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Updating Plant Names for the Upper Susquehanna Valley Flora, New York

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ABSTRACT

This study focuses on the T.F. Lucy collection of the Upper Susquehanna Flora that was rediscovered in 1984 at Elmira College, New York. Lucy collected from 1868 to 1900, and donated his specimens to the former Elmira Academy of Sciences. The collection was cataloged from 1984 to 1994. In the past 11 years, the collection fell dormant. Our current work updates the names of species, some of which have been changed over the past 120 years. Future work will apply the new nomenclature to Lucy's specimens deposited at the Buffalo Museum of Science. We plan to make updated names available via the website of the L.H. Bailey Hortorium.

INTRODUCTION

Historical Perspective:
Thomas F. Lucy (Figure 1) was born in England and moved to the Corning/Elmira Region of New York State in the mid 1850's. He was noted for his interests in the natural sciences and is believed to have begun his botanical explorations around 1853. The first known documentation of his plant collecting adventures, however, was noted by Lucy in the Bulletin of the Torrey Botanical Club in 1881. He received his medical degree in this year from the Eclectic Medical College of New York City, but does not seem to have been a practicing physician. While at medical school, Lucy specialized in medicinal plants. He initially collected plants from around his house, but eventually covered the Upper Susquehanna region (Figure 2) from the late 1860's to 1900 (Kelloff and Kass 1993). He collected thousands of specimens, now deposited at ECH and BUF. While collecting and identifying these specimens, Lucy made a large contribution to Clute's (1898) *Flora of the Upper Susquehanna and its Tributaries* (Figure 3). This book was the first publication on plants of the region. Clute (1898) reported that sets of herbarium specimens were sent to the herbaria of Lafayette College (no longer extant), Columbia University (now at NY), Field Columbian Museum (F) and the New York Botanical Garden (NY). "Dr. Lucy… also presented to the Elmira Academy of Sciences (Figure 4) a nearly complete collection

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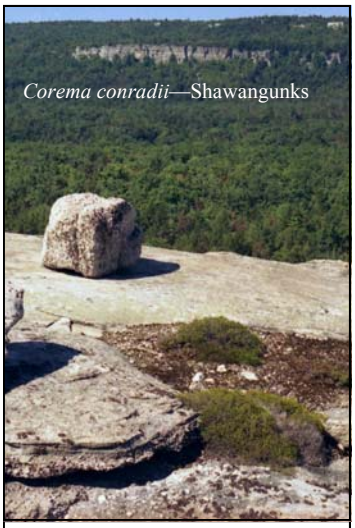


Figure 1. Portrait of Thomas F. Lucy from a postcard circa 1900 (Kelloff and Kass 1993).

