Healthy waters flow from healthy landscapes

Twan Leenders, Director of Conservation

A Collaborative Regional Conservation Implementation Strategy (CRCIS) for Chautauqua County

Provide expanded awareness of the importance and timeliness of collaborative regional conservation efforts, identify areas of greatest conservation interest, and guide land acquisition, land use and climate resilience planning efforts.

The CRCIS intends to bring together Chautauqua County's major landowners (state, county, municipal, private, and other), conservation partners, decision makers, and other relevant stakeholders to:

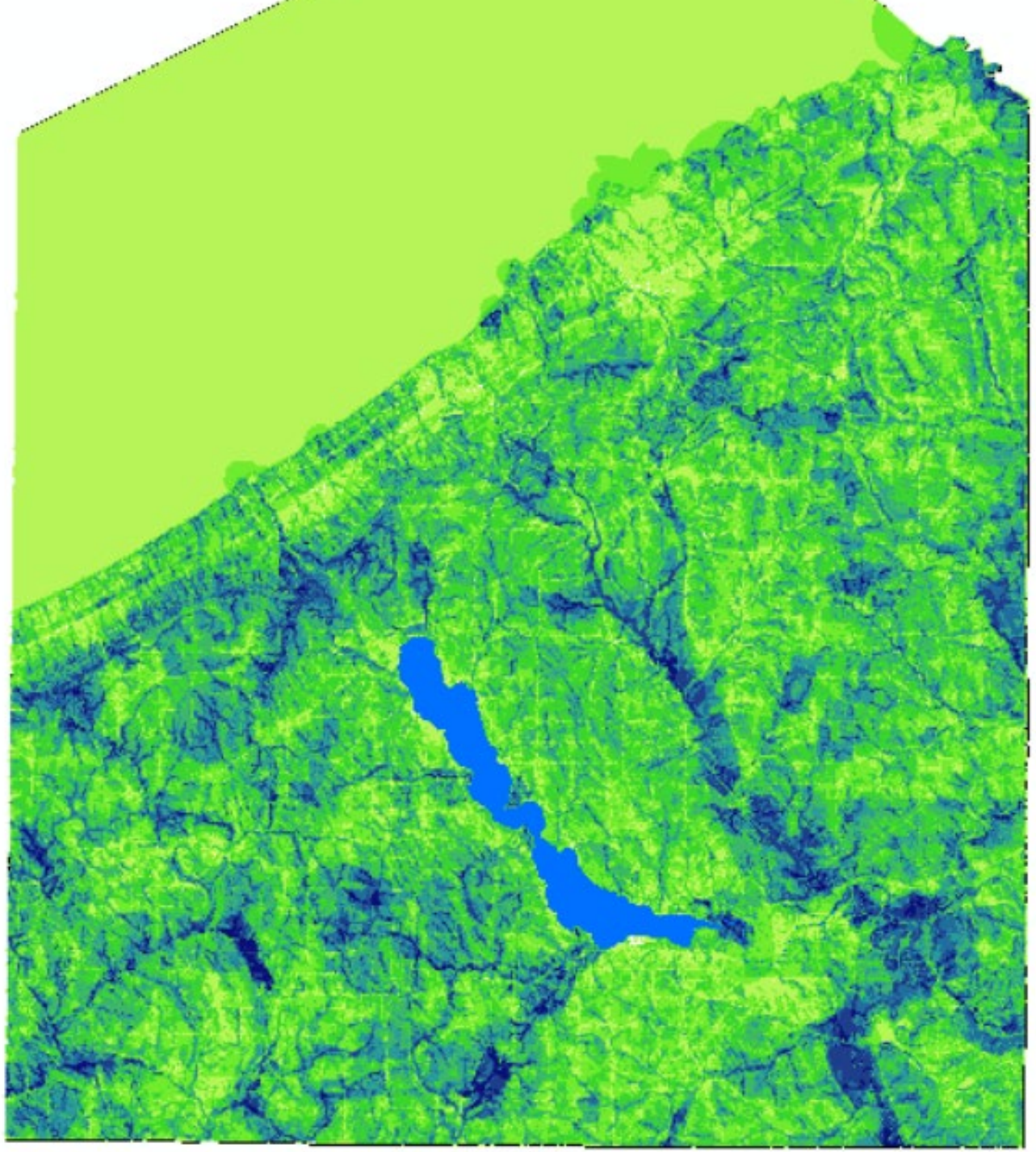
1) aggregate and align current and future land use needs and wants;
2) update and share existing knowledge on the county's conservation lands, biodiversity, and natural resources; and
3) evaluate sustainability and climate resiliency measures that promote economic growth, human health, and wellbeing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

Funded through a grant from the NYS Conservation Partnership Program

A work in progress…

County-wide assessment is currently in progress – initial release will be made available this winter

For now: The Chautauqua Lake watershed as a pilot



Chautauqua Lake Watershed

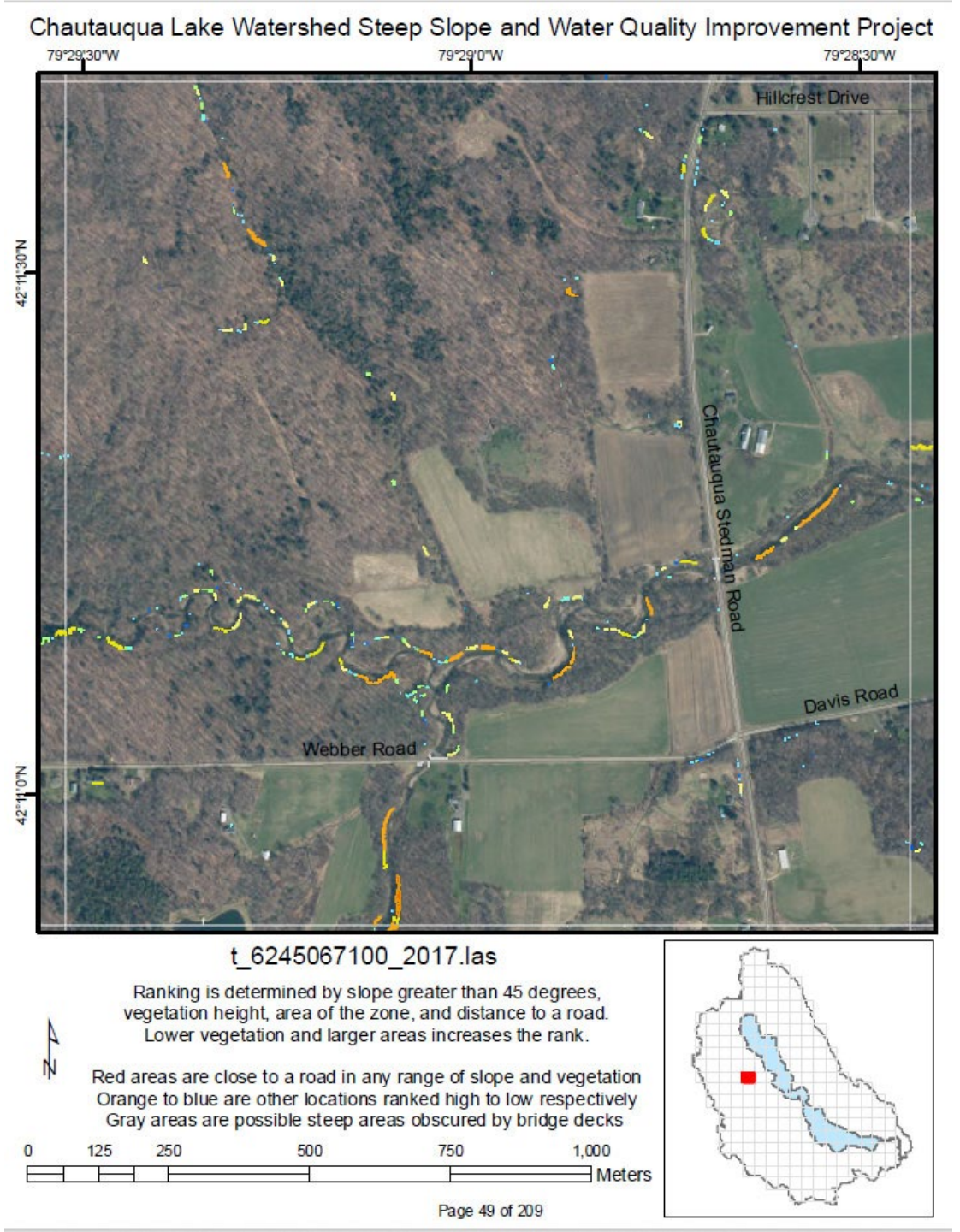
Steep slopes analysis

Chautauqua County Soil & Water Conservation District & RTPI; Analysis by Dr Peter Beeson

Use Geographic Information System (GIS) and Light Detection and Ranging (LiDAR) data to evaluate slope, vegetation height, area size, and distance to road as a **proxy for erosion risk**. Larger areas, steeper slopes & less vegetation increase ranking.

- Identify areas that are at greatest risk of erosion
- Prioritize the road cuts that are most erosion-prone

SWCD provides grant funding to towns and municipalities to repair those areas – funds are allocated where they have the greatest impact



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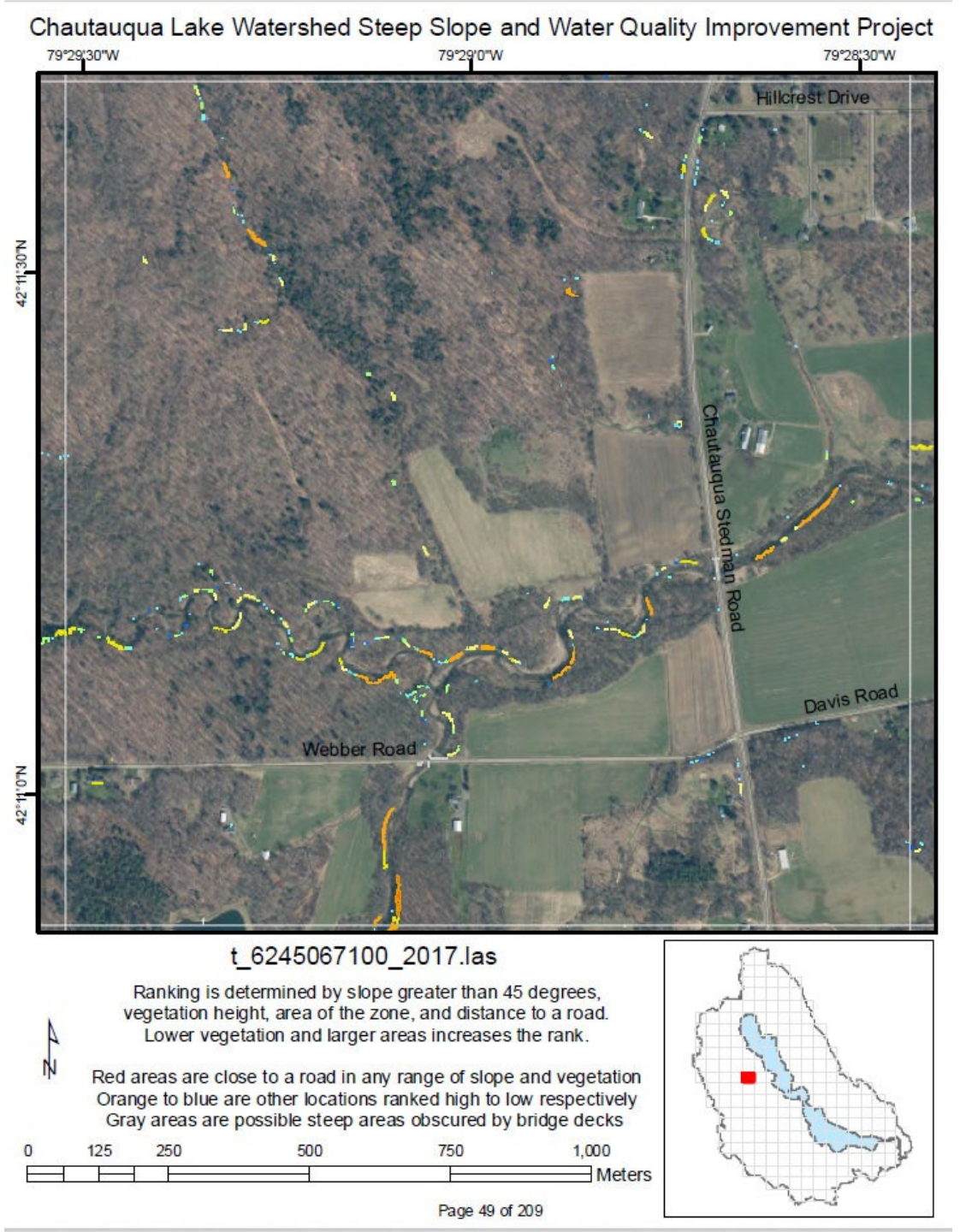

Chautauqua Lake Watershed

Floodplain analysis

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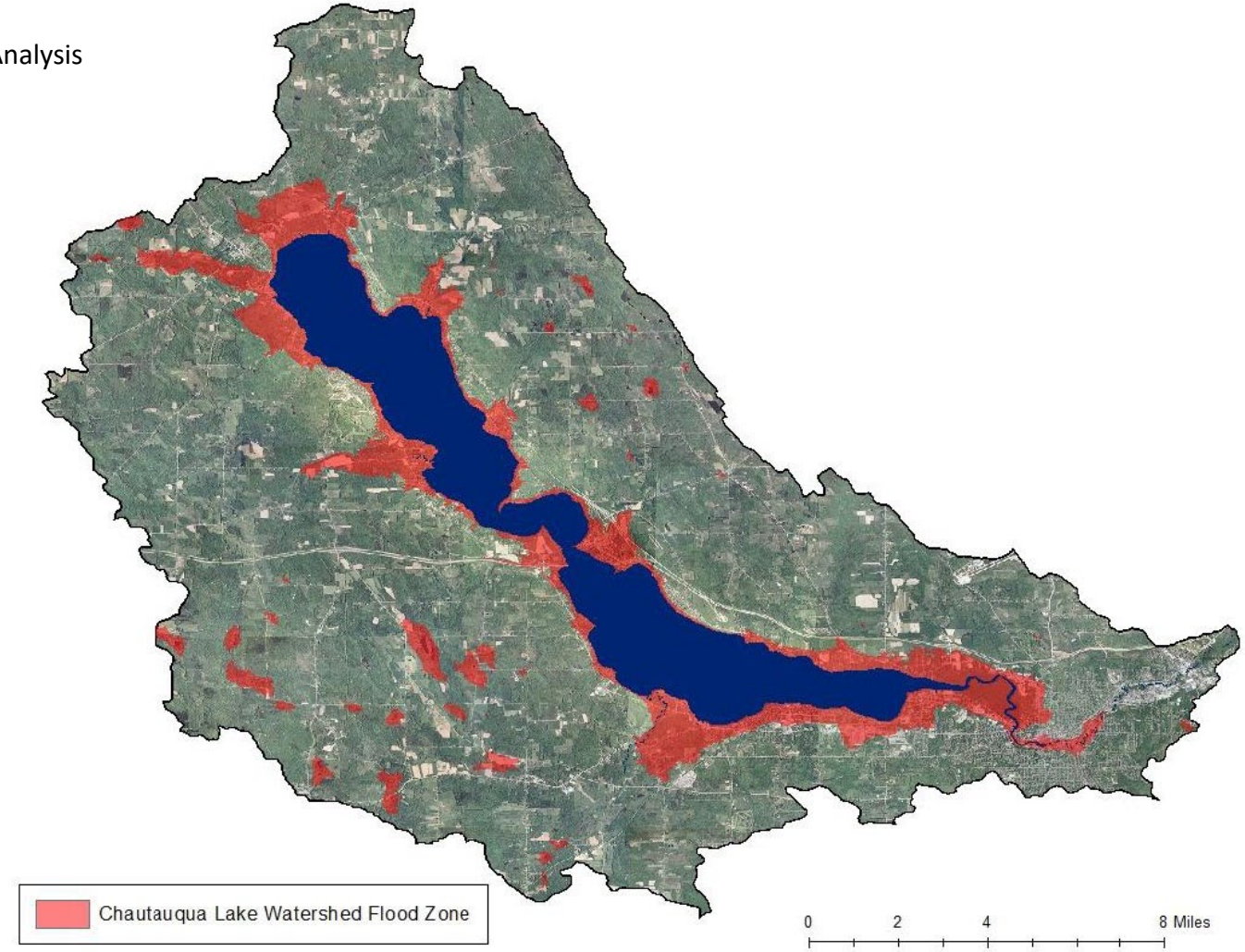
Use floodplain delineation maps, GIS and LiDar data layers & Nature Conservancy's "Active River Area conservation framework" data to rank Hydrologic Soil Group Units (HSG) and a Topographic Wetness Index (TWI).

Evaluating slope, elevation, soil infiltration rates to:

- Evaluate risk of floods
- Develop proactive mitigation measures to minimize the impacts that flooding may bring in the near future



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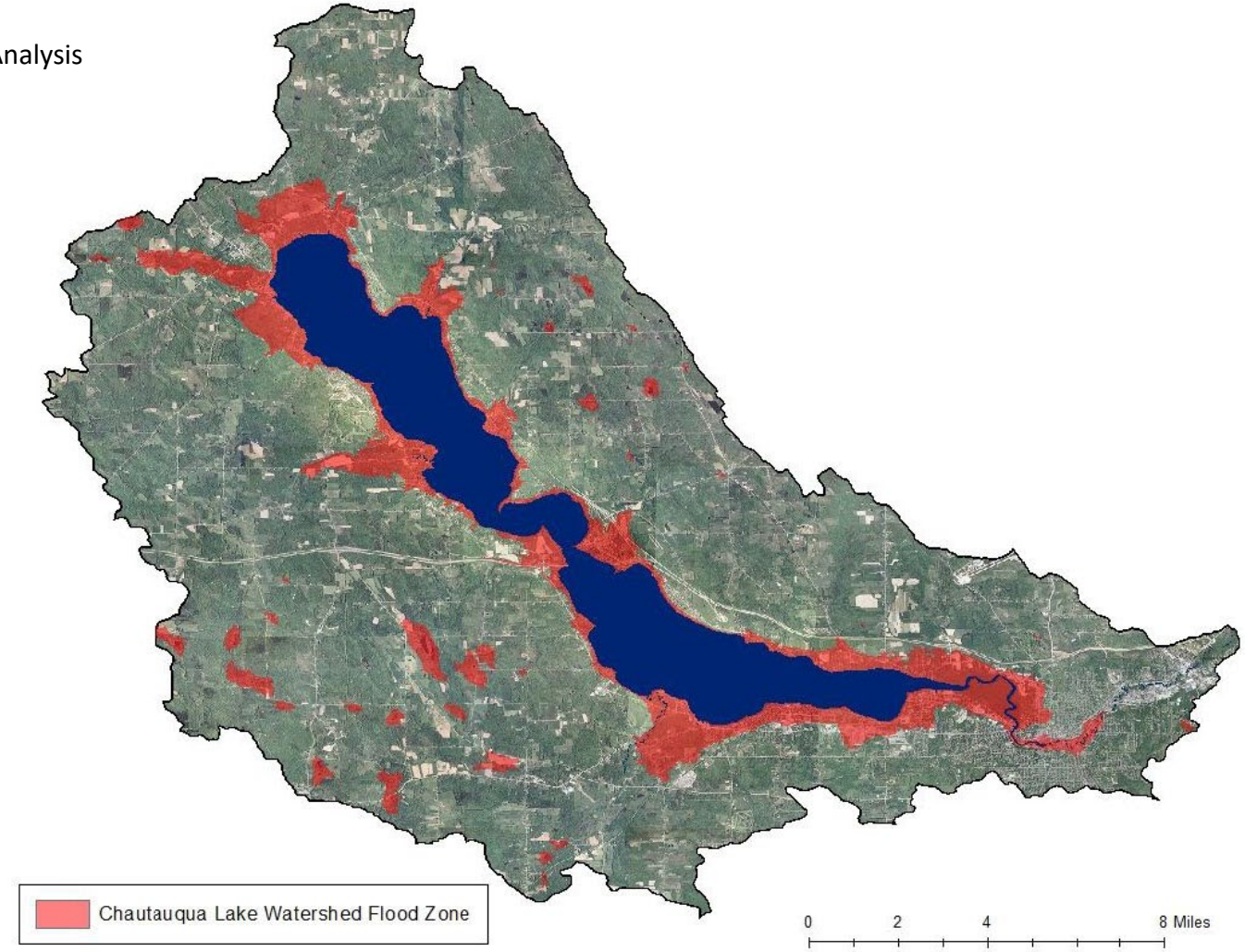
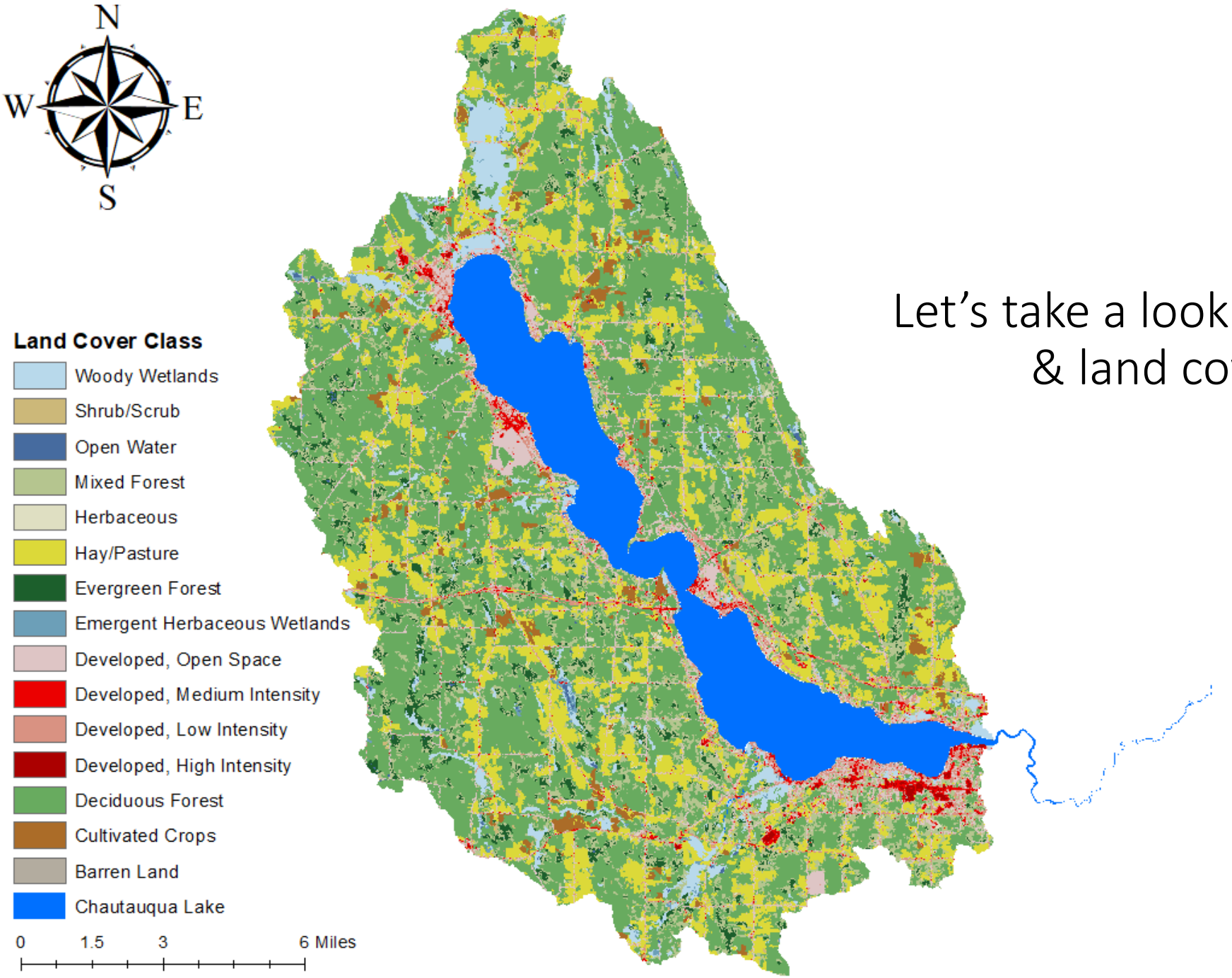



Land Cover
Determines Water
Quality


See?



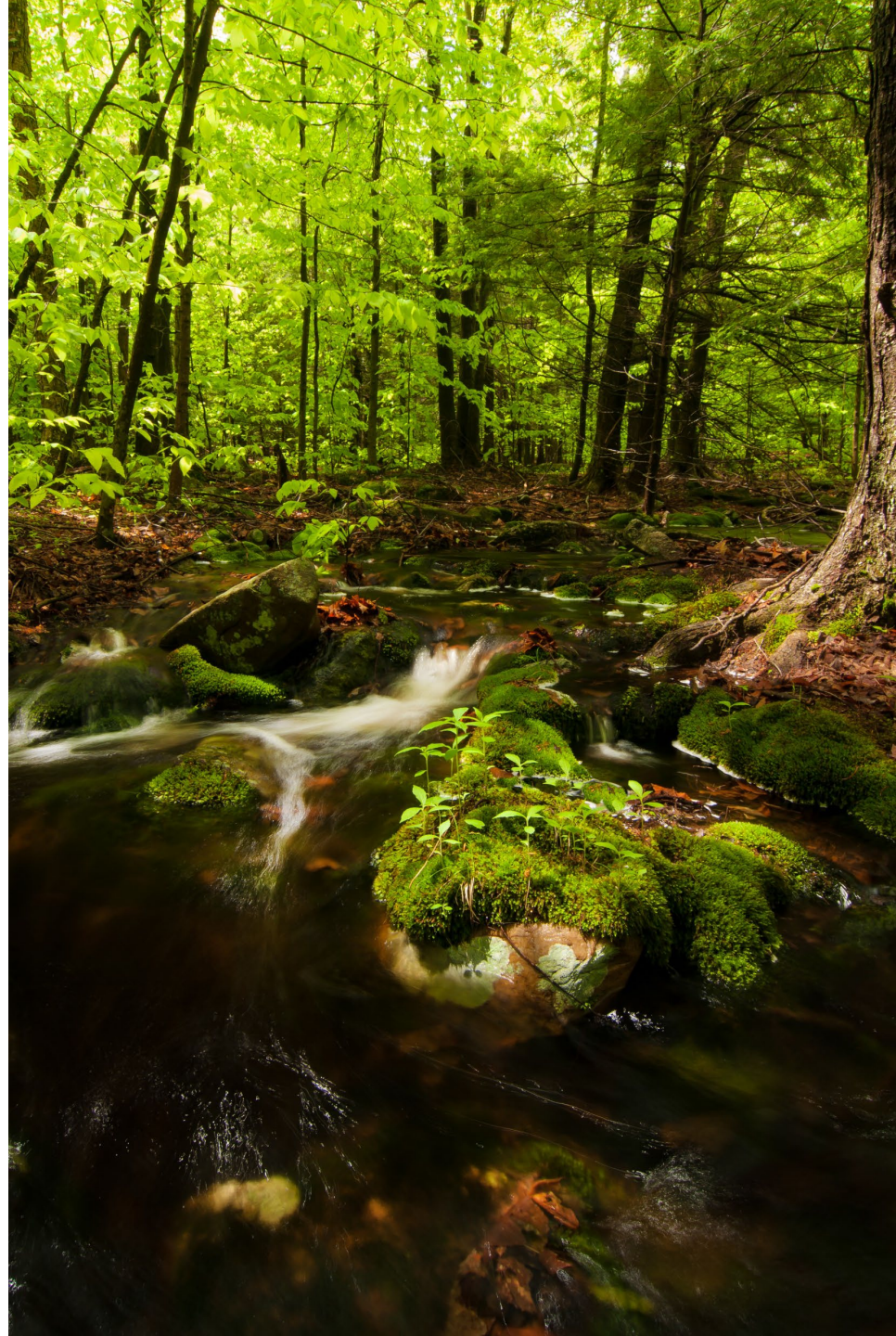
Let's take a look at land use & land cover…

Land Cover Determines Water Quality

Research indicates that in order to minimize flood plain degradation and to maximize water quality, we need:

- **Forest/wetland cover of >70%**

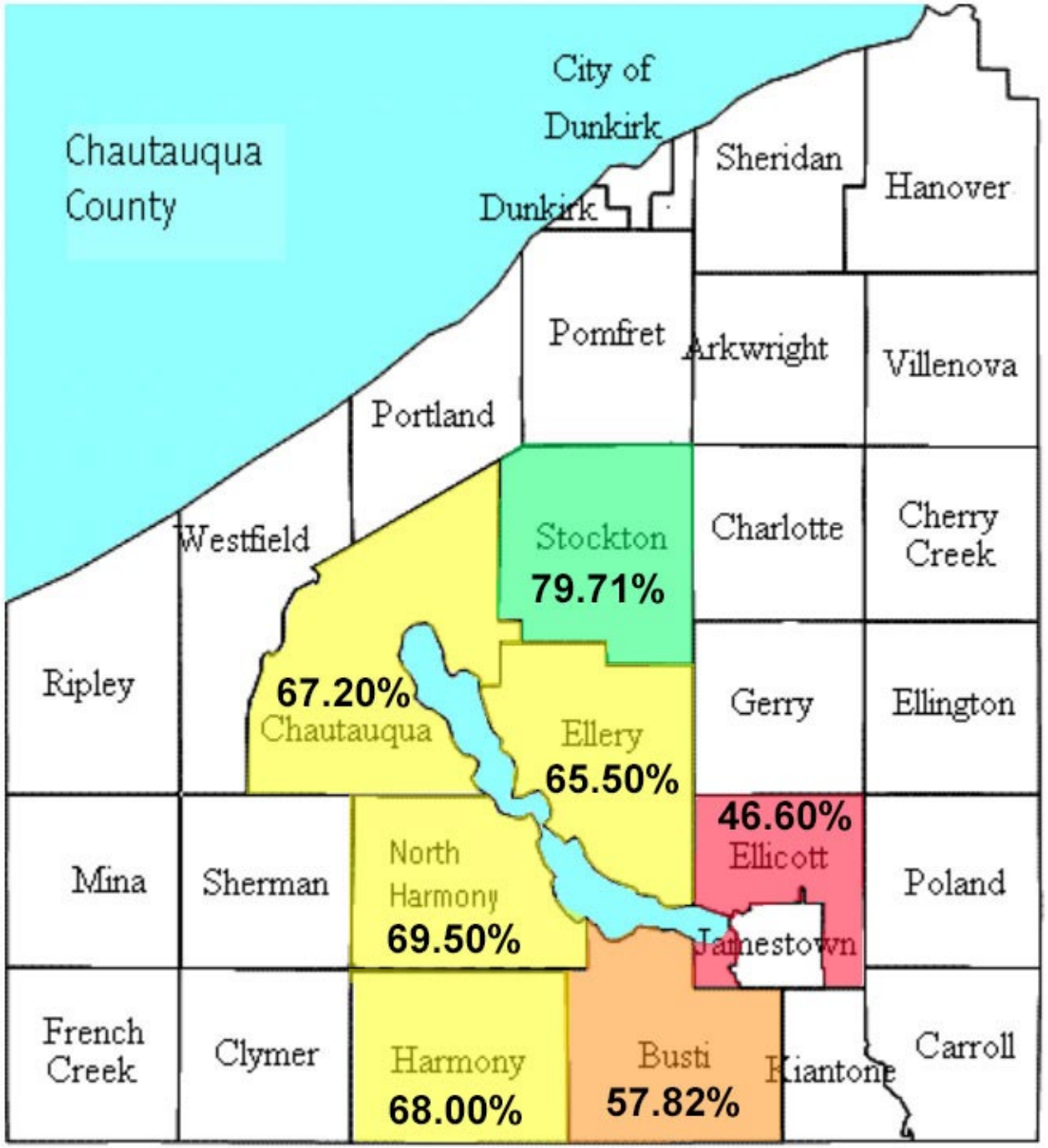
- **Impervious Cover of <5%.** Erosion begins to accelerate in streams when land cover reaches between 3-10% impervious surfaces…



