CHAUTAUQUA WATERSHED CONSERVANCY

Preparing for a thriving, resilient, and beautiful Chautauqua County by 2030

A Collaborative Regional Conservation Implementation Strategy (CRCIS) to guide the process

A sediment plume leaves Goose Creek and enters Chautauqua Lake after a storm event. Sediment and contaminant-laden water rushes quickly through larger streams, often only slowing down once it reaches open water, at which point it loses its suspended particles.

Vegetated wetlands in the upper reaches of a floodplain capture and retain stormwater. The complex physical structure created by the maze of vegetation causes currents to slow down, which reduces erosion and limits the ability of water to carry sediment. Functional marsh habitats serve a critical role in preventing situations like the one shown in the top photo, while simultaneously providing many other important benefits.

Nature is important to everyone. Economic sustainability, human health, and community well-being cannot be achieved and maintained without major investments and a deep commitment to restoring and reconnecting well-functioning ecosystems across our region. Protection, restoration, and long-term management of functional habitats and natural resources throughout Chautauqua County are strategies that prevent local extinctions of rare plants and animals and protect scenic areas, while simultaneously enhancing regional economies and improving human health and community well-being.

Ecology and economy go hand in hand. When enough functional forest and wetland habitat covers our floodplains and steep slopes, nature will prevent erosion, sediment run-off, and nutrient loading. These ecosystem functions will continue for free, 24/7/365. Nature does this job quietly — and looks beautiful doing so!

The Chautauqua Watershed Conservancy envisions a resilient and sustainable Chautauqua Region supported by healthy lands, waters, and biodiverse habitats.

Everybody benefits from well-functioning habitats. Research indicates that when a region's forest and wetland cover drops below 70%, water quality begins to suffer. The same happens when impervious surfaces (roofs, streets, paved areas) occupy more than 5% of land cover. These impacts are most pronounced when small tributary streams and vegetated wetlands are negatively affected. During storm events, large streams and rivers primarily act as conduits that carry fast-flowing water loaded with sediment and contaminants to points downstream. Densely vegetated marshes and wetlands, on the other hand, store stormwater. Much of that will be absorbed into the ground before any surplus, beyond the storage capacity of the wetland, is discharged into an outflow channel. Slowing down the flow of water reduces its eroding power, but it also causes already suspended particles to sink, leaving sediment and contaminants behind in the floodplain rather than sending them downstream.

Any time we alter or remove critical floodplain habitat, we lose some of that functionality. We are then faced with deteriorating water quality, increased erosion, and greater nutrient and sediment problems downstream. If nature can no longer remedy such problems, we need to deploy costly engineered solutions instead. Those generally don't work quietly nor are they very attractive. Protecting and restoring critical habitat functionality in the right places will require upfront investments but, if done correctly, will provide sustainable, long-term cost savings and many other economic benefits. More importantly, it allows us to pro-actively prevent environmental and economic damages, rather than constantly having to apply expensive, short-lived "band-aids."

The CRCIS will provide expanded awareness of the importance and timeliness of collaborative regional conservation efforts, identify our region's areas of greatest conservation priority, and guide land acquisition, environmental improvements, land use, and climate resilience planning efforts.

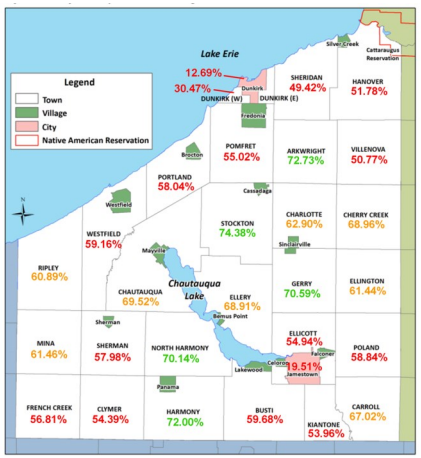
Where are we now?

Chautauqua Watershed Conservancy's Comprehensive Regional Conservation Implementation Strategy (CRCIS) provides a framework to promote strategic investment in conservation where it will be most (cost-)effective. The CRCIS forms a basis for future investments in collaborative conservation, ecological restoration, and management activities that serve to protect our area's biodiversity and scenic beauty, while improving community health, economic prosperity, and regional sustainability.

If we can minimize our impervious surfaces (less than 5% of the landscape) and maximize acreage of functional forest and wetland habitat (ideally 70% or more), ecosystem services provided by these habitats will take care of many of our costly water quality and erosion issues. This map shows the percent forest/wetland cover in each of our county's municipalities. Those over 70% are listed in green, towns and municipalities in the 60-70% range are indicated in orange, and those in red fall below 60% cover.

