

the environment

HUMAN SURVIVAL AND WELL-BEING DEPENDS, EITHER DIRECTLY OR INDIRECTLY, ON THE NATURAL ENVIRONMENT. TOMPKINS COUNTY CURRENTLY ENJOYS CLEAN AIR; ABUNDANT CLEAN WATER; AND EXTENSIVE AGRICULTURAL LANDS, FORESTS, AND NATURAL AREAS. PROTECTING THESE RESOURCES FOR FUTURE GENERATIONS IS BOTH A CHALLENGE AND AN OPPORTUNITY.

WATER AND OTHER NATURAL RESOURCES ARE INEXTRICABLY INTERRELATED. THE QUALITY OF THE WATER IN OUR STREAMS, LAKES, AND GROUNDWATER DEPENDS UPON THE QUALITY OF THE WATER THAT ENTERS VIA STORMWATER RUNOFF OR PERCOLATES THROUGH THE SOIL. FOR CONFINED AQUIFERS, THE CONDITIONS ON THE LAND OVERLYING SPECIFIC AQUIFER RECHARGE AREAS DIRECTLY IMPACT THE QUALITY OF THE GROUNDWATER. WATER QUANTITY AND QUALITY, IN TURN, IMPACT THE SURVIVAL OF BOTH TERRESTRIAL AND AQUATIC ORGANISMS. TO MAINTAIN THE QUALITY OF WATER AND HABITATS, LAND USE THROUGHOUT A WATERSHED NEEDS TO BE ADDRESSED. OF PARTICULAR IMPORTANCE ARE WETLANDS, RIPARIAN BUFFERS ALONG STREAMS, AND AQUIFER RECHARGE AREAS.



natural resources

Tompkins County is known for its resplendent landscapes and natural havens. Residents and visitors alike enjoy and appreciate Cayuga Lake; the many gorges, streams, and waterfalls; and rolling farmland, fields, and wooded hillsides. In fact, the landscape has become more diverse with the expansion of forests in the southern parts of the county since widespread deforestation in the nineteenth and early twentieth centuries, and the preservation of significant tracts of the most valued natural areas as State parks, forests, and preserves.

PRINCIPLE

Tompkins County should be a place where natural features and working rural landscapes are preserved and enhanced.

POLICIES

It is the policy of Tompkins County to:

- Preserve natural features and ecosystems, especially within the Natural Features Focus Areas.
- Protect farmland within the Agricultural Resource Focus Areas for agricultural use.
- Reduce the adverse impacts to native species and ecosystems caused by invasive organisms and climate change.
- Promote best management practices that protect natural resources and productive working lands.
- Improve public access to outdoor recreation resources and opportunities.