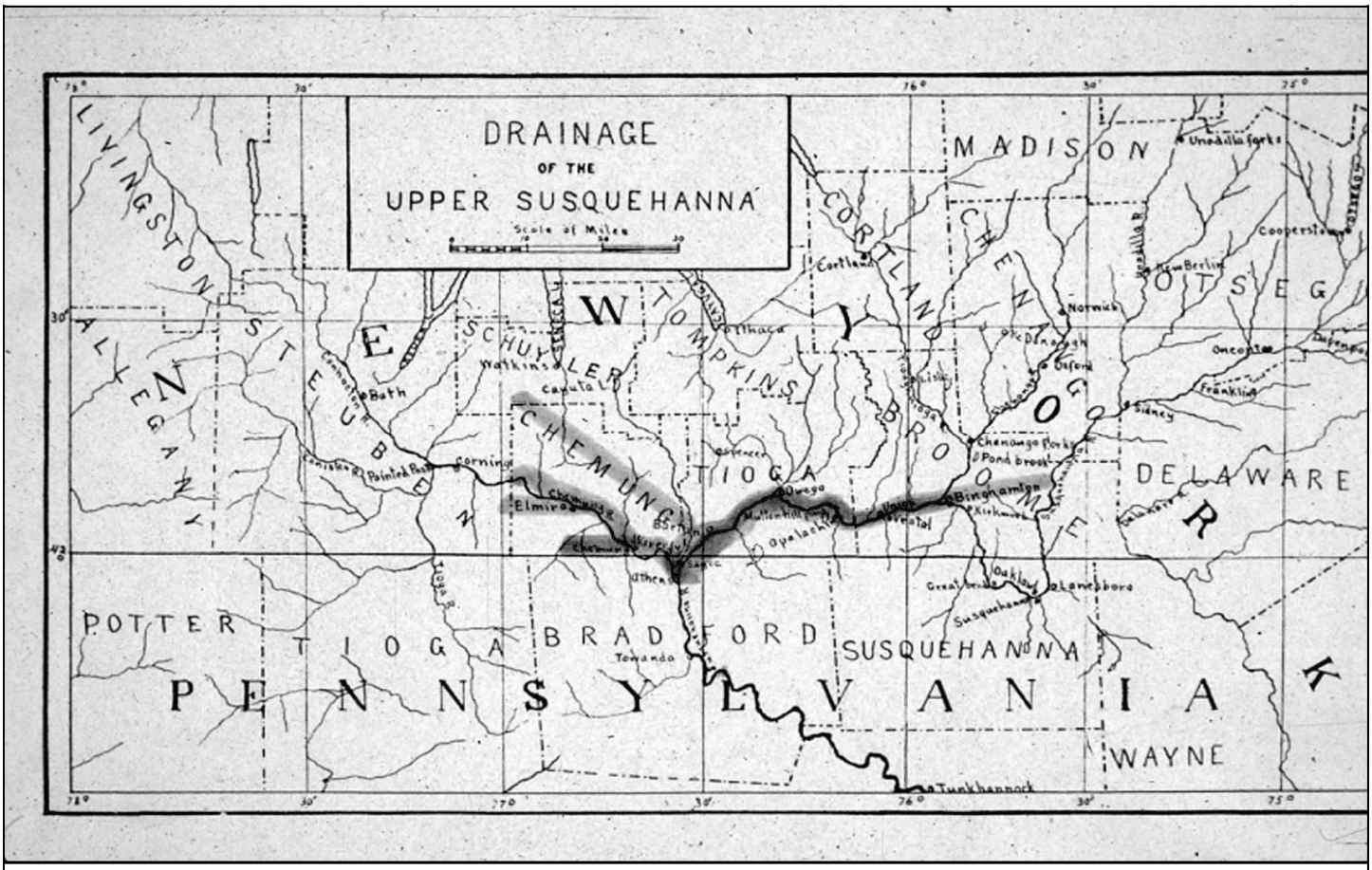
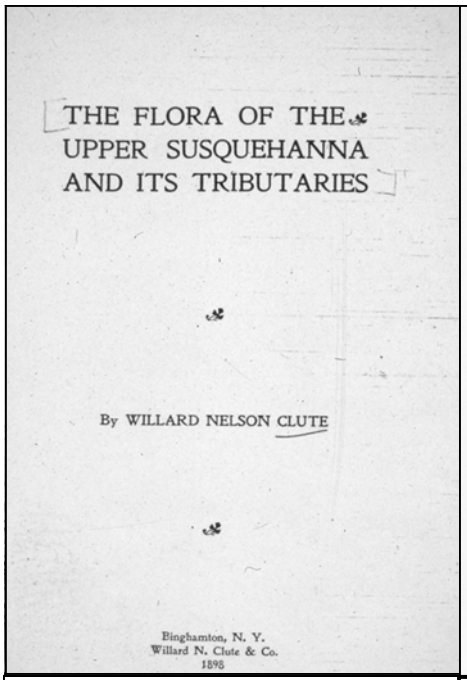


Figure 2. Map of Lucy's collecting areas from the 1860's to 1900. Much of his collecting was along the Susquehanna and Chemung Rivers (Grebleski, Kass, and Clemants 1992).


THE FLORA OF THE
UPPER SUSQUEHANNA
AND ITS TRIBUTARIES

By WILLARD NELSON CLUTE

Binghamton, N. Y.
Willard N. Clute & Co.
1898

Figure 3. Cover page of W. N. Clute's (1898) *Flora of the Upper Susquehanna and its Tributaries*. Lucy was a major contributor to this first book published on the flora of this region (Clute 1898).

