Unique Natural Areas Inventory of Tompkins County

Revised, January 2000

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Important Notice!

This study contains data on environmentally sensitive areas throughout Tompkins County. The UNA Inventory was funded, researched, and developed primarily for use as a specialized land-use planning tool.

The 192 individual sites inventoried in the report are considered outstanding examples of their type. It is the intent and hope of the Tompkins County Environmental Management Council that their identification will serve as an important step towards their protection. Each site possesses characteristics that define it as environmentally sensitive. These include rare or scarce plants or animals, unusual habitat or ecological community types, exceptional aesthetic qualities or unique geology.

Much of the data was gathered with the consent of private landowners. It must be understood that the release of these data, in the form of a public document, in no way implies, grants, or encourages public access to any private lands. ***Anyone wishing to visit a site on private land must obtain permission from the owner or owners.*** Further, it should be remembered that many of the sites are highly vulnerable. Overuse, even in the form of appreciation, could cause permanent damage.

Authors, Contributors and Acknowledgements

The Tompkins County Environmental Management Council (EMC) would like to express its sincere appreciation to all those who made this Inventory possible. The hours of volunteer labor cannot be calculated, and the staff resources that were devoted to the development and update of the Inventory were considerable. Foremost, the EMC would like to thank the Tompkins County Board of Representatives for funding the bulk of this project. Thanks are also given to the Cornell Plantations, which provided additional financial support.

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Introduction

How To Use This Inventory

This 2000 edition of the Unique Natural Areas Inventory of Tompkins County is divided into five parts:

1. Introductory sections: including descriptions of the history of the Inventory, what characterizes a UNA, methods and procedures used to identify and survey the sites, and a guide to the data sheets.

2. The UNA index maps showing all UNAs within each municipality in Tompkins County, and numerical and alphabetical lists of all UNAs in the County.

3. The site data sheets and site maps for each of the 192 UNAs in Tompkins County.

4. The appendices, which give the reader more information about the data sets used to create the Inventory.

5. A County-wide map showing all UNAs in Tompkins County.

The first thing to do when using this report is to read the introductory sections, which are located before the site data sheets. They will give readers insight into the purpose of the UNA Inventory, how it was put together, how sites were chosen for inclusion in the Inventory, and how to interpret the data.

The UNA index maps provide a comprehensive view of the number and size of all UNAs within each municipality in Tompkins County. The County-wide UNA map provides readers with an overall view of the area, to help orient themselves to specific UNAs using major roads and surrounding municipalities.

The bulk of the Inventory consists of the site maps and data sheets. Each UNA site report consists of a UNA site map followed by detailed information about that particular UNA. The data sheets vary in length based on the amount of information there is about the site. Each datasheet includes eight main categories:

a) Site Name and Code
b) Location
c) Site and Vegetation Description
d) Reasons for Selection
e) Special Land-use Information
f) Conservation of the Site
g) Physical Characteristics of the Site
h) Biological Characteristics of the Site

Finally, readers will gain much information by referring to the appendices, which contain helpful information concerning definitions of terms, sources of information used in the Inventory, and specific data for all the plants, animals, and ecological communities found in the Unique Natural Areas.

About the Inventory:

This document is a listing and description of the areas in Tompkins County that have been identified as having outstanding environmental qualities and deserve special attention for preservation in their natural

state. Although every effort has been made to identify all candidate sites in the County, this task must inevitably be viewed as an ongoing process. Time and resource limitations govern the number of sites that can be thoroughly surveyed. Furthermore, as time passes and the landscape is altered, it will be important periodically to revisit and re-evaluate UNA sites. As was stated in the 1990 Inventory, it is expected that the mere creation of a survey of unique natural areas will act to accelerate the process of identifying unusual resources deserving protection.

Our hope is that the publication of this survey will alert citizens to the need to protect these valuable resources, and will inspire some to suggest new sites for future evaluation. It is important to continue the process of adding and deleting sites to this Inventory when warranted, and adding significant information about sites as it becomes available.

Purposes of the Inventory:

1. To help municipal boards make informed decisions about what kinds of development should be allowed in or near these special natural areas.