SNAPSHOT OF THE COUNTY TODAY

Natural Features

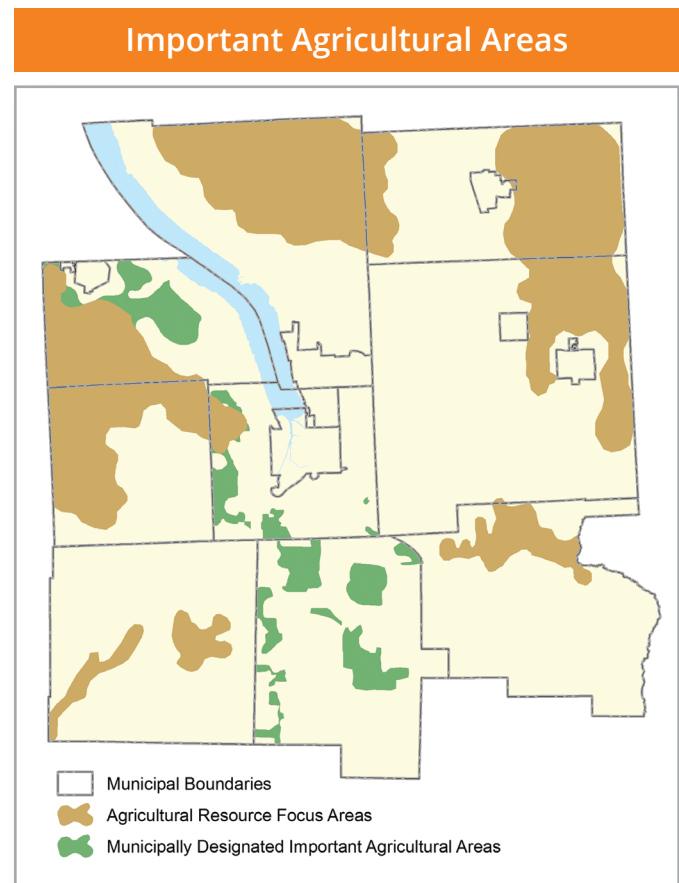
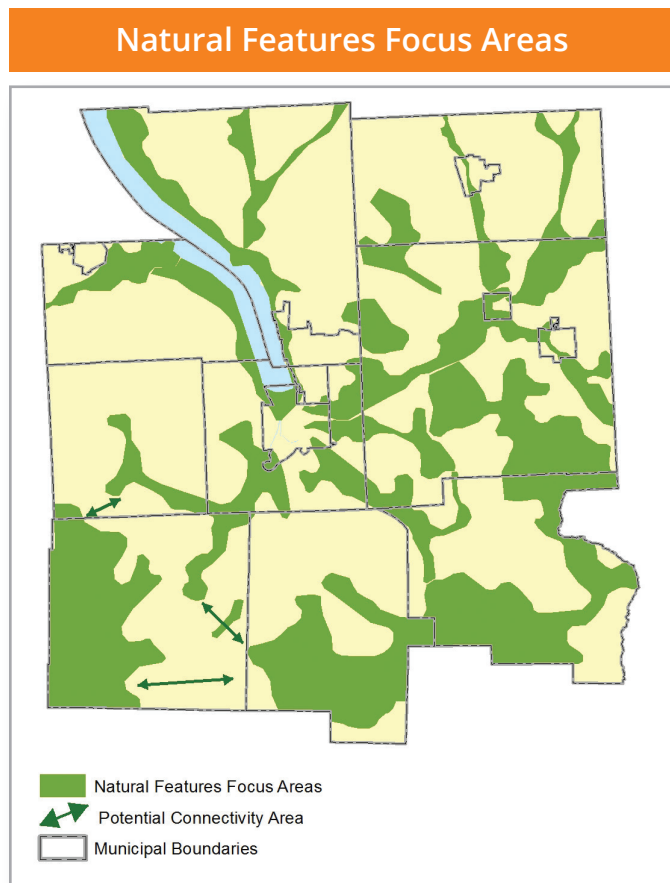
Tompkins County is known for its many natural features including Cayuga Lake; many small and large streams, gorges, and waterfalls; rolling wooded hills; and flat and fertile agricultural lands. There are over 10,000 acres of wetlands, 26,000 acres of State Forests and Wildlife Management Areas, and nearly 3,000 acres of State Parks. The County has identified and mapped its key regional natural resources in the 14 distinct Natural Features Focus Areas (NFFAs) which total over 20,000 acres. The NFFAs are based on the location and concentration of significant resources, such as public parks and forests, wetlands, stream corridors, public drinking water resources, Important Bird Areas, greenways, and hiking and multi-use trail corridors.

Many of these areas include high-quality natural areas called Unique Natural Areas (UNAs), which are identified

and designated by the Tompkins County Environmental Management Council. These 194 UNAs cover over 41,000 acres and include areas with special natural communities, plants, animals, or geology that are rare or scarce elsewhere in the county or region. UNA boundaries are established by analyzing aerial imagery and field visits as appropriate. The UNA Inventory is intended to provide non-regulatory guidance to conservation and development in and around these areas.

NFFAs also capture broader geographic areas that include State Parks, Forests, and Wildlife Management Areas. Neither UNAs nor NFFAs are regulatory designations, but help to inform local and regional planning decisions. Recommendations for protection efforts in the NFFAs are detailed in the *Tompkins County Conservation Plan – Part I: A Strategic Approach to Natural Resource Stewardship* that is the basis for natural resource protection efforts.

Cayuga Lake, the County’s preeminent natural feature, is specifically addressed in the Water Resources chapter.



Sources: Tompkins County Planning Department

Agricultural Resources*

Agricultural working landscapes are an important land resource in the county. Approximately 100,000 acres of land, or 30 percent of all land in the county, is considered agricultural, with about 80,000 acres of that actively farmed. Much of this land contains high quality soils. Soil types vary based on slope, erodibility, and drainage, among other factors. Prime Soils, which make up 41,453 acres, are those soils considered most desirable for agriculture.

