

New York State Parks Natural Resource Stewardship and Environmental Interpretation Initiative

Restoration of Native Grasslands at Ganondagan State Historic Site

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PROJECT BACKGROUND

In the spring of 2009, a team of dedicated NYS Parks staff and community partners initiated a project to restore and maintain a 67-acre grassland complex at Ganondagan State Historic Site (SHS) in Victor, NY. The project planting was composed primarily of warm-season grasses - big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*) and Indian grass (*Sorghastrum nutans*) and several wildflowers - black-eyed Susan (*Rudbeckia hirta*), tall white beardtongue (*Penstemon digitalis*), smooth blue aster (*Aster laevis*), New England aster (*Aster novae-angliae*), zigzag aster (*Aster prenanthoides*), and Indian hemp (*Apocynum cannabinum*).

An analysis of the Ecological Regions of North America (CEC 1997) provided guidance for identifying plant species of local ecotypes used for establishing native 'oak opening' communities. Seeds from local (regional) sources were purchased through *Ernst Conservation Seeds*. Native warm-season grasses were selected because they are often better adapted to local soil and climatic conditions and effectively provide wildlife habitat for cover, nesting, rearing young and foraging (USDA 2004; MDC 2011). Native warm-season grasses function to concentrate insects, plant seeds and nectar which are important food sources for young birds and other wildlife (MCC 1980; USDA 2004).

The conversion from agricultural land to native grassland communities will create opportunities for historic and cultural interpretation and foster partnerships with agencies and academic institutions that promote research and understanding of historic and current sustainable landscape management practices. In addition, Ganondagan is the only NYS Historic Site dedicated to interpreting the history and culture of the Haudenosaunee Seneca Nation. Native grassland habitats and their associated wildlife and the use of fire in these areas were important to Native American culture.



PROGRESS

Thanks to a seemingly ideal growing season in 2010, the fields at Ganondagan SHS are boasting exciting results from the May 2009 planting. Plant abundance and growth was assessed in 2010, and early data seem to indicate that the planting was a success. Vegetation surveys at 9 random monitoring plots located within the 27 and 34-acre parcels revealed that, while competing exotics and some native plant species were present within the sampled areas, planted warm-season grasses and wildflowers represented 40-80% of the vegetation. These observations are very encouraging and suggest that the restoration of the fields to an historic 'oak opening' community is progressing well.



Fields of warm-season grasses and wildflowers, most prominently *Rudbeckia hirta* (black-eyed Susan), provide an attractive scene at Ganondagan SHS on August 3, 2010.



A site visit on September 13, 2010, revealed Niagara big bluestem and Indian grasses growing 4-6 feet tall throughout the restored parcels. Two bedded whitetail fauns and an eastern meadowlark were observed in the fields.

Natural Resource Stewardship

New York State's parks are home to an incredible diversity of plants, animals, and ecosystems, many of which are rare or endangered. OPRHP through the Natural Resource Stewardship and Environmental Interpretation Initiative demonstrates its commitment to the environment by providing leadership for protecting and restoring important plant and animal habitats across the State Parks system through comprehensive programs, including Environmental Education, Natural Heritage, Water Quality Monitoring, Biodiversity Conservation, Invasive Species Control, and Ecosystem-based Management.

EMB Mission Statement

The mission of the Environmental Management Bureau is to assist OPRHP in the responsible stewardship of its valuable natural, historic and cultural resources, as well as in providing safe and enjoyable recreational and interpretive opportunities for all New York State residents and visitors.

For more information:

Visit the NYS Parks website at:

