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Large-Scale Restoration of the Rice Lake Plains: A Landscape Conservation Approach

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Abstract

In Ontario, it is estimated the tallgrass prairie and savanna once covered 70,000 hectares (173,000 acres), of which approximately 3% (2,100 ha, 5,189 acres) remains today. Based on historical land surveys and from early botanical accounts, the easternmost extent of these unique habitats was along the eastern flank of the Oak Ridges Moraine in an area known as the Rice Lake Plains. This area covered an estimated 15,384 to 30,300 hectares (38,000–74,131 acres) (Catling and others 1992). The Rice Lake Plains harboured numerous savanna indicator species such as the extirpated Karner blue butterfly (*Lycaeides melissa samuelis*). In 2002, the Nature Conservancy of Canada purchased 316 ha (780 acres) on the Rice Lake Plains and initiated restoration plans. Bringing together multiple partners, NCC is leading the Rice Lake Plains Joint Initiative. This goal of the partnership is to raise the awareness of, and restore, the globally rare and provincially significant ecological communities and the species associated with them. To date, three years of funding has been secured. The Initiative involves the large-scale restoration of NCC lands and the assessment of over 2,400 hectares (6,000 acres) of adjacent lands. Restoration will include the removal of non-native species and prescribed burns. In addition, mapping and field inventories will be conducted on private lands on the Rice Lake Plains. Educational and communication opportunities will highlight this area to naturalists, landowners and local citizens and raise awareness of this globally rare habitat. Management plans are being developed for properties and will be used to generate a landscape conservation plan for the Rice Lake Plains.

Keywords: tallgrass prairie, oak savanna, restoration, Rice Lake Plains Joint Initiative, Nature Conservancy of Canada

Introduction

The Rice Lake Plains is one of the large areas of tallgrass prairie and savanna that existed in Ontario. The historical extent of the Plains is estimated at 15,384–30,300 hectares (38,000–74,131 acres) (Catling and others 1992). Recently the Nature Conservancy of Canada (NCC) purchased 317 ha (784 acres) of prairie and savanna in the Rice Lake Plains. Building on this, the NCC and five partners came together to form the Rice Lake Plains Joint Initiative (RLPJI). The goal of this Initiative is the long-term protection and enhancement of native species biodiversity on the Rice Lake Plains while fostering awareness and understanding of the significance of the area. Tasks include the mapping and assessment of tallgrass remnants, volunteer events, discussions with landowners regarding protection and restoration options, and long-term conservation.

Challenges to the large-scale restoration include removal of non-native species, development, and succession. Future activities will involve the removal of non-native species and the reestablishment of a prescribed burning regime.

Historical Extent of Prairie in Southern Ontario

Tallgrass prairie and savanna occurred across southern Ontario. The extent and amount of prairie and savanna in Ontario are derived from early land surveys, historical plant and animal collections, and pioneer writings (Bakowsky and Riley 1994). European settlement, agricultural, urbanization, clearing, and lack of management have resulted in the reduction of prairie and savanna habitat. Figure 1 shows the estimated minimum historical extent of tallgrass prairie in Ontario was 70,000 hectares (173,000 acres) (Bakowsky 1993).

Current Status of Prairie in Southern Ontario

In 1992, the Ministry of Natural resources commissioned a survey of the tallgrass prairies of southern Ontario. This survey identified about 2,100 hectares (5,189 acres) of tallgrass communities remaining in this region (Bakowsky 1993, Bakowsky and

Riley 1994), less than 3% of the original extent (Bakowsky 1999). Figure 2 shows the locations of these remnants. The largest remaining examples are found in three locations: Walpole Island First Nation (225 ha or 556 acres), Ojibway Prairie Provincial Nature Reserve (443 ha or 1,088 acres), and Pinery Provincial Park (1,250 ha or 3,038 acres). The majority of the remaining sites were small and scattered remnants located along roadsides, railroads or steep slopes. In the Rice Lake Plains, two sites—the 40-ha (100-acre) Alderville First Nation site and the prairie cemetery at Red Cloud—are actively managed.

Rice Lake Plains: Historical Extent

Rice Lake Plains is the high ground south of Rice Lake on the eastern end of the Oak Ridges Moraine. This glacial moraine covers 195,000 hectares (481,855 acres) and occurs in 34 municipalities (Ontario Ministry of Municipal Affairs and Housing 2002). It acts as a recharge area for groundwater and provides significant natural habitat for sensitive and threatened plant and animal species. Figure 3 shows the outline of the Rice Lake Plains.