Since 1982, Tompkins County has lost at least 20 percent of its farmland to both development and abandonment. The amount of land being farmed has recently increased, but the long-term trend is a significant loss in agricultural land over time. This is consistent with the statewide trend in agricultural land conversions to non-agricultural uses.

As of 2012, there are 558 farms throughout the county with an average farm size of 163 acres. Agriculture in Tompkins County is quite diverse, though dairy farming remains the largest economic driver and land user in the agricultural sector. Although these operations are located throughout the county, several areas are strategic in maintaining a thriving agricultural economy. In the 2004 Comprehensive Plan, six Agricultural Resource Focus Areas (ARFAs) were identified. Those areas have the best soils and high concentrations of contiguous, actively farmed parcels of land. In addition to the ARFAs, the Towns of Danby, Ithaca and Ulysses have identified locally important agricultural lands they consider key to local agricultural activity.

The ARFAs, along with locally designated important agricultural areas, form the basis of a countywide approach to foster a long-term commitment to the preservation of agricultural land. These areas provide the best opportunity to create a critical mass of protected agricultural land to ensure the long-term viability of agriculture. Nearly all of the land in the ARFAs is within an Agricultural District, state-certified areas that receive certain “right-to-farm” protections. This land may further receive agricultural assessments, where eligible land utilized for agricultural purposes is assessed for taxes based on its agricultural value.

Recreational Landscapes

Natural areas provide diverse outdoor recreation opportunities, including hunting, fishing, camping, hiking, biking, running, and skiing. These activities continue to grow in popularity, with recognition of these recreational amenities

in several national publications. There is also a designated and maintained snowmobile trail network in the county. Multi-generation interest in recreational knowledge-gathering opportunities like geo-caching, birding, and plant identification is also growing.

Studies continue to show Tompkins County residents and visitors rank beautiful scenery, waterfalls, and outdoor activities among the features they like the most. The county has four State Parks and over 45,000 acres of protected natural areas that include over 200 miles of hiking and multi-use trails.

Conservation Progress

Dedicated open space includes those natural areas protected as State lands, land trust preserves, conservation easements¹ on agricultural or forest lands, and County-held forestry lands, as well as municipal parks, Cornell and Ithaca College Natural Areas, and cemeteries. While many of these dedicated open spaces offer formal protections, the range of uses allowed on them vary by specific owner or protection mechanism. Several of these spaces, though not all, are open to the public and provide important recreational opportunities. Dedicated open space lands also provide an important framework for future conservation efforts. Creating a critical mass of interconnected open space will promote habitat connections, sustain agriculture, protect water quality, and ensure the health of wildlife populations for generations to come.



Photo by TCFD
Buttermilk Falls State Park

* For more information see *The Economy Chapter*, “Strong Working Lands” section.

Dedicated Open Space in Tompkins County, 2004-2013

	2004 (Acres)	2013 (Acres)	Total % Change	% Change Land in ARFA	% Change Land in NFFA
New York State	28133	28461	1.15%	0.00%	0.88%
Cornell University	7238	7258	0.27%	7.80%	0.00%
Finger Lakes Land Trust	2620	4770	45.08%	43.50%	44.69%
City of Ithaca	1158	1158	0.00%	0.00%	0.00%
Tompkins County	660	660	0.00%	0.00%	0.00%
Private/Other	506	553	8.47%	100.00%	4.42%
Other Municipal Land	502	752	33.30%	0.00%	43.45%
The Nature Conservancy	394	394	0.00%	0.00%	0.00%
Ithaca College	284	284	0.00%	0.00%	0.00%
Agricultural Easement	0	2221	100.00%	100.00%	100.00%
TOTAL	41495	46511	10.78%	66.73%	5.45%

Source: Tompkins County Planning Department

Since 2004, dedicated open space lands have increased by over 5,000 acres with most of the protection coming in the form of conservation easements, bringing the total amount of dedicated open space in Tompkins County to 15 percent of all land. This 5,000 acre increase was almost evenly divided between protecting farmland and natural features. From 2004 to 2013, the amount of dedicated open space in ARFAs tripled, increasing by more than 2,300 acres. Almost all of that increase was a result of tapping the NYS-funded purchase of agricultural conservation easements program. The amount of dedicated open space in NFFAs increased by 2,200 acres and occurred in 13 of the 14 NFFAs.