2. To help make landowners aware of the valuable resources they own so that they may take particular care in protecting these areas from damage.

3. To help County residents appreciate the natural wonders of our area.

These unique natural areas provide a sanctuary for rare plants and animals, and help to maintain the diversity of natural communities in our region. They contribute to maintaining the sense of wildness in the County that many residents treasure. Unless we know where *not* to locate new development, we will begin to lose the varied landscapes that initially drew many of us here.

Criteria for Classification as a Unique Natural Area:

The Environmental Quality Bond Act of 1972 defines unique natural resources as "...areas of great natural beauty, wilderness character and ecological or geological significance (and may include).....beautiful streams and gorges, virgin tree stands, rare plant life, scarce animal habitat or unusual geological formations." The sites included in this Inventory have been reevaluated since the previous Inventory and described more fully. Some sites have been dropped from earlier listings because they have been sufficiently degraded and no longer merit inclusion as a UNA, and other sites have been added. Thus, the classification of a UNA is an ongoing process.

To be included in the present Inventory, a UNA site had characteristics that fell into one or more of the following general categories:

1. *Important natural community:* This broad characteristic includes state-designated wetlands, designated natural areas/preserves, historical botanical/zoological sites, important teaching sites, old-growth forests, sites with a plant or animal community type that is rare or scarce in the County, those with diverse flora or fauna, including birding sites and those having a wilderness character.

2. *Quality of example:* These sites were considered the best representatives, or examples, of an ecosystem, plant community, or animal community of high quality within the County. The sites contain especially large individuals, dense populations, or a particularly diverse mixture of species.

3. *Rare or scarce plants or animals:* These sites contain plant or animal species that have been recognized as rare or scarce at a national, state, or local level, those with critical migration, reproductive, or feeding habitat for rare or scarce animal species, and those with reports of large mammals.

4. *Geological Importance:* These sites are rare or outstanding examples of geological features or processes, and paleontological sites.

5. *Aesthetic/cultural qualities:* These sites contain acknowledged outstanding natural or scenic beauty as viewed from within or from a distance, have recreational value, sites designated as urban greenspaces and sites with cultural/historic/archeological significance.

It is the intent and hope of the Tompkins County Environmental Management Council that the identification of local sites as Unique Natural Areas will serve as an important step towards their protection.

What's New In This Update

The 1990 edition of the Unique Natural Areas Inventory was a major expansion of the work that Craig Tufts did in 1976 to survey the important natural areas in Tompkins County. This 2000 revision is once again an extensive update of the information. Readers familiar with the 1990 edition will notice significant changes in the layout and content of the report, site maps, data sheets, and appendices. It is the intent of the EMC to make the Inventory more comprehensive in scope and more helpful for the intended audience of municipal boards, planners, and interested citizens. Below is a summary of new, changed, or greatly improved information included in this edition of the Inventory. Also included is information about data that no longer appear in the Inventory.

New Information:

1. Special Land-Use Designations and Features: Twenty-two different special land-use designations and features, ranging from agricultural districts to State Parks, were checked for overlap with UNA boundaries.

2. Water Resources: This section goes beyond the "Water Bodies" section that appeared in the 1990 Inventory. The following water resources information was reviewed for each UNA: NYS Freshwater Wetlands; National Wetlands Inventory; NYS protected streams; Flood Zones; and waterbodies on the site.

Improved Information:

1. UNA Site Codes: The UNA site codes no longer have a municipal designation as the first two letters of the code (e.g., IT, CA, DR). To avoid UNAs being split in two if they cross a municipal boundary, and to incorporate the intent of the importance of protecting County-wide UNAs, the codes now all start with "UNA" and are numbered sequentially. To determine which UNAs fall within a municipality, the Inventory includes index maps by municipality.

2. UNA Site Designations: Many of the UNAs that had been either designated in the 1990 Inventory as "Future Sites," or had been identified in the past ten years by local scientists or citizens as deserving of UNA designation, were reviewed for this update. Nine sites were inventoried in the field by professional botanists during the summer of 1995. Additionally, NYS Freshwater Wetlands were reviewed and two wetlands which had been previously omitted were added to the Inventory. Two sites (Mott Road Quarry and Astronomy Laboratory) were deleted from the Inventory because they were degraded and not deemed to be of UNA quality any longer. Two entirely new UNAs were added to the Inventory (Cayuga Inlet Floodplain and Stevenson Forest Preserve) based on data gathered over the past ten years. Eight sites from the 1990 Inventory were combined to form four sites in this update.

3. UNA Site Boundaries: One of the biggest improvements in the 2000 Inventory is that the boundaries of many UNAs were modified extensively and digitized into the County's Geographical Information System (GIS). UNA boundaries expanded in some cases, contracted in others, and many simply changed their shapes to better reflect the unique characteristics of the sites. Overall, the total percent of UNA coverage of land in Tompkins County increased from 11.30% in the 1990 Inventory to 12.29% in the 2000 Inventory. Two municipalities experienced decreases in UNA acreage (Town of Caroline and City of Ithaca), three municipalities experienced increases in UNA acreage (Towns of Dryden, Ithaca, and Ulysses), and five municipalities had their UNA acreage remain virtually the same (Towns of Danby, Enfield, Groton, Lansing, and Newfield). For more information on how these boundaries were revised, please see the Methods and Procedures section of this report.

4. Tax Parcel Numbers: The accuracy of the tax parcel information is greatly improved in this update. The County's GIS was used to overlay the UNA boundaries on the County Assessment Department's tax parcel data to obtain the list of tax parcels.

5. Site and Vegetation Descriptions: The 1990 Inventory showed these data separately as Site Description and Vegetation Description. Much of the information was redundant and was combined in this version to make one description.

6. Conservation of the Site: This section was re-written for readability and to delete redundancies. It also combined the "Adequate buffer," "Comments," and "Significance" sections from the 1990 Inventory.

7. Soils: Information about each soil's wetness, erodibility, and drainage characteristics was gathered from the USDA Natural Resources Conservation Service and was included in this update. Also, due to lack of good data, the percent area of each UNA covered by a particular soil was omitted from this edition.

8. Cover Type: This information was standardized to a greater extent than in the 1990 Inventory, with fourteen cover types identified for possible selection.

9. Ecological Communities: This information was updated and standardized to a greater extent than in the "Plant Communities" section of the 1990 Inventory. Additionally, information was gathered about the global, state, and local rarity of each ecological community. This information was summarized in checkboxes for easy reference on the site data sheets, and displayed in a separate appendix.

10. Plant Species: The flora portion of the "Rare or Scarce Species Present" section of the 1990 Inventory was updated and corrected to include many plant species that were omitted from the 1990 Inventory. Additionally, information was gathered about each species' global, state, and local rarity, as well as its federal and state legal status. This information was summarized in checkboxes for easy reference on the site data sheets, and displayed in a separate appendix.

11. Animal Species: The fauna portion of the "Rare or Scarce Species Present" section of the 1990 Inventory was slightly updated and corrected to exclude redundant or ambiguous species. The bulk of the changes made were to the bird species listed on UNAs. The criterion was added that a bird must be listed as a species of concern by the Partners in Flight (PIF) program to be shown on the species list for a UNA. Information was also gathered about each animal species' global and state rarity and its federal and state legal status. This information was summarized in checkboxes for easy reference on the site data sheets, and displayed in a separate appendix.

12. Miscellaneous: Municipality, USGS Quadrangle, Latitude/Longitude, Size, Elevation, and Slope all benefited from the use of the County's GIS computer system. All of these data fields, which previously were interpreted from paper maps, were generated by overlaying the UNAs on the appropriate GIS data layer and extracting or visually interpreting the information.

Deleted Information from the 1990 Inventory:

1. Surveyor: This information is not printed in the Inventory; however, it is available in the database and can be accessed by the Planning Department when requested.

2. Ownership: Ownership of tax parcels is constantly changing and it is not a simple process to extract private versus public ownership from the real property services database at this time. It is recommended that inquiries as to ownership be made on an as-needed, site by site basis from the Tompkins County Assessment Department.

3. Location Description: Since many of the UNA site boundaries changed in this update, the 1990 location descriptions were no longer accurate. The written descriptions were not updated for this report because of the improved clarity and detail of the individual site maps and the Countywide UNA map.

4. Moisture: This section did not seem to add any significant information to the descriptions of the UNAs, and confused most readers. All pertinent moisture information now appears in other sections of the report.

5. Summary of Special Features: Information from this section is now included in the "Reasons for Selection" section of the Inventory.

Guide To the Data Sheets

Site Name and Code

Site Name: The name commonly used to refer to the site, usually having local or historical recognition. The names may indicate the location, a NYS Freshwater Wetland Code, or the name of an owner, former owner, or nearby resident. It may also describe specific features of the site.

Site Code: The code used in this Inventory to identify each site. The code consists of the first three letters, UNA, followed by a sequential number from the northwest quadrant of the County across and down, ending in the southwest quadrant.

Old Site Code: The code that was used in the 1990 Inventory to identify each site.

Data Last Updated: The last date that changes were made to the data for a particular site.

Location

Municipality: The town, city, or village in which the site is located.

USGS Quad: The United States Geological Survey map quadrangle name, or names, on which the site is located.

Tax Parcel Numbers: The tax parcel numbers that are covered by at least a portion of a UNA. If a UNA covered less than 0.025 ac. of a tax parcel, the parcel was omitted from the list. The tax parcel data are accurate as of June 1, 1999.

Site and Vegetation Description

Site & Vegetation Description: A description of the important plant and animal communities, geological features, and water bodies that give the site its special character. Particular emphasis is placed on the extent of particular communities, the general diversity of species to be found, and the age and structure of the communities. Please see the Methods and Procedures section for the reasoning behind the emphasis on vegetation in this Inventory.

Reasons for Selection

Reasons for Selection: A listing of the major reasons why this site is considered unique. Twenty-three possible reasons were used in this section: area of geologic importance; birding site; cultural/historic/archeological site; designated natural area/preserve; diverse fauna; diverse flora; historic botanical/zoological site; important teaching site; old-growth forest; paleontological site; quality example of animal community; quality example of plant community; rare/scarce animals; rare/scarce community type; rare/scarce plants; recreational value; reports of large mammals; scenic/aesthetic value; site of local significance; state-designated wetland; suggested by resource inventories; urban greenspace; and wilderness character.

Special Land-Use Information

Special Land-Use Designation: A listing of whether any of the following twenty-two designations or features are found on the site: agricultural district; biological corridor; Cornell off-campus natural area; county reforestry land; critical environmental area (CEA); cultural site of local importance; Finger Lakes Land Trust preserve; historic site of local importance; multi-use existing trail; multi-use possible trail; national natural landmark; Nature Conservancy preserve; NY natural

heritage site; NYS DEC wild, scenic, or recreational river; old-growth forest; other, pedestrian existing trail; pedestrian possible trail; scenic views of local importance; state forest; state park; and state wildlife management area. These special land-use designations are described in more detail in Appendix B: Where To Get More Information.

Water Resources: A listing of whether any of the following five water features are found on the site:NYS Freshwater Wetlands; wetlands identified on the National Wetlands Inventory; NYS-protected streams; Flood Zones; and existence of a lake, pond, or stream on the site. Although most of the data for this section in the Inventory is very good, the NYS-protected streams information is the weakest portion of the water resources section. Maps at the DEC offices were manually interpreted and streams were not re-checked after boundary changes were made to the UNA sites. These water resource designations are described in more detail in Appendix B: Where To Get More Information.

Conservation of the Site

Conservation of the Site: Includes information about why a site is unique or vulnerable to change. It includes information on: adjacent land-use, sensitivity of the site to visitors, evidence of disturbance to the site, threats to the site, special conservation and management needs, and any other pertinent information concerning the site's conservation.

Physical Characteristics of the Site

Size: Acreage of the site.

Elevation: The lowest and highest elevations (in feet above sea level) within the boundaries of the site.

Aspect: The compass direction toward which the major slope of the site is generally facing.

Slope %: The percent slope indicates the gradient most commonly typifying the land. Percent slope is calculated by dividing the rise of the land by the run of the land and multiplying by 100.

Topographic Position: The type of relief most commonly typifying the site, in relation to the surrounding landscape.

Topographic Features: A description of the general type of topography, major features, and drainages found on the site.

Geological Features: Important geological features of the site, including those depicting the structure, geomorphology, stratigraphy, and paleontology of rocks from the Devonian period which underlie the County, and those illustrating the modifications made to the landscape by glaciation.

Soils Present: A listing of the most extensive soil types found on the site. Information is also included about each soil's wetness, erodibility, and drainage characteristics. The soils information was gathered through manual interpretation of the USDA Soil Survey and therefore, the information is approximate. Additionally, the soils data were not re-checked after boundary changes were made to the UNA sites in the 2000 Inventory.

Biological Characteristics of the Site

Cover Type: A listing of the general types of major plant communities found covering most of the land on the site. Fourteen cover types were used in this section: agricultural field; aquatic vegetation; marsh; old-field forest; old fields, meadows; open water; peat bog; plantation or orchard; rock outcrops and gravel banks; upland shrub thicket; upland forest; wetland shrub thicket; wetland forest; and wet meadow.

Ecological Communities: A listing of the types of forest, field, and wetland communities found on the site. The use of community types provides a convenient way of categorizing the common species of trees, shrubs, herbaceous plants, and mosses that dominate an area. The dominant species usually give the ecological community type its name; however, many more species are to be found associated with each ecological community type. Information was gathered about each community's global, state, and local rarity, and is displayed on the data sheets. The information is also summarized in checkboxes for easy reference. The entire list of ecological communities in Tompkins County may be reviewed in Appendix F: Ecological Communities Rarity Codes. The appendix also includes definitions of all of the codes used in the data sheets.

Plant Species: A listing of significant plant species known to be present on the site, followed by global, state, and local rarity codes for each plant species, local comments indicating the nature of the species' rareness (e.g., rare, scarce, etc.), and its state legal status. This information is also summarized in checkboxes for easy reference on the site data sheets. The entire list of plant species may be reviewed in Appendix D: Plant Species Rarity Codes and Legal Status. The appendix also includes definitions of all of the codes used in the data sheets.

Animal Species: A listing of animal species known to be present on the site, followed by global and state rarity codes for each animal species, its federal and state legal status, and comments indicating the nature of the species' rareness (e.g., rare, scarce, Partners in Flight Species of Concern, etc.). The rarity and legal status information is summarized in checkboxes for easy reference on the site data sheets. The entire list of animal species may be reviewed in Appendix E: Animal Species Rarity Codes and Legal Status. The appendix also includes definitions of all of the codes used in the data sheets.

History of the Inventory

The 1976 Tufts Inventory

In the summer of 1973, the Tompkins County Environmental Management Council (EMC), in cooperation with the Tompkins County Department of Planning, undertook a program designed to identify and inventory the County's unique natural areas. This initial attempt, by EMC Coordinator Dennis Winters and EMC volunteers, yielded preliminary information on 26 natural areas in the County. Building on this work, Craig Tufts, then a graduate student at Cornell University in the Division of Science and Environmental Education, volunteered to conduct and coordinate this work. During 1974 and early 1975, he conducted a thorough literature search, studied available maps, soil survey and air photo resources, and held conversations concerning the Inventory with many County residents. He developed a new list of 84 natural areas. During the spring of 1974 and spring/summer of 1975, he visited 80 of these 84 sites. During his field work, he collected data on the exact location, man-made changes, and a wide variety of natural features for each site. In the time between when he finished his field work and when he published his masters thesis (January, 1976, "A Preliminary Inventory of Some Unique Natural Areas in Tompkins County, New York"), he received recommendations on 12 additional sites that should be inventoried and included in any future updates of the report. He noted the names and locations of those sites, bringing the total number of sites to 96.

The 1990 UNA Inventory

In late 1987, the Plant and Animal sub-committee of the EMC, again in cooperation with the Department of Planning, began work to update and expand the 1976 Inventory produced by Craig Tufts. Two botanists, F. Robert Wesley and Nancy Ostman, were hired with funds provided by the Tompkins County Board of Representatives to conduct a field survey of sites within the County that qualified for inclusion in the Inventory. All sites identified in the 1976 Tufts Inventory were reviewed and revisited to identify any changes in their status. Furthermore, over 100 new sites were identified using the procedures outlined below. In addition to using information from the 1976 Tufts Inventory, data were provided by the State of New York Wetland Survey, the New York Natural Heritage Program, Cornell Plantations, and The Nature Conservancy.

For the 1990 Inventory, a total of 213 sites were considered to be candidates for inclusion. Of these, 74 of the 84 sites from the 1976 Tufts Inventory were found still to be of sufficiently high environmental quality to warrant continued inclusion in the 1990 Inventory. In addition to these sites, 107 new sites were added to the 1990 Inventory. Part of the reason for the increased number of UNAs was that a decision was made at that time to include in the Inventory all designated State wetlands (NYS Freshwater Wetlands) identified by the Department of Environmental Conservation.

The 2000 UNA Inventory

In 1994, work began to update the 1990 UNA Inventory. Once again, the Unique Natural Areas Committee of the EMC worked closely with the Planning Department to review and update the 1990 report.

Many of the UNAs that had been either designated as "Future Sites," or had been identified in the past ten years by local scientists or citizens as deserving of UNA designation, were reviewed for this update. At the end of 1994, the County Board of Representatives authorized funds to be used to hire two botanists, F. Robert Wesley and Nancy Ostman, to conduct limited additional field work to update the 1990 Inventory. Nine sites were visited during the summer of 1995. Additionally, NYS Freshwater Wetlands were reviewed and, two wetlands, which had been previously omitted, were added to the UNA Inventory. Two sites were deleted from the Inventory because they were degraded. Two entirely new UNAs were added to the Inventory based on data gathered over the past ten years. Eight sites from the 1990 Inventory were combined to form four sites in this update. Once all of the field work was conducted and the boundary revisions made, 192 UNA sites were included in the 2000 Inventory.

In addition to the field work conducted for the update, work was done to collect supplementary data for each UNA. Additionally, other information in the report was standardized and brought up to date, to reflect better the common scientific terms used to describe natural resources.

Two other factors that were critical to this update were bringing the UNA site boundaries into the County's GIS, and putting the information into a relational database. Incorporation into the GIS allowed Planning Department staff to determine better the characteristics of the land within each UNA, and allowed the consultants to define better the boundaries of each UNA. Creation of the database allowed the staff to more easily retrieve and analyze the data.

Methods and Procedures Used to Identify and Survey the Sites

Methods for identifying candidate sites:

When the EMC's Plant and Animal subcommittee began the process of updating the work of Craig Tufts, members used the following sources of information to compile a list of sites to be considered for inclusion in the 1990 Inventory. These sources continue to be used today.

1. *Sites from the 1976 Tufts Inventory.* Each of the 84 sites included in the 1976 Tufts Inventory automatically became candidates for the 1990 Inventory. Prior to the publication of the 1976 Tufts Inventory, these sites had been identified in books about local geology and flora, in newspaper feature articles, and through word of mouth. These sites were reviewed and revisited between 1987 and 1989 to ascertain whether any change in their environmental quality had occurred during the years since the completion of the 1976 Tufts Inventory. Additionally, all of the information collected by Tufts, including the location description, vegetation types, and rare species, was rechecked in the field.

2. *State parks and official DEC-designated (NYS Freshwater) wetlands.* Since researchers for New York State had already identified these sites as having outstanding and important environmental characteristics, they were automatically included in the 1990 Inventory. Some of these sites were also identified in the 1976 Tufts Inventory. In 1988, all available data concerning these sites were collected from the Department of Environmental Conservation (DEC) and the Office of Parks, Recreation, and Historic Preservation. State Parks personnel supplied descriptions of the State parks of concern, and NYS Freshwater Wetland information was obtained from the wetland survey maps and descriptions, created as part of the 1982 State Wetland Inventory. Due to time limitations when preparing the 1990 Inventory, only NYS Freshwater Wetlands sites that had been included in the 1976 Tufts Inventory were revisited in the field.

3. *Sites identified by the consulting botanist field team.* The consultants, F. Robert Wesley and Nancy Ostman, have worked in Tompkins County as professional botanists for many years and have extensive knowledge of the distribution of plant species and vegetation communities in the County. Many of the suggestions for new sites were made by the botanists, based on their knowledge of the County. Their understanding of the ecology and the vegetation in the County enabled them to pinpoint potential UNA sites from topographic maps, and identify sites during roadside surveys.

Special efforts were made to identify locations that might provide habitat for rare or endangered species. Sites added to the list of candidate sites by the botanists were divided into two categories: 1) potentially important sites requiring immediate survey (those sites with potentially superior environmental qualities, such as rare and endangered plants, or those sites which were considered imperiled by possible development), and 2) sites that might qualify for the Inventory, but needed more study. All sites in the first category were surveyed and evaluated for the 1990 Inventory. Many of the sites in the second category were also surveyed; however, time did not allow the consultants to visit all of those sites that might qualify. The sites that were not surveyed prior to publishing the 1990 Inventory were identified in the Inventory as "Future Site," meaning that they should be surveyed in the future.

4. *Sites identified by local animal scientists.* Local scientists were surveyed about the distribution of animals (mammals, birds, insects, fish, etc.) in the County and asked about important animal sites. The information provided comprised the bulk of the animal data used for the evaluation of sites. Information collected included: location of the site, animals of concern, and the reasons why the habitat was considered unique. When warranted, the sites were surveyed for their ecological and vegetation characteristics.

5. *Sites identified by local geologists.* Local scientists were surveyed about important geological sites in the County and were asked to identify those sites. If the information provided was considered sufficient for the

evaluation of the sites, a field survey was not conducted unless there were other features known to be of interest.

6. *Other sites*. A few sites were brought to the attention of the EMC's Plant and Animal subcommittee by committee members, the EMC, or other concerned citizens. Where possible, these sites were field surveyed.

Although every effort has been made to identify all UNA sites in the County, this task must inevitably be viewed as an ongoing process. Surveying for environmental quality is a very time consuming task. Because of time and funding limitations, not all of the sites that should be field visited have yet been visited (although the 2000 Inventory addressed many of those sites).

Procedures for surveying in the field and gathering information about sites:

1990 UNA Inventory
Since the 1990 Inventory is the basis for the 2000 Inventory, it is important to recall how the candidate sites were surveyed and documented in the field. The first step was to locate the site on USGS 1:24000 topographic maps. USGS topo maps and Soil Survey maps were used to determine topography, slope, orientation, bedrock and soil type. Landowners of each site were identified using county tax maps, and permission was obtained for the field crew to visit the site. In rare cases where permission was not granted or where the owners could not be reached, the survey was conducted from the road or from adjacent parcels where access was granted.

The field crew verified the general topography and slope during the field survey. Special efforts were made to identify nationally, statewide or locally rare, scarce, or endangered plant species. Extensive notes were taken on field survey forms designed by the committee. The notes included: listing the vegetation types, rare and scarce species, evidence of past disturbance, likelihood of future disturbance, and general remarks about the uniqueness of the natural characteristics of the site.

The field crew made every attempt to cover the diversity of topography and habitats on a site. Often, not all areas of large sites could be explored, but the crew could achieve a sense of whether they had documented most of the variation in characteristics they were likely to observe.

Each site was visited by the field crew only once. The visits to sites of floral importance were timed so that rare and scarce species expected at the site would be in fruit or flower to facilitate locating and identifying them. This was a very difficult task, since the field crew did not know entirely which species to expect to find on a given site. Consequently, the survey reports only what was observed during the site visit. Ideally, each site should be visited at several times during the year to identify plants of interest.

Finally, the boundaries of each site were drawn on a topographic map. The boundaries were based on personal observation from the site visits and information on hydrology, soil types, and vegetation cover. The boundaries reflect the need to include all unique features of the area, as well as those features that must be protected to avoid damaging fragile sections within the site (such as highly erodible steep hillsides that, if logged, could wash down into the gorge below). In many cases, boundaries are based on topographic features, such as the pattern of drainage.

The 1976 Tufts Inventory, the 1990 Inventory (and now the 2000 Inventory, as well) places a greater emphasis on vegetation characteristics than on other natural features for many reasons. The vegetation of the Cayuga Lake Basin has been extensively studied and monitored, and changes in the characteristics of the vegetation, such as numbers of rare plants, are good measures of site quality and environmental change. The condition, diversity, and abundance of plant species also indicate a great deal about the usefulness of the area for wildlife habitat. Since animals depend on their habitats, sites with high quality vegetation will likely have diverse animal populations as well. Vegetation also reflects the underlying soil types and microclimates. Therefore, the extent, diversity, and maturity of plant communities provides valuable

information for evaluating the quality and uniqueness of a site and determining whether it warrants preservation. Plant and ecological communities are also emphasized in this report because a single field visit permits a more rapid and accurate inventory and assessment of the vegetation than it would of fauna, since animals may flee, hide, or migrate according to the time of day or season. Finally, vegetation is emphasized because this is where the expertise of the EMC's UNA Committee lies. The EMC welcomes any additional information about other natural features, especially animal data, to add to this database and to display in future editions of the UNA Inventory.

2000 UNA Inventory

Although most of the above description applies to how the UNA sites were surveyed for the 2000 Inventory, there are some differences that should be noted. First of all, the County GIS was used to create maps to assist in the field work (from finding the sites to identifying landowners to contact) and in locating the boundaries of the UNAs. These maps were used in conjunction with USGS topographic maps and the Soil Survey maps to help researchers in the field. Also, while many site characteristics were noted in the field, such as size, elevation, and slope, these were also verified, and/or corrected through the use of the GIS and associated databases, once the data were brought back to the office.

The UNA boundaries were determined by F. Robert Wesley and Nancy Ostman, two professional field botanists who are very familiar with the natural resources of the County. Each UNA boundary was reviewed using the UNA site maps that appear in this report. The majority of the UNAs were then further reviewed at a more intensive level of detail, using various tools to better interpret the actual site conditions. The tools that were used included: paper aerial photographs and paper topographic maps; digital aerial photographs and digital maps of roads, 20 foot contours, streams, and building footprints; and data from field work conducted between 1990 and 2000.

Sites that were selected for review in the 2000 Inventory came from many sources.

1. Of the nine sites that were field surveyed, six had been identified as "Future Sites" in the 1990 Inventory; two were inventoried in 1990, but re-surveyed in 1995; and one was a new site that had been inadvertently omitted from the 1990 Inventory.

2. NYS Freshwater Wetlands were reviewed and two wetlands that had been previously omitted were added to the UNA Inventory.

3. Two entirely new UNAs were added to the Inventory based on data gathered over the past ten years.

4. Two sites were deleted from the Inventory because they were degraded and no longer deemed to be of UNA quality.

5. A portion of one site, which was identified as a "Future Site" in the 1990 Inventory, was visited when it was obtained by the County through the 1998 foreclosure process.

6. UNA Committee members tried to honor requests that came in from landowners and planning board members to review lands that they felt should or should not be included in the updated inventory.

In addition to the field work, information was gathered for each UNA using a host of data sets. The idea behind much of the data collection was to give the public and local decisionmakers more information about each UNA, and to give them information that would help them answer the questions posed on the forms used to implement the State Environmental Quality Review Act. These data sets are described in detail in the Guide to the Data Sheets section of the report and in Appendix B: Where To Get More Information. Information from the field surveys and these other data collection efforts was entered into the UNA database, which is now in the software Microsoft Access©.