

**Natural Resource Stewardship Projects
2012**

Allegany Region

Natural Resource Stewardship Projects 2012

Sanitary Surveys, Validation Studies, and Remediation: Great Lakes Restoration Initiative (GLRI) Grant in Lake Erie State Park

Lake Erie State Park
Summer 2012

- During the summer of 2012, fieldwork was conducted by the Environmental Management Bureau (EMB) at Lake Erie State Park under the Great Lakes Restoration Initiative (GLRI) Grant.
- A two week special study was conducted where *E.coli* samples were collected at 4 stations. The stations included the beach area, the large culvert located near the bench area, and two locations along the stream that flows through the culvert and enters into the lake. Field conditions (air temperature, wind speed, precipitation) were also recorded at the time of sampling.
- Staff from EMB also conducted a stream survey of two streams located within the park and the beach's watershed. The first stream flows through the cabin area, and the second, inlet stream flows into Lake Erie near the beach. Using a Trimble GPS unit, the streams were mapped starting in the park and continuing until they were impassable. *E.coli* samples were taken from several locations along the stream, in addition to water chemistry parameters.



Stream survey sampling, Lake Erie State Park



Stream survey sampling, Lake Erie State Park



Natural Resource Stewardship Projects 2012

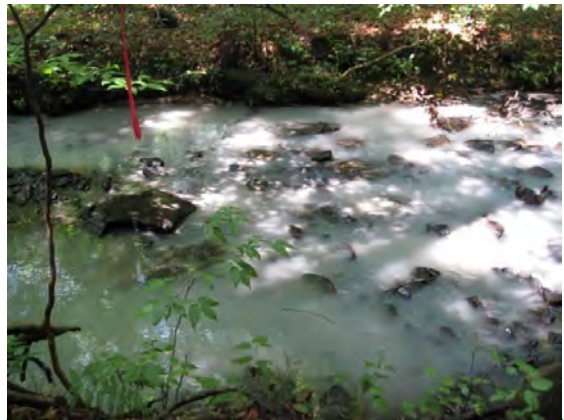
Stream Monitoring to Identify Impacts of Oil and Gas Well Drilling in Park Watersheds

Allegany State Park
Since 2010

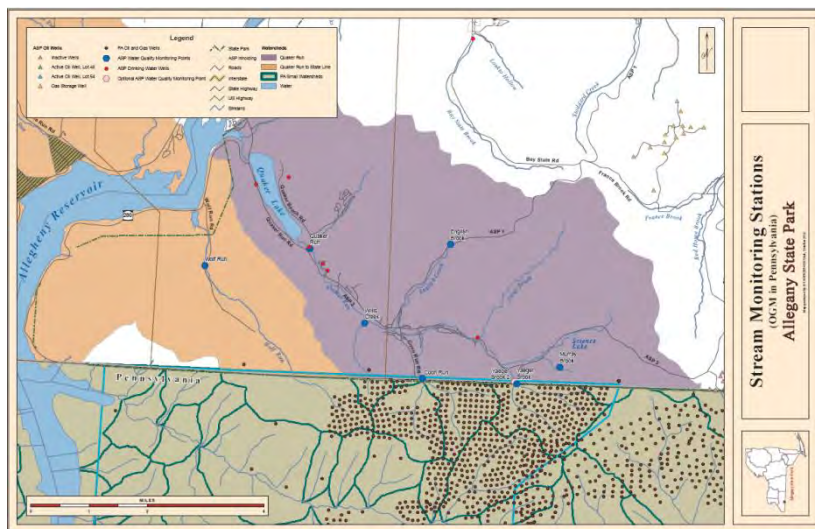
- The program to identify the impacts of oil and gas well drilling in Allegany State Park began in May 2010, and continued with weekly stream monitoring in 2012.
- To date, monitoring has caught 5 separate pollution incidents.
- Documentation provided by monitoring staff was used by the NYS Department of Environmental Conservation (DEC) to file orders against the drilling company. In January 2012, the 5th pollution incident resulted in a DEC order against the drilling company calling for a fine of \$187,500. A lawsuit on this order is still pending.