NATURAL LANDS. Since 2004, the Finger Lakes Land Trust (FLLT) has protected more than 2,100 acres of land bringing their total protection within Tompkins County to 4,770 acres. Approximately, 70 percent of that land was protected with conservation easements; the remaining 30 percent was acquired as preserves. New York State Parks has also increased local protected land by over 200 acres. These acquisitions were almost solely to buffer three State Parks as well as the Black Diamond Trail.

AGRICULTURE. In terms of agricultural protection over the past 30 years, Tompkins County government has taken a non-regulatory, incentive-based approach to farmland protection, based on voluntary participation by landowners. In 2004, Tompkins County was, for the first time, awarded State funds to purchase an agricultural conservation easement for the long-term protection of a 433-acre farm in the Town of

Lansing in one of the ARFAs. Since then, the County has worked with the Towns of Lansing and Dryden to protect an additional three farms for a total of 2,221 acres of farmland.

Two Agricultural Districts have been established in Tompkins County since 1973, and currently include over 340 farms and 169,000 acres of farmland. This encompasses the majority of the farmland and approximately 57 percent of the county's total land area. Participation in the Agricultural Districts program provides farmers with a number of benefits and protections, including enhanced protection from nuisance lawsuits, limitations on local regulation of farming structures and practices, tax incentives to keep land in production, and special considerations in local planning and land-use decision-making.

ISSUES AND OPPORTUNITIES

Fragmentation

Despite the successes of local conservation partners, increasing rates of land development, especially along the rural road frontage, continue to fragment rural landscapes as well as the habitats and wildlife corridors many species rely upon. This trend can be seen throughout the county, as trails are rerouted on roads when access across natural lands is lost and rural landscapes are marred by roadside frontage

development that obscures scenic views, reduces acreage of prime soils available for agricultural use, and obstructs wildlife movement.

Maintaining undeveloped sections of land, particularly within and between key swaths of ARFAs and NFFAs, is valuable to flora, fauna, and to the rural character of a community. As is depicted on the Natural Features Focus Area map in the snapshot section, particularly important connectivity areas lay between the Danby State Forest, Connecticut Hill Wildlife Management Area/Newfield State Forest and Treman and Buttermilk Falls State Parks. While formal protection through acquisition and easements are important tools in protecting these landscapes, land uses that maintain landscape character should be encouraged, including sustainable forestry, diverse agricultural operations, and appropriate outdoor recreational land uses. The Finger Lakes Land Trust has built conservation campaigns around the notion of an “Emerald Necklace” envisioned as an arc of linked open space around the Ithaca urban area. The Emerald Necklace has further been identified as a pri-

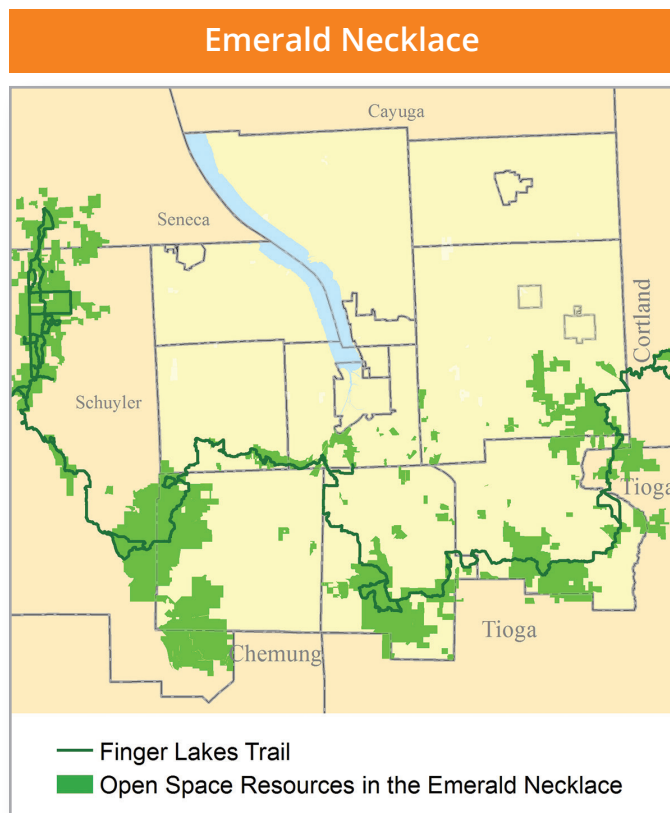
Improving access to the region’s many natural areas will allow more individuals to enjoy the recreational opportunities these resources provide.

ority project in the *New York State Open Space Conservation Plan* (2009).