Forest/wetland cover for each town's section of the Lake watershed

Chautauqua Lake Watershed estimated at 66% overall forest/wetland cover

>70% Maintains Water Quality



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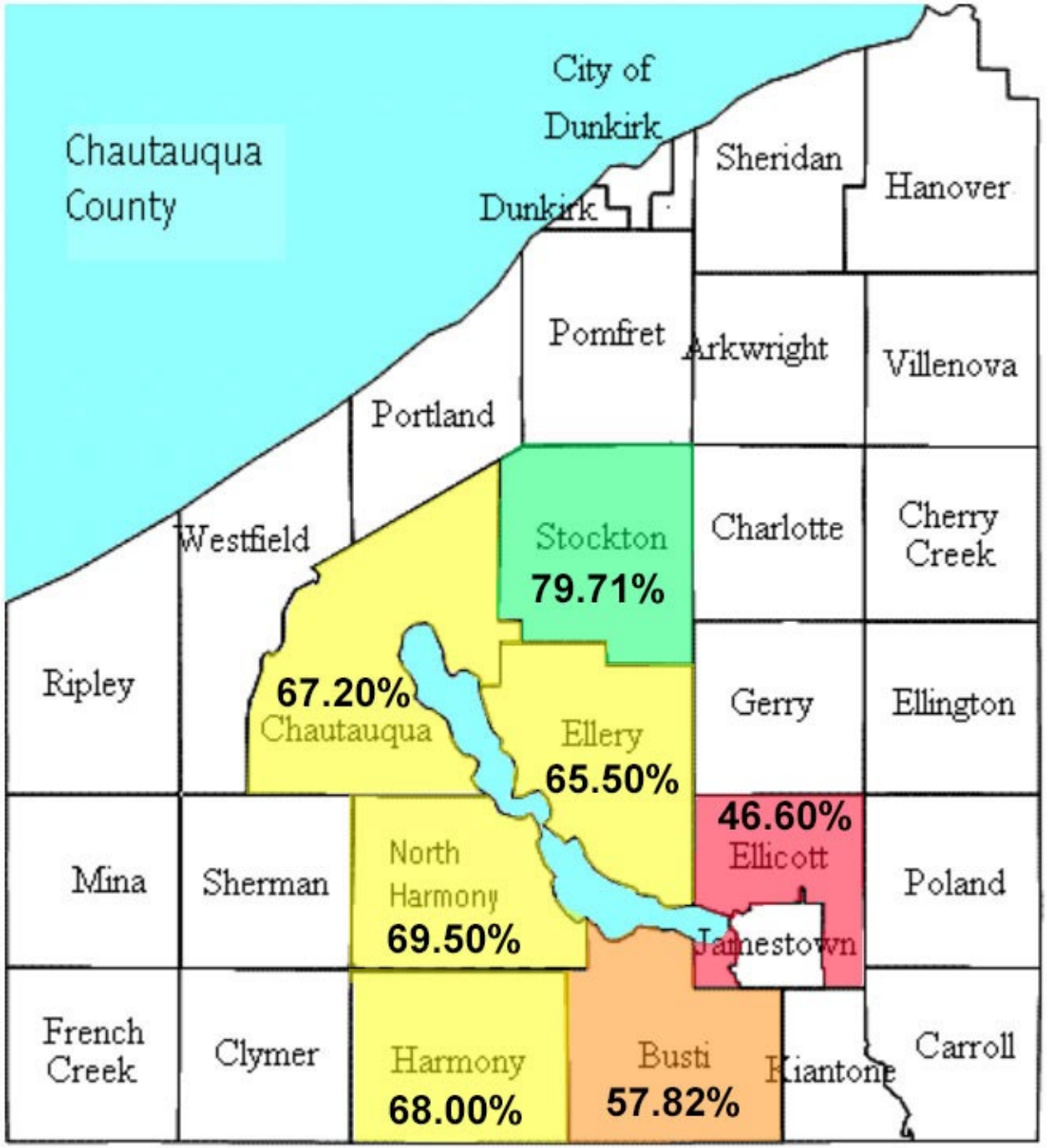
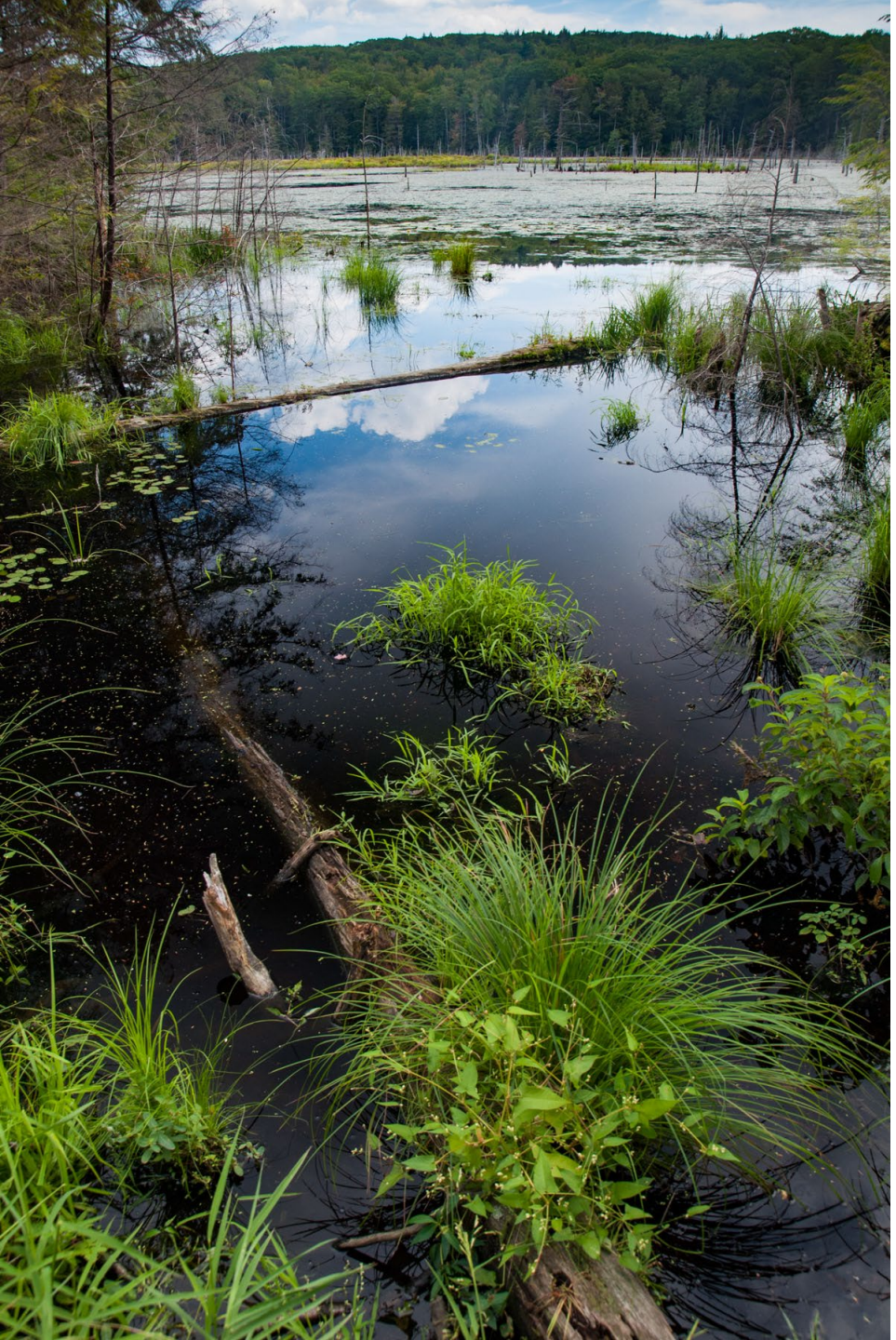
Letting nature do all the hard work for us is easily the most cost-efficient way to maintain a sustainable environment.

We must value ecosystem services!!

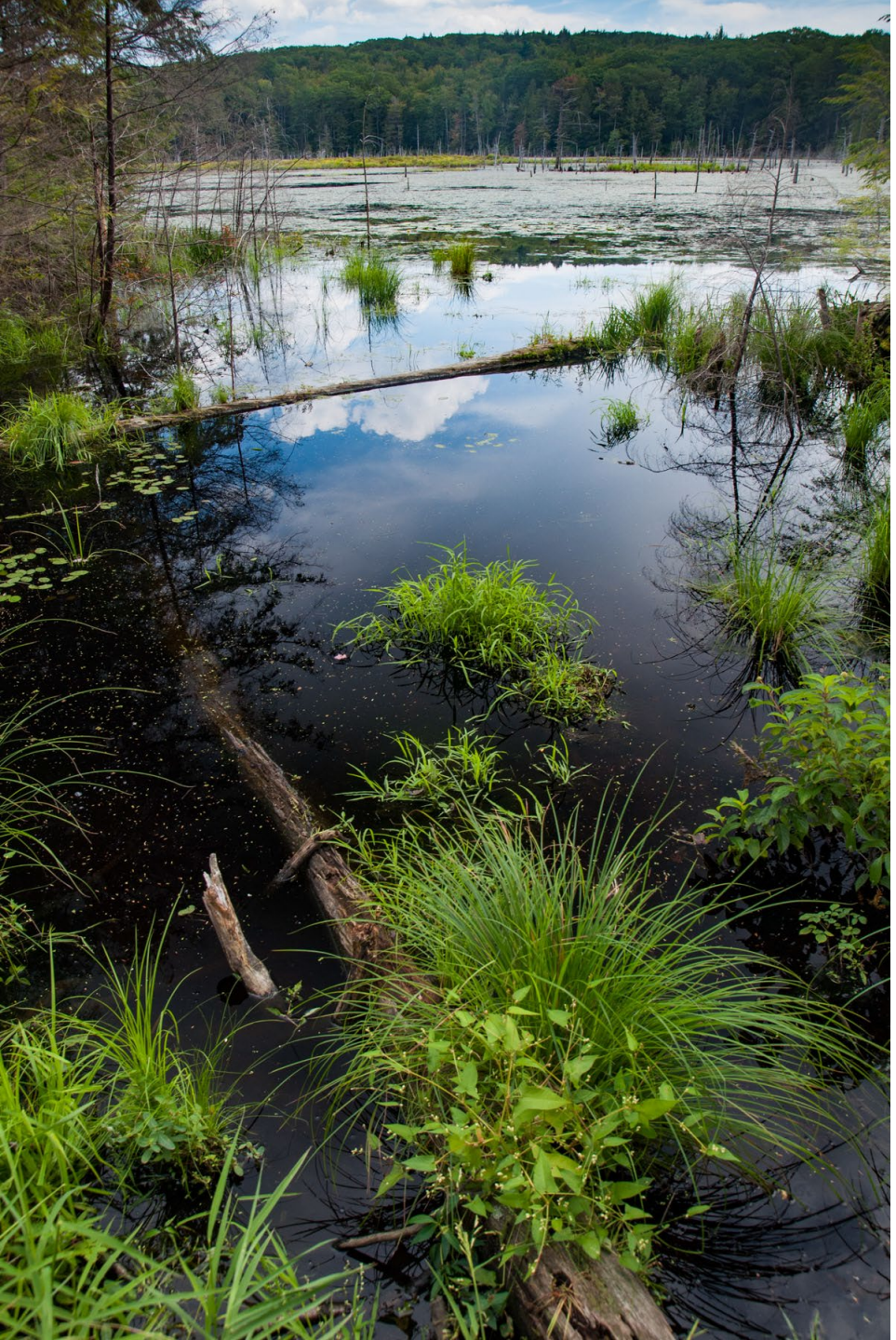




Land Cover Determines Water Quality

Total Phosphorus Loading Rates	
Land cover	**Total Phosphorus Loading Rate (lbs/acre/year)**
Crop	2.7
Impervious Cover	2.4
Turf	1.8
Forest	0.2
Wetland	-2.0

Source: Center for Watershed Protection, Watershed Institute



Land cover as a Water Quality Determinant

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Ecosystem services!!

Source: Center for Watershed Protection, Watershed Institute

- Previous watershed studies indicate that forest cover has been declining over the last 30 years
- Forest fragmentation caused by residential, recreational, industrial development & other land uses

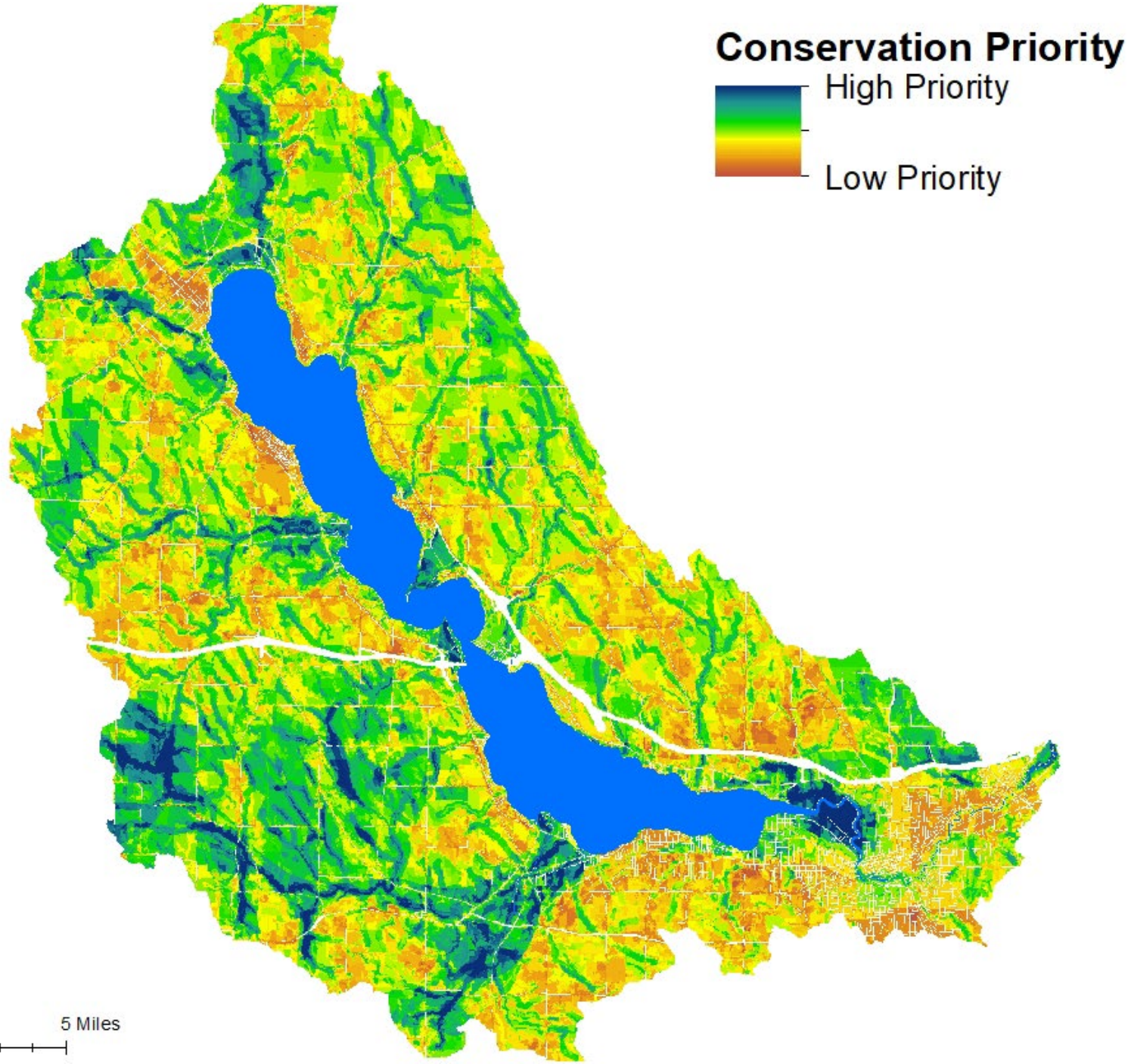
What do we need to do to maintain our region's environmental quality/conditions?

- Sub-watersheds with >70% forest/wetland cover should be conserved → **protect**
- Landscape-level, longer-term & collaborative planning is needed to:
  - Identify, incorporate, and connect all those critically resilient places!
  - Protect forested and agricultural lands from conversion to residential, commercial and industrial uses & concentrate new development in existing urbanized parts of the watershed (includes solar farms, etc.)
  - Identify our region's climate resiliency and environmental equity priorities & act on them → **re-think**
- Sub-watersheds with <70% forest/wetland → **restore**
- Urban/developed landscapes: introduce resilient natural features and restore ecological functionality to reconnect communities and people with nature → **re-wild**

Re-think

CRCIS Pilot GIS tool

Dataset	Source
Streams with 100 meter buffer	National Hydrography Dataset (NHD)
Hydric Soils	USDA NRCS
Steep slopes (>8.53 degrees)	NYS GIS/USGS 3DEM LiDAR
Protected Area	
Aquifers	Chautauqua County
Ecological Infrastructure	NYS NHP (Core Species Areas, Rare Species, Significant Ecological Communities)
Floodplains	SWCD/CWC
Parcel Size (Acres)	Chautauqua County Tax Map Parcel
Hydrologic Soil Group Units	USDA NRCS
Resiliency	The Nature Conservancy
Land Cover	National Land Cover Database



Collaborative Regional Conservation Implementation Strategy (CRCIS) for Chautauqua County

- Objectively identify most important focal areas for preservation/restoration in the region
- Guide CWC (and other stakeholders') land acquisition priorities
- Align regional needs with funding opportunities (e.g. Federal & NYS 30x30 legislation) → **preserve**

Restore

- Early detection of new Aquatic Invasive Species
- Training of lake stewards
- Sustainable management of known invasives, where still possible

CWC, CLWMA, ACNC

Restore

Chadakoin River
(City of Jamestown)

Chadakoin River
(City of Jamestown)

July 2021

March 2022

Restore


Chadakoin River
(Jamestown)


Before

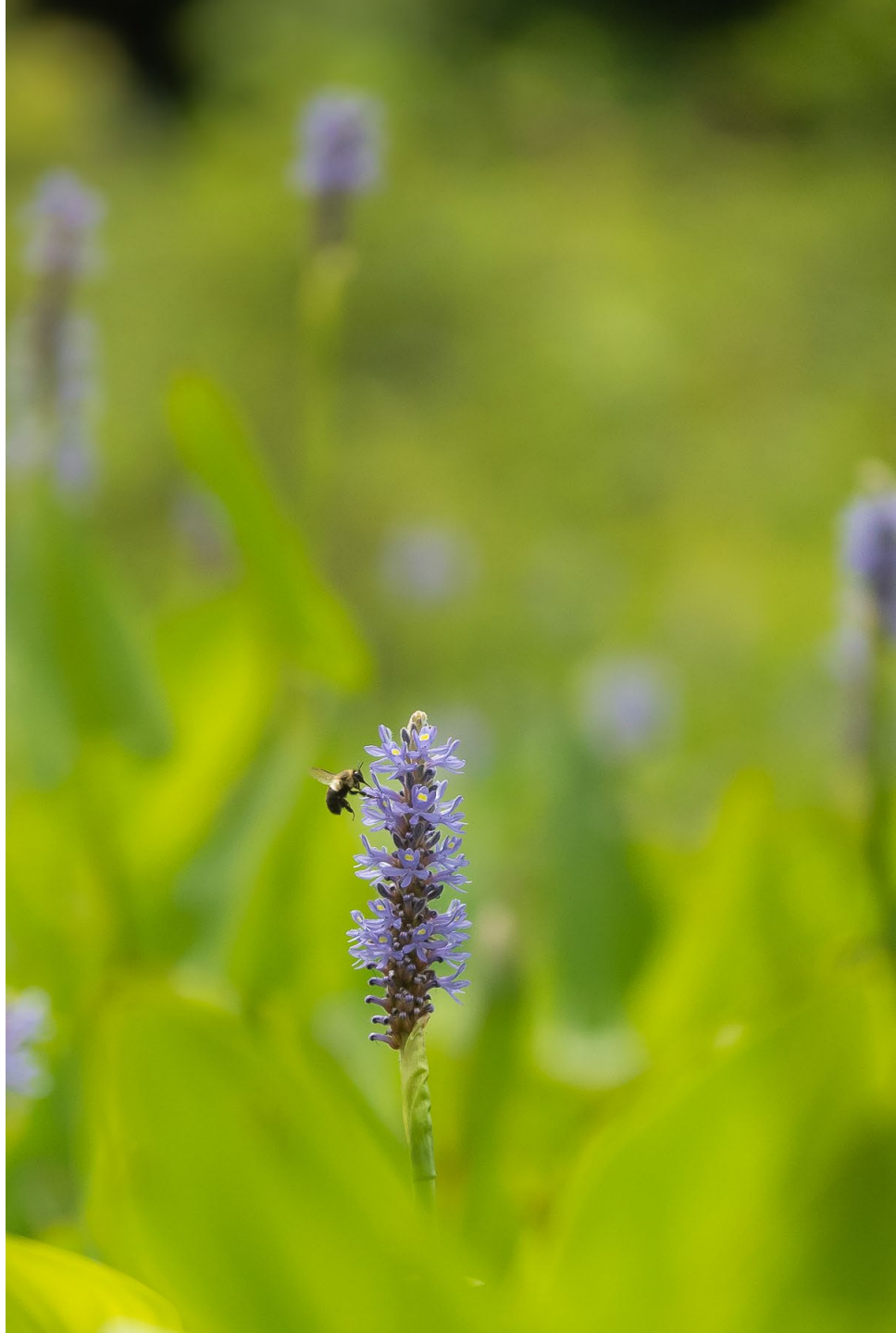

After

Re-wild

Our environment is amazingly resilient!

Even our most built-up environments can be made more natural to:

- Increase community resiliency
- Provide cost-efficient restoration solutions to benefit water quality and quality of life
- Beautify the places where people live and work
- Improve quality of life
- Give our next generation a visible reminder that there are solutions to our daunting climate and environmental challenges



CHAUTAUQUA WATERSHED CONSERVANCY

For more information/technical support :

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Or

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