Polluted water downstream from drilling



Polluted stream, Allegany State Park



Map of Allegany State Park and Pennsylvania drilling sites.
Activities in PA affect NY park resources and streams.



Central Region

Natural Resource Stewardship Projects 2012

Protection of Federal and State Threatened American Hart's Tongue Fern

Clark Reservation and Chittenango Falls State Parks

2012

- The project implemented a strategic plan for protecting American hart's-tongue fern (AHTF) in New York State Parks that satisfied several recovery objectives for the AHTF as outlined by the United State Fish and Wildlife Service (USFWS)1993 Recovery Plan.
- Current populations of AHTF and invasive plant species were surveyed, delineated, and mapped.
- Invasive plants were removed and Invasive Species Prevention Zones were established and provide at least a 100ft. buffer from AHTF plants. Invasive removal utilized a variety of techniques, including mechanical and chemical means. Professional staff and public volunteers removed swallow-wort and other invasive species through an early detection, rapid response approach.
- The project included public education and outreach through public workshops, presentations, and a variety of media to educate park managers, staff and the public about protecting this rare and threatened plant from potential extirpation by invasive species.



Pale swallow-wort, a threat to American hart's-tongue fern



American hart's-tongue fern



Finger Lakes Region

Natural Resource Stewardship Projects 2012

Moving Towards Eradication of *Hydrilla verticillata*

Allan H. Treman State Park

Since August 2011

- In August 2011, *Hydrilla verticillata*, one of the world's most invasive aquatic plants, was discovered in the Cayuga Inlet and Allan H. Treman State Marine Park.
- Hydrilla has the potential to spread and devastate fishing, boating, local economies and aquatic ecosystems.
- Land travel by water-based recreationalists between the inlet and the other Finger Lakes increases the chance of spreading the Hydrilla.
- The Hydrilla Task Force, a partnership of 18 agencies and organizations, has been monitoring, educating with signs, and applying treatment efforts to eradicate the invasive species.
- The efforts by the Hydrilla Task Force appear to have been greater than 95% effective, but efforts should be continued for at least 5-8 years to be completely successful.



Linderman Creek,
August 5th, 2011



Linderman Creek,
August 27th, 2011



Hydrilla infestation at Johnson's
Boatyard, Ithaca, NY



Stems and leaves of Hydrilla in
Cayuga Inlet at Cass Park, Ithaca, NY



Natural Resource Stewardship Projects 2012

Finger Lakes Hemlock Woolly Adelgid Survey, Control and Monitoring

Robert H. Treman and Watkins Glen State Parks
Since 2010

- Surveys for hemlock woolly adelgid (HWA) began in Robert H. Treman and Watkins Glen State Parks in 2010 to delineate infested areas and determine levels of infestation. These initial surveys were funded through OPRHP Natural Resource Project money and a US Forest Service grant.
- To provide baseline data on other park invertebrates, Natural Heritage Program zoologist Erin White provided park staff with training that enabled them to perform three invertebrate surveys a year. These baseline surveys began in 2011 and will continue for the next three years.
- Integrated treatments began in fall 2011 and continued into 2012. The efficacy of the treatments and hemlock canopy health will be determined using long-term monitoring plots, set up in conjunction with Cornell University.



Watkins Glenn Gorge-side hemlock woolly adelgid treatment



Hemlock woolly adelgid treatment – trunk injection with pressurized capsules



Hemlock tree canopy health monitoring



Genesee Region

Natural Resource Stewardship Projects 2012

Sanitary Surveys, Validation Studies, and Remediation: GLRI Grant in Hamlin Beach State Park

Hamlin Beach State Park
Summer 2012

- During the summer of 2012, fieldwork was overseen by the Environmental Management Bureau (EMB) at Hamlin Beach State Park under the Great Lakes Restoration Initiative (GLRI) Grant.
- Daily bacterial sampling was conducted where *E.coli* samples were collected at all 4 swim areas. Field conditions (air temperature, wind speed, precipitation, etc.) were also recorded at the time of sampling.
- A model was developed using data from 2011 to determine which environmental conditions were correlated with bacteriological exceedances. Using 4-5 environmental conditions that were measured daily, park staff were able to preemptively close the beach based on these factors. The accuracy of the model will be reviewed in the winter of 2013. EMB is also working with USGS to develop a larger scale pre-emptive closure model.