Access*

Improving access to the region’s many natural areas for all people, including those with disabilities, will allow more individuals to enjoy the recreational opportunities these resources provide. Improving access points is particularly beneficial when tied to greenways and blueways. Greenways are corridors of undeveloped land used for recreation and/or conservation. These areas often follow natural land features, such as ridges or streams, or parts of the human landscape, such as abandoned railways or canals that can be used for multi-use trails, pedestrian trails, and/or biological corridors. In some cases, such as greenways along stream corridors, they can also serve to protect wildlife habitat, trees and forests, and water quality, while also reducing impacts on downstream properties from excessive erosion and flooding.

Blueways are water-based trails and related lake shore lands also used for recreation or conservation. These areas serve to protect undeveloped waterfront lands in order to conserve those high-value properties for public access while also allowing for active use of the lake by non-motorized boats, such as canoes and kayaks, and enhancing tourism in the region.



Source: Tompkins County Planning Department



Boardwalk at the Roy H. Park Preserve of the Finger Lakes Land Trust

* For more information see the *Healthy Communities Chapter, “Parks, Trails and Recreational Facilities”* section.

Loss of Active Agricultural Land

Although the amount of land being farmed has increased in recent years, the overall trend is for farmland to transition to residential, commercial, and sometimes industrial uses. Scattered development is common, primarily in the form of single-family homes along rural roads, or as commercial strip development along highways. These development trends threaten the economic viability of farming by fragmenting the land base and intensifying conflicts between farmers and non-farm neighbors over such issues as noise, dust, odors, and trespassing.

Historic farmland loss is not solely the result of encroaching development. Since the 1950s, over 30,000 acres of farmland has reverted to forest. Much of this loss is the result of abandonment of the more marginal farmland. While the amount of actively farmed land has decreased over the past several decades, much of this land continues to contribute to the rural economy by providing opportunities for forestry and timber harvesting operations.

Between 2007 and 2012, over 4,000 acres of previously inactive agricultural land has become active. Much of this conversion is occurring on rented land. In addition, organic farmers are working previously inactive agricultural lands, as these areas are easier to certify as organic. It is too early to tell whether a recent uptick in agricultural land use will permanently reverse the long-term trend of farmland loss.

Another factor increasing the risk of farmland conversion to non-agricultural uses is that farmers are aging and there is not a clear path for younger farmers to take over the work. Currently, the average age of principal farm operators is over 58 years old. Additionally the number of younger farmers continues to shrink.

Unwelcome Visitors

Another threat to natural resources comes in the form of invasive species. Invasive species are plants or animals not native to Tompkins County which cause damage to the environment, economy, and/or community health. Invasive plants, such as the aquatic Hydrilla and terrestrial Japanese Knotweed, have significant negative ecological and economic impacts. These plants shade out native plants and change habitats, which impacts wildlife. Over \$1 million



Mass of Hydrilla Pulled from Cayuga Inlet

Historic farmland loss is not solely the result of encroaching development.

has been spent recently to treat and manage Hydrilla in Tompkins County.

Invasive insect populations add another risk to both urban and rural forests. The Hemlock Woolly Adelgid and the anticipated Emerald Ash Borer are together causing an estimated \$3.5 billion in tree damages throughout the United States annually and threaten Tompkins County. The region will have to continue to plan for the economic and ecological impacts

of these and other unwelcome plants, animals, and insects. The benefits of using pesticides and herbicides in curtailing adverse impacts of invasives will need to consider any risks to public health and environment.

The Cost of Conservation

The protection of priority conservation areas in Tompkins County is largely limited to the direct approach of either purchasing land outright or entering into voluntary restrictions on land use through easements. Both approaches have substantial costs associated with them, particularly as projects are concentrated in areas with the highest agricultural or natural feature value. For some of the most sought-after land in ARFAs, like North Lansing and West Groton, land is sold for in excess of \$4,000/acre. Large tracts of high quality natural resource land are typically sold for between \$1,000 and \$3,000/acre, though in the case of some lakefront areas this can exceed \$10,000/acre. In acquiring conservation easements expenses include a land survey, appraisal, base-



Photo by TCFPD

For local conservation partners to be prepared to acquire and protect those lands of highest conservation value adequate funding is needed.

