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Arboretum Annual Report 2014-2015

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Connecticut College
ARBORETUM ANNUAL REPORT
2014 – 2015

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 2014-15 YEAR STARTED OUT LAST SUMMER with a meeting that I arranged with professors who regularly use the Arboretum for teaching and research. Together we looked at the Arboretum Mission Statement and discussed some rewording and the added a goal to protect the cultural history of College landscape, in the form of the structures and artifacts left behind by human use since the last glaciation. We also discussed how the Arboretum could better support teaching and research, which crystalized into some new projects like a pollinator garden around the greenhouse and plans for boardwalks in the pond and bog. Another topic was ways to get College students more engaged with the Arboretum beyond course work requirements.

This seemed like a good time to look at our goals, mission and programs, not least because we had recently welcomed some new people to our small staff, and were about to hire a new Assistant Director for public education and outreach. Maggie Redfern joined us in November, and she hit the ground running with many new program ideas and boundless enthusiasm for trees and people. Late last year Mary Villa's position of Curator became full time, which essentially doubled the amount of time spent documenting and interpreting our living collections. Having been associated with the Arboretum for 33 years, and having worked with many dedicated individuals during that time, I am really excited about the future potential of this particular team of people.

While continuing to find new ways to support College teaching and research, we've shifted gears a bit with public education and outreach. One new goal is to more regularly and effectively utilize our plant collections in public education programs. This year we hosted the Connecticut Envirothon, an annual environmental studies contest among teams of high school students from around the state, and we welcomed the Connecticut Tree Warden's Association and utility vegetation managers from across New England. We also started to retool the ArboProject, which trains College students to lead Arboretum tours for local school children. Our greatly increased social media presence is helping us communicate with a younger demographic, which is obviously important for the Arboretum's future and the issues about which we care deeply.

All told it has been a year full of progress and positive changes, much of which is described in the following report.

Glenn Dreyer,
Charles & Sarah P. Becker '27 Director

TEACHING *and* RESEARCH

MANY WOULD CONSIDER the most important function of the Arboretum for Connecticut College to be support of teaching and research. The diversity of natural habitats, from brackish river shores and salt marsh to red maple swamps and upland forest, all within walking distance of class and dormitory, is a key to the Arboretum's utility. Add to that the diversity of our plant collections and gardens, and professionalism of our staff, and it becomes clear that we have a unique educational resource available for many different departments and programs.

Some of the courses that used the Arboretum during 2014-15 were:

- ANT 102 Material Legacies: Archaeology
- ANT 307 Environmental Anthropology
- ANT 311 Ethnobotany of Southern New England
- ANT 406 Field Methods in Archaeology
- ART 200 Photography 1
- ART 302 Designing Visual Information
- ART 308 Techne/Technology: Investigations in 3D

- BIO 103 Introduction to Evolution
- BIO 207 Ecology
- BIO 224 Animal Behavior
- BOT 205 Plants Protists and Fungi
- BOT 215 Introduction to Botany
- BOT 225 Systematic Botany and the Local Flora
- ES 115 Physical Geology
- ES 312 Vector-Based GIS
- ES 313 Raster-Based GIS

One example of an interesting, ongoing use by the academic program was Professor Anthony Graesch's multi-year archaeology project to conduct a surficial cultural resource survey of all Arboretum/College property that will serve both to document the condition and location of cultural artifacts and to inform future, more targeted and intensive archeological investigations at specific sites. In spring 2015, nine students in ANT 406 conducted formal surface reconnaissance and surveys in four Arboretum tracts north of Gallows Lane, covering approximately 150 acres. Five architectural features, three well guards, and over

ARCHAEOLOGY STUDENTS SARAH HERMAN '15 (LEFT) AND KELSIE FRALICK '15 DOCUMENTED STONE GATE POSTS ON THE ARBORETUM'S COFFEY FARM TRACT.





60 other stone features were documented with GPS and field forms.

