FROM THE LAND TO THE LAKE
INFLUENCE OF WATERSHED CHARACTERISTICS
IN THE HONEOYE VALLEY

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Data Development

Ontario County, in conjunction with Finger Lakes Community College, has developed land cover information to the same scale and reliability as depicted here, for approximately 350 square miles. Because watersheds extend beyond municipal borders, over 100 square miles fall within 3 neighboring counties. In addition to our already completed projects, over 300 square miles of data has been digitized into the GIS and is awaiting field work to be performed.

Every lake sits at the bottom of a watershed and is thus influenced by the natural and cultural activities that occur in its surrounding upland landscape. Many Finger Lakes studies focus on lake water quality or tributary stream chemistry (especially following storm events) and attempt to link these through sophisticated computer models that take into account local topography, soils and meteorological data. The usual outcome is a lake nutrient budget that can be utilized by local resource managers for prioritizing decisions about where to implement best management practices. To validate these models, however, also requires knowledge of land use and land cover within each tributary and direct drainage sub-basin of the lake watershed. Real property code classifications are both insufficient and inaccurate for this purpose. Interpretation of aerial imagery alone is prone to error. We combined aerial interpretation with extensive ground surveys to create a "truth image" of the Honeoye Lake watershed. Data files were attributed using the hierarchical classification system of the New York Natural Heritage Program, a widely used and accepted method of ecological community classification in the state. The latest edition is available online at their website, http://www.nynhp.org . Although time-consuming, our research provides superbly detailed and comprehensive watershed information that we believe is critical to the success of holistic management for Honeoye Lake. Our data has already been used to improve the latest nutrient budget model for the lake.

We recognize 10 sub-basins within the larger Honeoye Lake watershed. Five sub-basins are drained by perennial streams and collectively account for 76% of the total watershed area. The other five are drained through intermittent streams and/or by direct runoff to the lake, and account for 24% of the total watershed area. Within these 10 sub-basins we mapped and attributed over 1700 polygons representing 36 community cover types belonging to one of four major systems: riverine, lacustrine, palustrine or terrestrial. The cover types ranged from small cultural features like farm ponds to large natural features like extensive tracts of Appalachian oak-hickory forests. Because the New York Natural Heritage Program also ranks each cover type for its rarity, we were able to identify communities such as silver maple-ash swamp and shale talus slope woodland that have statewide significance. Overall, the mosaic pattern of cover types helps to explain the tremendous biodiversity of the Honeoye Valley.