Southeastern Tompkins County vista from Level Green Road

line study, attorney/staff time, and long-term stewardship fees. The total of such expenses for a moderate-sized project can be more than \$30,000. While the County's *Capital Reserve Fund for Natural, Scenic, and Recreational Protection* has played a meaningful role in acquiring easements and direct purchases of priority land in Agricultural Resource and Natural Features Focus Areas, its reach is limited as the balance of funds available is typically under \$20,000. For local conservation partners to be prepared to acquire, protect, and manage those lands of highest conservation value adequate funding is needed.

TAKING ACTION

STRATEGIES. Preserving the high quality natural and agricultural resources in Tompkins County requires a number of different types of actions, the core of which are identified in the *Tompkins County Conservation Strategy* (2012). This strategy presented a ten-year strategy of 11 key actions:

- Prepare a long-range Purchase of Development Rights Implementation Plan to actively market the program to

farmers in the Agricultural Resource Focus Areas and identify farms suitable for the program.

- Conduct a feasibility study for a Transfer of Development Rights Program with interested municipalities.
- Promote specific land use tools that protect important lands.
- Develop an agricultural planning referral program to help farmers and municipal planning boards conduct agricultural land planning.
- Create a pilot program to connect farmers with landowners of agricultural property for lease or sale.
- Proactively engage owners of land located in priority protection areas to participate in long-term conservation programs.
- Develop a recreational trail network to support and enhance natural areas.
- Promote stream corridor protection efforts.
- Develop a program to protect wetlands and aquifer recharge areas in the county.

- Develop a program to improve public access to Cayuga Lake and protect scenic views of the Lake and from the Lake.
- Create a long-range conservation funding strategy to support land acquisition, purchase conservation easements, and manage and monitor conserved land resources.

Further recommendations for protection efforts in the NFFAs are detailed in the *Tompkins County Conservation Plan – Part I: A Strategic Approach to Natural Resource Stewardship* that is the basis for natural resource protection efforts. The range of economic and physical threats posed by a variety of invasive species to natural areas is identified in the *Tompkins County Hazard Mitigation Plan*. As an example, in response to the threats posed by wood-boring pests the plan identified the need to clarify where the highest concentrations of vulnerable trees are located to assist in reducing risk. The plan further prioritizes the establishment of a debris management plan to assist in coordinating safe disposal and reuse of infested trees as they begin to decay and fall on roads and streams.

Conservation synergies specifically supporting access improvements to natural resources are noted in the *Cayuga Lake Blueway Trail Plan*, the *Tompkins Priority Trails Strategy*, and *The Finger Lakes Trail Plan in the Emerald Necklace: A Plan for Corridor Protection and Enhancement*. These initiatives emphasize the establishment of public access points which help residents and visitors to equitably enjoy these important public resources.

Further recommendations for protection efforts in the ARFAs are detailed in the *Tompkins County Conservation Plan – Part II: A Strategic Approach to Agricultural Resource Stewardship*. In terms of agriculture, the Conservation Strategy specifically recognizes the need to better facilitate farm transfers as well as support the conversion of inactive farmland to actively farmed land, and recommends the use of a pilot web-based program, Finger Lakes Landlink, which provides connections between farmers in the region who need land and landowners who wish to have their unused acreage farmed. Efforts should be made to expand participation in this program. Furthermore, the *Tompkins County Agriculture and Farmland Protection Plan* emphasizes strategies to keep farms profitable as the most effective means of maintaining and protecting farm operations. Originally prepared in 1998, the plan is currently being updated.

PARTNERS. To assist with the implementation of the *Tompkins County Conservation Strategy* the County relies on the various local, regional, and state agencies that are active participants in the ad hoc Tompkins County Conservation Partners group including Cornell University, Cornell University Plantations, the Finger Lakes Land Trust, the Finger Lakes Trail Conference, the New York State Department of Environmental Conservation (Region 7), and the New York State Office of Parks, Recreation, and Historic Preservation (Finger Lakes Region). Other key County advisory boards that assist in advancing conservation measures are the Environmental Management Council and the Agriculture and Farmland Protection Board.

