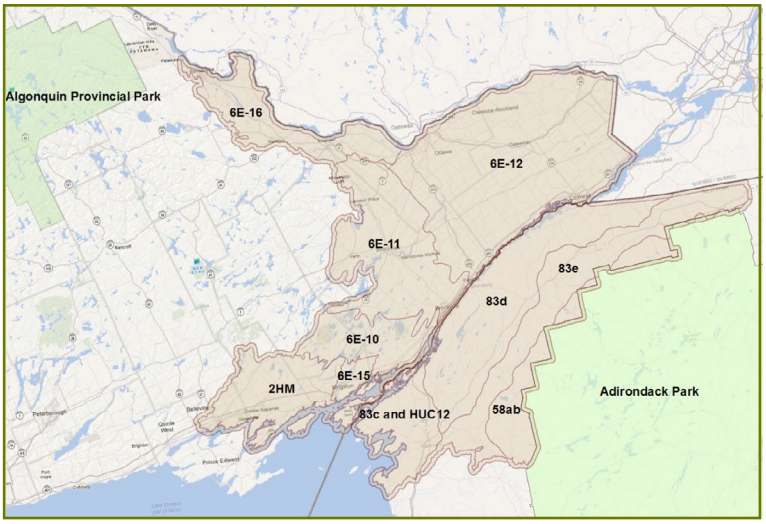
Ontario

boreal forests of the Canadian Shield (see map). The Frontenac Arch, which is a key geological feature in this region, may provide the conditions to allow species to move through the area, thus supporting biodiversity conservation and resilience. Analysis in this project identified three key components of a natural heritage system: core land and water areas, the most efficient pathways to connect cores together, and riparian linkages that connect core areas and linkages along riparian systems.



This map depicts the study area boundary (brown shaded area) for the A2A landscape analysis.

Species and plant community data tracked by NHIC and its NatureServe member program associate, the New York Natural Heritage Program, were used to inform the natural heritage system design. The landscape was also characterized by a series of data layers that represent values related to biodiversity and ecosystem function, and constraints were identified to help users focus on areas within the natural heritage system with conservation opportunities and challenges. This set of criteria was compiled from the best digital data available for Ontario and New York. As more information is collected and new data sets are created, new or improved criteria may assist future analyses to characterize this landscape and inform land use and resource management decisions.

The information products from analysis associated with this effort have been packaged and are available to download from Land Information Ontario (LIO) by searching the LIO metadata tool using the phrase “Algonquin to Adirondack”. The A2A Collaborative is leading the communication of the results of this analysis and its application. Questions can be directed to nhicrequests@ontario.ca or the A2A Collaborative at coordinator@a2alink.org.

Botanical data collection, verification, and management at the NHIC

By Michael J. Oldham

Botanists Dave Bradley, Sam Brinker, and Mike Oldham share responsibility for botanical data collection, verification, and management at the NHIC. Dave has lead responsibility for bryophytes (mosses and liverworts), Sam for lichens (although technically lichens are not “plants”), and Mike for vascular plants. One of their main tasks is managing botanical records in the elements table of the provincial Biotics (NatureServe) database. Elements are the units for which NHIC gathers data, and include plant or animal species, vegetation communities, and wildlife concentration areas.

The botanical portion of the provincial elements table contains 5,777 element records, comprising 4,211 vascular plants, 781 lichens, and 775 bryophytes. In the provincial Biotics database, each of these elements is assigned a subnational conservation status rank (S-rank) for prioritizing conservation actions. Each record also inlcudes a scientific name, English and French common names, synonyms (alternate names), taxonomy information, native

Mike Oldham examines plant specimens in the NHIC herbarium.

or introduced status, legal species at risk status, ranking reasons, and other information. The element lists maintained in the Biotics database are available for download from the NHIC web page (see https://contrib.ontario.ca/environment-and-energy/get-natural-heritage-information) and form the basis for the species lists in the provincial Land Information Ontario (LIO) database.

Each summer NHIC botanists conduct fieldwork in different parts of the province and gather botanical data in support of a wide variety of biodiversity conservation projects. For the past six years biodiversity surveys in Ontario's Far North have been a major focus (see article on page 4 of this newsletter). During these field surveys information is gathered on botanical features in various ways, including quantitative vegetation plot sampling, long-term monitoring plots, species lists for prioritized community types and sites of interest, and the collection of voucher specimens. A major focus of fieldwork is collecting data on species of provincial conservation concern, i.e., those with high conservation status ranks that the Ministry of Natural Resources and Forestry (MNRF) tracks, or legally listed species at risk, and species whose conservation status is poorly known in the province. Site specific information on tracked species is incorporated into the Biotics database in the form of element occurrence records.