Another illustration of how the Arboretum is used in the academic program was Introduction to Evolution. A photography project was conducted during the Fall 2014 in which each student was required to take an original photograph of one organism, plant or animal, in the greenhouse or Arboretum. Professor Phil Barnes led two field trips to assist the students in taking the pictures. The use of regular cameras for high quality photos was required. A camera with a macro lens was available for capturing images of very small organisms. Each student used her or his image in a written project that described, in one paragraph, an adaptation of the organism, followed by another paragraph describing one or more compromises or trade-offs that that adaptation causes in another morphological, physiological, or behavioral trait, or during another life-cycle stage, of the organism. Students received some training in image composition by the instructor, and a class period was dedicated to learning the use of PhotoShop® to improve the image through cropping, sharpening, and enhancing the lighting by Lyndsay Bratton, digital scholarship and visual resources librarian at the College.

Professor Manuel Lizarralde's Ethnobotany of Southern New England course used the Arboretum extensively, with a total of seven field trips. Students were expected to learn to identify one hundred species of plants utilized by Native Americans.

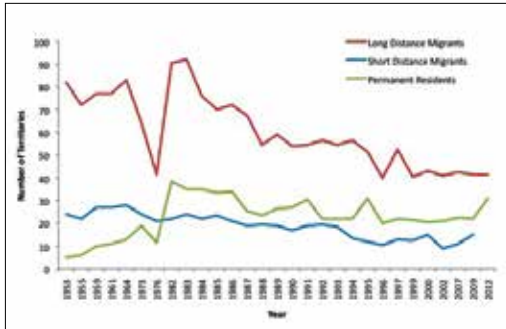


ABOVE: CURATOR MARY VILLA LED A TOUR HIGHLIGHTING THE MEANINGS OF PLANT NAMES FOR THE CLASSICS DEPARTMENT.

LEFT: KIRA KIRK '18 WITH A FERN FROND COLLECTED DURING A PLANTS, PROTISTS AND FUNGI CLASS LAB.

In September Curator Mary Villa led a tour of the Caroline Black Garden for students and faculty of the Classics Department on Latin and Greek is scientific names of plants.

During the summer of 2014 Professor Robert Askins, Mary Buchanan '14 and Diane Hitchcock '75 completed the thirtieth breeding bird census in the Bolleswood Natural Area. During the summer and fall, Professor Askins, Mary Buchanan, and Professor Chad Jones analyzed population changes in birds in this study area since 1953. With support from the Integrative Quantitative Life Sciences Research Program, they investigated relationships between bird populations, vegetation structure and composition, and regional land use patterns. A manuscript about this research is underway. Professor Askins



TOP LEFT: **LONG TERM ABUNDANCE OF "FOREST SPECIALIST" BREEDING BIRDS IN THE BOLLESWOOD FROM WORK BY MARY BUCHANAN '14.**

BOTTOM LEFT: **WESLEYAN PALEOBOTANIST DR. DANA ROYER COLLECTED SAMPLES FROM A CAMPUS TREE.**

also organized the annual Audubon Christmas Bird Count for the area including the Arboretum, and a CT DEEP Mid-winter Eagle Survey.

Avery Whitlock '15, an art major and biology minor, completed an exhibition "Explorations in the Gray Morality of Conservation" for her honors thesis for the Art Department. One of her works depicted bird species and their habitats in the Arboretum and Professor Askins was a reader for her thesis.

Professor Lizarralde supervised an independent study project using the Arboretum which resulted in the report "Fifty Common Edible Wild Plants and Fungi in the Connecticut College Arboretum." Walker Cammack '16. Connecticut College Botany Dept. 2015. 17 Pages.

In late June, Professor Dana Royer, a paleobotanist from Wesleyan University, collected leaf samples in the Arboretum plant collections. Dr. Royer is engaged in research to reconstruct paleo-atmospheric carbon dioxide levels using fossilized plants. The diverse Arboretum plant

samples, which included confers, ferns, horse-tails and angiosperms, were collected to analyze current isotopic carbon levels for comparison to fossil samples.

CAMELTOURS

THE ARBORETUM BECAME the prototype of a new kind of self-guided tour that uses mobile technology to allow visitors to listen to short audio explanations and view images of particular locations. Various places, like the main entrance and Buck Lodge, have simple signs with QR (Quick Response) Codes that can be scanned with a smart phone or similar device to bring up files that are viewed and listened to with any web browser. The tour can be pre-downloaded (and viewed) at any time, and thus a mobile datalink is not required at the actual tour location. This project emerged from a marriage of the technical and design-based expertise of computer science with the goals of community-based anthropology at Connecticut College. Team members include Christine Chung, Jean C. Tempel '65 Assistant Professor of Computer Science; Anthony P. Graesch, associate professor and chair of anthropology and the following computer science majors: Jennifer Blagg '13; Amit Kinha '14; Dillon Kerr '15; Julia Proft '16; Virginia Gresham '17.

