



# Olive Natural Heritage Society Newsletter

Vol. 2, No. 2

Fall/Winter 1999

## Deborah Jewell Memorial Lecture

Professor Michael Murphy, Hartwick College, presented the 2<sup>nd</sup> Annual Deborah Jewell Memorial Lecture October 22, 1999 at the Olive Free Library. Again this year, the Tongore Garden Club was our cosponsor and provided refreshments after the lecture. This fond memorial to Deborah was well attended by members and friends of the ONHS. Her husband Ken was the honored guest. At least one member took this opportunity to host a special evening dinner followed by the lecture. We are pleased to report that the fund we established to perpetuate this lecture series is approaching the half way mark to our goal of \$1500. We are pleased that some supporters of the ONHS have chosen to designate their annual donation to the Deborah Jewell Memorial Fund. Plans for next year's lecture are already well advanced. Hope to see you all there in late October 2000!!

The ONHS Newsletter is published by  
The Olive Natural Heritage Society, Inc.

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## Common and Widespread Plants of the Catskills

### Methods and Preliminary Results of the Catskill Flora Project by Steve Parisio

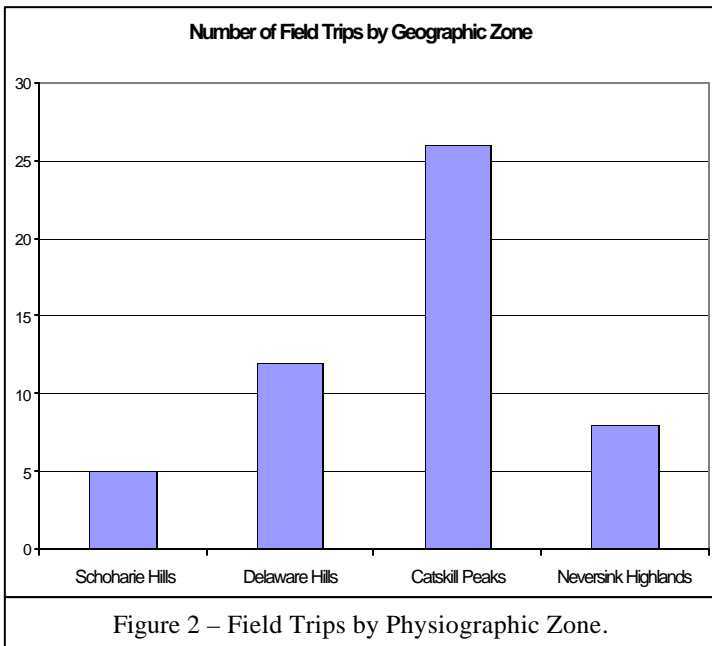
Prior to the Olive Natural heritage Society's Catskill Flora Project, there have been two important works that characterize the vascular plants of the Catskill region. In 1971, Michael Kudish completed his doctoral thesis entitled Vegetational History of the Catskill High Peaks. In 1979, based on 25 years of field work and research, Karl L. Brooks published the first of four volumes in the partially completed Catskill Flora and Economic Botany. In addition, Brooks produced the most complete inventory of Catskill plants, which, as updated in December 1984, lists a total of 1,232 species. Kudish did not produce a comprehensive list but, in his thesis he provided the most thorough and scientifically valid account of the dominant Catskill species, and the factors which determine their distribution, to date.

The goal of the Catskill Flora Project is to add to the work of Brooks and Kudish, and to make a new assessment of the flora that is representative of present day conditions. Like Brooks, we have taken a broad geographic view of the Catskills, and like Kudish, we have taken a systematic approach in planning our field work in an effort to maximize the range of environmental conditions covered by our survey sites. As a first step in determining field survey locations, the region was divided into four geographic or physiographic zones based on the classification of Dickinson [figure 1]. These zones extend our work area into the hilly terrain that fringes the Catskill Peak area on the south, west, and north, and they contain a suite of plant communities from disturbed areas to virgin forests.