Fieldwork training, Hamlin Beach State Park



Natural Resource Stewardship Projects 2012

Assessment of Biodiversity and Deer Populations

Letchworth State Park
2012

- Letchworth State Park is a very diverse park with twenty different ecological communities, six of which are significant communities.
- The deer population in the park is impacting these communities and biodiversity by reducing the quality and quantity of understory vegetation.
- This study looks to evaluate the condition of biodiversity within the park and the potential impact of the deer population. This was done through a series of permanent vegetation monitoring plots, an infra-red aerial analysis of the size of the population, a deer bone marrow study, the construction of two exclosures and the placement of 4 permanent vegetation monitoring plots. These exclosures have added an educational component to this study by providing a visual portrayal of the deer's impacts on the understory vegetation.



Deer exclosure with forest regeneration



Forest vegetation and biodiversity monitoring sub-plot



Control plot with no forest regeneration



Long Island Region

Natural Resource Stewardship Projects 2012

Sunken Meadow Creek Tidal Flow Restoration

Sunken Meadow State Park
2012

- Sunken Meadow State Park's goal to restore 132 acres of tidal flow to Sunken Meadow Creek through removal of a culvert system was aided by super storm Sandy, whose surge opened the creek channel to tidal flow.
- Further work on the project will involve stabilization of the banks and installation of a pedestrian bridge, which will maintain tidal flow and improve habitat while providing recreational access to the area.



Salt marsh without mud flats, before
Hurricane Sandy



New mud flats in salt marsh, after
Hurricane Sandy



Creek Channel, before Hurricane Sandy



Creek Channel, after Hurricane Sandy



Niagara Region

Natural Resource Stewardship Projects 2012

Sanitary Surveys, Validation Studies, and Remediation: GLRI Grant in Evangola State Park

Evangola State Park
Summer 2012

- During the summer of 2012, fieldwork was conducted and overseen by the Environmental Management Bureau (EMB) at Evangola State Park under the Great Lakes Restoration Initiative (GLRI) Grant.
- Daily bacteriological sampling was conducted where *E.coli* samples were collected at the beach. The stations included the beach area, the large culvert located near the bench area, and two locations along the stream that flows through the culvert and enters into the lake. Field conditions (air temperature, wind speed, precipitation, wildlife, bather load, etc.) were also recorded at the time of sampling.
- Weekly *E.coli* samples and field data were collected from 4 streams within the watershed of the beach at Evangola State Park to determine sources of bacteria.
- Staff from EMB also conducted a stream survey of streams located within the park and the beach's watershed. *E.coli* samples and water chemistry parameters were collected from stream-road intersections along four streams. It was determined that these streams can contribute high levels of bacteria to Lake Erie and can influence the level of bacteria of the bathing beach.



Natural Resource Stewardship Projects 2012

Pollution Source Track-down and Remediation: GLRI Grant in Woodlawn Beach State Park

Woodlawn Beach State Park
Summer 2012

- During the summer of 2012, fieldwork was conducted and overseen by the Environmental Management Bureau (EMB) at Woodlawn Beach State Park under the Great Lakes Restoration Initiative (GLRI) Grant.
- Based on a sand grooming experiment that was conducted in 2011, it was determined that the type of sand grooming equipment used to rake the beach sand can influence the amount of bacteria harbored in the sand. It was found that the Barber Surf Rake with the “groomer” attachment reduced the amount of bacteria in the sand more effectively than two other types of grooming. This technique was used to groom the beach for the entire 2012 season, and an experimental plot was set up outside of the beach area to be groomed using one other rake type (Chicago Rake).
- *E.coli* samples were collected in the water along each plot, and they confirmed that the *E.coli* washing back into the water near sand groomed with the Chicago Rake was significantly higher compared to the beach area raked with the “groomer” attachment.