RIGHT: **STUDENTS SCAN A CAMEL TOURS QR CODE ON A SIGN IN THE ARBORETUM OUTDOOR THEATER.**





BARN ISLAND WILDLIFE MANAGEMENT AREA STUDY

IN JULY 2013 the Connecticut Department of Energy & Environmental Protection (DEEP) contracted with the Connecticut College Arboretum to create a management assessment report for the Barn Island Wildlife Management Area, a 1,024-acre preserve in Stonington, Connecticut. Barn Island is the state's largest, most ecologically diverse, coastal wildlife area. The Arboretum was specifically asked to provide this service due to the long history of tidal marsh research by Connecticut College faculty and students at the site dating back to the 1950s. The report team was composed of Director Glenn Dreyer, Botany and ES Professor Chad Jones, and retired DEEP ecologist Ronald Rozsa. Professor Emeritus R. Scott Warren was a consultant on the contract, and Mary Buchanan '14 and Jessica Wright '16 were employed as research assistants during summer 2014.

The report began with historical aspects including parcel acquisition, marsh impoundment construction and removal, wildlife management activities, and a summary of cultural resources including the Venture Smith homestead. A large portion of the report dealt with management issues and needs, some of which were: climate change and adaptation of marsh ecosystems; rare and endangered species, management recommendations for tidal marshes, fields and forests; evaluation of infrastructure (trails, roads, signs, etc.); recommendations for future land acquisition. The report included an extensive bibliography of research publications and appendices with many maps and supplemental information. A major part of the "deliverables" to the DEEP

was extensive GIS data and map files. The DEEP plans to open a public comment period on the report content later this year, after which the Wildlife Division Staff will use it to create a management plan for Barn Island.

Arboretum Bulletin 40 "Salt Marsh Plants of Long Island Sound" was a joint publication with Connecticut Sea Grant that was published in 2009. This was an expanded and improved version of Bulletin 25, first published in 1980. Having run out of the first printing, another 2,000 copies of Bulletin 40 were printed this year, with half coming to the Arboretum to distribute.

In July 2014 Director Dreyer hosted a meeting of faculty members who utilize the Arboretum in their research and/or teaching work to discuss and update a vision for Arboretum's role as an academic support facility. Key outcomes were:

- Add a component to the Arboretum mission statement regarding the stewardship of cultural heritage resources to compliment the emphasis on natural resources.
- Send the 2010 proposal to create an Environmental Commons at 33 Gallows Lane, which would house the Arboretum, Goodwin-Niering Center, ES Program and some faculty offices and labs, to President Bergeron.
- Start thinking about ways to create a database/GIS archive and interface for all college land related resources. This to include images, maps, video, data sets, historic records, etc.
- Begin planning for a boardwalk in both the Arboretum pond and the nearby bog.
- Create a pollinator garden.
- Re-establish a student advisory board for the Arboretum.

MAIN ENTRANCE TO BARN ISLAND WILDLIFE MANAGEMENT AREA OVERLOOKS EXTENSIVE TIDAL MARSHES. THE ARBORETUM PERFORMED A TWO YEAR MANAGEMENT EVALUATION OF THIS PRESERVE.

EDUCATION *and* OUTREACH

PUBLIC EDUCATION

THE ARBORETUM'S public education programs got off to a slow start due to Assistant Director Kathy Dame's retirement in June, 2014. Director Dreyer and Curator Mary Villa organized one program per month in the fall which included walks focused on subjects such as making and managing meadows, identifying oak tree species and autumn color. Other fall programs were a guest lecture about landscaping for wildlife and the always popular holiday wreath making workshop. New Assistant Director Maggie Redfern joined the staff in November and was able to help organize a rich variety of offerings for spring 2015, including a four-session botanical illustration workshop, an orchid growing for beginners workshop, a maple syrup tapping demonstration and a guided walk by Professor Graesch highlighting the work his archaeology classes have been doing in the Arboretum.