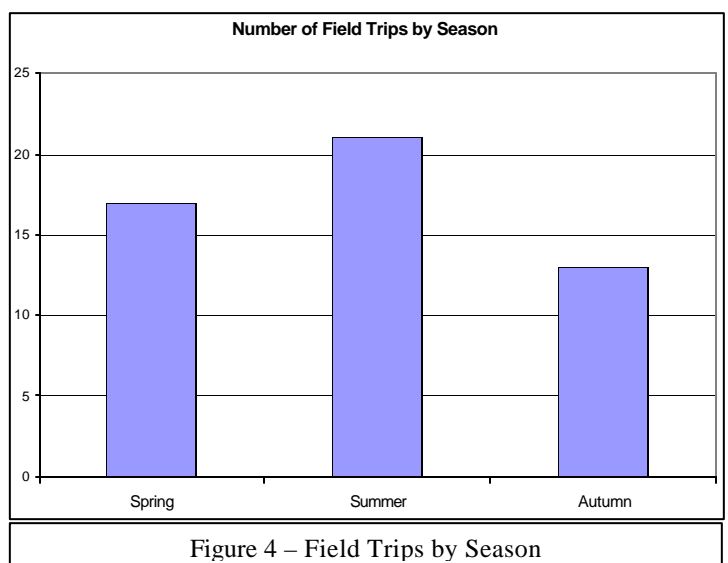
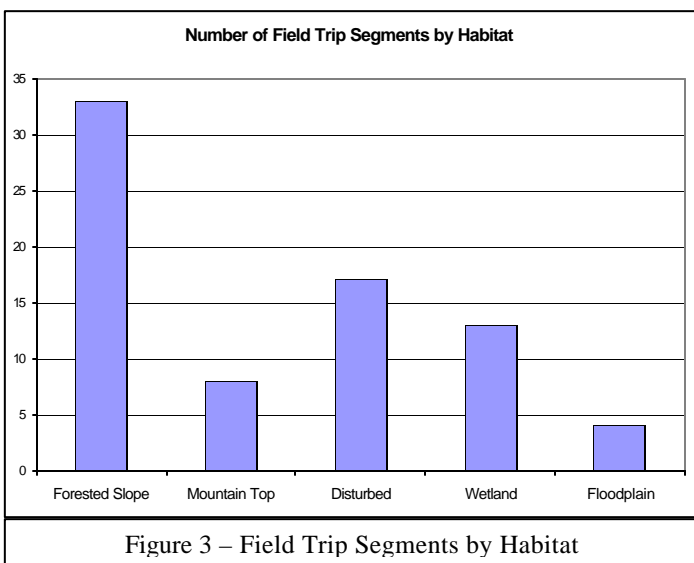
Figure 1 – Field Trip Locations

The majority of sites chosen were in the Catskill Peaks, which is the core of our study area. The remaining sites were distributed throughout the surrounding physiographic zones [Figure 2].



In selecting the sites, consideration was given to geography, topography, geology, soils, climate and anthropogenic influences, so that the sites selected are representative of the full range of variability in these and other factors that might affect vegetation. Five basic habitat types were defined. The slope forest habitat makes up the bulk of the land area and includes steep hillsides as well as valleys of small streams, and many low-lying areas known as hollows. The mountain top habitat refers to a relatively distinct change in vegetation usually occurring somewhere around 3,000 to 3,500 feet, depending on the particular mountain. Most of the areas of wetland habitat we have looked at were pond margins, in groundwater discharge areas at changes in slope, or in small areas of flooding due to beaver activity. Sites for the floodplain habitat included the Esopus at Mt. Tremper, the East Branch of the Delaware at