Sand groomed with tractor and groomer



Tractor with Barber Surf Rake groomer



Natural Resource Stewardship Projects 2012

Shrubland Management

Joseph Davis State Park
Since 2009

- The shrubland at Joseph Davis State Park provides important habitat for birds, but is threatened due to natural succession and the presence of invasive species.
- In 2009 a pilot project to manage 10 acres of shrubland was undertaken. Since then, OPRHP biologists have been working with the Buffalo Audubon Society to develop a management plan for all of the shrubland habitat in the park.
- During summer 2012, implementation of this plan was started with Niagara biologists monitoring and assisting.



Joseph Davis State Park after grassland restoration



Vegetation analysis prior to management



Habitat restoration sign during restoration



Blue-winged Warbler



Palisades Region

Natural Resource Stewardship Projects 2012

Brazilian Elodea (*Egeria densa*) Control at Lake Stahahe

Harriman State Park

2012

- In 2008, Brazilian elodea was found in Lake Stahahe, a 83-acre lake located in Harriman State Park, during a Lake Classification and Inventory (LCI) survey by the New York State Department of Environmental Conservation (NYS DEC). Brazilian elodea, an invasive aquatic plant, was not known to be in any other water body in Harriman State Park or any nearby areas. Therefore, preventing spread of this invasive plant to other lakes was of utmost importance.
- After follow-up meetings between staff of NYS Parks and NYS DEC, a decision was made to conduct additional vegetation and endangered species monitoring before initiating any Brazilian elodea control efforts. Additional surveys would gather additional data on the aquatic vegetation in the lake and determine the status of a state-endangered frog that was known from the lake in the 1990s.
- Results of these surveys revealed that the endangered frog was no longer present, and prompted the start of Brazilian elodea control.
- 580 sterile grass carp (*Ctenopharyngodon idella*) were stocked (a rate of 10 fish per vegetated acre) to control the Brazilian elodea and prevent its spread to other lakes. Reduction of aquatic invasives in the lake will also help restore the biodiversity of the aquatic plant community and will reduce recreational impacts the plant has on people that use the lake for swimming, boating and fishing.



Grass carp being added to
Lake Stahahe



Sterile grass carp ready for stocking



Natural Resource Stewardship Projects 2012

Habitat Restoration of the Northern Cricket Frog

Sterling Forest State Park
Summer 2012

- The northern cricket frog, a NYS Endangered Species, is thought to be extirpated in many locations but is still supported in some areas of Sterling Forest State Park.
- In 2004, a modern dam was installed in a lake where the cricket frog resides. Although the dam was constructed with protection of the cricket frog in mind, improved habitat conditions were desired.
- A project was undertaken to make the dam's stone riprap shoreline more suitable for the cricket frog. By filling in large gaps with crushed stone, covering the stone with topsoil, and planting herbaceous vegetation native to the park, the shoreline was transformed into a more suitable upland habitat while improving the overall appearance of the area.



Little Dam Lake, before
habitat restoration



Little Dam Lake, after habitat
restoration



Northern Cricket Frog



Saratoga/Capital District Region

Natural Resource Stewardship Projects 2012

Ecological Engineering at Cossackie Boat Launch Site

Cossackie State Boat Launch Site
Spring 2012

- Recent shoreline erosion was beginning to threaten the parking lot at the Cossackie Boat Launch Site, so the regional biologist and engineering staff partnered with the Hudson River Sustainable Shorelines working group to develop an ecologically sustainable solution to the erosion problem.
- The group constructed a tiered shoreline out of stone, covered it with soil, and planted vegetation to anchor and work with the rocks to protect the original shoreline.
- A sill, a second line of much larger stones, was set under water beyond the exposed shoreline to break up wave action.
- The combination of the tiered shoreline and sill successfully protected the boat launch from further damage, while also providing an improved inter-tidal habitat.



Cossackie boat launch site with heavy erosion, before shoreline restoration



Cossackie boat launch site after restoration of shoreline



Volunteers planting native trees as part of the soft, ecologically friendly, shoreline restoration



Natural Resource Stewardship Projects 2012

Enhancement of Mole Salamander Habitat

J.B. Thacher State Park
2012

- Water levels in the breeding ponds of the rare mole salamander, *Ambystoma*, have been dropping due to the movement of beaver populations out of the area.
- The regional biologist worked with park staff and a local Boy Scout troop to bring the water levels back up to the more recently observed levels and preserve the small ponds for salamander breeding.
- Construction of about 200 ft. of boardwalk along the trails in this area improved water quality, provided an interesting trail amenity, and reduced further impacts on salamander breeding habitat.



Mole Salamander, Thacher State Park



Sidewalk to Protect Mole Salamander Habitat,
Thacher State Park Yellow Trail



Taconic Region

Natural Resource Stewardship Projects 2012

Constitution Marsh *Phragmites* Control

Hudson Highlands State Park Preserve
2012

- Constitution Marsh, part of Hudson Highlands State Park Preserve, is a brackish tidal marsh that supports a diverse plant and animal community. It is designated as a Bird Conservation Area and is managed by Audubon, though an agreement with New York State Parks.
- Common reed (*Phragmites australis*) threatens the marsh and the species that inhabit it.
- For several years, Audubon staff have been manually controlling patches of *Phragmites* using a black geotextile fabric covering that prevents sunlight from reaching the plants. However, additional control was necessary for eradication of the stems that could not be covered by fabric.
- In September 2012, approximately a total of 1-acre of *Phragmites* sites were treated with the aquatic herbicide “Rodeo,” to prevent further expansion of this invasive plant and the subsequent loss of biodiversity. Follow-up monitoring will take place to determine the success of this eradication effort.



Constitution Marsh and boardwalk



Constitution Marsh *Phragmites* control locations



Natural Resource Stewardship Projects 2012

Stream and Riparian Corridor Restoration at Trout Brook

Clarence Fahnestock Memorial State Park
2012

- Following a dam failure that left Clarence Fahnestock Memorial State Park's 3-acre Wiccopee Lake empty, restoration of the lake bottom and newly exposed section of Trout Creek was initiated.
- The now exposed bare muck sediments were planted with a mix of native woody vegetation (250 trees and 750 shrubs), as well as annual rye grass seed for soil stabilization and erosion control. The trees are protected with five-foot high tree tubes that will be removed when the trees grow to a size that won't be threatened by deer.
- The newly restored stream corridor and adjacent areas will provide future fish and wildlife habitat, including possible habitat for the rare New England Cottontail (*Sylvilagus transitionalis*) that inhabits nearby areas, and improve the overall quality of this area.



Trout Brook pre-restoration, following collapse of dam upstream



Trout Brook post-restoration



Trout Brook post-restoration



Thousand Islands Region

Natural Resource Stewardship Projects 2012

Mechanical Pale Swallow-wort Control and Monitoring

Robert G. Wehle State Park

Since 2009

- Robert G. Wehle State Park is located on a peninsula in southeastern Lake Ontario which contains several significant community types. One of these, the calcareous pavement barrens or alvar, is seriously threatened by the invasive vine, pale swallow-wort. Pale swallow-wort covers several hundred acres of Wehle State Park, pushing out the alvar communities.
- Research on new methods of control revealed a successful Canadian project that used mechanical control. In 2009, mechanical removal experiments began in three plots using Bobcat machines and attachments to remove the root crowns and soil. After four years of monitoring, these plots continue to have significantly reduced levels of pale swallow-wort. Experiments were also performed with the removed soil and long-term mowing control regimes.
- In 2012, an area adjacent to an alvar was mechanically controlled to allow expansion of the alvar habitat.
- In 2013, plans include small chemical controls, increased volunteer outreach through the SLELO PRISM, and pursuing the possibility of publishing our project findings.



Pale swallow-wort infestation at Robert G. Wehle SP



Mechanical removal of pale swallow-wort

