History

- Originally Seneca Lake Park (city owned)
- City purchased lands from adjacent towns (Waterloo & Fayette)
- Cayuga-Seneca Canal used for transporting goods

Fishing in the canal, 1929-1935, in the 1900s canal largely inhabited by carp and mostly fished by children (Grover 81). The willow trees in the background of the photo still continue to line the shoreline of the lake today.
History

- After Great Depression, city struggled with funds
- 1953 State Park Council recommend become state site
- 1957 Gov. Harriman agreed to the transfer of the lands

Geneva Committee for State Control of Seneca Lake Park published ‘Forever Is Too Long To Wait’ pamphlet in 1954 (Grover 93).
## History Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922</td>
<td>City of opens</td>
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<tr>
<td>1922-1929</td>
<td>City expands park with land purchases</td>
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<tr>
<td>1930-1950</td>
<td>Park deteriorates, dumping allowed as fill</td>
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<tr>
<td>1953</td>
<td>State Parks Council recommends park transfer to state</td>
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<tr>
<td>1954</td>
<td>Geneva Committee for State Control of Seneca Lake Park publishes ‘Forever is Too Long to Wait’ pamphlet</td>
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<tr>
<td>1954-1958</td>
<td>NYS Routes 5 &amp; 20 relocated from lakeshore (Lakefront Trail in park) to near current location</td>
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<td>1957</td>
<td>NY Governor Averill Harriman approves park transfer to state</td>
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<tr>
<td>1960</td>
<td>Estimated opening of Seneca Lake State Park</td>
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<tr>
<td>1963</td>
<td>Official opening of marina</td>
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</table>
- ~250,000 - 300,000 visitors to park each year
- July & August busiest months
- Ball fields maintained but usage decreased in recent years
  - Finger Lake Vikings, Twilight Softball, DeSales teams
- ~30-40% visitors to park stop at the present Nature Area
Nature Area

- Attempt manage water problem previous park manager, started a project to install a small pond
- Halted due to a machinery malfunction
- Unfinished until 1997 new park manager appointed and continued the digging
- Completed the project in early 1998
Google Earth aerial photo from April 14, 1995. The start of the pond is visible
Present Layout

Key:
- Current Trails
- Current Nest Box
Understanding Wetlands

- **Wetland restoration**
  - rehabilitation of previous wetland areas and/or marshes that are no longer functioning or in a degraded state, by reestablishing the land to an improved functioning wetland ecosystem (Kentula).

- **Restoration** entails altering the current landscape to develop the site into a functioning wetland again.

- **This concept is key before activities begin, as it is essential to understanding of the distinctive nature & function of a wetlands ecosystem.**
Wetland Characteristics

1) wetland hydrology
2) water logged soils
3) water loving (hydrophytic) plants

- Plants: mosses, pondweeds, American white water lilies, broad leaf cattail, New York aster & fern
- Trees: Atlantic white cedar, red maples, swamp cottonwood, willows
- Animals: waterfowl, fish, salamanders, ducks, aquatic insects, crayfish, fiddler crabs, bull frogs, painted turtles, herons, ducks, beavers & muskrats.
Other Restoration of Wetland Sites

- Palm Beach County, FL - Pond Apple Habitat
  - Expansion of existing canal site & addition of more trees and native plants
  - Results: increased bird species (herons, limpkin, endangered wood stork, & other egrets and ibis)
  - Successful community involvement & local school contribution
**Local Restoration Sites**

1) Canoga Creek Marsh, Seneca County  
   (west side Cayuga Lake)  
   - Proposed construction of level ditches & potholes to allow for growth of submerged aquatic vegetation, amphibians and macro-invertebrates

2) Owasco Flats in Cayuga County,  
   (south end of Owasco Lake)  
   - Issue with channel down cutting and erosion into the lake  
   - Restore by: redesigning the channels

- Regional examples of communities working together to improve the ecology
- Site visits to these projects is highly recommended in order to evaluate particular methods, equipment, resources, & overall information gathering suggested
Invasive Species

- Park 142 acres
- Current Nature Area (Site A) ~ 27.7 acres
- Proposed Expansion (Site B) ~9.2 acres
  - Soccer field
- Expanded Nature Area (Sites A + B) = ~37 acres
- Trails were digitized using GPS coordinate track system
- Buckthorn distribution in current Nature Area plotted
Buckthorn

- Invades in colonies of thick dense bushes
- Can grow up to 6 meters in height (19.7 feet)
- Rapid growth rate of 12 to 18 in/yr
- Effectively crowd out native species with their long branches
- These bushes also serve as hosts for parasites
- Issue in present Nature Area the buckthorn is located in dense rings around many of the larger trees along the current trail system