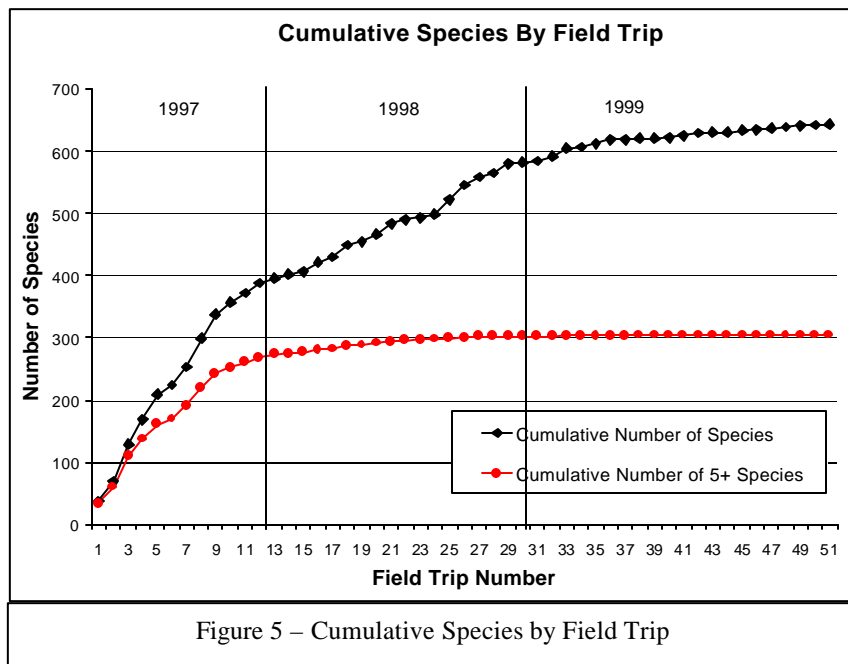
Margaretville, the Mine Kill (a tributary of the Schoharie Creek), and the Bush Kill (a tributary of the Esopus). The disturbed area habitat included a variety of old fields, abandoned pastures, roadsides and old railroad right-of-ways. We have focused most of our work in the slope forests which make up the bulk of the land area within the region, but have included a representative number of sites covering mountain tops, wetlands, floodplains, and disturbed areas [Figure 3]. Field surveys also varied according to season. The trips have been relatively evenly distributed between the early, middle, and late portions of the growing season, with a slightly greater emphasis on the summer. [Figure 4].



At each site surveyed, an attempt was made to identify all vascular plants which were recognizable at the time of the site visit. By carefully choosing sites to cover each habitat type within each geographic area and during each stage of the growing season, our goal was to compile as complete a list as possible with a reasonable level of effort over what we considered to be a manageable period of time. An effort was made to collect data in a

manner which will permit at least a semi-quantitative measure of relative species abundance. After three seasons of field work, starting in 1997, we have compiled a database with over 5,000 records of species observations at a total of 51 survey sites. These records have been geo-referenced for use in a Geographic Information System, and over 1,200 herbarium specimens have been prepared. During the three year period we have identified a total of about 650 species, or about 53% of the total number of species listed by Brooks.

A plot of the cumulative number of species vs. the number of field trips provides a measure of our progress in developing a complete inventory of Catskill vascular plant species [Figure 5]. The upper curve shows that after 3 field seasons the total number of species identified is approximately 650. (Actually this number will probably increase to over 700 after this winter, during which time we will key out various unknown specimens, mostly sedges and grasses, that were collected during this past field season.) It should also be noted that there are many species that we know occur in the Catskills, but which are not listed because they were observed at locations other than one of our 51 survey sites. The curve shows that the rate of accumulation for new species has dropped off from an average of 35 per trip during the first 10 trips, to 12 per trip during the middle 10 trips, and to 2 per trip during the last 10 trips. At the present rate of about 60 new species per field season, it would take another 9 years to reach a total similar to Brooks' 1,232 species. Assuming that the curve continues to level off, that time frame would be even longer. The lower curve excludes the relatively rare plants and includes only those species that have been observed in at least 5 of the 51 locations surveyed. This curve levels off at around 300 species after only 20 to 25 field trips. We interpret this to mean that after our first three field seasons, although we have not developed a full list of all species growing in the region, we have a pretty good handle on those species which are most common and representative of the area.