COUNTY ROLE. The Tompkins County Planning Department plays an important coordinating role in advancing conservation measures and serves as County representative on the Region 7 State Open Space Advisory Committee. The County Agriculture and Farmland Protection Board supports the conservation of important agricultural lands through activities like the updating of the County Agriculture and Farmland Protection Plan. The Tompkins County Environmental Management Council helps to support the conservation of county natural features through regular update of their Unique Natural Areas (UNA) Inventory.

County Actions to be Initiated within Two Years

- Monitor development activity within the Natural Features Focus Areas and Agricultural Resource Focus Areas and share that information with municipalities.
- Identify Purchase of Development Rights priority projects for implementation in the Agricultural Resource Focus Areas.
- Develop a conservation funding strategy that accurately captures need for key conservation acquisitions.
- Build on the recommendations in the Finger Lakes Trail Corridor Protection Plan to identify specific areas and tools to improve connectivity between Natural Features Focus Areas.

¹ A conservation easement is a voluntary agreement to protect land in perpetuity. Although filed with the deed, it does not transfer land ownership, but rather spells out a landowner's commitments to protect the existing character of the property. It is written to protect land in accordance with the landowner's wishes and the easement holder's mission.

home to state parks and forests

State lands account for nearly ten percent of Tompkins County's land area. Chief among these are four State Parks (2,765 acres in Tompkins County), seven State Forests (19,511 acres), and one Wildlife Management Area.

STATE PARKS

Allan H. Treman State Marine Park (70 acres) located in the City of Ithaca is one of the largest inland marinas in New York State; it has over 400 boat slips as well as picnic areas and playing fields. The marina is a port-of-call on the Barge Canal system and within walking distance of downtown Ithaca. There is a dog park within this park.

Robert H. Treman State Park (1,100 acres) located in the Town of Enfield features the rugged Enfield Glen gorge, with 12 waterfalls, including the 115-foot Lucifer Falls. The park is popular among swimmers who can dive under a waterfall and cool-off in the natural pool. Camping, playgrounds, and picnic areas round out the park.

Buttermilk Falls State Park (870 acres) located in the Town of Ithaca, and including Jennings Pond in Danby, takes its name from the foaming cascade formed by Buttermilk Creek as it flows down the steep valley side toward Cayuga Lake. The upper park has a small lake, hiking trails through woodlands and along the gorge and rim, picnic areas and playing fields. The lower park has a campground, pool and playing fields.

Taughannock Falls State Park (725 acres) in the Town of Ulysses has one of the highest waterfalls east of the Rocky Mountains. Taughannock Falls plunges 215 feet past rocky cliffs that tower nearly 400 feet above the gorge and trails that offer spectacular views from above and below the breathtaking falls. A multi-use trail winds past sledding slopes and natural skating ponds. The park also includes a swimming beach, boat launch and picnic area on Cayuga Lake.

WILDLIFE MANAGEMENT AREA

The Connecticut Hill Wildlife Management Area is the largest of its kind in New York State, totaling 11,645 acres. It is located 16 miles southwest of Ithaca, astride the Tompkins-Schuyler County line. As part of the Appalachian

Highlands, Connecticut Hill lies within a belt of high, rugged land and is home to diverse wildlife including wild turkey, mink, and eastern coyote, and is considered an Important Bird Area by the Audubon Society.

STATE FORESTS

The State Forests have become destinations for many recreational activities. The Finger Lakes Trail snakes its way through the largest three. The NYSDEC has done extensive trail work in these largest State Forests for mountain biking, hiking, horseback riding and cross country skiing.

Danby State Forest: 7,337 acres in the Town of Danby and in Tioga County. The largest of the state forests in Tompkins County contains the Abbott Loop, a spur of the Finger Lakes Trail, a favorite hiking destination.

Shindagin Hollow State Forest: 5,266 acres in the Town of Caroline and in Tioga County. Mountain Bikers flock to Shindagin Hollow's extensive mountain bike trail network.

Hammond Hill State Forest: 3,618 acres in the Towns of Caroline and Dryden. This forest attracts hikers, mountain bikers, horseback riders and cross country skiers.