Collecting voucher specimens is an important part of botanical fieldwork. Each year NHIC botanists collect hundreds of plant samples for verification and research purposes. Many plant species are challenging to identify in the field, with accurate identification dependent on microscopic characters and reference to botanical manuals and/or comparison with authoritatively identified specimens. Often NHIC staff members identify specimens and then send them to taxonomists with expertise in particular plant groups for verification. After the specimens are identified they are labelled, mounted, catalogued, and permanently housed in museums and herbaria in Canada and the United States so taxonomists and biodiversity researchers can consult them in the future. Some duplicate specimens are retained in the NHIC herbarium where MNRF staff members use them as an aid in identification, in identification workshops, and for scientific study. These specimens are permanent records of species occurrences in particular areas, and are the foundation of taxonomic and biodiversity research.

Vegetation Sampling Protocol – from paper forms to a digital database

By David Bradley

The MNRF has been using the Vegetation Sampling Protocol (VSP) to collect plot-based vegetation data for the past 10 years. Since 2005, over 4,000 vegetation plot data packages have been collected from all of the major vegetative zones[1] in southern and central Ontario. As part of the Biodiversity and Monitoring Section work plan for 2014-2015, the NHIC began to digitize the VSP plot data packages.

Two data entry technicians were hired to help with the digitization of VSP data. Both Brookelynn Indelicati and Cara Holtby have backgrounds in ecology and were well suited to the task. Each spent four weeks entering data into a

Vegetation sampling training on an alvar in Carden Township. Photo: Wasyl Bakowsky.

[1] A distinct plant community usually associated with a specific substrate type.

Microsoft Access database using a data entry form that Danijela Puric-Mladenovic designed. Pull down lists in the data entry form made data entry efficient and minimized the number of transcription errors.

Each plot package includes the area name, a brief description of the vegetation community found at the site, Universal Transverse Mercator (UTM) coordinates, a list of the dominant plant species, a brief description of the underlying substrate, soil type, and additional environmental characteristics. Using this information, ecologists can classify each site.

The data packages range in size, from one to five data sheets, depending on the objectives of the sampling design. Some include diameter measurements for all trees growing within a 400 m^2 sample plot. Brookelynn and Cara entered data from more than 500 data packages into the digital database.

These digital plot-based data can support a number of science and research projects, and will serve as a useful tool to examine a wide range of ongoing environmental land use and management opportunities.

Far North Biodiversity Project, 2014 update

By Michael J. Oldham and Michael J. McMurtry

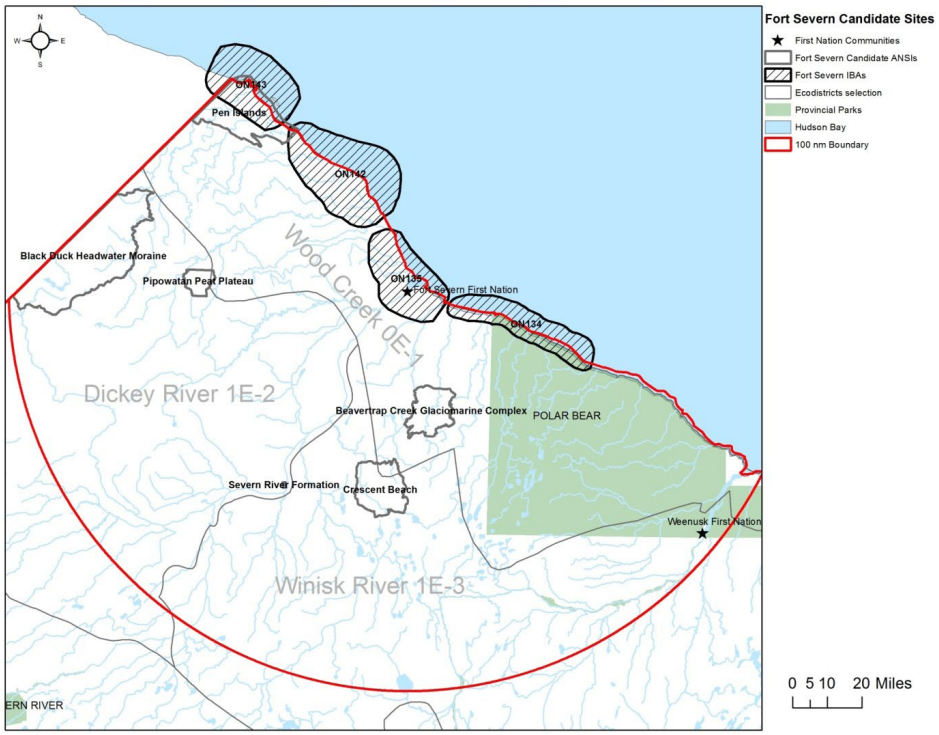
Four NHIC biologists, Sam Brinker, Colin Jones, Mike McMurtry, and Mike Oldham, participated in field surveys during 2014 in support of the Far North Biodiversity Project (FNBP). They worked along-side other Ministry of Natural Resources and Forestry (MNRF) staff members from Timmins (Alex Howard and Shannon Page), Sault Ste. Marie (Peter Uhlig), and Peterborough (Chris Lewis and Eric Snyder). MNRF helicopter pilot Doug Holtby safely transported the field crew to and from the study sites. NHIC staff members have participated in all six years of FNBP fieldwork and are now involved in writing up their findings.