Buckthorn Removal

- **Physical** controls – most common method of removal (mowing, excavating, cutting & burning)
- **Chemical** herbicides can be used to control re-growth – applied to cut trunks prevent new growths
- **Biological** – No known biological control
- Best method of removal for this invasive species is to physically cut & remove buckthorn
- Monitoring of new growth crucial as seeds can be viable in the soil for up to 5 years
Purple Loosestrife

- Semi-aquatic perennial plant native to Europe
- Colonizes rapidly due to the millions of seeds it produces annually
- Seed dispersal
  - 1 plant can produce 2.5 million seeds in 1 year
- Found in drainage ditches along the perimeter of current Nature Area and adjacent soccer field
- Flowers typically from late June - August

Source:
Purple Loosestrife Removal

- **Mechanical** controls (cutting, digging & burning)
- **Chemical** herbicides can be applied
  - not favorable because they can rinse off & contaminate ground water
- **Biological** control agents: 3 beetle species
  - *Galerucella pusilla* -- a leaf feeding beetle
  - *Galerucella calmariensis* -- a leaf feeding beetle
  - *Hylobius transversovittatus* -- a root-mining weevil
- Mechanical removal recommended for the area since purple loosestrife is in a small isolated areas
- Monitoring is key to make sure that the seeds do not re-populate the area
Recommended Biological Surveys

- Soil survey – determine soil saturation level
  is there enough water to support wetland?
- Catalog of plant species – survey needed to determine
  native & invasive plant, trees etc.
  - Buckthorn & Purple Loosestrife
- Biodiversity index of animals – 3 fauna types: birds, small
  mammals, and aquatic life
  - experts should be consulted for survey
- Before After Control Impact (BACI) statistical analysis
  useful for determining species richness & can be used as a
  baseline for further improvements
Recommended:
2 Site Restoration Scenarios

- Scenario 1)
  **Wildlife Restoration**

- Scenario 2)
  **Community Engagement - Public Education & Recreation**
Wildlife Restoration - Plants

- Begin by removing invasive plant species & replace with diverse native plants
- List of native Wetland Plants from Jim Engel, Proprietor of White Oak Nursery in Canandaigua, NY
- Native wetland herbaceous plants: duck potato, giant burreed, hard stemmed bulrush, soft stemmed bulrush, Joe Pye, blue flag iris, blue lobelia, and swamp milkweed

<table>
<thead>
<tr>
<th>Wet soils to standing water</th>
<th>Moist to average soils</th>
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<tbody>
<tr>
<td>Winter berry</td>
<td>Black chokeberry</td>
</tr>
<tr>
<td>Buttonbush</td>
<td>Black elderberry</td>
</tr>
<tr>
<td>Red twig dogwood</td>
<td>Spice bush</td>
</tr>
<tr>
<td>Silky dogwood</td>
<td>Nannyberry</td>
</tr>
<tr>
<td>Grey dogwood</td>
<td>Cranberrybush viburnum</td>
</tr>
<tr>
<td>Arrowwood viburnum</td>
<td></td>
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Wildlife Restoration

- Expand the Nature Area
- Install another pond
  - (if a soil survey indicates saturated soils)
  - Close to road to provide visual attraction to visitors
  - Can be stocked with fish (bluegill or pumpkin seed sunfish, brown bullhead & large mouth bass)
- Build more nest boxes
  - To encourage bird nesting
- Clear the existing ditches
  - Presently little to no water flow. Recommended clearing ditches of plants to allow for better drainage
- Add potholes (vernal pools)
  - Help establish amphibian and reptile populations & macroinvertebrate populations in a fish free environment
Key:
- New Trails
- Additional Nest Boxes
- Deciduous trees
- Evergreens
- Interpretive signs
- Observation Platform
- Potholes

Current Trails
- Current Nest Box
- Picnic Area
- Bench
Community Engagement - Public Education & Recreation

- Expanding current Nature Area
- Additional trails
  - Connect with current Lakefront Trail
  - Refurbishing current trails with appropriate material crushed stone, wood chips and boardwalks
- Building observation decks
- Build an educational sign on the deck
  - Explain what wildlife that lives in and around pond
- Interpretive history & nature signs
- Benches
- Additional parking & picnic area (handicap accessible)
Recommended Layout

Key:
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- Current Trails
- Current Nest Box
- Picnic Area
- Bench
Recommended Future Research

- Evaluate the 2 scenarios
- Conduct biological Surveys (flora, fauna & soil)
  - Identify where plants should be planted
  - How deep the pond should be to support the recommended fish populations
- Visit other restored sites
  - Canoga Creek Marsh & Owasco Flats