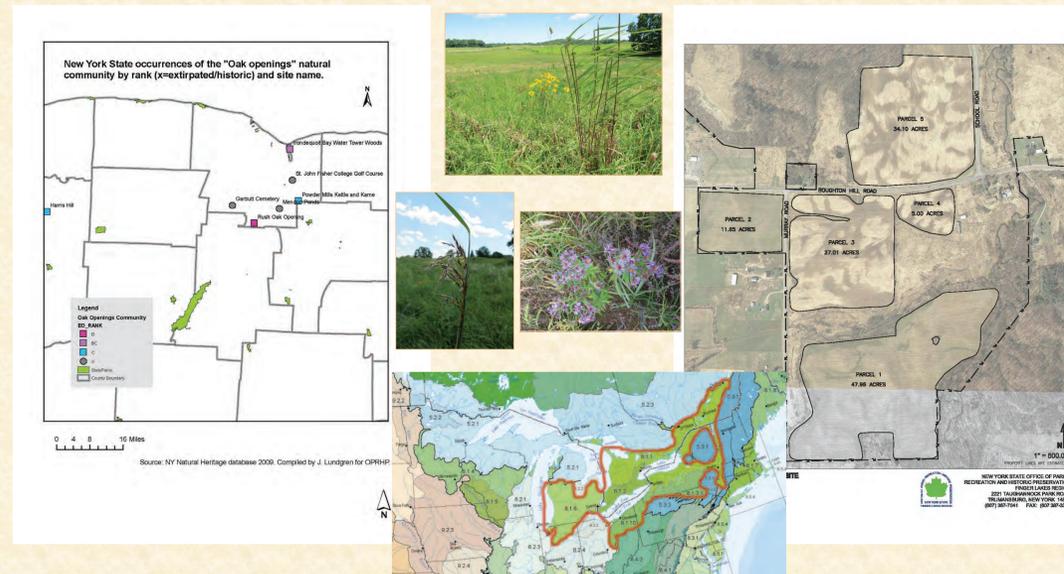
<http://www.nysparks.com>



PROJECT GOALS

The goals of this project are to:

- 1) Restore grassland communities that are representative in both composition (e.g., native grasses, forbs and woody species) and spatial arrangement of oak opening communities.
- 2) Enhance the interpretive value of the site.
- 3) Increase biodiversity of plants and animals and their habitats.
- 4) Foster partnerships with agencies and academic institutions that promote research and understanding of historic and current sustainable landscape management practices.



Ecological Regions Map of North America (CEC 1997). Ecological Region Level 3 - 8.1.1 (Eastern Great Lakes and Hudson Lowlands) was considered 'local' for the purpose of restoring native plants to Ganondagan.

PARTNERSHIPS

Partnering with natural resource agencies and organizations, academia and the public is a central focus of the Natural Resource Stewardship and Environmental Interpretation Initiative. Collaborative natural resource projects and educational programs reinforce NYS Parks' ongoing commitment to natural resources and demonstrate how vital a role the biologists, scientists and educators have in connecting the Parks' environmental resources with park patrons.

While the grasses continue to grow at Ganondagan SHS, Environmental Management Bureau, Finger Lakes Region and Ganondagan staff are working collectively with partners (NYS DEC—Rush Oak Openings, USDA, USFWS, US Forest Service, Albany Pine Bush Preserve Commission, National Park Service, NY Natural Heritage Program, The Nature Conservancy, Genesee Valley Pheasants Forever, Finger Lakes Community College and local municipalities) to develop long-term burn and fire management plans.



FIRE MANAGEMENT

Oak openings are fire dependent and are regularly maintained with periodic burning (Keister 1998). Burning is the "universal grass-management tool" (MCC 1980; MDC 2011). Warm-season grasses have evolved with the natural occurrence (e.g., lightning) of fires. In addition, Native Americans used fire for attracting game, "fire proofing" camping sites and for religious ceremonies (Ohlenbusch and Hartnett 2000). It is generally accepted that long-term management of native grasses require periodic burning, even with the use of other management techniques such as mowing, disking, haying and grazing (USDA-NRCS 1998; MDC 2011; VDGIF 2011).

The benefits of prescribed burning include increased seed germination, increased nutrient availability, control of non-native species, reduced danger from wildfires and low maintenance costs (Ohlenbusch and Hartnett 2000; MDC 2011; VDGIF 2011). Native warm-season grasses (NWSG) should be burned at least every 3 to 4 years with 1/3 to 1/4 of the complex left unburned each year (MCC 1980; MDC 2011). Burning in the late winter or early spring (February/March) will favor NWSG (VDGIF 2011). Most managers recommend initial burning two to three years after planting (USDA-NRCS 1998).

Fire management and prescribed burning at Ganondagan SHS will be consistent with the goals outlined in OPRHP's policy adopted in November of 2007 entitled "Fire Management in State Parks and Historic Sites" - <http://www.nysparks.com/inside-our-agency/public-documents.aspx>

More specifically, the goals from OPRHP's fire management policy that are the focus for this project are:

- To maintain and restore biodiversity and ecological processes of fire adapted/dependent ecological communities.
- To protect and maintain historic landscapes.



Site Manager Peter Jemison loads native grass seed into the hopper of the Truax drill.



Genesee Valley Pheasants Forever and local farmers provided the special Truax drill and expertise to plant the fields.



FUTURE PLANS

An adaptive management approach that incorporates both an ongoing evaluation of burn management and monitoring of the grassland community restoration over time will be used to guide future planting, burning and mowing regimes. For example, characteristic woody species including oaks (*Quercus* spp.) and hickories (*Carya* spp.) will be added to the parcels once the grassland community becomes established.

A vegetation plan is being developed for Ganondagan SHS, and this plan will include the long-term maintenance of the grassland complex and an invasive species management plan.



Invasive pale swallow-wort is present at Ganondagan and, if left unchecked, threatens native plants like milkweed (above) and the warm-season grasses.



This is what we are growing for!!!
Photo credit: DJ Evans
From 2008 NYNHP Conservation Guide—Oak Openings

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