Although the project is far from being completed, it is possible at this stage to produce a fairly complete and reliable listing of the most common or representative plant species growing within the region. The resulting preliminary list of common plants [following] should serve as a useful guide for educators and members of the general public who are seeking to develop a familiarity with a limited number of plant species, including those most representative of the area and those most frequently encountered on a hike in the mountains or a drive along any route traversing the area.

## *Focus on Research*

Bonnie Farrell is a Catskill native, having grown up in Greene County on a small farm near Platte Clove. Bonnie is a Ph.D. candidate in plant biology at Rutgers University, New Brunswick, NJ. Her interest in plant conservation led her to choose a research project which will lead to developing strategies for the successful recovery of the Northern Monkshood, the only Federally listed endangered species native to the Catskills. The ONHS is under contract with the NYS DEC to monitor and propagate the Northern Monkshood. We have participated with Bonnie in designing her research and fieldwork. A summary of her research follows:

**Micropropagation and genetic analysis of the rare plant, *Aconitum noveboracense*, Northern Monkshood (Ranunculaceae) and other common and rare members of the genus *Aconitum*.**

*By Bonnie A. Farrell*

The first goal of this research is to use tissue culture to propagate laboratory colonies of two rare plants, *Aconitum noveboracense* and *A. reclinatum* with minimal impact on the natural populations. The cultured plants will then be used in comparative ecophysiological studies with two common species, *A. uncinatum* and *A. columbianum*. When the experimental populations are established the following predictions will be tested:

1. the rare species *A. noveboracense* and *A. reclinatum* are more negatively effected by water stress;
2. *A. noveboracense* and *A. reclinatum* are less adapted to warm temperature;
3. *A. noveboracense* and *A. reclinatum* cannot tolerate low humidity as well as the common species.

The taxonomy of *A. noveboracense* is not well understood. Hardin (1964) placed it as a subspecies of , *A. uncinatum*, a species found in the southeastern United States. However, Brink (1982) examined tuber morphology and concluded that it was more closely related to *A. columbianum* a California species. My discovery of axillary bulbils on *A. noveboracense* plants at one of the Catskill Mountain sites, a trait shared by *A. columbianum* makes it imperative to reexamine the taxonomic status of *A. noveboracense*. It may not be a distinct species, rather a widely disjunct population of *A. columbianum*. I will use starch gel electrophoresis to study the frequency of polymorphic enzymes in all members of the genus within the United States.



Gaining an understanding of the key abiotic and biotic factors that limit the distribution of a rare species, in contrast to its more common relatives, may provide useful guidelines for management and reestablishment. Management of rare plants often includes maintaining the optimal habitat for survival and identifying areas where the species could potentially be replanted. This research will clarify the taxonomic status of these rare species and identify the conditions that may limit the survival of rare species.

## *Focus on Monitoring*

*Yvette deBoer*, is a graduate student at SUNY School of Environmental Science and Forestry at Syracuse. Her interest in Citizen Science led her to the ONHS. We have worked with Yvette to set up a new program to monitor the health of Catskill Forests. The program brings together volunteers from four organizations interested in Catskill forests: Catskill Forest Association, Catskill Watershed Forestry Program, Cornell Cooperative Extension Master Forester Program and the NYS Department of Environmental Conservation. Yvette organized the first activity of the Catskill Forest Monitoring Network, a workshop on the Hemlock Woolly Adelgid [HWA]. Mike Birmingham, forest entomologist at the DEC, presented the history of the HWA outbreak, instructed the group on recognizing an infestation and provided a standardized reporting form. The participating citizen scientists will report on the presence or absence of the HWA in their woodlots and send the report to the ONHS. We will georeference the data, plot the sites on a Catskill regional map and send a report to each of the volunteer monitors. The report forms will be forwarded to the DEC.

Yvette also surveyed the participants about their interests in forest health monitoring. From these responses she has identified several areas of interest. A survey of forest conditions and plant communities will probably be the next effort. The Illinois Forest Watch Program has successfully employed Citizen Scientists to gather valuable scientific data. We will modify their protocol to local Catskill conditions and hope to stage a series of training sessions in the spring.

This is an exciting and important program. Yvette is to be recognized for her leadership. ONHS will continue to provide data management for the group and will provide continuity after Yvette completes her graduate studies.

# Catskill Nature Journal

The ONHS has agreed to make natural history observations on the property off McMillan Road, West Shokan that the New York City Department of Environmental Protection recently acquired (NYCDEP Parcel #21). We will visit the property from time to time and record our nature observations. Ann Altshuler will collect our notes into an annual report for the DEP. She may prepare bird and plant lists if the data warrants. We also plan to publish the report in this newsletter.

This deceptively simple method of stewardship has great potential and broad applicability. We encourage everyone who has the opportunity to obtain a permit and make and record your observations regularly. Remember that all observations, even of common phenomena, are valuable.

## Narrative Reports

*November 6, 1999 Eastern Catskills*

Three trappers report that they have taken Fisher (*Martes pennanti*) this year in the eastern Catskills.

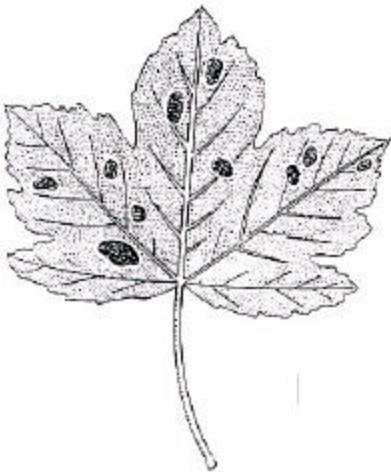
Editor's Note: *This confirms the information Dick Henry, DEC Wildlife Specialist, spoke about last year at the ONHS meeting. The Catskills are on the extreme southern edge of the Fisher's range. In recent field guides we are not shown on the distribution maps. The Fisher is a large dark weasel, about the size of a fox but with shorter legs and less prominent ears. It dwells in extensive mixed hardwood forests but is especially identified with undisturbed spruce forests. It is occasionally seen in the daytime. Its name is a misnomer, as the Fisher does not prey extensively on fish. The Fisher is famous as the only natural enemy of the porcupine. Its usual prey also includes snowshoe rabbits and mice that abound in its mountain habitat. It has been known to attack much larger species, including deer, which are vulnerable during periods of deep snow. The Fisher is a great traveler, frequenting a virtual circuit over a home range of about 10 square miles. It dens in hollow trees as it makes its rounds on rather regular intervals.*



**Observer:** JKA

**Ecosystem Type:** mixed forest

**Level:** species



*October 22, 1999 High Point Road, West Shokan*

The Silver Maple (*Acer saccharinum*) outside the lab door has tar-like spots on its leaves every fall. Denise Binion, a mycologist at the USDA Forest Service laboratory in Morgantown, W. Va. was visiting and noticed the spots. Her report follows:

Two tar spot diseases affect both sugar and red maple (*Acer* spp.). One, the black tar spot is caused by *Rhytisma acerinum*, produces large and raised black patches of fungus growth (stoma) on the upper leaf surface (see illustration). The other, called speckled tar spot (*R. punctatum*) is characterized by clusters of individual small black stomata. Black tar spot is conspicuous because yellow-orange zones surround the black, somewhat shiny, stoma. Infection occurs during periods of high humidity shortly after leaves reach full size. Light green and then yellow-green areas appear on the leaf surface. The black stomata form later in the season. The underside of the leaf below the black tar spot turns brown, whereas the underside of a speckled tar spot remains yellow (Sugarbush Management: A Guide to Maintaining Tree Health, D. R. Houston *et al* USDA Forest Service, Technical Report NE-129).

Maples reported susceptible to both tar spot fungi include red, silver, sugar and box elder.