Arctic willow (*Salix arctica*, foreground), entire-leaved mountain-avens (*Dryas integrifolia*, white flowers), and Hudson Bay oxytrope (*Oxytropis viscida* var. *hudsonica*, purple flowers) on the Hudson Bay coast. Photo by Michael J. Oldham.

Field surveys in 2014 covered the most northerly portion of the province, including the Hudson Bay coast near the Manitoba border and operated out of the community of Fort Severn, Ontario's most northerly settlement. Ten study areas were targeted for surveys including four coastal Important Bird Areas (IBAs) and six candidate Areas of Natural and Scientific Interest (ANSI) (see map on page 5). At each study site biologists set up traps for sampling insects (pan traps and malaise traps), conducted breeding bird point counts, sampled vegetation plots, made species lists and collected vascular plant, bryophyte, lichen and various invertebrate specimens for later identification.

There were many highlights in this interesting and seldom explored part of the province, including sightings of polar bear, woodland caribou, wolverine and beluga. A wolf pack howled in greeting

as we stepped out of the helicopter at the Black Duck River, near the Manitoba border. Over 70 species of provincial conservation concern, tracked by MNRF, were encountered during fieldwork. Identification of specimens collected is still ongoing, so undoubtedly the list of significant species will increase. Botanical surveys resulted in the discovery of three vascular plant species not previously reported from Ontario: Lachenal's sedge (*Carex lachenalii*), fragile sedge (*Carex membranacea*), and arctic willowherb (*Epilobium arcticum*). Two vascular plant species not documented in the province in at least 20 years and ranked SH (historical) were also located: American milk-vetch (*Astragalus americanus*) and little-tree willow (*Salix arbusculoides*).

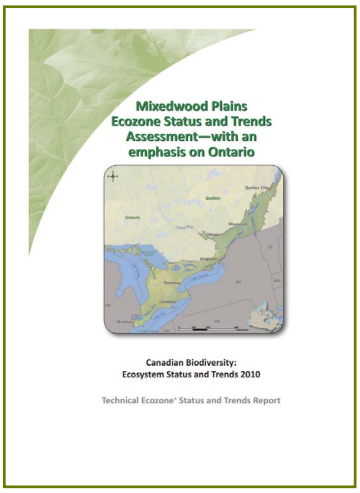


2014 Far North Biodiversity Program study sites.

Collection of bryophyte (moss and liverwort) and lichen specimens has been a focus during the six years of the project. These taxonomic groups can be dominant at some sites in the Far North, but are relatively poorly known. The FNBP surveys have greatly enhanced our knowledge of the distribution and conservation status of these groups. Specialist Linda Ley has now identified the more than 800 bryophyte specimens collected during 2014 FNBP fieldwork. They will be deposited and permanently housed in the herbarium of the Canadian Museum of Nature. Several bryophytes not previously documented in Ontario were collected in 2014, as well as over 175 records of species currently tracked in the province. NHIC botanist, David Bradley, is currently revising the subnational conservation status ranks (S-ranks) of Ontario bryophytes in part using data collected during the FNBP. Several hundred lichen specimens and additional invertebrate specimens were also collected during FNBP 2014 fieldwork; the majority of these have not yet been identified.