Historically, tallgrass communities made up 10 to 20% of the Oak Ridges Moraine (Ontario Ministry of Natural Resources 2001). The Rice Lake Plains was dominated by vast prairie and savanna habitats extending across an area of at least 17,200 hectares (42,500 acres) and perhaps as much as 30,000 hectares (74,000 acres) (Catling and others 1992). This figure was derived from early land surveys and writings and collections from early botanists (Catling and others 1992). One of these botanists, Catharine Parr Traill emigrated from England in 1832 and moved to the Rice Lake area. She and her family lived as pioneers on the plains. She wrote,

botanized and traveled around Rice Lake. In her book, *Backwoods of Canada* (Traill 1836), she writes about the Rice Lake Plains and the landscapes and plants that she saw:

We now ascended the plains – a fine elevation of land for many miles scantily clothed in oaks, and here and there bushy pines...

A number of exquisite flowers and shrubs adorn these plains, which rival any garden in beauty...

The trees, too, though inferior in size to those in the forests, are more picturesque, growing in groups or singly, at considerable intervals, giving a sort of park-like appearance...

In addition to her observations on the prairie on the Rice Lake Plains, she also noted the long time connection to the prairie by First Nation peoples of the region.

Rice Lake in First Nation Language is referred to as “Lake of the Burning Plain.”

Significance of the Rice Lake Plains

Due to development, vegetation succession and conversion to agriculture, the vast majority of the prairies and savannas in Ontario and Rice Lake have disappeared. As a result, these plant communities and the animal communities associated with them have disappeared. The black oak savanna, tallgrass prairie, oak woodland, and sand barren communities on the Rice Lake Plains are now globally and provincially significant. Species like the Karner blue butterfly (*Lycaeides melissa samuelis*) where historically found on the Rice Lake Plains (Catling and Brownell 1999). Prairie buttercup (*Ranunculus rhomboideus*) and the eastern hognose snake (*Heterodon platirhinos*) are two other unique species found on the RLP.

Recent discoveries of the white tiger beetle (*Cicindela lepida*) in the area demonstrate that other unrecorded species may yet be found.

Rice Lake Plains Joint Initiative

There are three core areas of conservation opportunity that make up significant portions of the eastern end of the Oak Ridges Moraine within the Rice Lake Plains: Alderville Woods, a 46.5-ha (115-acre) property, secured as part of a partnership between Lower Trent Conservation Authority and the NCC in 2001; Burnley Carmel, 317 hectares (784 acres) was purchased by NCC in December 2002 as part of a partnership with Ontario Parks; and the extensive Northumberland County Forest at 2,164 hectares (5,347 acres).

Given the aforementioned substantial landholdings in public or conservation

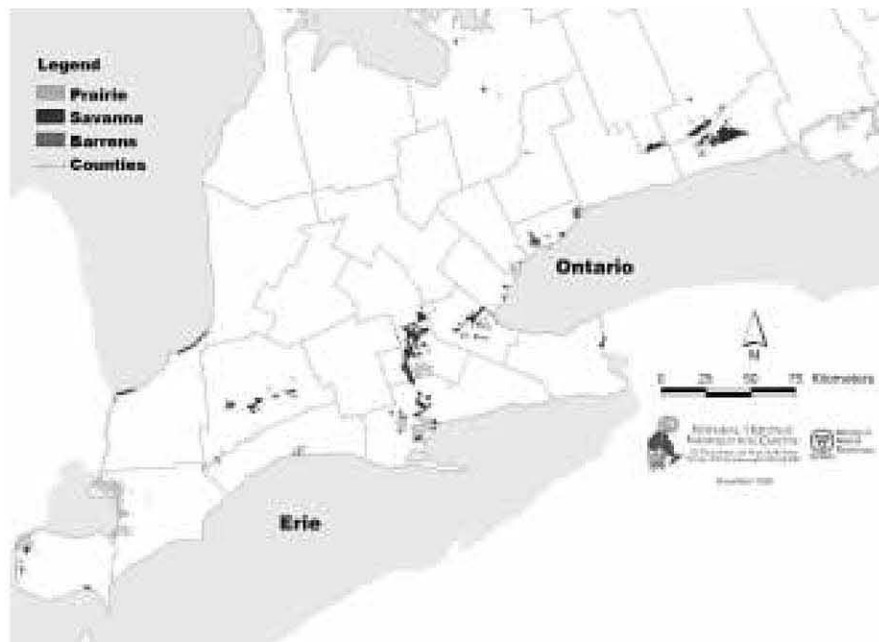


Figure 1. Historical extent of prairie and savanna vegetation in southern Ontario.