Our premier professional education event, now in its 26th year, is a two-day ecological landscaping symposium held in January for landscape architects, designers and other green industry professionals. This was very successful, with about 130 participants from all over New

England. The conference is organized in collaboration with New Direction's in the American Landscape and The Morris Arboretum, University of Pennsylvania. The Morris Arboretum hosts the same roster of speakers one week prior to the conference here.

One long term Arboretum goal is to increase programming for environmental professionals. This year we hosted a one day education conference for the Connecticut Tree Wardens Association in late May. About 65 wardens and deputy wardens participated in a program covering tree structure and growth, tree identification, and the Connecticut Notable Trees Program in addition to guided tours of the Campus Tree and Shrub Collection. Earlier this spring Eversource (formerly Northeast Utilities) had a meeting of utility vegetation managers from across New England here on campus. The Arboretum staff provided guided tours of the Campus and Native Plant Collections which highlighted smaller trees suitable for planting near overhead utility lines.

With the recent personnel changes the Arboretum is also shifting our approach to children's education programming. While providing fewer programs directly for young children organized and offered by staff and adult volunteers, we

CT DEPARTMENT
OF ENERGY AND
ENVIRONMENTAL
PROTECTION BIOLOGIST
PETER PICONE LECTURED
AND THEN LED A WALK
IN THE ARBORETUM THAT
HIGHLIGHTED THE HABITAT
VALUE OF NATIVE TREES
AND SHRUBS.





ABOVE: GROUNDS SUPERVISOR JIM LUCE WITH HIS MAPLE SUGARING CLASS



LEFT: A CHILDREN'S WILDFLOWER WORKSHOP IN THE OUTDOOR THEATER

have now assumed greater responsibility for the Arbo Project. Originally established by a Connecticut College student, Arbo Project trains College students to lead environmental education tours for area school children in the Arboretum during the spring and fall. For many years this effort was organized and operated out of the College's Office of Volunteers for Community Service (OVCS), and the Arboretum continues to partner with OVCS. This spring the Arboretum hired a student, Walker Cammack '16 to coordinate Arbo Project, with responsibility for recruiting guides, advertising, scheduling, and leading tours. Arboretum staff will participate by developing tour curriculum

and content, and providing guidance and back up administration for the program.

Contact has also been made with some local high schools, particularly the Science and Technology Magnet High School in New London. Two of that school's biology classes spent half a day in the Arboretum last fall learning about the history and ecology of the land. During spring semester Glenn Dreyer visited the high school and gave a talk about Arboretum's collections, research and teaching program to a biology class.

Also at the high school level, the Arboretum hosted the Connecticut Envirothon, a contest that challenges teams of students from across the state to test their understanding of various natural resource subjects. Teams from 38 schools numbering about 250 students rotated through stations set up and manned by volunteers to test their skills in aquatics, soils, forestry and wildlife. The College building at 33 Gallows Lane was used for oral presentations and poster presentations, which were another part of the contest. Also in that building, about 40 teachers attended a workshop on invasive plants that included a field walk to look at invasives on campus, followed by a tour of the Native Plant Collection by Arboretum staff.

The Arboretum is also a destination for field trips by a number of schools, but very few actually contact our office to let us know their

TOP: ARBORETUM VOLUNTEER LYDIA PAN LED AN ORCHID GROWING WORKSHOP IN THE COLLEGE GREENHOUSE.

BOTTOM: FIRST PLACE CHILDREN'S CATEGORY IN THE ARBORETUM 2015 PHOTO CONTEST WAS TAKEN BY EMILY COPELAND.



identity, schedule or planned activities. Two encountered this year were the Williams School and the Bennie Dover Jackson Middle School.

SUMMARY OF 2014-15 ARBORETUM EDUCATIONAL PROGRAMS

Workshops – 8
Lectures – 2
Conferences – 1
Guided Walks – 7
Children's Programs – 1
A combined total of approximately 500 people attended Arboretum Educational Programs, a number that does not include visiting school groups or the Envirothon.

TOURS

THE ARBORETUM TRAINS community volunteers to lead informational tours of the three major plant collections from May through October. This April and May staff conducted a docent training workshop as a refresher for current volunteers and orientation for new ones. The training consisted of short indoor presentations by staff and walks through the three plant collections with emphasis on new plants and features. Maggie Redfern created a tour information notebook for the Native Plant Collection, and worked on updates for the existing notebooks for the Campus Landscape and Caroline Black Garden. Last year the time of the free weekly tours was changed from Sunday at 2 p.m. to Saturday at 10 a.m. in an effort to increase participation. There were a total of 90 tour visitors last year, an increase from the previous year but still fewer than hoped for.