Mosquitoes and other biting insects are one of the hazards of Far North fieldwork! Photo: Michael J. Oldham.

New ecosystem status and trends report now available



By Kim Taylor

The Mixedwood Plains Ecozone Status and Trends Assessment-with an emphasis on Ontario is now available on the Ontario Biodiversity Council website at http://ontariobiodiversitycouncil.ca/reports-introduction/estr/Ontario.

Completing this report helps both Ontario and Canada assess their progress towards meeting United Nations targets to reduce the rate of biodiversity loss. The report was a collaborative effort of 96 co-authors from across Ontario and Quebec. Other contributing authors included staff from the federal government and organizations such as the Canadian Cooperative Wildlife Health Centre, various Conservation Authorities, Ministère des Ressources Naturelles et de la Faune, universities, the Nature Conservancy of Canada, and the Ontario Biodiversity Council.

The report was written as a series of individual essays on the history and ecology of the ecozone and covers the time period from the last glaciation to the present. It includes essays on settlement history, land use and the current population, terrestrial and aquatic ecosystems, status and trends in species composition and ecosystem processes and functions, key stressors on the ecozone such as invasive species, pollution and climate change. The report also includes an integrated analysis of these components.

The Mixedwood Plains is one of the smallest ecozones in the country yet is home to 53% of Canada's human population with a projected increase of an additional four million inhabitants in the Ontario portion of the ecozone by 2031. The Mixedwood Plains has the highest floral and freshwater fish diversity in Canada and is home to more rare communities and species at risk than any other ecozone in the nation.

Habitat loss and fragmentation are key issues: the ecozone is experiencing declines in pollinators, loss of natural predator-prey cycles, losses of large predators (wolf, bear) from much of the ecozone while human-tolerant species (deer, raccoon, coyote) have flourished. Also, there has been a loss of natural disturbance regimes, loss of prairie and savannah ecosystems to 2% of historic levels, and loss of forest to 25% of historic levels.

In Ontario, approximately 0.5% of the ecozone's representative ecological areas are under formal protection, which is far below the Aichi target of 17% by 2020.[1] The ecological footprint for the Ontario portion of the ecozone is estimated at 8.5 global hectares per person,[2] which is four times the world average and six times the biocapacity[3] of the ecozone. Significant challenges remain for the Mixedwood Plains.

The shared knowledge in this report provides for a better understanding of the Mixedwood Plains ecozone, and should be a useful reference point for future reporting. If you have any questions regarding the report please contact the lead author Kim Taylor (kim.taylor@ontario.ca).

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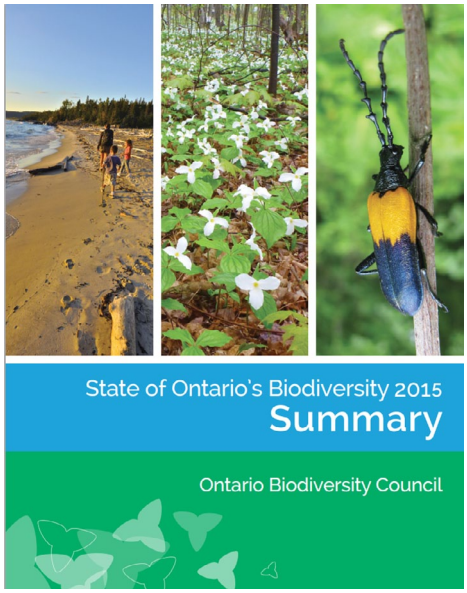
1 Aichi biodiversity targets are a set of 20 targets agreed to by the parties to the Convention on Biological Diversity in Nagoya, Japan, 2010.

2 One global hectare represents the average productivity of all biologically productive areas (measured in hectares) on earth in a given year.

3 Biological capacity or biocapacity is the capacity of a given biologically productive area to generate an on-going supply of renewable resources and to absorb its spillover wastes.

NHIC contributions to State of Ontario's Biodiversity 2015 report



By Michael J. Oldham, Don Sutherland, Bonnie Henson, and Wasyl Bakowsky

The State of Ontario's Biodiversity 2015 report describes the current state of the province's biodiversity using a variety of indicators. Data maintained by the NHIC are used for several indicators, including information about rare plant communities and the status of native species.

The status of native Ontario species was assessed using general status ranks assigned by the Canadian Endangered Species Conservation Council's National General Status Working Group (CESCC 2011). General status ranks are assigned to a broad cross-section of Canadian species with ranks being reassessed every five years. The NHIC assigns most of the Ontario general status ranks for species occurring in the province, and NHIC biologists assisted Al Dextrase and Terese McIntosh of MNRF's Biodiversity Branch with the analysis and interpretation of this biodiversity indicator.

In 2010, 6,995 Ontario species were assessed by the general status program including 2,778 species that were not assessed in the Wild Species 2005 report (CESCC 2006). The number of species with changes in general status ranks and the reasons for these changes were examined using Ontario general status ranks from 2005 and 2010 for species assessed in both years. Some changes in rank occurred as a result of real changes in the distribution, population size or threats to the species causing ranks to either increase or decrease in risk. Many of the changes in risk were due to improved information about the species (i.e., new data revealed a more accurate picture of the status of the species). Other changes in rankings occurred due to taxonomic changes (a formerly recognized species is combined with another species or a single species is divided into two or more species), procedural changes, and fixing errors from the previous report.

NHIC rare plant community information was used in the State of Ontario's Biodiversity 2010 report to assess the total area of select rare ecosystems (tallgrass prairie and savannah, alvar and freshwater dunes) across Ontario, and how much of this area is legally protected. These rare ecosystems were selected for reporting as they support many provincially and globally rare species that are found nowhere else in the province, they are sensitive to human disturbance, and the extent of some types has been greatly reduced across the province.

Since the release of the 2010 report, NHIC staff have continued to add and refine digital data for these community types on an ongoing basis, and the updated rare community layer was used for the State of Ontario's Biodiversity 2015 report. Standard NatureServe methodology was used to develop element occurrences (EO) for these communities and each EO has been assigned a quality rank ranging from A (excellent predicted viability) to D (poor estimated viability) based on factors of size, condition and landscape context. This work incorporates boundary refinements from field notes and digital orthophoto interpretation to produce 643 occurrences of these selected globally rare plant communities.

Analysis results were made available when the State of Ontario's Biodiversity 2015 report was released at the Ontario Biodiversity Summit on May 19th 2015.

References

Canadian Endangered Species Conservation Council (CESCC). 2006. Wild Species 2005: The General Status of Species in Canada. National General Status Working Group.

Canadian Endangered Species Conservation Council (CESCC). 2011. Wild Species 2010: The General Status of Species in Canada. National General Status Working Group. Available at http://publications.gc.ca/collections/collection_2011/ec/CW70-7-2010-eng.pdf

Thank you to our summer employees and co-op students

By Peter Sorrill and Michael J. Oldham

Hailey Hynes, Ian Colquhoun, and Ben Hewitt joined the NHIC last summer for 12 weeks as part of the Summer Experience Program (SEP). Kostia Arlouski and Kyle White assisted NHIC as part of their high school co-op placements. Emile Metcalf came on as a forest technician summer student to help Danijela Puric-Mladenovic with vegetation sampling protocol implementation.

Hailey helped with a number of administrative tasks, including organising personnel and asset management files, and implementing a digital file management plan for the NHIC.

Highschool co-op student Kostia Arlouski and SEP student Ian Colquhoun. Photo: Wasyl Bakowsky.

Ian helped David Tellier, Pete Sorrill and Sandy Gemmiti improve the process for importing observation reports submitted by members of the public into the NHIC's databases. He also helped Wasyl Bakowsky teach Vegetation Plot Sampling, training participants how to use SxBlue GPS units combined with Nomad handheld computers.

Ben worked on a variety of tasks, including mounting, adding to a database and filing vascular plant specimens, and organizing and labeling bryophyte specimens in the NHIC herbarium; organizing, filing, and adding to a database digital and hard copy references; and adding to a database scanned and photographed specimen label information. He also assisted staff with field surveys for amphibians and reptiles, rare plants and land snails.

Kostia assisted with identifying different ways to map atlas data online, and creating online natural areas and Element reports.

Kyle investigated options for mapping species data using Google Earth and making it available to the public. He also assisted with developing a tool to import species observations from email reports into our database.

Special thanks to Wendy Kitts and David Tellier for working with these students on our behalf to make their work a success for NHIC.

Multidisciplinary research on the Slate Islands, Lake Superior

By Wasyl Bakowsky and Sam Brinker

Sam Brinker and Wasyl Bakowsky of the NHIC conducted field studies in the Slate Islands on Lake Superior, south of Terrace Bay, for a week in July of 2014. They were part of a group of researchers conducting multidisciplinary studies on the islands, including rare plant and vegetation surveys, vegetation sampling, and fish community sampling. The location data of provincially tracked rare and arctic-alpine species and plant communities are added to the provincial record maintained by the NHIC.

Slate Islands arctic-alpine rock shoreline. Photo: Wasyl Bakowsky.

In addition to NHIC staff, the group included staff from Ontario Parks, researchers from Northern Michigan University, and biologists from the Upper Great Lakes Management Unit.

Slate Islands gang. Photo: Wasyl Bakowsky.

NHIC staff focussed their fieldwork on surveys of arctic-alpine bedrock shorelines, which are fissured rockshores and headlands with a high proportion of species that are usually associated with arctic or alpine environments. Some of these plants are provincially rare, or in some cases are tracked by NHIC in the Great Lakes basin because they are rare in that area, but may be common on tundra along the Hudson Bay coast. The tracked species and vegetation communities observed during the survey are listed in Table 1.

The cold waters of Lake Superior frequently produce maritime fog during the summer. These humid conditions allow Lake Superior to support populations of maritime lichens (i.e., lichens which are mainly restricted to the Atlantic and Pacific coasts). In addition to shorelines, moist cliffs and sheltered areas were surveyed for these lichens. Maritime species found during the fieldwork include hanging fringed lichen, powdered ruffle lichen, and Methuselah's beard lichen.

The Slate Islands are well known for their isolated woodland caribou population, and the vegetation is being impacted by their grazing. Ontario Parks has been monitoring vegetation on the islands for the past nine years through a series of plots scattered throughout the archipelago. Each location has three plots, an open control plot and two fenced plots. One of the fenced plots is fenced to the ground, in order to keep out both woodland caribou and snowshoe hare, the second has a gap at the base, to allow snowshoe hares to enter and graze the plot, while excluding woodland caribou. These plots were inventoried by Ontario Parks and Northern Michigan University researchers. This allows a comparison between ungrazed vegetation and vegetation grazed by woodland caribou only, and by woodland caribou and snowshoe hare.

Upper Great Lakes Management Unit staff spent the week conducting netting surveys at various locations around the Slate Islands, in order to assess the abundance and age structure of the local fish populations, including lake trout and whitefish.

The Slate Islands will soon be regulated as an operational park. Although previously designated as a provincial park, it had no facilities or services. A number of locations have been identified as suitable for low impact camping, primarily by kayakers. NHIC staff assessed these areas to determine if any significant species or vegetation were present and would be harmed by campsite development.

Table 1: Tracked elements observed during 2014 fieldwork on Slate Islands.

PLANT COMMUNITY		**S-rank**
Great Lakes Arctic Alpine basic bedrock shoreline		S3
SPECIES		
Scientific name	**Common name**	
Plants		
Anemone parviflora	Small-flowered anemone	S5*
Carex atratiformis	Scabrous black sedge	S1
Cerastium alpinum	Alpine chickweed	S4*
Dryas drummondii	Drummond's mountain avens	S1
Dryas integrifolia	Entire-leaved mountain avens	S5*
Gymnocarpium robertianum	Limestone oak fern	S2
Huperzia appressa	Mountain firmoss	S2?
Moehringia macrophylla	Large-leaved sandwort	S2
Oplopanax horridus	Devil's club	S1
Taraxacum ceratophorum	Horned dandelion	S5*
Woodsia alpina	Alpine woodsia	S2
Lichens		
Anaptychia setifera	Hanging fringed lichen	S3
Parmotrema arnoldii	Powdered ruffle lichen	S1S3
Usnea longissima	Methuselah's beard lichen	S2S3

* Partially tracked species i.e., Great Lakes Basin population tracked as significant disjunct.

Rare plant community layer in Land Information Ontario

By Wasyl Bakowsky

Natural Heritage Information Centre (NHIC) staff members conduct field research and surveys for priority species and areas across Ontario. The centre collects, reviews, manages and distributes information for:

- species of conservation concern
- rare and exemplary plant communities
- wildlife concentration areas
- natural areas

Freshwater sand dune polygons at Sandbanks Provincial Park.

Sand dunes at Long Point, Lake Erie. Photo: Sam Brinker.

The NHIC recently uploaded rare plant community polygons to the Plant Community Occurrence Provincially Tracked data class in Land Information Ontario (LIO). The data layer includes polygons for tallgrass prairie, savannah and woodlands, alvars (a globally rare plant community, characterized by open habitats on shallow soil over limestone bedrock, with a distinct flora and fauna), and freshwater sand dunes. This includes tallgrass prairies and savannahs in northwestern Ontario, concentrated in the vicinity of Lake of the Woods, Rainy Lake, and Rainy River.

Tabular data associated with the polygons include the vegetation type, site name, and quality rank, ranging from A (excellent predicted viability) to D (poor estimated viability), based on factors of size, condition and landscape context.

The data layer currently has 799 occurrences of these globally rare plant communities.

The NHIC is completing a quality assessment on the following vegetation type datasets: Great Lakes coastal meadow marsh, Atlantic coastal plain marsh, limestone cliffs (southern Ontario), and diabase cliffs (northwestern Ontario). As each type is finalized, they will be uploaded into LIO. Ontario Public Service staff, and LIO account users will be able to access these data.

The rare plant community layer is also available through the Non-standard Data Distribution (PlantComm_OCC_PT) available to MNRF staff.

Ontario's wild, native pollinators – a critical part of our biodiversity

By Colin Jones

Declines in pollinators have been reported worldwide, including here in Ontario. This is a major concern because we rely on these insects to pollinate many of our crops. They are also critical in pollinating the vast majority of native, flowering plants and so they are a key component of Ontario's biodiversity.

Rusty-patched bumble bee (*Bombus affinis*). Photo: Jen Knutson, Newport, MN. Creative Commons License.

While bees are probably the most important group of pollinators in Ontario, other insect groups also contain species that act as pollinators including flower flies, bee flies, beetles, wasps, butterflies and moths.

The honey bee (*Apis mellifera*), which is not native to North America, has been widely used as a pollinator for a variety of agricultural crops across North America. Until relatively recently, honey bees have been easy to manage and have been a viable option for this purpose. Unfortunately, in recent years, a variety of factors have contributed to declines in managed honey bee colonies, with evidence of similar declines in some native bees.

One extreme example is one of Ontario's bumble bee species—the rusty-patched bumble bee (*Bombus affinis*). It has experienced precipitous declines since the 1980's. Studies in the 1970's found that approximately 14% of bumble bees collected in southern Ontario were rusty-patched bumble bee (making it the 3rd or 4th most abundant bumble bee species in the province). Sadly today, it has almost disappeared from Ontario and has been listed as Endangered under Ontario's Endangered Species Act. The reasons for the sudden decline are largely unknown but may involve a variety of factors including disease, habitat loss and pesticide use. Other bumble bee species are facing a similar fate.

Despite the declines seen in honey bees and some bumble bees, there are many species of wild, native pollinators (e.g. there are nearly 400 native bee species in Ontario) that act as pollinators for agricultural food crops. We know far less about the pollination services of these native, wild pollinators, but some preliminary research from apple orchards in New York state has shown that they can be very effective.

Honey bees will undoubtedly continue to be considered key pollinators in agricultural systems, but by also ensuring a healthy native pollinator population, we can be better prepared for situations where one or more species may be facing temporary or long-term declines. Also, with a healthy and diverse native pollinator community, it is much more likely that pollination will occur despite wet or cold weather conditions.

The NHIC is constantly adding new taxonomic groups of lesser known insects to the provincial list of species maintained in our Biotics database, among them are the groups that represent some of Ontario's primary native, wild pollinators: bees (*Apoidea* – 410 species), hover flies (family *Syrphidae* – 314 species) and bee flies (family *Bombyliidae* – 63 species). The conservation status of all of the species within these groups has been recently assessed, in cooperation with Environment Canada's Wild Species program. Most species in these groups have now been assigned a provincial conservation status rank (S-rank). The NHIC will, therefore, begin tracking the observations of those newly added species of conservation concern (i.e. those ranked SH, S1, S2 and S3) and these will become part of the Provincial Record. This represents a significant contribution of the NHIC to Ontario's emerging Pollinator Health Action Plan.

MNRF biologists, Mike McMurtry (retired June 2015), Shannon Page, and Peter Uhlig scanning the Hudson Bay coast for shorebirds. Photo: Michael J. Oldham.

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