Note that, per the 2021 NY census, 40% of the county's population lives in one of the three larger cities: Jamestown, Dunkirk, or Fredonia, where access to functional natural areas is limited to 19.51%, 12.69%, and 30.47%, respectively. From an environmental equity perspective, nature benefits urban populations less than it does rural populations...

Nature benefits everyone—but not everyone equally…



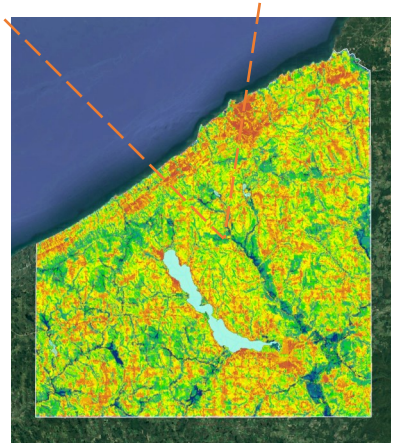
How does the CRCIS work?

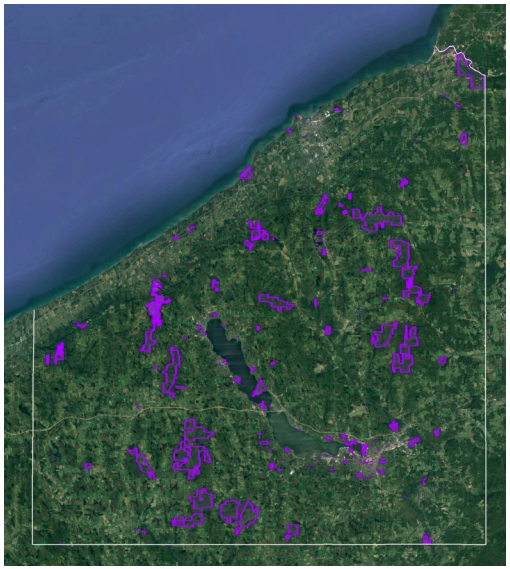
In order **to objectively identify the region's ecologically most important areas**, we performed the following analysis: every pixel in the map on the left represents a 30m x 30m plot in the landscape. Using available data sets, each plot was evaluated and ranked against 11 variables that influence water quality, sustainability, and habitat functionality. The combined score across these variables (listed in the attribute table below) resulted in a composite conservation score (CCS) for each plot. Color codes were assigned to the CCS values following the table on the right to produce a visual representation of the county's ecologically most valuable areas, as shown in the map on the right. **Areas indicated in dark blue are of the highest conservation value, whereas any area in teal or green has an above-average influence on our region's water and environmental quality.**

30m x 30m

	CRCIS Variable	Scoring type	Rank
1	**Streams with 100-meter buffer**	Presence/absence (1/0)	1
2	**Hydric soils**	Presence/absence (1/0)	1
3	**Steep Slopes (>8.53% degree slope)**	Presence/absence (1/0)	1
4	**Protected area**	Presence/absence (1/0)	1
5	**Aquifers**	Presence/absence (1/0)	1
6	**Ecological infrastructure**	Presence/absence (1/0)	1
7	**Floodplains**	Presence/absence (1/0)	1
8	**Parcel size (acres)**	0-10	0.25
		10-50	0.5
		50-100	0.75
		100+	1
9	**Hydrological soil group units**	A	0
		B	0.1
		C	0.25
		D	1
		A/D	0.3
		B/D	0.5
		C/D	0.75
		U	0
10	**Environmental resiliency**	Developed	0
		Least resilient	0
		Less resilient	0
		Slightly less resilient	0
		Average resilient	0.5
		Slightly more resilient	0.75
		More resilient	1
11	**Land cover / Land use**	Forest	2
		Wetland	1
		Shrub or scrub land	0.75
		Herbaceous cover	0.25
		Hay / agricultural	0.25
		Developed	0

Map color	Composite Conservation Score
	>11.5
	7.125—11.5
	5.525—7.125
	3.925—5.525
	2.32—5.525
	<2.32





Many natural areas throughout Chautauqua County already enjoy some degree of protection. New York State owns and manages many thousands of acres in their various state parks, forests, and wildlife management areas. Chautauqua County, as well as many municipalities, own land with nature value in town and city parks. In addition, area land trusts, like the Chautauqua Watershed Conservancy, and other partners also acquire, own, and manage land to protect it. The purple polygons in the above map indicate all of such areas that are currently protected and which are maintained with a primary goal of protecting the habitats and important ecological functions they provide.