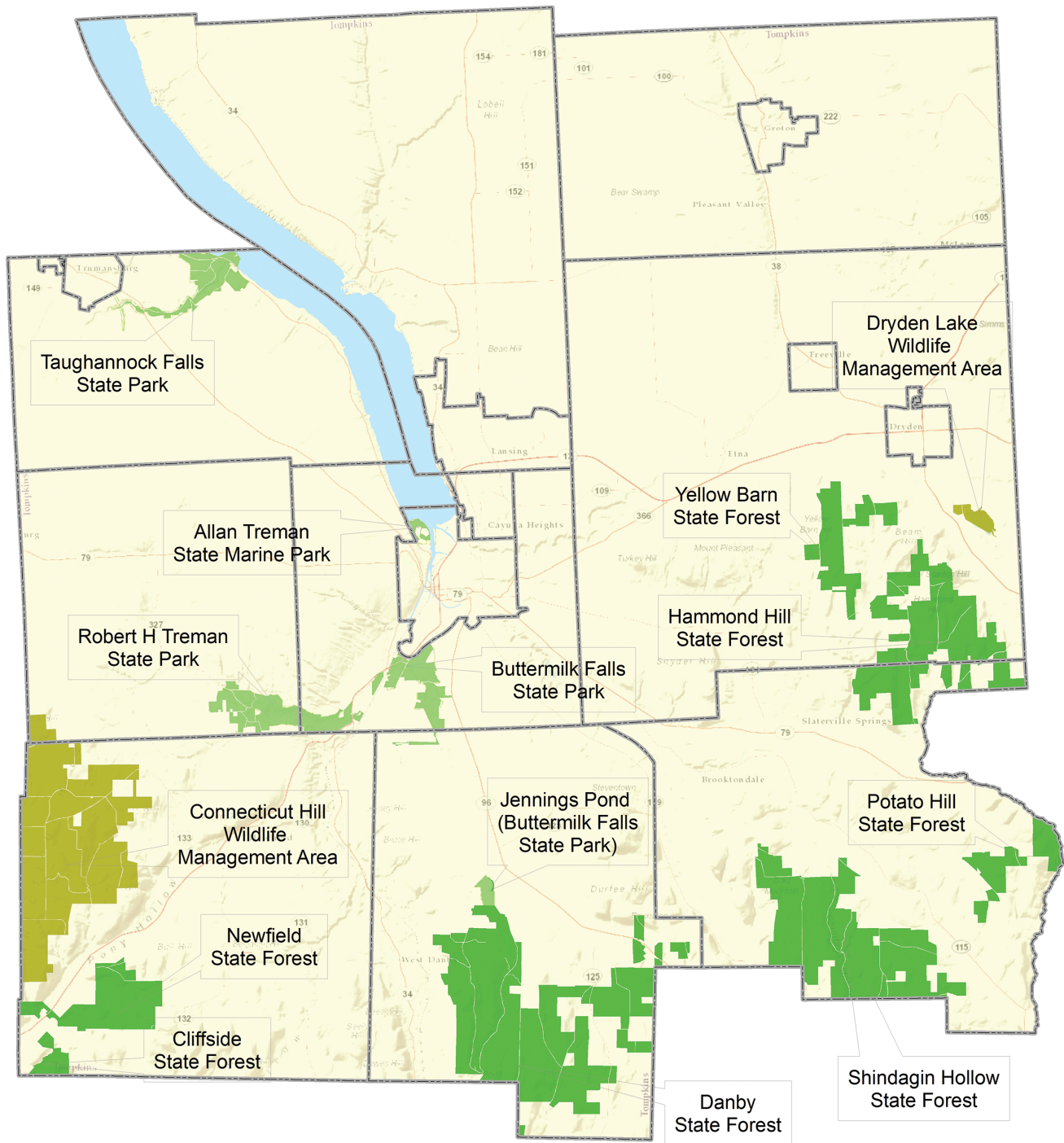
Newfield State Forest: 1,552 acres in the Town of Newfield. With no formal trail network, this primitive and undeveloped forest is a great place to enjoy a relatively undisturbed forest setting.

Yellow Barn State Forest: 1,289 acres in the Town of Dryden. Features eight miles of trail for hiking, biking and skiing

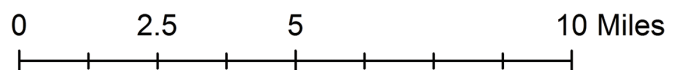
Cliffside State Forest: 977 acres mostly in Schuyler County and partially within the Town of Newfield in Tompkins County. Offers a relatively undisturbed forest setting.

Potato Hill State Forest: 915 acres in the Town of Caroline. Features over 53 species of mammals.

New York State Parks, Forests and Wildlife Management Areas



- Forest
- Park
- Wildlife Management Area



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA