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# Arboretum Annual Report 2015-2016

Glenn Dreyer  
*Connecticut College*

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The views expressed in this paper are solely those of the author.



Connecticut College  
**ARBORETUM ANNUAL REPORT**  
**2015 – 2016**

## MISSION

The Connecticut College Arboretum is owned by Connecticut College and operated for the benefit of the College and the community. The Arboretum functions in support of the College's mission by helping to prepare people for a lifetime of learning about and interacting with the natural world. The mission of the Connecticut College Arboretum is:

**TEACHING** — To provide outdoor teaching, laboratory, and performance space for use by faculty and students in all college departments and programs. In both teaching and research, the Arboretum is a unique and valuable academic resource and support facility.

**RESEARCH** — To support and conduct research in a broad range of subjects, including ecology, field biology, geology, conservation, archeology, cultural and natural history, land management and others. Arboretum research emphasizes long-term studies.

**CONSERVATION** — To provide stewardship of College lands by protecting, sustaining and enhancing biological diversity of natural areas and other large tracts of open space. The Arboretum also provides leadership statewide and beyond in conservation matters.

**COLLECTIONS** — To maintain, develop and interpret well-documented plant collections for teaching, research, public and professional education and enjoyment.

**STEWARDSHIP OF CULTURAL RESOURCES** — To provide stewardship of cultural resources on College lands by protecting, studying, and interpreting archaeological and heritage sites.

**PUBLIC EDUCATION** — To provide programs and publications about conservation, horticulture, gardening, botany and natural history that enhance people's understanding of the natural world and foster an understanding of the Arboretum's mission.

**RECREATION** — To provide a place where people from the College and the community may enjoy passive recreation and where they may come to learn, reflect and renew themselves through contact with the natural world. The Arboretum enhances the quality of life both for the constituents of the College and the citizens of southeastern Connecticut.

*Updated 2015*

**THE 2015-16 YEAR WAS AN ACTIVE AND EXCITING ONE** in the Arboretum for staff, students, volunteers and visitors. It was also a challenging year to be a plant, due to the very low amounts of rainfall during the 2013-16 growing seasons. Little rain means a lot less mowing and a lot more watering, especially of recently installed plantings. We have our fingers crossed that next year will get back to more average weather patterns. With yet another dry year we can expect serious damage from Gypsy Moth caterpillars, among other problems.

Here are some of the year's highlights from my perspective, and you can read more about them in this report.

- The excellent staff teamwork on redesigning and updating informational brochures and beginning work on a new GIS derived base map of the entire 770 acres
- The four student researchers working with faculty in the natural areas and management lands in the summer 2016
- Construction of boardwalks in the pond and bog
- Distributing a new Arboretum Bulletin called "The Mamacoke Conservation Area"
- Designing and planting a new native willow collection
- Having greater input on landscape protection in campus construction projects

A project not mentioned elsewhere in this report is my work to draft policies and procedures that relate to each of the seven main subject areas of the Arboretum Mission. These are being written to provide history and context about what has been done in the past, and to begin to articulate goals for what could and should be done in the future. These statements are timely in as much as the College is beginning to develop a new campus master plan. On a parallel course, the Arboretum will begin next year to draft our own five year plan to guide our physical, administrative and academic development.

Clearly this entire report is only a series of brief highlights, as it is impossible to capture the many exciting programs, projects and human experiences that occur daily in our beautiful and diverse Connecticut College Arboretum. I truly enjoy being a part of it, and I hope this glimpse of the past year inspires you to enjoy it as well.

Glenn D. Dreyer  
*Charles and Sarah P. Becker '27 Director*



DANDELION FRUIT BY  
MARY ANN LEWIS. SEEING  
A LAWN DOTTED WITH  
THESE PLANTS PROFESSOR  
NIERING ONCE REMARKED  
"THERE'S NOTHING WRONG  
WITH DANDELIONS,  
THERE'S SOMETHING  
WRONG WITH PEOPLE!"

**DURING THE 2015-16 ACADEMIC YEAR**

the following courses were known to have utilized the Arboretum. The list is conservative, since the department is not made aware of all uses of the property.

- Ant 102 Material Legacies
- Ant 308 Methods and Theory of Ethnobotany (x2)
- Bio 118 Understanding Evolution
- Bio 207 Ecology
- Bio 307 Freshwater Ecology
- Bot 115 Introduction to Botany (spring and fall)
- Bot 311 Ethnobotany of Southern New England
- Bot 320 Environmental Plant Physiology
- ES 120 Intro to Environmental Geology
- ES 307 Environmental Anthropology
- ES 312 Vector Based GIS
- FYS 125B Intimations of Infinity

The introductory ecology course used various parts of the Arboretum for labs on pollination ecology, salt marsh ecology, forest ecology and tree identification, forest communities and feeding niches of birds. In spring 2015 the Arboretum

staff designed and installed perennial gardens around the greenhouse that were destroyed during the New London Hall renovations. These were specifically planned to have a diversity of flowering plants during fall semester when the Ecology pollination lab, and other courses, can utilize them. In spring of 2016 staff made various modifications to these gardens based on faculty feedback after the fall 2015 pollination ecology lab.

Professor Spicer's Environmental Plant Physiology course did a tree-coring lab using white pine (*Pinus strobus*) and black birch (*Betula lenta*) to examine tree rings and growth rates, and also to measure sapwood respiration. A number of students did projects in the Arboretum, for example Walker Cammack '16 studied the annual wildflower jewelweed (*Impatiens capensis*), for which he treated soils where the plant grew with fungicide to reduce microbial activity and measured plant establishment, biomass and respiration. Caitlin Persa '16 studied mountain laurel (*Kalmia latifolia*) leaves on plants growing in sun versus shaded locations. She found those in sun had smaller leaves and less total leaf area, but were better at supplying their leaves with water, a necessary feature since there is more

STUDENTS IN BOTANY  
115 STARTING THEIR  
INDIVIDUAL GARDEN PLOTS  
IN THE NEW LONDON HALL  
GREENHOUSE, SEPT. 2015.





**ABOVE: STUDENTS IN BOT 311 WITH PROFESSOR LIZARRALDE DEMONSTRATING PRIMITIVE HUNTING TECHNIQUES IN THE OUTDOOR THEATER, APRIL 2016.**



**LEFT: STUDENTS IN ES 120 OBSERVING GEOLOGIC FEATURES ALONG MAMACOKE SHORELINE DURING AN EXTREMELY LOW TIDE, NOV. 2015 (PHOTO BY AIDEN KELSO)**

water loss in brighter, hotter environments.

Rosemary Park Professor of Physics, Astronomy and Geophysics Thompson and Professor Chomiak's Environmental Geology labs spent three weeks on Mamacoke Island and two weeks in the GIS lab, continuing to map the record of geological hazards on the island. This year the entire east coast was exposed at an unusually low spring tide, and they discovered a variety of

boulder sizes and shapes below the mean water line that represent the remains of mass movements. The smaller size sediments have been stripped away by storm waves and the smaller rocks rounded by wave action, but the talus and glacial erratics remain where they fell, defining the run out zones of mass movements. They also spent some time discovering the extent of storm surge flooding by mapping the garbage left by the waves on the southern side of the Island. From this they estimated that an 8-foot above mean sea level storm surge is typical in this location.

Professor Barnes does an annual photography project in his course Understanding Evolution. All students must take a photograph in the greenhouse or Arboretum. He leads two weekend field trips through the greenhouse and Arboretum to help find interesting things to photograph. Students write two short paragraphs, one about an adaptation shown by their organism, with the second about a compromise or trade-off associated with that adaptation. The goal of the project is to help students understand that evolution does not lead to perfection.

Professor Lizarralde used the open expanse of the Outdoor Theater to demonstrate the use of primitive bows, spears and atlatl, all of which he made, for his ethnobotany and anthropology courses. He also brought his students to the Caroline Black Garden this spring semester.

Katherine Blunt Professor of Biology Robert



TOP: SCOTT WARREN (L), GROUNDSPERSON KRAIG CLARK (R) AND JOSH LEE '18 INSTALLING A ROD MARKING A CORNER OF THE RESEARCH GRID ON MAMACOCKE SALT MARSH, JUNE 2016.



BOTTOM: ELODIE PARAIN, YALE UNIVERSITY, COLLECTING WATER FROM PITCHER PLANT LEAVES IN THE BOG, JUNE 2016.

Askins was on sabbatical this year, and spent considerable time on both field work and writing for Arboretum associated projects. During fall 2015 he surveyed the restored meadows near the east end of Benham Avenue. and at the Samuel Bolles Homestead site off Bolles Road north of Gallows Lane. He estimated the abundance of bird species using the fields for migratory stopovers. Apparently the restored meadow started from seed in 2006 on the upper portion of the Benham area is particularly useful for a variety of sparrow species. During summer 2016 Professor Askins supervised two students, Jack Beltz '18 and Ariane Buckenmeyer '19, who also worked

with Diane Hitchcock '75 in conducting the biennial breeding bird survey in the Bolleswood Natural Area. Begun in 1953, it is one of the longest running bird population studies in North America. Jack and Ariane also did a project using spot-mapping survey techniques to compare bird use of the planted meadow near Benham Avenue and a former meadow in Bolleswood that had reverted to forest over the past 60 years. The two student stipends were funded via an endowment for student research in the Arboretum established by the late Professor William A. Niering. Diane Hitchcock was funded from the Arboretum Director's Becker Chair fund.

Professor Askins is currently working on a new edition of his bulletin "Birds of the Arboretum," incorporating an additional 25 years of observations and research. We anticipate publishing this in 2017.

Also this year, in collaboration with Mary Buchanan '14 and Professor Chad Jones, Professor Askins completed a manuscript on Mary's honors thesis examining the relationship between bird populations and regional land use and vegetation utilizing six decades of data from Bolleswood bird and vegetation surveys. The paper was accepted for publication by the Wilson

Journal of Ornithology. In 2015 Professor Askins and two off campus collaborators also published a paper that reanalyzed forest bird population data from the 1980s, some of which came from Arboretum sites.

During summer 2016 Professor Chad Jones supervised two student research assistants, Jocelyn Navarro '19 and Asa Peters '19, who did an extensive survey of Arboretum vegetation. Although the 70-acre Bolleswood Natural Area has been intensively studied for over 60 years, no systematic, quantitative survey of the other approximately 500 acres of undeveloped College property has ever been conducted. This study will be valuable not only for research and teaching, but for Arboretum management,

JOCELYN NAVARO '19  
AND ASA PETERS '19  
SURVEYING VEGETATION IN  
THE ARBORETUM NATURAL  
AREAS AND MANAGED  
LANDS, SUMMER 2016.  
EDUCATION AND  
OUTREACH

for example in helping to locate areas heavily impacted by invasive plant species.

In June 2016, Elodie Parain, a post-doctoral fellow from France working at Yale University with David Vasseur in the Ecology and Evolutionary Biology Department, visited the Arboretum bog to collect water from the leaves of the carnivorous pitcher plants (*Sarracenia purpurea*). The research project is to isolate microorganisms from the leaf water to test how temperature changes (higher temperatures and higher variation of temperatures than expected with climate change) affect the species, their densities, their survival and their ability to produce biomass.

Professor Emeritus of Botany R. Scott Warren published an article this year comparing sea level





rise, tidal marsh surface elevation changes and vegetation changes at Mamacoke Island Natural Area and Barn Island Wildlife Management Area. During fall 2015, Warren and Glenn Dreyer relocated the pipes pounded into Mamacoke salt marsh in 1994 to mark a 15 meter research grid originally established in the mid-1950s. In June 2016 Warren, Dreyer, Josh Lee '18 and Arboretum Groundsperson Kraig Clark installed 36 new stainless steel surveyor's monument rods. All were driven through the marsh peat and into the sands and gravels below, with 20 cm of rod exposed above the marsh surface. The exact elevation of each rod will be recorded and related to the elevation of the remaining original markers. This will allow the long term research into how tidal marshes are reacting to sea level rise to continue for many years.

A new Arboretum Bulletin "The Mamacoke Conservation Area" was edited, photos and maps were selected, and the manuscript went to graphic designer Susan Lindberg. Written by Glenn Dreyer, Robert Askins and Scott Peterson '06, this publication highlights the research, teaching and conservation value of the Mamacoke and Smith Cove areas, much of it on College property. It will be printed and distributed during summer 2016.

Walker Cammack '16 and Georgia Hann '17 produced a draft booklet titled "An Edible Tour of the Connecticut College Arboretum" as a research project in Professor Manuel Lizarralde's Ethnobotany class. Georgia continued work on the publication as an Individual Study during spring semester, and during summer as an Arboretum Curatorial Intern. It devotes a page each to 25 edible plants, and features both natives and exotics.

## PUBLICATIONS RELATED TO THE ARBORETUM

Askins, R.A. 2015. The critical importance of large expanses of contiguous forest for bird conservation. *Connecticut State of the Birds 2015*, Connecticut Audubon Society, Fairfield, Conn.

Buchanan, M. L., R.A. Askins, and C.C. Jones. In press. Response of bird populations to long-term changes in local vegetation and regional forest cover. *Wilson Journal of Ornithology*

Cammack, W., G. Hann and M. Lizarralde. In manuscript. Foraging in the Footsteps of the Southeastern Connecticut Native American: An Edible Tour of the Connecticut College Arboretum. 25 Plants.

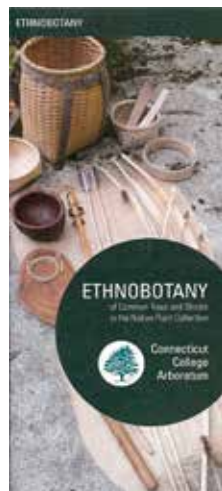
Carey, J. C., K. B. Raposa, C. Wigand and R. S. Warren. 2015. Contrasting decadal-scale changes in elevation and vegetation in two Long Island Sound salt marshes. *Estuaries and Coasts*. DOI 10.1007/s12237-015-0059-8

Dorazio, R. M., E. F. Connor and R. A. Askins. 2015. Estimating the effects of habitat and biological interactions in an avian community. *PLoS One* 10(8): e0135987

Dreyer, G.D., R.A. Askins and S. Peterson. In press. The Mamacoke Conservation Area. *Connecticut College Arboretum Bulletin* 42.

Thanks to Arboretum Administrative Assistant Christine Donovan and College Archivist Rebecca Parmer, all 40 Arboretum Bulletins starting in the 1930s have been scanned and made available on the College's Digital Commons website. There is a link to them from the Arboretum "Bookstore" web page.

Two existing Arboretum brochures were redesigned and updated this year. The Arboretum staff worked closely with the Office of Communications designer Ben Parent to create a new and consistent graphic identity for Arboretum publications. The brochures "Self-Guided Tour –Native Plant Collection and Bolleswood Natural Area" and "Ethnobotany of Common Trees and Shrubs in the Native Plant Collection" were transformed into even more attractive and useful publications.



**OVER 850 INDIVIDUALS PARTICIPATED** in Arboretum public education programs (not including concerts and theatrical presentations). Many of the programs, summarized below, were led by College students, staff or faculty.

- Workshops – 14
- Lectures – 2
- Conferences – 2
- Guided Walks – 20
- Children’s Programs – 3
- Plant Swap – 1
- Field Trip – 1

The annual Smaller American Lawns Today (SALT) Conference for homeowners and landscapers featured *Kill Your Lawn* presented by keynote speaker Mark Richardson, Director of Horticulture at the New England Wildflower Society; *Design without Lawn* by Ruth Parnall '99, registered landscape architect and Consulting Landscape Curator at Manitoga; *A Myriad of Meadows* by Mike Nadeau, organic landscaper at Wholistic Land Care Consulting; and *Novel Native Shrubs* by Jessica Lubell-Brand, Associate Professor of Horticulture at the University of

Connecticut. There were 71 participants, an all-time high for this event, which was co-sponsored by the Connecticut Master Gardener Association, Inc. and Wild Ones, Inc.

The two day January symposium “Zooming in/Zooming out: Native Design from the Intricate to the Expansive” attracted 130 landscape design professionals from all over New England. Now in its 27th consecutive year, this annual event is a creative partnership between the Arboretum, Larry Weaner’s New Directions in the American Landscape and the University of Pennsylvania Morris Arboretum.

Thanks to Assistant Director Maggie Redfern, who oversees public education and volunteers, some very popular new programs were added to the schedule. *Full Moon Walks* appealed particularly to our college students, and also attracted a number of community members. The same can be said for *Painting the Landscape*, in which participants worked with a painting instructor from a local museum (both Lyman Allyn and Florence Griswold Museums participated at different times) to paint the Arboretum Pond and nearby features. *Birding by Ear*, led by Mary Buchanan '14 was

FULL MOON WALKERS ON THE AD ASTRA TERRACE AT THE TOP OF TEMPEL GREEN, SEPT. 2015





TOP: STUDENTS PAINTING THE LANDSCAPE IN THE OUTDOOR THEATER, OCT. 2015.

BOTTOM: ASSISTANT DIRECTOR MAGGIE REDFERN COLLECTING MAGNOLIA FRUIT WITH THE SEED COLLECTING CLASS, OCT. 2015

also extremely well attended. While not a new program for the department, it did share the characteristic of attracting people who had never come to the Arboretum before.

## TOURS

During 2015 the Arboretum continued to offer free, public, docent led tours of the plant collections on Saturday mornings from July – October, which were attended by 85 people. After consultation with volunteers and staff it was decided to try a different free tour strategy, which was dubbed First Fridays. The new idea is to have a special theme for each tour or walk, which happen at lunchtime on the first Friday of each month.

ArboProject is a long running, student initiated program that recruits, trains and organizes Connecticut College students to lead environmental education tours in the Native Plant Collection for local school groups. During this year the Arboretum took oversight responsibility from OVCS (Office of Volunteer and Community Services) and hired Walker Cammack '16 to organize the tours and work with six Conn student guides. Fall tours focused on seed dispersal with approximately 210 students from Clark Lane Middle School and



Pine Point Explorer. Spring tours highlighted flowers and pollinators for approximately 230 students from the College's Children's Program, Bennie Dover Jackson Middle School, Franklin Academy, Williams School and Eleanor Buck Wolf Nature Center. Next year Isabelle Smith '19 will be student coordinator for ArboProject.

Arboretum staff led admissions open house tours of the Native Plant Collection once in October and twice in April upwards of 60 people participated each time. Glenn Dreyer led a guided walk for Alumni during reunion weekend. Guided group tours were provided for the Haddam Garden Club, the Thames River Garden Club, residents of StoneRidge and a group from the Ecological Landscape Alliance.

## OUTREACH

The annual photo contest “Capturing the Beauty of Nature” garnered 64 entries from 25 individuals. This year a new category was established for the Connecticut College Community, which arguably produced some of the best images. This year’s judges were Roger Riley, a local photography instructor, Pamela Wilson, Senior Donor Relations Officer and Bryan Goulet, Arboretum Senior Groundsperson.

### Adult Category

1st Place – *Trillium* by Mary Ann Lewis  
2nd Place – *Fiddleheads* by Carol Ansel  
3rd Place – *Gills & Rings* by Stella Barth



### Teen Category

1st Place – *Spring Flower* by Lillith Davies-Smith  
2nd Place – *Flore Albo* by Weston Courtright

### Child Category

1st Place – *The Awakening* by Ava Diaz-Saavedra  
2nd Place – *Sunlight Spores* by Mary Madaus  
3rd Place – *Magic Leaves* by Faith Courtright

### Connecticut College Faculty, Staff and Students

1st Place – *Frozen* by James Lee, Assistant Professor of Computer Science  
2nd Place – *Mamacoke Fog* by Eva Kovach, women’s rowing coach  
3rd Place – *Whisper* by James Lee and *Mamacoke Trail/West Afternoon Light* by Eva Kovach

Photography Awards were presented in June at the Annual Celebration which also featured a presentation on growing mountain laurel by horticulturist Andy Brand of Broken Arrow Nursery. The talk was preceded by a tour through the Arboretum’s Shain Mountain Laurel Collection with staff and volunteers.

During summer 2015 local thespians from the Flock Theatre once again presented Shakespeare in the Arboretum with performances of *Twelfth Night* and *Titus Andronicus*. In summer 2016 their plays will be *Edward III* and *Taming of the Shrew*.

The fourth annual Music in the Meadow concert series was organized by local musician and college graphics designer Ben Parent, and

LEFT: PROFESSOR JAMES LEE’S PHOTO “FROZEN” TOOK FIRST PLACE IN THE CONN COLLEGE CATEGORY OF THE ANNUAL PHOTO CONTEST.

BELOW: ARBOFEST CONCERT IN THE OUTDOOR THEATER, APRIL 2016



the Arboretum's Maggie Redfern. Ben once again invited the bands, designed the posters and tickets and generally made the whole thing possible. The performers were all highly regarded local acts: The Carleans, The Rivergods (featuring Ben and his wife Nancy) and The Franklin Brothers. Approximately 250 people enjoyed a perfect June evening in the Outdoor Theater with some of the best music yet in the series. The Outdoor Theater was also used by students for two concerts called ArboFest during fall and spring.

Assistant Director Maggie Redfern and Administrative Assistant Christine Donovan have made great progress in using social media to reach a larger and more diverse audience for Arboretum programs and information. Currently the Arboretum has 764 Facebook followers, 615 Twitter followers, 238 Instagram followers. This year they began to make photographs, both historical and current, available on Flickr, where they have posted 835 images. The most populated albums are Woody Plants, Herbaceous Plants and Caroline Black Garden.

Thanks to a combination of Facebook postings, e-mail and more traditional

advertising techniques, attendance at Arboretum educational programs has increased, as has the number Connecticut College students participating in them.

## COSPONSORED EVENTS

The Connecticut Master Gardener Association's (CMGA) Annual Symposium was held at Connecticut College for the first time during March 2016. There were 350 attendees for



RIGHT: HOLIDAY WREATH MAKERS GOT AN AMAZINGLY DIVERSE PALLET OF GREENS TO CHOOSE FROM, DEC 2015.

BELOW: THE ADVANCED MASTER GARDENER COASTAL CERTIFICATE PARTICIPANTS ON A FIELD TRIP TO MAMACOKE SALT MARSH, MAY 2016.





an event organized by Tracy Burrell, CMGA President and an Arboretum volunteer, and a committee of ten master gardeners. The presentations and lunch were located in the College Center at Crozier-Williams and Arboretum staff and volunteers led lunch time tours of the Campus Landscape and the Native Plant Collection.

The Connecticut Advanced Master Gardener Coastal Certificate program was held here during spring of 2016. Subtitled “Sound Gardening: Sustainable Landscaping for Clean Waters,” it was organized by the Connecticut Sea Grant Office and The Long Island Sound Study. Thirty individuals who had already completed the basic Master Gardener program participated (including a college student and Arboretum staff) with content provided by botany professor Chad Jones, DEEP Scientist Penny Howell ’75 and Dennison Pequotsepos Nature Center Director Maggie Jones ’85 among others. The course concluded with a fieldtrip to the Arboretum’s meadow restoration project on Benham Avenue, led by Glenn Dreyer, and to Mamacoke Island Natural Area salt marsh by botany visiting lecturer Daisy Small ’03.

**WALKER CAMMACK ’16  
LEADING AN ARBOPROJECT  
TOUR IN THE GRIES  
MEMORIAL NATIVE  
CONIFER COLLECTION,  
OCT. 2015.**

The Mountain Laurel (Connecticut State) Chapter of Wild Ones, Inc. held their monthly meetings and presentations on campus. In August 2015 Glenn Dreyer, Honorary Wild Ones National Director, led a tour of the restored meadows near Mamacoke.

Alexander Brash ’81, President of the Connecticut Audubon Society hosted a two-day retreat for 14 senior administrators of northeastern state Audubon Societies at 33 Gallows Lane. The after dinner presentation was by Professor Robert Askins, on the impact of forest fragmentation on bird populations. Maggie Redfern led an Arboretum tour for the group.

## ● PLANT COLLECTION

**THE ARBORETUM CURATES** three plant collections: the Caroline Black Garden (4 acres), the Native Plant Collection (30 acres) and the Campus Landscape (120 acres). Our grounds staff is responsible for managing the vegetation and trail system outside the main campus and athletic facilities.

### CAMPUS LANDSCAPE

Installation of a new backup generator on the north side of the library by Verizon for their cell phone tower atop Shain Library necessitated removal of a number of important landscape specimens. After the work was done, Verizon paid for a replacement planting designed to screen the generator from view. Arboretum staff collaborated with Grounds Supervisor Jim Luce on the planting design, which was installed by contractors.

After consultation with faculty who used the new outdoor greenhouse perennial gardens for a pollination lab in Bio 207 Ecology, Curator Mary Villa made some minor changes and additions to the plant arrangements to further the goals of the lab exercise.

The loss of a 30 foot Swiss stone pine at the west entrance to Mary Harkness House (one of a

matching pair) precipitated a renewed discussion with the Office of Facilities Management regarding landscape protection during campus construction projects. The good news is that Arboretum staff were invited to participate in the planning stages for summer 2016 construction projects. The summer's most ambitious project was the construction of connecting road north from Hillyer Hall to Winthrop Hall, as well as sidewalks from the pedestrian bridge over Mohegan Avenue uphill to the new road section. This necessitated the removal of many trees, and the protection of many remaining specimens. The Arboretum recommendation to hire a landscape architect and consulting arborist with experience in designing and building to minimize damage to trees was followed, and for the first time truly professional and comprehensive landscape protection was part of a campus construction project. It was an excellent learning experience for all involved and is likely to pay dividends both in terms of survival of trees near the project, and for future campus construction management.

With an aging "green infrastructure" of trees, and budget limitations in the Facilities Office, the Arboretum is trying to get more

CURATOR MARY VILLA  
AND INTERN SATHU BABU  
'17 IDENTIFYING THE  
CULTIVAR 'RICHARD  
JAYNES' IN THE  
JOSEPHINE SHAIN  
MOUNTAIN LAUREL  
GARDEN.



involved in managing the campus landscape. For example, the Arboretum purchased and installed a number of replacement shrubs for those which had died in the recent plantings in front of the Olin Science Center. Arboretum staff are watering them during their establishment period. The Arboretum also covered the cost of moving a Crimson Queen dwarf Japanese maple tree from its location north of Hillyer Hall in the path of the new road segment being built this summer. We have documentation that this specimen is the original “mother plant” of this now extremely popular horticultural variety of maple. It was selected by Gerald Verkade at his nursery in New London, and eventually was propagated and distributed world-wide. The tree was moved by a local landscape firm to a location near the northwest corner of Katherine Blunt House.

## NATIVE PLANT COLLECTION

Arboretum plant collections are inventoried on a five year rotation, with two summers required for the Campus Landscape as well as the Native plant Collection. Curator Mary Villa and intern Sethu Babu '17 covered half the Native Plant Collection last year and it will be completed in 2016 with the help of Georgia Hann '17. The inventory process includes verifying the identification and correct name for the trees and shrubs, measuring their size, assessing their condition, checking for labels and entering information into a database paper record system. Last year Mary and Sethu made 347 new or replacement plant name tags for the collection using our office laser engraver.

As mentioned in past reports, the Arboretum received a donation of willow (*Salix*) shrubs and trees, representing all 16 species native to the northeastern US, from UConn Professor Julia Kuzovkina. The decision was made to install much of the collection on a slope in the northeast corner of the Native Plant Collection below a manhole that sits atop a failed drywell that is part of the main campus storm water drainage system. The drywell had silted in due to lack of catch basin maintenance on campus, and water flows out of the top during every rain event. Seeking the lowest points on its way down hill, the water started to create a significant gully. In late summer 2015, our staff dug a zigzag trench from the manhole to the slope's bottom to direct and slow the flow. Much



of the time it is dry, but occasionally it holds a torrent. Many willows prefer damp soils and full sun, so this seemed like a reasonable location for the collection. During winter Mary Villa and Glenn Dreyer worked on a planting plan for the slope, and in spring Arboretum staff and students planted about 30 willows along with a few other types of shrubs. This June Senior Groundsperson Bryan Goulet built three, simple rustic bridges over the drainage trench using wood slabs cut from trees removed during the New London Hall renovations to finish off a path through the center of the planting. Willows that require wet soils were planted in various locations around the Arboretum Pond.

Mary Villa also developed a new design for an additional bed of dwarf conifers in the Gries Memorial Conifer Collection. This bed was first planted over ten years ago, but was decimated by the large deer herd that was present within

TOP: THIS CRIMSON QUEEN DWARF THREADLEAF JAPANESE MAPLE WAS TRANSPLANTED FROM THE PATH OF A ROAD CONSTRUCTION PROJECT AND RELOCATED NORTHWEST OF KATHARINE BLUNT HOUSE, MAY 2016.

BOTTOM: MANY MATURE TREES WERE REMOVED FOR A NEW CONNECTING ROAD BETWEEN TANSILL THEATER AND WINTHROP HALL, WHILE OTHER NEARBY TREES WERE SAVED BY USING SPECIAL PROTECTION AND CONSTRUCTION METHODS, SUMMER 2016.





TOP: CURATOR MARY VILLA (KNEELING) AND MASTER GARDENER VOLUNTEERS AFTER PLANTING A NEW DISPLAY OF DWARF CONIFERS IN THE GRIES MEMORIAL CONIFER COLLECTION, MAY 2016.

BOTTOM: SENIOR GROUNDSPERSON BRYAN GOULET AND GROUNDSPERSON KRAIG CLARK (ON TRACTOR) CONSTRUCTING A NEW DRAINAGE SWALE AROUND WHICH A NEW COLLECTION OF NATIVE WILLOWS WAS LATER PLANTED, AUGUST 2015.

the fenced area at the time. The deer population has been steady for a number of years at two females, so small plants can once again be safely planted. Plants were installed this spring by various volunteers, including Connecticut Master Gardeners and a group from a local English as a Second Language class.

In conjunction with updating and redesigning the Ethnobotany brochure this year, Mary Villa manufactured and mounted a series of new special labels for plants in the Native Plant Collection that are highlighted in the publication and shown on its map.

Responding to requests from a number of faculty members in botany and biology, planning, surveying, design, permitting and bid solicitation for boardwalks in the Arboretum Pond and in the bog were completed this year.

Glenn Dreyer worked with local dock designers and contracted the surveying, site plan and wetlands delineation. Installation of the dock systems that will form the walkways will occur during summer or fall of 2016.

## CAROLINE BLACK GARDEN

The Caroline Black Garden was not the focus of attention this year, other than routine maintenance. As noted in last year's report, due to increased deer populations in the area, and the increased student population resulting from converting faculty and staff housing to student residences, a more secure perimeter fence is appropriate. A list of fence installation companies has been developed and bids/proposals will be solicited during summer 2016 for approximately 1000 feet of 10-foot high chain-link fencing.

Caroline Black joined the Botany Department in 1917, and in commemoration of the centennial of her start at the college, the Arboretum has begun planning for a publication about Professor Black and the evolution of the teaching garden that she started before her death in 1929.

## NEW PLANTINGS BY COLLECTION

\*New taxa in collection

### THE CAMPUS LANDSCAPE COLLECTION

*Amelanchier x grandiflora* (1) Autumn Brilliance Serviceberry

*Benthamidia japonica* 'Elizabeth Lustgarten' (1) Elizabeth Lustgarten Kousa Dogwood

*Franklinia alatamaha* (1) Franklin Tree

*Kalmia latifolia* (4) Mountain Laurel

*Pinus cembra* (3) Swiss Stone Pine

*Quercus coccinea* (1) Scarlet Oak

*Rhododendron catawbiense* 'Roseum Elegans' (9) Roseum Elegans Catawba Rhododendron

Roseum Elegans Catawba Rhododendron

*Rhododendron* 'English Roseum' (1) English Roseum Catawba Rhododendron

*Spiraea* 'Gold Mound' (12) Gold Mound Spirea

*Thuja occidentalis* 'Smaragd' (10) Smaragd Arborvitae

Arborvitae

### THE NATIVE PLANT COLLECTION

\**Abies balsamea* 'Piccolo' (2) Piccolo Balsam Fir

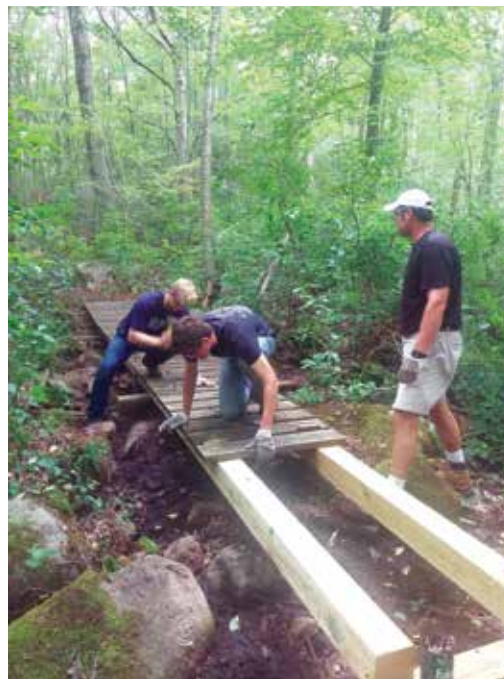
\**Baccharis halimifolia* (1) Groundsel-tree

*Celtis occidentalis* (1) Hackberry



ABOVE: HORTICULTURIST LEIGH KNUTTEL AND A STUDENT ASSISTANT MOVING WILLOW PLANTS INTO THE NEW COLLECTION AREA NEAR THE NORTHEAST CORNER OF THE NATIVE PLANT COLLECTION, MARCH 2016.

- Clethra alnifolia* (1) Summersweet
- Diospyros virginiana* (1) Possumwood
- Gaultheria procumbens* (2) Wintergreen
- Halesia carolina* (1) Carolina Silverbell
- Hypericum prolificum* (1) Shrubby St. Johnswort
- Juniperus horizontalis* 'Wiltonii' (3) Blue Rug Juniper
- Juniperus virginiana* (10) Eastern Redcedar
- Kalmia latifolia* (1) Mountain Laurel
- \**Larix laricina* 'Steuben' (1) Steuben American Larch
- \**Nyssa sylvatica* var. *biflora* (1) Swamp Blackgum
- Parthenocissus quinquefolia* (2) Virginia Creeper
- Physocarpus opulifolius* (2) Common Ninebark
- \**Picea glauca* 'Pendula' (1) Weeping White Spruce
- \**Picea glauca* 'Echiniformis' (3) Dwarf White Spruce
- \**Picea mariana* 'Ericoides' (3) Heath-leaved Black Spruce
- Pinus strobus* (1) Eastern White Pine
- \**Pinus strobus* 'Blue Shag' (1) Blue Shag White Pine
- \**Pinus strobus* 'Rocky Hill' (1) Rocky Hill White Pine
- Prunus virginiana* (4) Chokecherry
- Quercus alba* (1) White Oak
- Quercus coccinea* (3) Scarlet Oak
- Quercus velutina* (2) Black Oak
- Rhododendron calendulaceum* (1) Flame Azalea
- Rhododendron periclymenoides* (1) Pinxterbloom Azalea
- Rhododendron viscosum* (3) Swamp Azalea
- Rhus aromatica* (5) Fragrant Sumac



RIGHT: GROUNDSPERSON KRAIG CLARK AND STUDENT ASSISTANTS RECONSTRUCTING A BOARDWALK TRAIL IN A NATURAL AREANORTH OF GALLOWES LANE, SEPT. 2015.

- Rhus aromatica* 'Gro-low' (3) Gro-low Fragrant Sumac
- \**Rhus hirta* 'Bailtiger' (1) Tiger Eyes Staghorn Sumac
- Rhus hirta* (4) Staghorn Sumac
- Robinia pseudoacacia* (2) Black Locust
- Rosa virginiana* (2) Virginia Rose
- \**Sibbaldiopsis tridentate* (6) Three-toothed cinquefoil
- Spiraea tomentosa* (2) Steeplebush
- Styrax americanus* (1) American Snowbell



ABOVE: A WILDFIRE BURNED APPROXIMATELY ONE ACRE OF FOREST UNDERSTORY ON THE AVERY TRACT OVERLOOKING MAMACOKE, APRIL 2016.

- \**Thuja occidentalis* 'Filiformis' (2) Weeping Thread-leaved Eastern White Cedar
- \**Thuja occidentalis* 'Piccolo' (2) Piccolo Arborvitae
- \**Thuja occidentalis* 'Sherwood Moss' (3) Sherwood Moss Arborvitae
- Vaccinium corymbosum* (3) High-bush Blueberry
- Viburnum acerifolium* (1) Maple-leaved Viburnum
- Viburnum dentatum* var. *lucidum* (4) Northern Arrowwood
- Viburnum prunifolium* (5) Smooth Blackhaw

### ACCESSIONS BY COLLECTIONS

As of June 2016, there were living plants representing 801 taxa including a total of 2545 trees, 3898 shrubs, and 46 vines in the three plant collections.

COLLECTION	TREES	TAXA	SHRUBS	TAXA	VINES	TAXA	TOTAL PLANTS	TOTAL TAXA
NATIVE PLANT	1039	145	1353	196	35	12	2427	353
CAMPUS LANDSCAPE	1336	241	2122	220	7	2	3465	463
CAROLINE BLACK GARDEN	170	78	423	146	4	2	597	226
TOTALS:	2545		3898		46		6489	



**STAFF AND VOLUNTEERS**

**THE ARBORETUM STAFF** during the 2015-16 academic year was Glenn Dreyer, Director; Maggie Redfern, Assistant Director; Mary Villa, Curator; Leigh Knuttel, Horticulturist; Christine Donovan, Administrative Assistant (part time); Bryan Goulet,

Senior Groundsperson; and Kraig Clark, Groundsperson.

The Arboretum employs approximately 20 college students each semester to assist in grounds and greenhouse maintenance, collection curation and general office support. Each summer three individuals, usually Connecticut College students, are hired to assist with landscape and greenhouse maintenance. Another summer student is hired as a curatorial intern to assist in plant collection inventorying.

This winter the Arboretum invited nine students to join a Student Advisory Board. The group met once in February to discuss ideas for programs and opportunities that would appeal specifically to students on campus, and the best ways to communicate with this audience.

ARBORETUM STAFF AND STUDENT ASSISTANTS, JULY 2016.

**THE ARBORETUM IS GRATEFUL FOR THE GENEROUS SUPPORT PROVIDED THROUGH THE FOLLOWING ENDOWED FUNDS:**

- Charles and Sarah P. Becker '27 Arboretum Directorship Fund
- A. Clayton Scribner Arboretum Library Fund
- Ann C. Wheeler '34 Endowed Arboretum Fund
- Arboretum Development Fund
- Arboretum Director's Discretionary Fund
- Arboretum Edgerton Memorial Fund
- Arboretum Plant Fund
- Betty Walther Memorial Arboretum Fund
- Bolleswood Natural Area Fund
- Class of 1944 Special Projects Fund
- Daniel Klagsbrun '86 Memorial Garden Endowment Fund
- Doris Edgerton Abel Memorial Edgerton Wildflower Garden Fund
- Endowed Unrestricted Arboretum Fund
- Gertrude Brown Memorial Fund
- Lillian Dauby Gries '27 Conifer Maintenance Fund
- Lillian Niederman Memorial Garden Fund
- Mamacoke Island Endowed Fund
- Marjorie Holloway Endowed Memorial Garden
- Mr. and Mrs. Nelson L. Buck Arboretum Fund
- Parthenia Grier Johnson Holly Collection Garden Fund
- Sally and Roy Taylor Arboretum Endowed Fund
- Sylvia Blake Harrison Memorial Garden Maintenance Fund

**STUDENT WORKERS**

**SUMMER 2015**

- |                |                   |
|----------------|-------------------|
| Peter Hine     | Scott Kaluzny '17 |
| Sameh Rezk '18 | Sethu Babu '17    |

**FALL 2015**

- |                               |                     |
|-------------------------------|---------------------|
| Avery Thomas '16              | Dominic Lentini '18 |
| Benjamin Ynocencio '19        | Eamon Horrigan '19  |
| Blake O'Neal '19              | Elias Aquino '16    |
| Brion Morrissey-Bickerton '17 | Emilio Pallares '19 |
| Caitlin Persa '16             | Gabriel Ryan '17    |
| Christopher Burnham '17       | Jake LeSuer '16     |
| Colin Munson '16              | Joshua Hausman '18  |
| Connor Grove '17              | Julia Reilly '19    |
| Dana Bergenfeld '17           | Nicole Hogan '16    |
|                               | Samuel Lichtenstein |
|                               | Walker Cammack '16  |

TOP: VOLUNTEERS  
SPREADING LEAF MULCH  
IN THE GREENHOUSE  
PERENNIALS GARDENS,  
MAY 2016.

BOTTOM: VOLUNTEERS FROM  
NEW LONDON ADULT &  
COMMUNITY EDUCATION,  
ENGLISH AS A SECOND  
LANGUAGE CLASSES  
SPREAD MULCH ON THE  
NEW DWARF CONIFER  
PLANTING, MAY 2016.

**SPRING 2016**

- |                                   |                     |
|-----------------------------------|---------------------|
| Aidan Clark-Long '19              | Dana Bergenfeld '17 |
| Avery Thomas '16                  | Dominic Lentini '18 |
| Benjamin Ynocencio '19            | Eamon Horrigan '19  |
| Blake O'Neal '19                  | Elias Aquino '16    |
| Brion Morrissey-<br>Bickerton '17 | Emilio Pallares '19 |
| Caitlin Persa '16                 | Gabriel Ryan '17    |
| Christopher<br>Burnham '17        | Jake LeSuer '16     |
| Colin Munson '16                  | Joshua Hausman '18  |
| Connor Grove '17                  | Julia Reilly '19    |
|                                   | Nicole Hogan '16    |
|                                   | Walker Cammack '16  |

The Arboretum also creates volunteer opportunities for students and community members that include leading tours, teaching workshops, and working with plants. One important source of volunteers is the Connecticut Master Gardner course, which requires participants to serve volunteer hours before being certified. This spring horticultural volunteers met on Wednesday mornings and assisted with a variety of projects including maintenance and transplanting in the greenhouse perennial gardens and planting dwarf conifers. In 2015-16 about 50 students, staff, faculty and community members volunteered.



**VOLUNTEERS 2015-16**

- |                       |                    |
|-----------------------|--------------------|
| Allen Gauthier        | Chloe Ocain '18    |
| Aly Cheney '16        | Emily Crocker '18  |
| Arlene Raymond        | Emma Race '18      |
| Beto Zuniga           | Georgia Hann '18   |
| Beverly Chomiak       | Isabelle Smith '19 |
| Bob Catuccio          | Jack Beltz '18     |
| Brendan Hinchey       | Jim Luce           |
| Brian Linzaga '17     | Jo-Ann Crystoff    |
| Brian Pistolese       | Joan Flynn         |
| Caitlin Persa '16     | JoEllen Vashinder  |
| Caroline Driscoll '84 | Jonathan Goodhue   |



Josh Lee '18  
 Kathryn Williams  
 Kira Kirk '18  
 Kris Hardeman  
 Lilian King  
 Linda Boodman  
 Linda Sargent  
 Lydia Pan  
 Maggie Jones '85  
 Maggie Perkinson  
 Manuel Lizarralde  
 Mary Buchanan '14  
 Mike Wuenscher  
 Olivia Rabbitt '16

Pam Wright  
 Richard Conway  
 Robert Askins  
 Ronald Cummings  
 Ruth Baake  
 Sally Taylor  
 Sandra Morse  
 Sean Kane '87  
 Susan Munger  
 Tracy Burrell  
 Tricia Halvordson  
 Trish Helm  
 Walker Cammack '16  
 classes

**SUPPORTING,  
 FAMILY,  
 ORGANIZATION,  
 INDIVIDUAL &  
 STUDENT**

Allen, Renee  
 Mercado '84  
 Anderson, Joellen  
 Anderson, Mr. & Mrs.  
 Dexter  
 Arnold, David &  
 Platt '64  
 Askins, Robert  
 Bailey, Amey Schenck  
 '86  
 Baird, Bridget  
 Baker, Nancy  
 Banks, Elizabeth  
 Becker, Margaret W.  
 Blair, Diana  
 Boodman, Linda R.  
 Booth, Carol A.  
 Bowen, Leila K.  
 Bradford, Sara '63 &  
 Derek  
 Branford Garden  
 Club, Inc.  
 Brensilver, Howard  
 Brobst, Elizabeth S.  
 Butler, Lisa Sullivan  
 Calabretta, Claire  
 Calder, Margot  
 Carr, Vonice  
 Catuccio, Robert A.  
 Chapman, Betty Ann  
 Clark, Joseph  
 Clark, Sheila  
 Cowen, James  
 Coyne, Jeanne H.  
 Cressman, Felise T.  
 Crosby, Rebecca T.  
 Davis, Anne B.  
 DeLaura, L. Joyce  
 Devany, Mary L.  
 Donovan, Deborah J.  
 Doyen, Joann  
 Doyle, Pauline & John  
 Driscoll, Caroline K. '84  
 Federici, Antonio  
 Flynn, Ken & Joan  
 Fortner, Cindy & Jay  
 Galliher, Anne  
 Gauthier, Allen R.

Glastonbury Garden  
 Club  
 Gluck, Emery &  
 Jeannine  
 Goldsmith, Timothy  
 & Mary Helen  
 Grabarek, Robert  
 Grobe, Carl W. '88  
 Hammen, Kari B.  
 Harris-Pierce, Rebecca  
 Hayes, Christie M.  
 Henderson, Adelaide  
 Henderson, Adelaide  
 Homeier, Jean Gries '50  
 Jackson, Timothy  
 Jerbert, Jean  
 Johnson, Kate  
 Kelly, Shannon  
 Kolar, Jeannie  
 Korpala-Gosvener,  
 Roxanne  
 Kraynak, Susan L.  
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 Ray  
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 Luscombe, Emily  
 Lyme Garden Club  
 Main, Linda  
 Malootian, Markay  
 Mandell, Patricia A.  
 Manning, Gloria &  
 Ronald  
 Mayer, Gail Schwenker  
 McAllister, Lyndon  
 McCabe, Maureen &  
 Andersen, Jeffrey  
 McGuire, James &  
 Ellen  
 Moore, Christina  
 Morse, Sandra  
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 North Stonington  
 Garden Club  
 Noyes Family  
 Orłowski, Lesley  
 Otto, Elizabeth Ann

Pan, Lydia C.  
 Parker, Janice C  
 Patterson, Ariana  
 Penniman, Chris  
 Pinson, Betty A.  
 Pistolese, Brian  
 Porter, Marcia W.  
 Raymond, Arlene  
 Reynolds, Elizabeth F.  
 Ricci, Richard C. &  
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 Richard Sobanko &  
 Melanie McAvoy  
 Richards, Susan G.  
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 Solga, Patricia  
 Solomon, Janis  
 Stutts, Susanne M.  
 Sullivan, Beth  
 Taylor, Sally  
 Thames River Garden  
 Club  
 Trillium Garden Club  
 Tuttle, Hazel F.  
 Twigg, Martha B.  
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 Williams, Barbara P.  
 Williams, Martha  
 Winner, James W.  
 Zabel, Barbara

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The Arboretum gratefully acknowledges gifts from the following individuals and organizations who contributed this year either directly, or through the establishment of endowment funds, which provide support every year. We strive to accurately maintain our records and appreciate receiving corrections.

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Leigh Knuttel, *Horticulturist*  
Bryan L. Goulet, *Senior Groundsperson*  
Kraig Clark, *Groundsperson*  
Christine Donovan, *Department Assistant*

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Beverly A. Chomiak, *Research Associate*  
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R. Scott Warren, *Research Associate*

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