Figure 4. Observatory of the Elmira Academy of Sciences near Elmira College circa 1860. Lucy was a member of the Academy, and his specimens were first housed at this site in Elmira, New York (Kelloff, Kass, and Kowalski 1990).

of plants of [that] region" (Clute 1898 p. iv). Additional specimens collected by Lucy were donated to the Buffalo Museum of Science by Lucy's sister-in-law after his death. While Buffalo's collection was left mostly unmounted and unidentified, the Elmira Academy of Sciences' collection was transferred to Elmira College after the Academy folded. The Elmira collection was neglected until its rediscovery in 1984, when Kelloff *et al*. (1990) continued cataloging and annotating Lucy's plant specimens.

Recent Work:

Over the past year, we have updated species and family names of plants that are in the Lucy collection. Currently accepted plant names were ascertained and annotation labels were placed on each herbarium sheet for proper reference. A database listing all of the relevant information for each plant has been compiled so that it may serve as an easy reference for future work, or may assist others in their research.

METHODS AND MATERIALS

Lucy catalogued his collection using his own coding system. He identified the plants using the 1st edition of Britton & Brown's *An Illustrated Flora of the Northern United States, Canada, and British Possessions* (1896 – 1898). The genera and species were coded to the works of Patterson and Heller. This proved to be a problem for earlier researchers. The code was broken when Kelloff *et al*. (1990) found a flyer at the Smithsonian Institution with Lucy's plants numbered using the Patterson (1892) and Heller (1898) checklists. To determine the currently accepted name of each plant, it was important to find the name Lucy applied. Britton & Brown served as an important deciphering reference for the old names of the plants to be transferred to their currently accepted names. Britton & Brown offered several names that could have been used at that time for an individual plant. These plant names were then traced through the *New York State Checklist of Plant Species* (Mitchell & Tucker 1997), which was used to apply the most current name. In some cases, Mitchell & Tucker did not offer the currently accepted name. In these cases, two databases were used, one from the Missouri Botanical Gardens (*W³Tropicos* 2004) and the other from the Royal Botanic Gardens at Kew (*Kew Index* 2004). After confirmation of the current name, annotation labels were made from acid - free paper and positioned correctly onto the herbarium sheets (Figure 5). Annotation labels were made using the guidelines of Dirig (2003) to create the most accurate documentation and application of the information for each plant that was available.

RESULTS

Many plant names have changed in the course of 100 years. In some cases, no changes occurred in the name of the plant, as with common St. John's-wort (*Hypericum perforatum* L.). Other plants only saw a change in their specific epithet. For example, the scientific name for sweetflag was changed from *Acorus calamus* L. to *Acorus americanus* (Raf.) Raf. Some plants witnessed a change in their genus name, the Venus looking-glass had its name switched from *Specularia perfoliata* L. to *Triodanis perfoliata* (L.) Nieuwl. Other plants had both genus and species names change, as in rattlesnake root first classified as *Nabalus altissimus* (L.) Hooker, but was later changed to *Prenanthes altissima* L. In rare cases, the name of the family was changed like the chicory family Cichoriaceae now being grouped with the sunflower family Asteraceae. On the website of the L.H. Bailey Hortorium, we plan to make available a complete database of all new names in the Lucy collection.

DISCUSSION AND CONCLUSIONS

Until the rediscovery of the Elmira collection, researchers did not understand the meaning of the numbers associated with Lucy's specimens at BUF or how to identify the plants that he had collected. These "meaningless" numbers were discovered to correspond to Elmira's collection and are based on the works of botanists Britton & Brown, Patterson, and Heller. Lucy cited page numbers and checklist numbers in the lower right hand corner of each label of the specimens he mounted for the Elmira Academy of Sciences (Figure 5). These numbers along with the original books used by Lucy helped to identify and update the names of the plants in the collection so that they could be more useful to the botanical community as a resource.

Thomas F. Lucy's flora has played a critical role in the discovery and understanding of plant species that have grown in the Upper Susquehanna region of New York State since the later part of the 19th century. The rediscovery, curation, and reactivation of this collection have brought forth a large amount of information on rare and endangered localities that might have otherwise been lost; and there is still much that can be learned on an ecological, historical, and systematic level.

Much of the Lucy collection at Buffalo has no formally written identification other than sets of numbers on the newspaper or on small sheets of paper inserted with the plants. Upon completion of updating the names in the Elmira collection, work will continue in identifying the Buffalo Museum of Science's set of his plant specimens now on loan to the L. H. Bailey Hortorium.

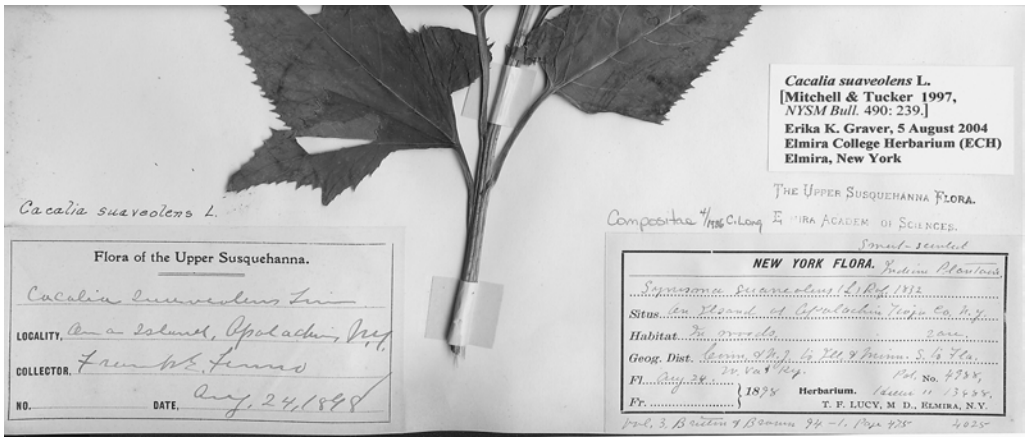


Figure 5. Lucy's specimen of the aster *Cacalia suaveolens* L. The annotation label, above the original Lucy label, reflects the updated name taken from Mitchell & Tucker (1987). Our research updated the original Latin names from Lucy's time to the contemporary nomenclature. These changes reflect current concepts of evolutionary relationships within respective plant families.

ACKNOWLEDGMENTS

This paper was developed from a poster given at the Annual Sigma Xi Student Research Conference in Montreal, Canada, November 2004. It was recognized with an Award of Excellence. We thank Robert Dirig, Sherry Vance, and Peter Fraissinet of the L.H. Bailey Hortorium for their expert guidance with the project. We thank Jan Kather of Elmira College, and Sherry Vance for help with photography. We also thank Elmira College for partially funding this project. We also thank Danielle Tilden for helpful comments on the manuscript.

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New York People New York Plants

An update of who is doing what across the state

The Nature Conservancy's Eastern NY Chapter is helping to conserve the federally endangered Karner Blue butterfly (Kbb) in the Glacial Lake Albany region of eastern New York. Working in conjunction with the New York State and Federal Recovery planning teams, habitat restoration efforts are well underway, and an extensive monitoring and evaluation (M&E) program of these restoration efforts was launched this summer. Our M&E program is unprecedented and designed to explicitly connect the state and federal recovery plan objectives with the Conservancy's "Measures of Success" methodology. It is our expectation that habitat-based restoration measures will respond more quickly than Kbb population numbers, and can be considered the "leading indicators" for managers to key upon while the Kbb numbers act more as "lagging indicators" – usually delayed in response. Although insects are expected to respond quickly, evidence from habitat restoration efforts in the Albany Pine Bush suggest that not only is there a lag-time, but that there is still much to learn about the optimal habitat prescription for these endangered butterflies. As such, our M&E program quantifies critical environmental factors linked to Kbb recovery and long-term viability. Vegetation measurements include wild lupine abundance, nectar species diversity, and within-patch structural heterogeneity, in addition to patch size and landscape context (e.g., patch connectivity). The data will complement the ongoing Kbb population monitoring surveys run by NYDEC and other entities, and may help provide causal explanations for Kbb population trends. Population monitoring can be used to track or detect change but it cannot determine the source of change, which becomes a major constraint in remediation efforts. This first year of the project gives a status assessment of 25 Kbb sites located among the Albany Pine Bush, Saratoga Sandplains, and Wilton Wildlife Preserve & Park. These benchmark findings will be reported through TNC documentation and other formal outlets (e.g., scientific journals and meetings). Here are the key people involved:

Jason Bried, Habitat Ecologist

Jason holds a B.S. in Natural Resources from Paul Smith's College in the northern Adirondacks. He recently completed an M.S. in Biological Sciences at Mississippi State University, where he studied community and conservation ecology of wetland dragonflies and damselflies. Jason now divides his time between the Kbb project, the New York Dragonfly and Damselfly Survey (administered by the NY Natural Heritage Program), and publishing his graduate research. His main responsibilities with the Kbb project are to coordinate field work, compile and analyze data, and present findings (i.e., TNC report, peer-reviewed manuscripts, contributed papers to scientific meetings).

Kevin Bright, Field Technician

Kevin is currently a senior at Middlebury College in Vermont. He studies environmental geology and helps out on the Kbb project as a field technician where he collects and enters data.

Neil Gifford, Conservation Director (APB)

Neil holds an Associate in Applied Science degree from Paul Smith's College, and Bachelor of Arts and Master of Arts degrees from Plattsburgh State University. As a Fitzpatrick Fellow at Plattsburgh State, his graduate research investigated the avian ecology of the Clinton county jack pine sandstone pavement barrens. He oversees monitoring, research, and management activities, including Kbb recovery, prescribed fire management, and invasive species control within the 3,010 acre Albany Pine Bush Preserve. Neil represents the Eastern New York Chapter of TNC and the Albany Pine Bush Preserve Commission on Federal and State Kbb Recovery Teams.

Philip Picotte, Field Technician

An Albany native and 2004 graduate of The Albany Academy, Philip is now a sophomore at Middlebury College in Middlebury, Vermont. As a geography and environmental studies major, his interest in environmental protection is shared with study of ecological and economic spatial patterns. As part of the Kbb study, Philip collects data, takes photographs, and enjoys the sandy wastelands home to Karner blue butterfly populations.

Becky Shirer, Conservation Scientist

Becky holds a B.S. in Biology from the Pennsylvania State University, and received her M.S. from the Biodiversity, Conservation and Policy program at the University at Albany, where she studied the effects of landscape disturbance on freshwater emergent wetlands. Since joining the TNC staff she has taken a lead role in the development of TNC's Hudson River Estuary Watershed project, and provides scientific and technical support for the Kbb habitat monitoring and other projects.

Micah Tavares, Ecological Management Assistant

Micah has recently completed a B.S. degree in Environmental Science from Redeemer University College in Hamilton Ontario. Micah divides his time between the Kbb project and other aspects of habitat management within the preserves of The Nature Conservancy's ENY chapter. His primary responsibilities concerning the Kbb project have included habitat monitoring, field work, and data entry.

Tim Tear, Director of Conservation Science

Tim has been the Director of Conservation Science for ENY for four years. Tim got his Master's and Ph.D. from the University of Idaho in Fish and Wildlife Resources, and has been working on plant and animal restoration projects for nearly two decades.

Chris Zimmerman, Ecological Management Coordinator

Chris has a Master's Degree from Wright State University, a Bachelor's in Science from Evergreen State College, and an Associates Degree in Forestry from Hocking College. Chris has been with the Eastern New York Chapter for two and half years. Chris heads up the Karner blue butterfly habitat restoration in the Wilton Wildlife Preserve and Park and has been working on an invasive species inventory in the Catskills. His primary interests are developing and implementing strategies to restore degraded ecosystems and monitoring the success of those efforts.

Award goes to ESF Botanist

Dr. Robin Wall Kimmerer, botanist for the State University of New York College of Environmental Science and Forestry at Syracuse, has won the prestigious John Burroughs Medal Award for her book, "Gathering Moss: a Natural and Cultural History of Mosses." The award, given by the John Burroughs Association headquartered at the American Museum of Natural History in New York City, is based on literary quality, firsthand fieldwork, originality and scientific accuracy. Winning the medal puts Robin in the company of previous winners such as Rachel Carson, Aldo Leopold, and John McPhee. In writing her first book, Robin drew on her expertise as a scientist as well as her Native American heritage. She is part Potawatomi, and she says her work is partly an effort to help her culture survive. Her teaching responsibilities at ESF have included a class in ethnobotany and a seminar in traditional ecological knowledge. She has also taught a class called land and culture: Native American perspectives on the environment, which examines the management of natural resources and environmental problem solving from the Native American perspective. (Information from Inside ESF Magazine, Winter 2005)

New Products on the Internet

The **Invasive Plant Council of NYS** has redesigned their website so if you have not visited it recently take a new look.

http://www.ipcnys.ene.com/default.htm

Make sure you check out the information about the upcoming **IPC October invasive plant workshop**.