One of the goals of the CRCIS is to expand the acreage of functional forest/wetland to provide increased ecological and economic sustainability. Therefore we need to prioritize land acquisition and habitat improvements outside these already protected areas.

Ecosystem services directly, or indirectly, produce the many life-sustaining benefits we receive from nature—clean air and water, flood control, fertile soil, pollination, recreational opportunities, etc. These benefits are important to environmental and human health and well-being, yet they are often taken for granted.

Prioritizing areas with the highest conservation value

Guided by our CRCIS analysis, the map below outlines in red Chautauqua County's areas of highest conservation priority. These areas have among the highest Composite Conservation Scores across the landscape (generally a CCS of 10 or higher, indicated in blue or teal in the CRCIS map on page 2). Not surprisingly, most of the higher–scoring areas correspond with the county's lakes, tributaries, and major waterways — especially in areas where significant forest cover exists still. Since we are looking to expand our region's sustainability, its ecosystem functions, and its scenic beauty by **adding more protected and connected forests and wetlands**, already protected areas were excluded from the analysis. The resulting map of highest conservation priority areas includes Chautauqua Lake and its tributaries, Bear Lake, and the surrounding forested uplands (the "Crown of Chautauqua") that protect not only Bear Lake but also upper sections of the Lake Erie escarpment, as well as Findley Lake, the Cassadaga Lakes, and the associated wetlands and forested buffers which ensure their long-term sustainability. In the southwestern part of the county, French Creek and the Brokenstraw Creek watersheds are highlighted. And the county's major waterways, Cassadaga Creek and Conewango Creek, were also identified in this analysis as some of **the most important natural areas that should be protected to ensure long term ecological and economical sustainability in our region**.

Chautauqua Watershed Conservancy's Collaborative Regional Conservation Implementation Strategy (CRCIS) has the potential to bring together the county's major landowners, conservation partners, decisionmakers, and other relevant stakeholders to:

- aggregate and align current and future land use needs and wants;
- update and share existing knowledge on the county's conservation lands, biodiversity, and natural resources; and
- evaluate sustainability and climate resiliency measures that promote economic growth, human health, and well-being for people of all walks of life.

What's next?

The CRCIS provides expanded awareness of the importance and timeliness of regional conservation efforts that stop extinctions and biodiversity loss, recover rare species, restore degraded native ecosystems, and (re)connect natural areas, while simultaneously providing guidance and opportunities for economic development, tourism, and future agricultural and forestry practices. These efforts can synergistically contribute to regional sustainability and help us mitigate and adapt to climate change. The CRCIS provides a general roadmap for conserving the full range of life that inhabits Chautauqua County and enriching our own lives in many ways.

Implementation of this model can be accomplished through the following actions:

- Develop, adopt, and actively implement a regional biodiversity recovery and management plan, which is integrated with all other sustainability and land use plans and planning efforts.
- Identify significant natural areas for acquisition and protection to combat local extinctions and prepare the region for improved climate resiliency.
- Develop and implement a toolbox of innovative strategies to conserve the region's natural resources and ensure that large and small refugia are interconnected in every neighborhood and every watershed in the region.
- Formally integrate natural area conservation into transportation, land use, and other sustainability plans and projects through regional and local policies.

By maintaining our highest conservation priority areas in a functional and natural state, through acquisition, easement, or other landowner agreement, and by improving currently compromised forest and wetland areas to reach a more natural state, we can all achieve a more thriving, resilient, and beautiful Chautauqua County.

The development of a regional CRCIS will prepare Chautauqua County for the eventual adoption of New York State Bill S4629, currently under review by the NYS Senate. This bill purports to "...combat the biodiversity and climate crises in the state's land acquisition policy; sets a goal of the state to conserve at least 30 percent of New York's land by 2030." This "30 by 30" legislation can provide critical funding to support implementation of this CRCIS.

Get involved!

Chautauqua Watershed Conservancy's mission is "to preserve and enhance the quality, scenic beauty, and ecological health of the Chautauqua Region's lands and waters for our community." Obviously we cannot do this alone. Just like the preparation of this CRCIS was a collaborative effort, its implementation will be too.

Are you a property owner in a conservation priority area and want advice on best management practices? Are you a municipal leader and want more information on how your town or village can benefit from smart environmental planning? Or are you simply interested to find out more about his initiative? You can find more information on our website at **www.chautauquawatershed.org** — or you can scan this QR code.

If you have specific questions about the program or the conservation priority area mapping effort, please email us at: **info@chautauquawatershed.org**

One way to increase the acreage of functional wetland habitat in Chautauqua County is through improvement of degraded areas. Such efforts provide long-term economic benefits due to savings on maintenance costs, flood prevention, and opportunities for recreational activation and tourism.

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