# From The Herbarium

## ~ *The Rock Polypody (Polypodium virginianum)* ~

The Rock Polypody, *Polypodium virginianum* [1] is a widespread and easily recognizable evergreen fern of our Catskill slope forests. It's habit of living almost exclusively on rock surfaces and cliffs where almost nothing else can survive sets it apart. We have recently discovered that the Catskill flora includes a previously unrecognized species, the Appalachian Polypody, *Polypodium appalachianum* [2]. The two species can be distinguished in the field by the shape of their blades. The Rock Polypody, the common Catskill species, has oblong blades, widest near the middle with the tips of leaf segments rounded to obtuse whereas the Appalachian Polypody has blades which are typically elongate-dentate, widest at or near the base with acute to narrowly rounded tips of leaf segments. These characters are shown in the illustration.

The relationship of the two species and the correct application of available names is interesting, if a bit complicated. It was known since 1953 that in the cell nucleus of some Rock Polypody there were two sets of chromosomes (diploid) and whereas others had four sets of chromosomes (tetraploid). The type specimen for *P. virginianum* is tetraploid. The Appalachian Polypody, newly recognized in 1991, had traditionally been identified

as the diploid cytotype of *P. virginianum*. It is now recognized that *P. virginianum* was produced by hybridization between the diploid cytotype (here called *P. appalachianum*) and *P. sibiricum*, a diploid species of the boreal zone occurring in eastern Eurasia and the Canadian Far North. The hybrid of two diploid species would usually be sterile except that in this case the chromosomes doubled forming a balanced complement of genes (allotetraploid) with two of each chromosome.

The Appalachian Polypody ranges from the Maritime Provinces of eastern Canada in a narrow band down the Appalachians to West Virginia. The Rock Polypody has a much larger range, completely overlapping *P. appalachianum* and extending west to the Mississippi, excluding the coastal plain of southern United States, and north to Hudson's Bay. Sterile hybrids (triploid) between the two species occur where their ranges overlap.



### Who We Are

The Olive Natural Heritage Society, Inc. is a not-for-profit educational and scientific organization. Membership is open to anyone who supports our mission. There are no membership fees. Our work is supported by foundation grants and individual donations. All donations are tax deductible.

### Our Mission

The mission of the Olive natural Heritage Society is to conduct scientific studies and disseminate information concerning the natural heritage of the Catskill region of New York State. Our work is done without political aim or affiliation.

Only *R. acerinum* is recorded on Norway maple and only *R. punctatum* is listed on striped maple. Probably the exclusive listings are related to incomplete observation rather than strict host specificity. Some other tar spot fungi and their woody plant hosts are *R. liriodendri* on tulip tree, *R. prini* on hollies and related plants, and *R. salicinum* on willows.

Conspicuous outbreaks of tar spots are infrequent except in moist, sheltered locations favorable for winter survival of the causal fungi. Tar spot caused by *R. acerinum* is scarce in urban and industrial areas. One reason is the sensitivity of the fungus to polluted air. Low concentrations of sulfur dioxide prevent new infections, although they do not influence spot development after infection (Diseases of Trees and Shrubs, W. A. Sinclair, *et al*).

**Observer:** MSA

**Ecosystem Type:** mixed forest

**Level:** species

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August 22, 1999 Peekamoose Mountain (3500 feet elevation)

We observed a Smooth Green Snake (*Opheodrys vernalis*) in the grass along the trail near the summit. It was small, about a foot in length, and didn't seem afraid.

Editor's Note: *This little snake is seldom seen in the Catskills, partially due to its protective coloration and secondarily due to the fact that, although this is an inhabitant of lowlands in the north-central portion of the country and in a disjunct population in southeastern Texas, in the eastern and far western parts of its range this is a snake of uplands. Although this species is usually terrestrial some individuals will climb into low shrubs. It usually eats spiders and small insects.*



**Observer:** SBA and ZSA

**Ecosystem Type:** mixed forest

**Level:** species

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November 5, 1999 High Point Mountain, West Shokan

On this beautiful fall day all the leaves had blown off the trees on the slopes of High Point. That is except for a few widely scattered bright yellow individuals. We thought these might be Tulip (*Liriodendron tulipifera*) but on closer inspection they turned out to be Bigtooth Aspen (*Populus grandidentata*). There were a few faded yellow leaves remaining on a few Tulip but by and large the last brightly colored leaves in the forest were Bigtooth Aspen.

Editor's Note: *Bigtooth Aspen has a wide ecological tolerance occurring from streambanks to exposed, dry hillsides throughout its range from New Brunswick to Minnesota, south to Iowa, Illinois and Kentucky, east to Virginia. In the Catskills this species is less common than the Trembling Aspen (*P. tremuloides*) and reaches a far greater size [30-50 feet high with a trunk diameter of 1-2 feet]. This species is more abundant northward where it grows in much drier soil than Trembling Aspen. The leaves have large teeth and the buds are distinctly hairy that distinguish it from Trembling Aspen which has fine-toothed leaves and hairless buds.*

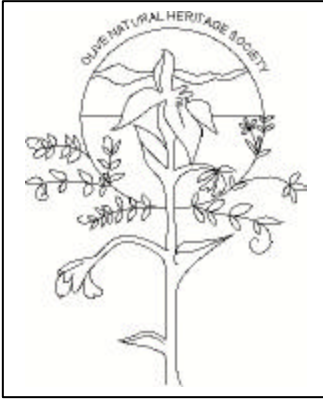


**Observer:** DKA and MSA

**Ecosystem Type:** mixed forest

**Level:** species

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212 High Point Mountain Rd.  
West Shokan, NY 12494

## 1999 Annual Report

### **February:**

Delia Adams attended meeting on "Draft Catskill Forest Preserve: Public Access Plan"  
Troy Weldy, NYS Natural Heritage Program: "Field Research in the Hudson Valley"

### **March:**

Selden Spenser donated "The Chirp" [newsletter of the John Burroughs Natural History Club] from 1960's to 1090's to the Catskill Environmental Archive.

### **April:**

Steve Parisio presented: "Common and Widespread Plants of the Catskills"

### **May:**

Jim Scheffel presented: "Cooper's and Sharp-shinned Hawk Research"

### **June:**

Blue Stone Press ran article on the ONHS.  
Received maps of Olive Well sites from USGS and donated them to Olive Town Board.  
Catskill Watershed Corporation funded the Catskill Forest Map and Catskill Summer Projects.

### **July:**

Bonnie Farrell, graduate student at Rutgers presented: "Monkshood Research"  
Yvette deBoer, graduate student at SUNY ESF presented: "Citizen Science and Catskill Forest Monitoring"

### **September:**

Steve and Nancy Parisio donated a car to be sold with proceeds going to the ONHS.

### **October:**

2<sup>nd</sup> Annual Deborah Jewell Memorial Lecture, *The Story Within the Forest*, by Prof. Michael T. Murphy, Hartwick College.  
ONHS assumed volunteer stewardship of DEP Parcel #21 on McMillan Road, West Shokan.  
Catskill Institute for the Environment, 2<sup>nd</sup> annual symposium: *Indicators of Catskill Ecosystem Health*. Steve Parisio and Chris Olney presented *The Catskill Flora Project: Methods and Preliminary Results*.

### **November:**

Hemlock wooly Adelgid Workshop presented by Mike Birmingham for the Catskill Forest Monitoring Network.

## 1999/2000 Regular Meetings

First Friday of each month; 7:30-9:00pm  
at Adams' Barn, 212 High Point Mt. Rd,  
West Shokan, NY 12494

Annual Meeting: 6/2000

### Membership

Join the Olive Natural Heritage Society if you support scientific studies of the Catskills environment and enjoy working with others to collect and disseminate information concerning our natural heritage. There are no membership fees; new members are elected by the Board of Directors.

### To Contact ONHS

\* For meeting, field trip, or volunteer opportunity information contact:

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\* To support the ONHS mission, please contact the treasurer:

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**Note:** Internet address for Catskill Institute for the Environment:  
[www.cobleskill.edu/CIE](http://www.cobleskill.edu/CIE)