With accurate land use/land cover information, we can:
- focus attention on watershed sub-basins posing the greatest risk of contamination to the lake
- more accurately depict watershed nutrient budgets and develop hydrologic models
- document significant habitats and the connectivity among them
- assist local municipalities with updates of their natural resources portion of their comprehensive plan
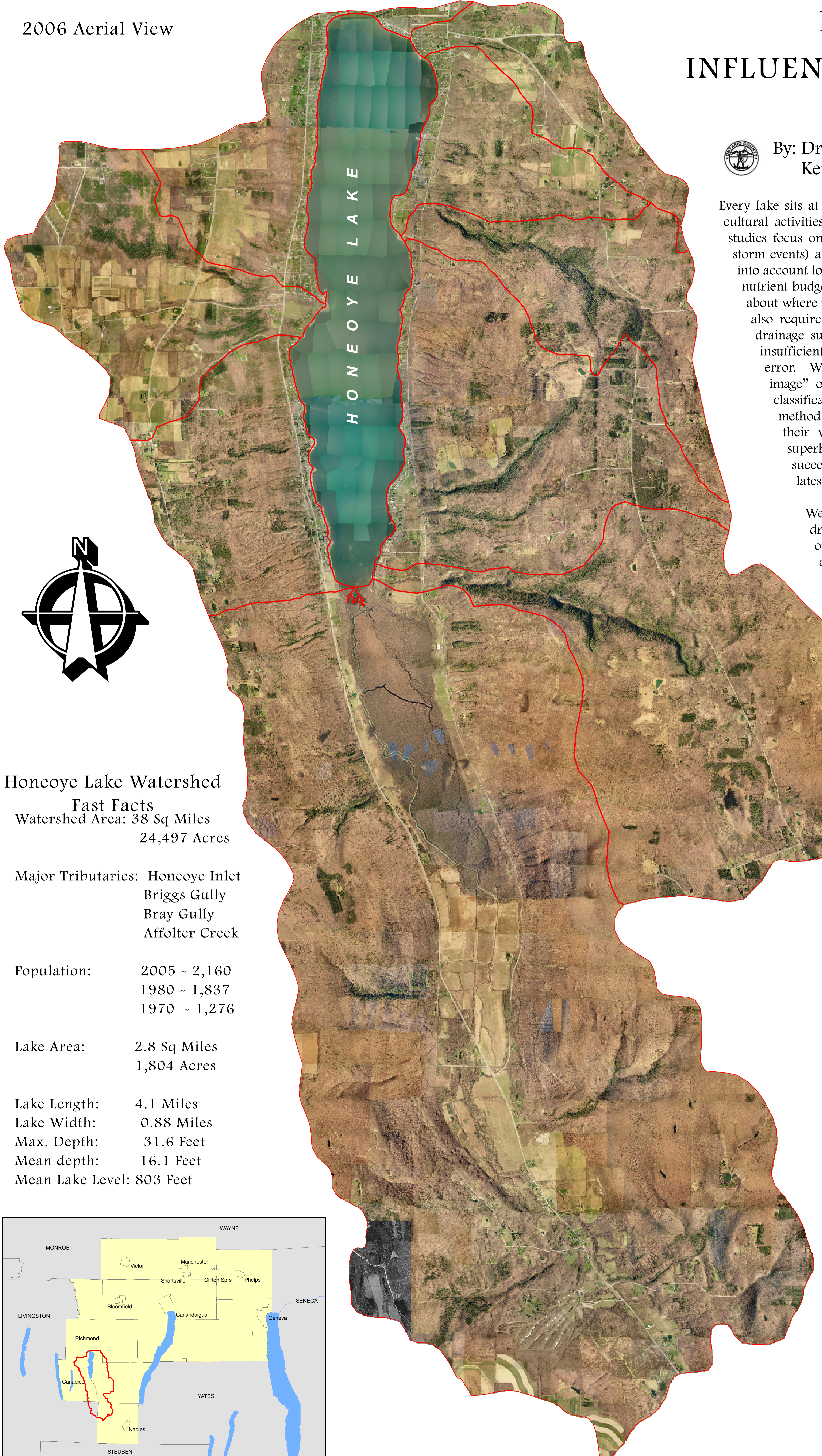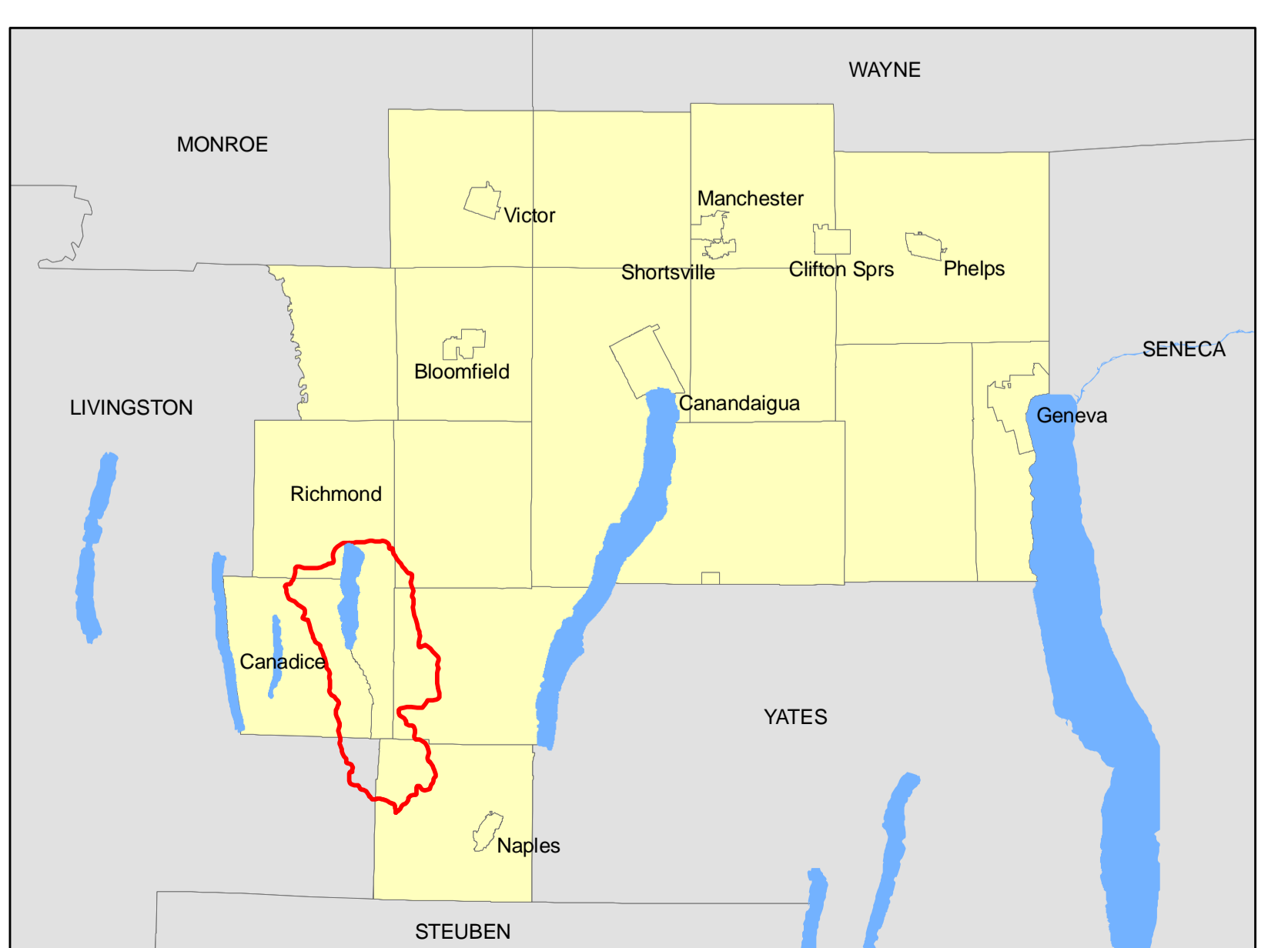
Honeoye Lake Watershed
Fast Facts