The **New York Rare Plant Status List** is available on the website of the **New York Natural Heritage Program**.

http://www.dec.state.ny.us/website/dfwmr/heritage/rpsl.pdf

Also available is a new **Annotated bibliography of New York plant identification and natural history guides**.

http://www.dec.state.ny.us/website/dfwmr/heritage/plantbiblio.pdf

HABITAT RELATIONSHIPS OF OF TERRESTRIAL ORCHIDS

2004 NYFA SMALL GRANTS – FINAL REPORT

J. Hope Hornbeck, SUNY ESF jhhornbe@mailbox.syr.edu

STATED GOALS

The specific objectives of this 3-year study of the habitat relationships of terrestrial orchid species in New York State are to: 1) Measure the habitat features correlated with orchid abundance and, thereby, the occurrence of suitable mycorrhizal fungal symbionts; 2) Identify the fungal symbiont(s) associated with each orchid species and its frequency and distribution within the habitat; 3) Assess survival and dormancy patterns in each species relative to biotic and abiotic habitat features; and 4) Synthesize this information into a set of management recommendations for each species. My goals, as provided to the NYFA, for the 2004 field season were to: 1) Collect quantitative habitat data in occupied and unoccupied habitats at 16 study sites; 2) Initiate tracking of individual plants at each study population; and 3) Establish *in situ* seed germination plots at 16 study sites in upstate New York.

TASKS COMPLETED

Study Site Selection

Four areas containing relatively large tracts of state-managed lands in upstate New York were targeted for selection of study sites: Adirondack State Park, Catskills Forest Preserve, Allegany State Park, and the Finger Lakes region. The target areas were visited in June, July, and August for selection of study sites and data collection, and again in October and November 2004 for seed collection and installation of *in situ* seed baits.

I had a good deal of difficulty locating populations of sufficient size and accessibility, which might be expected due to the rarity and patchy distributions of these terrestrial orchid species. No suitable study sites were found within Allegany State Park. Overall, ten study sites were selected in 2004 and surveys for additional study populations will continue in 2005. All site surveys and research activities were undertaken with permission from the NYS-DEC via a May 2004 – June 2005 Temporary Revocable Permit for land use.

Population Demography

At each study population, individual plants were marked with a numbered wooden stake and the life stage of each plant was recorded as seedling, non-reproductive adult, flowering adult, or dead/dormant. For *Corallorhiza* species, which are dormant when non-reproductive, all aboveground stems are reproductive adults. For clonal genets in populations of *Corallorhiza* and *Cypripedium*, a count of ramets, the life stage of each ramet, and number of flowers and fruits on each ramet, was recorded. The population demography of each site is summarized in Table 1.

Corallorhiza striata

We conducted multiple surveys of historic locations of *Corallorhiza striata* and adjacent habitats at the single known location of the species remaining in NYS. No living plants were found and the species has been eliminated from the study. Nevertheless, surveys for the species will be conducted annually for the duration of the study. No plants were found during a June 9, 2005 survey of the species historic locations.

Corallorhiza trifida

Three study populations were selected: a large concentration in Nelson Swamp DEC Unique Area, and two smaller colonies in Labrador Hollow DEC Unique Area and Adirondack State Park.

Cypripedium acaule

Although this species is relatively frequent in mixed deciduous forests of upstate NY, it was difficult to locate concentrations away from trails or other high-visibility open areas. Two large study populations were located: one in Adirondack State Park and a second in Catskills Forest Preserve. Several potential study sites were not selected due to high visibility. At the Catskills Forest Preserve *C. acaule* site, deer browsed 4 of 9 flowering plants and the remaining 5 flowering

plants failed to produce mature fruit. At the Adirondacks State Park site, only 2 of 22 flowering plants were browsed but the remaining 20 failed to produce mature fruit. Fruit failure at both sites was probably due to non-fertilization even though both colonies were of sufficient size to attract pollinators to the flowers. However, only a small proportion of adult plants flowered in 2004 (<15%) and cold, wet weather conditions persisted throughout the species' flowering, which may have dramatically reduced pollinator availability. No fruit set was observed in *C. acaule* anywhere I observed in upstate NY in 2004.

Cypripedium reginae

One study population was selected at Nelson Swamp DEC Unique Area. Suitable large colonies of the species are known, but these occur on private property and, therefore, were not incorporated into the study. The single study population was heavily impacted by deer browsing, with 56% of flowering plants browsed. There were 21 intact flowers present at time of data collection (June 21 and July 12, 2004) and 8 seed capsules reached maturity. Both *Cypripedium acaule* and *C. reginae* have been eliminated from the study due to the confounding effects of deer herbivory and pollinator limitation on the study populations.

Platanthera macrophylla

Three large study populations were selected in Adirondack State Park, Catskills Forest Preserve, and Hammond Hill State Forest. In addition, numerous locations of small colonies or single plants are known near the study sites. Surveys for the species and collection of population and habitat data will continue in 2005.

Platanthera orbiculata

We conducted extensive surveys of reported locations of both *Platanthera* species based on recent habitat studies, herbarium records, and botanist and other knowledgeable individuals. Nevertheless, only a single colony of *P. orbiculata* was located within the study area. A single additional plant was documented ca. ½ mile east of this study population. Surveys for the species and collection of population and habitat data will continue in 2005, and any sizeable colonies found will be incorporated into study.

Table 1. Population demography of study populations.

Species	**Site**	**Total plants (or ramets)**	**Flower Number (% Plants in Flower)** ***range per plant/ramet***	**Fruit Number (% Fruit set)** ***range per plant/ramet***
Corallorhiza trifida	NEL	145	1072 (100%) *3-12*	728 (67.9%) *1-10*
	LAB	12	79 (100%) *6-34*	51 (64.6%) *1-21*
	ADK	9	84 (100%) *11-32*	55(65.5%) *7-21*
Cypripedium acaule	ADK	156	22 (14.1%) *1*	0 (0%) *0*
	CAT	72	9 (12.5%) *1*	0 (0%) *0*
Cypripedium reginae	NEL	113	21 (18.6%) *1-2*	8 (38.1%) *1*
Platanthera macrophylla	ADK	58	290 (39.7%) *5-21*	86 (29.7%) *1-15*
	HHF	52	154 (21.2%) *4-20*	21 (13.6%) *0-9*
	CAT	47	241 (34%) *6-27*	100 (41.5%) *1-14*
Platanthera orbiculata	CAT	12	205 (83%) *12-28*	21 (10.2%) *1-5*
Total plants labeled		**676**		

Habitat Quantification

Twenty 400m^2 (20 x 20 meter) (100m^2, or 10 x 10 meter for *Corallorhiza trifida* sites) habitat quantification plots were sampled. At each of the 10 study sites selected, the first plot was centered on the orchid colony, and the second plot in similar but unoccupied habitat. Tree DBH (diameter at breast height) and percent cover for canopy and subcanopy spe-

cies, percent cover of shrub and forb species, moss and liverwort cover, groundcover, and litter depth were measured. Soil samples were collected from both occupied and unoccupied study plots (16 total) and are currently being processed. Data were collected at time of orchid flowering, at which time plastic stakes were systematically placed to aid in the installation of *in situ* seed baits in November 2004: 5 each in both the occupied and unoccupied habitat quantification plots.

Habitat Characteristics

The *Corallorhiza trifida* study sites occur in closed canopy wetland forest communities of variable species composition: hemlock-hardwood swamp, northern white cedar swamp, and rich hemlock-hardwood peat swamp (all ecological community type names *sensu* Edinger *et al*., 2002).

The *Cypripedium acaule* study sites occur in hemlock-northern hardwood forest, however, the plants are concentrated in canopy openings. At one site, the population occurs around the edges of a hemlock-hardwood swamp and at the other the population is concentrated along the open edges of an ATV trail that is surrounded by dense hemlock forest on both sides. The *Cypripedium reginae* study site occurs in the center of a large canopy opening within a large expanse of northern white cedar swamp with plants scattered in smaller open 'rooms' throughout the surrounding cedar swamp.

All *Platanthera* occurrences identified to date occur in beech-maple mesic forest dominated by *Acer saccharum* and *Fagus grandifolia*. All of the study sites are successional managed forests with components of the successional-northern hardwoods forest type (e.g., *Acer rubrum*, *Betula alleghaniensis*, and *Populus grandidentata*).

In-situ Seed Baiting

In July and August 2004, mesh bags were placed over 2 fruiting orchid plants at each of the 8 study sites where fruit set occurred. The bags were not installed until flowering was completed and developing fruits were clearly visible. The orchid seed pods were allowed to ripen *in situ* and were collected when the pods had dried and the capsules had just begun to split open. In October 2004, the seed bags were collected and the seed heat-sealed into 25x25mm packets of 50µm nylon mesh. The packets were then enclosed within a 30x30mm plastic slide case, labeled, and tethered with nylon string. The seed collected from each study site was used to make 30 seed packets for that location: 3 replicates for each of the 5 seed baiting stakes previously placed in the paired habitat plots. The *in situ* seed baits were placed within 50cm of flowering adult plants in occupied plots and systematically placed in the unoccupied plots. A total of 240 seed baits were installed.

Identification of Fungal Symbionts

The first harvest of *in situ* seed baits was conducted in May 2005, but very little seed germination or colonization by mycorrhizal fungi has occurred to date. The timing of seed germination is not known for *Cypripedium reginae* or the *Platanthera* species, but it is likely that insufficient time has passed for fungal colonization of the seeds to occur. In addition, most of the seed examined following the first packet harvest was in poor condition, indicating that seed quality may be problematic for these relatively small, isolated orchid populations. In summer 2005, fertilization of select flowering plants will be conducted by hand out-crossing between populations instead of within them, as was the case in 2004.

I expect a greater proportion of germinated seeds and fungal colonization on the second and third harvest of seed packets in November 2005 and May 2006, respectively. To ensure that *in situ* seed baiting is successful, additional seed packets will be installed from out-crossed 2005 seed in fall 2005. Because study site selection was underway well into the growing season when root-associated fungi are less active, root samples from adult plants will be collected early in the 2005 growing season for isolation and identification of fungal symbiont(s).

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Editor's Note: This completes the article on Chicory published in the last issue by Knowlton Foote (kfoote@twcny.rr.com)

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Targeting Swallow-wort

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Late last fall the USDA-Agricultural Research Service targeted a new weed for biological control - the exotic swallow-worts (*Cynanchum* spp.), [aka *Vincetoxicum*] which are invasive weeds primarily found in the northeastern U.S., Ontario and Quebec. Swallow-worts are herbaceous, perennial, twining vines in the milkweed family, and can grow to 8 feet (2 meters) in both full sun or shaded understory. Two species are present - pale or European swallow-wort (*Cynanchum rossicum* (Kleop.) Borh.) which is native to the Ukraine and southern Russia, and black swallow-wort (*Cynanchum louiseae* Kartesz & Gandhi) which is native to southwestern Europe.

Cynanchum louiseae Black Swallow-wort (photo Steve Young)

Lindsey Milbrath, USDA-ARS, is the entomologist heading up this program at the USDA-ARS lab in Ithaca, NY. In collaboration with Toni DiTommaso, a weed ecologist at Cornell University, they are planning studies of the weeds' life history as well as surveying for any herbivore damage to both pale and black swallow-wort. They are currently looking for at least 4 sites in New York state of black swallow-wort for long-term (several years) studies. Within each site, they need 1-10 untreated acres. Most known infestations of black swallow-wort in New York are in the Hudson Valley and on Long Island.

If you know of black swallow-wort infestations that may be suitable, please contact either Lindsey Milbrath, tel: (607) 254-7268, email: lrm32@cornell.edu; or Toni DiTommaso, tel: (607) 254-4702, email: ad97@cornell.edu.

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