organization ownership within the Rice Lake Plains, discussions began regarding a partnership. Government and non-government groups were brought together to discuss the Rice Lake Plains and a joint partnership. These partners included Ontario Parks, NCC, Northumberland County, Wildlife Habitat Canada/Wildlife Habitat Canada, the Lower Trent Region Conservation Authority, and Ganaraska Region Conservation Authority. The Rice Lake Plains Joint Initiative (RLPJI) was established and a vision was agreed upon. The vision is as follows:

The restoration and protection of sustainable tallgrass prairie and oak savanna habitat through co-operative efforts in conservation science, land stewardship, public outreach, and legal protection of land.

This vision will be achieved in harmony with Oak Ridges Moraine legislation, policies and strategies, striking an appropriate balance between natural processes and human activities, and will lead to the long-term protection and enhancement of native species bio-diversity on the Rice Lake Plains while fostering awareness and understanding of the significance of the area.

Based on the vision, workplans were developed for the project. These components are: (1) inventory and assessment, (2) management planning and implementation, (3) a site conservation plan, and (4) a communication plan.

The initial phase of the project includes an inventory and assessment of the anchor properties of the NCC and Lower Trent Conservation landholdings noted above. This includes site visits to classify communities according to the Ecological Land Classification Methodology (Lee and others 1998). Percent cover, tallgrass quality, and restoration potential are also noted. Photos in combination with photo monitoring at some sites will be used to document the condition (Horn and Horn 1996). This information will be incorporated into the management and restoration plans. Information on the natural features of the County of Northumberland Forest will be collected and provided as input into Northumberland County's forest land management planning process.

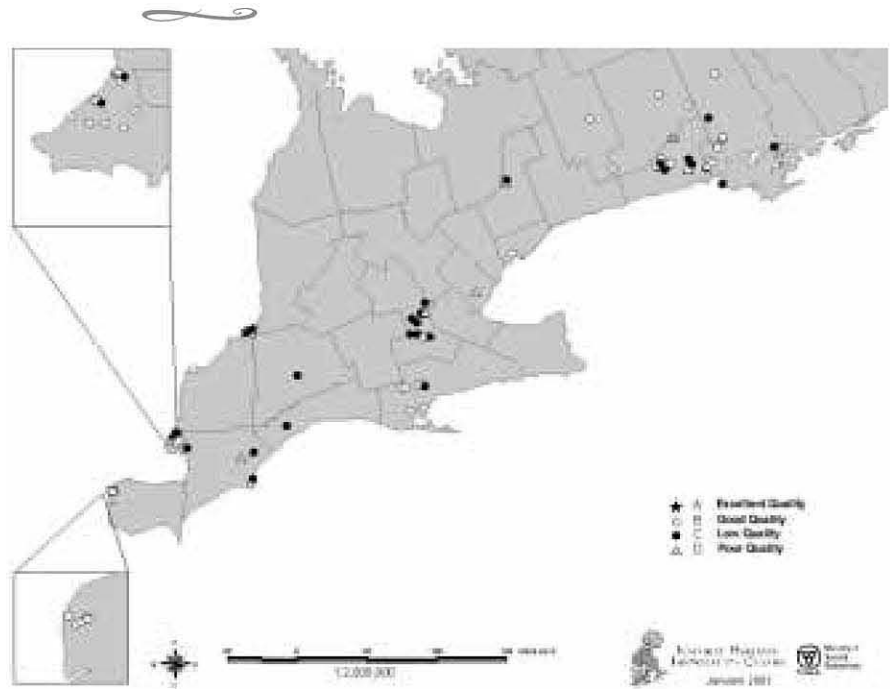


Figure 2. Extant tallgrass prairie and savanna communities in southern Ontario.

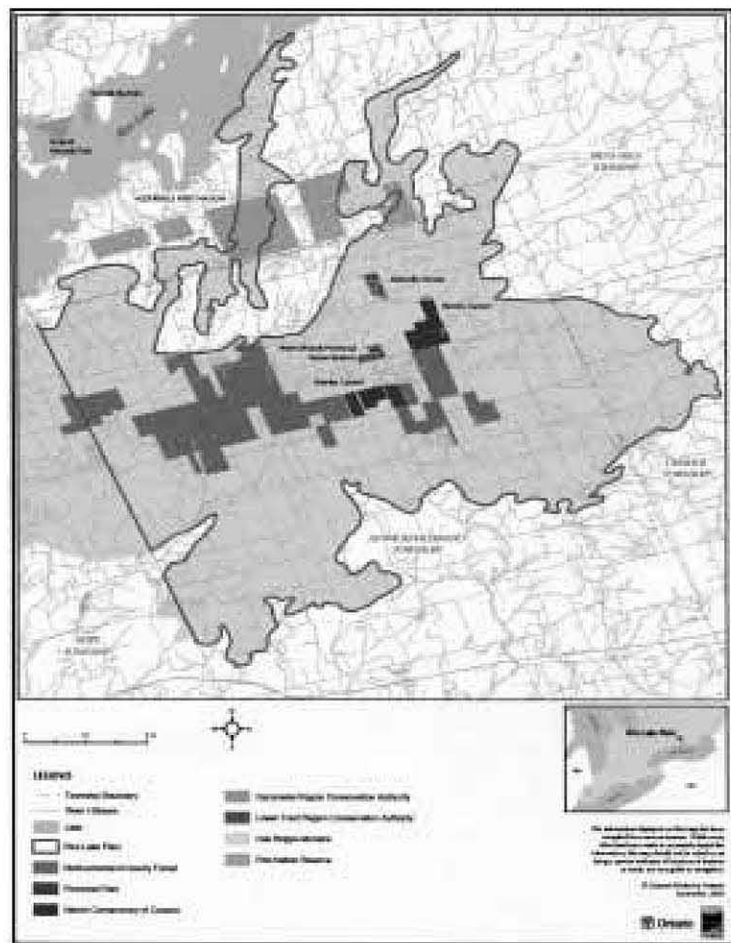


Figure 3. The Rice Lake Plains



In addition to inventory on the anchor properties, private landowners (non-anchor properties) are being approached. Air photo interpretation, previous studies (Catling and others 1992, Brownell and Blaney 1995), personal knowledge and information from local experts are being used to map these properties. Visits to interested landowners with tallgrass prairie and savanna on their property took place in 2004 and more are planned for 2005. The goal of the landowner visits is to update information on the site, educate landowners about the history and fauna of the area and to make restoration recommendations. For landowners that are interested in restoration, the RLPJI partnership will provide funds to help landowners restore the prairie and savanna on their properties.

Information collected from the anchor and non-anchor sites will form the scientific basis for a Site Conservation Plan for the Rice Lake Plains. The plan will include an assessment of the site (natural systems, conservation targets, threats and stresses), conservation strategies, and measures of conservation success.

High-quality communities, with an emphasis on tallgrass communities, linkage areas and restoration areas, will be identified as targets for securement through easements, donations, and strategic purchase. The Site Conservation Plan will assist the Rice Lake Initiative Partners in the identification of areas that are sensitive and provide direction for future planning and habitat management decisions for each of the three core properties.

The long-term stewardship of the secured properties is essential to maintain the quality and diversity of the sites. Conservation targets and restoration needs and activities will be identified. Management and the stewardship of sites and restoration activities will include removing non-native species, erecting trail signage, removing garbage, prescribed burning, planting, flora and fauna monitoring, seed collecting, signing, gating and thinning or removing plantations.

Communicating the results of the vegetation surveys and restoration activities, and raising the awareness of this unique community to landowners and local citizens is a major component of the RLPJI. Opportunities for volunteer and landowner participation and input will occur throughout the duration of the project.

Challenges to the Large-Scale Restoration of the Rice Lake Plains

There are numerous challenges to the large-scale restoration of the Rice Plains. The majority of these problems are associated with non-native species populations. Scots pine (*Pinus sylvestris*) was heavily planted in the area in the 1940–1960s to stabilize the soil and reduce soil erosion. Other recent non-native plant invaders to the area include white sweetclover (*Melilotus alba*), Louis' swallow-wort (*Cynanchum louiseae*),

lesser knapweed (*Centaurea nigra*), and brownray knapweed (*Centaurea jacea*). These plants displace native prairie plants and the animal species that depend on them. Inappropriate activities in public areas, such as all-terrain vehicle use and dumping of plant material and other refuse, are additional issues that will be addressed.

The majority of the tallgrass sites on the RLP have not been appropriately managed. As a result, the prairie and savanna areas are succeeding to shrub thicket and woodlands that are dominated by non-tallgrass prairie and savanna species. Fire, once a frequent occurrence on the plains has been reduced or eliminated within natural areas. Without management on these globally rare ecosystems and species will continue to disappear.

Future Activities

Management plans are in the final stages of completion for the Alderville Woods property and the Burnley Carmel property. Sites visits are complete for the Northumberland County property and results will be written up and incorporated into the management plans for the Northumberland County Forests. Restoration work will take place over the coming years and will focus on removal of non-native species and prescribed burns. Information from the management plans will be incorporated into the Site Conservation Plan.

Conclusion

The Rice Lake Plains contains significant amounts of globally rare tallgrass prairie and savanna. This community is at the eastern extent of the tallgrass prairie community in Ontario. As such it is extremely important that it be managed and protected. The RLPJI will be a showcase for collaborative efforts in the conservation of imperilled habitat. Without the partnership approach within the Rice Lake area, the large-scale conservation of this habitat would not take place. In addition, the resources, expertise, experience and landholdings of multiple partners greatly enhance the conservation potential for this region. The Rice Lake Plains Joint Initiative is a successful beginning to a long-term restoration of the Plains.

As a model the RLPJI is being used as a template for the other initiatives, directly to the west. In the future, tallgrass areas from each initiative could link up across the Oak Ridges Moraine and restore the larger scale connections of this globally and provincially rare habitat to its former glory.

Acknowledgments

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References

- Bakowsky, W.D. 1993. A review and assessment of prairie, oak savannah and woodland in Site Regions 7 and 6 (Southern Region). Report prepared by Gore and Storrie Ltd. for Ontario Ministry of Natural Resources, Southern Region, Aurora.
- _____. 1998. Tallgrass prairie and savanna mapping. Ontario Natural Heritage Information Center.
- _____. 1999. Rare vegetation of Ontario: Tallgrass prairie and savanna. Pages 3–5 in NHIC Newsletter, Spring 1999. Natural Heritage Information Center.
- _____. 2001. Tallgrass prairie and savanna mapping. Ontario Natural Heritage Information Center.
- Bakowsky, W. and J. Riley. 1994. A survey of the prairies and savannas of southern Ontario. In R. Wickett, P. Dolan Lewis, A. Woodliffe and P. Pratt (eds.) Proceedings of the Thirteenth North American Prairie Conference: Spirit of the Land, Our Prairie Legacy. Windsor, Ontario: City of Windsor.
- Brownell, V.R. and C.S. Blaney. 1995. Lower Trent Region Natural Areas-Volume 1: A biological inventory and evaluation of 20 natural areas in the Lower Trent Region. Trenton, ON: Lower Trent Region Conservation Authority.
- Catling, P.M. and V.R. Brownell. 1999. An overlooked locality for Karner Blue (*Lycaides Melissa samuelis*) in Ontario. In Butterflies of Ontario & summaries of Lepidoptera encountered in Ontario in 1999. Toronto Entomologists' Association Publication #32–2000.
- Catling, P.M., V.R. Catling and S. M. McKay-Kuja. 1992. The extent, floristic composition and maintenance of the Rice Lake Plains, Ontario based on historical records. *Canadian Field-Naturalist* 106(1):73–86.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998. Ecological land classification for Southwestern Ontario: First approximation and its application. Ontario Ministry of Natural Resources, South Central Region, Science Development and Transfer Branch.
- Ontario Ministry of Municipal Affairs and Housing. 2002. Oak Ridges Moraine Conservation Plan. http://www.mah.gov.on.ca/userfiles/HTML/nts_1_6846_1.html
- Ontario Ministry of Natural Resources. 2001. Natural Heritage Features of the Oak Ridges Moraine. Ontario Ministry of Natural Resources, Aurora District, Aurora, Ontario.
- Trill, C.P. 1836. *The backwoods of Canada*. London: Charles Knight, London. Reprinted 1989, Toronto: MacClelland and Stewart Inc.
- Van Horn, M. and K. Van Horn. 1996. Quantitative photomonitoring for restoration projects. *Restoration & Management Notes* 14:30–34.