Watershed Area: 38 Sq Miles
24,497 Acres

Major Tributaries: Honeoye Inlet
Briggs Gully
Bray Gully
Affolter Creek

Population: 2005 - 2,160
1980 - 1,837
1970 - 1,276

Lake Area: 2.8 Sq Miles
1,804 Acres

Lake Length: 4.1 Miles
Lake Width: 0.88 Miles
Max. Depth: 31.6 Feet
Mean depth: 16.1 Feet
Mean Lake Level: 803 Feet

LEGEND

Honeoye Lake Sub-Watersheds - (24,497 Total Acres)

Riverine Covertypes - (>1)

Natural Streams
- Confined River-CR (>1)

Lacustrine Covertypes - (1,925)

Lacustrine Cultural - (84)
- Farm Pond\Artificial Pond-FP/AP - (84)

Natural Lakes & Ponds - (1,841)
- Eutrophic Pond-EP - (11)
- Winter-Stratified Monomictic Lake-W-SMML - (1,830)

Palustrine Covertypes - (983)

Forested Mineral Soil Wetlands - (876)
- Hemlock-Hardwood Swamp-H-HS - (51)
- Floodplain Forest-FF - (60)
- Silver Maple-Ash Swamp-SM-AS - (765)

Open Mineral Soil Wetlands - (107)
- Deep Emergent Marsh-DEM - (10)
- Shrub Swamp-SS - (41)
- Shallow Emergent Marsh-SEM - (56)

Terrestrial Covertypes - (21,576)

Barrens & Woodlands - (42)
- Successional Red Cedar Woodland-SRCW - (9)
- Suc Red Cedar Woodland\Suc N. Hardwoods-SRC//SNH** - (11)
- Shale Talus Slope Woodland-STSW - (22)

Forested Uplands - (15,551)
- Pitch Pine-Oak Forest-PP-OF - (4)
- Appalachian Oak-Pine Forest-AO-PF - (20)
- Maple-Basswood Rich Mesic Forest-M-BRMF - (27)
- Suc Northern Hardwood\Conifer Plantation-SNH//CP** - (145)
- Hemlock-Northern Hardwood Forest-H-NHF - (1,205)
- Appalachian Oak-Hickory Forest-AO-HF - (3,350)
- Successional Northern Hardwoods-SNH - (10,800)

Open Uplands - (2,200)
- Sand Beach-SB - (>1)
- Suc Old Field\Conifer Plantation-SOF//CP** - (36)
- Suc Old Field\Suc Shrubland-SOF//SUC.S - (188)
- Suc Northern Hardwoods\Suc Shrubland-SNH//SUC.S - (295)
- Successional Shrubland-SUC.S - (493)
- Successional Old Field-SOF - (1,187)

Terrestrial Cultural - (3,783)
- Unpaved Road/Path-UR/P - (2)
- Vineyard-V - (4)
- Gravel Mine-GM - (10)
- Urban Structure Exterior-USE - (36)
- Rural Structure Exterior-RSE - (37)
- Pastureland-P - (105)
- Outdoor Recreation-OR** - (112)
- Cropland-C - (985)
- Conifer Plantation-CP** - (1,132)
- Mowed Land/Residential-ML - (1,360)

"This classification system has proven to be a very valuable tool to a wide array of conservation practitioners and land managers in New York. By using this classification to identify locations of high quality natural communities across the state we have raised awareness of their biodiversity significance. In addition, many of the occurrences identified by the NY Natural Heritage Program, and our partners, have resulted in their protection ensuring that a good portion of New York's natural heritage will persist for future generations to enjoy, study, and appreciate."

Greg Edinger, Ecologist –
NY Natural Heritage Program

Aerial Photos: 2006 Pictometry Community Orthos

1 inch equals 1,500 feet