Tours are also offered to groups by special arrangement. Each year there are tours of the Native Plant Collection in fall and spring for prospective students and parents during the Admissions Department open houses. One or two tours are also given for alumni each year during reunion weekend. Other groups that received tours this year were: The Connecticut Valley Garden Club, the Garden Club of Hartford, Arnold Arboretum Volunteers, Mystic Seaport Staff, a dendrology class from the Yale School of Forestry and Environmental Studies, plus the previously mentioned Envirothon teachers, New London high school classes, Eversource Vegetation Managers and the Connecticut Tree Wardens.

PHOTO CONTEST

THIS YEAR there were 70 entries from 34 participants in the Adult, Teen and Children's categories. Twelve awards were presented at the annual Members and Friends Night on June 12.

The Judges

Sally L. Taylor, Professor Emeritus of Botany
Caroline Driscoll '84, Arboretum Volunteer
Becky Parmer, College Archivist

Adult Category

1st Place — *Unfurling in the Green* by Josie Kapral
2nd Place — *Beautiful Shadows* by Bethany McMahon
3rd Place — *Autumn Splendor* by Kathy Copeland



Honorable Mention — *Turtles on Log* by Susan Stockwell

Teen Category

1st Place — *Mixed Greens* by Abigail Leander

2nd Place — *Looking Upwards* by Allie Norman, The Williams School

3rd Place — *Hidden Secrets* by Mackenzie Campanaro, The Williams School

Honorable Mention — *Snow Day* by Mallory Kosow, Conn Coll '15

Child Category

1st Place — *Sun Peeking Through the Trees* by Emily Copeland

2nd Place — *Yellow* by Ava Diaz-Saavedra

3rd Place — *Mama Tree and Baby Tree* by Emily Copeland

Honorable Mention — *Beach Day* by Faith Courtright

ABOVE: TEAMS OF HIGH SCHOOL STUDENTS HEADING OUT FROM THE OUTDOOR THEATER TO CONNECTICUT ENVIROTHON TESTING STATIONS.

LEFT: DIRECTOR DREYER DISCUSSED ARBORETUM LAND USE HISTORY WITH STUDENTS FROM THE NEW LONDON SCIENCE AND TECHNOLOGY MAGNET SCHOOL.



HELLBENT & HEARTBREAKIN' PERFORM IN THE OUTDOOR THEATER FOR MUSIC IN THE MEADOW 2015.

OUTDOOR THEATER

FLOCK THEATER CONTINUED its long tradition of Shakespeare in the Arboretum with a production of *Cymbeline* during summer 2014. In summer of 2015 they are presenting *Twelfth Night* and *Titus Andronicus*.

In recent years the Arboretum has been encouraging use of the Outdoor Theater for concerts. In June 2015 the third annual "Music in the Meadow" concert attracted about 200 music lovers to enjoy local favorites the Can Kickers, Hellbent & Heartbreakin and Anna May Thompson. Student-organized concerts called "ArboFest" happened in October and April.

OTHER OUTREACH

RETIRED College Visual Resources Librarian Mark Braunstein mounted an exhibit of his photographs of the Mamacoke area of the Arboretum at the Fiddlehead's Food Coop during spring 2015. Curator Mary Villa spoke to the Connecticut Master Gardener's annual conference on the subject of choice small trees for home landscapes. Assistant Director Maggie Redfern presented about the Gardens of Charles Platt for the New London Garden Club at the Lyman Allyn Art Museum. Based on his expe-

rience managing and creating meadows in the Arboretum, Director Dreyer was asked to help the Lyme Land Trust in a legal dispute over a conservation easement in which a meadow was converted to lawn and gardens.

Thanks to Department Assistant Christine Donovan, aided by Assistant Director Maggie Redfern, the Arboretum's social media presence was greatly expanded. With Facebook as the main way for members and friends to stay up to date on what's in bloom and what programs are coming up, we also feed information and images to the digital world via Twitter, Instagram and Flickr (where amazingly beautiful pictures keep appearing). By year end we received just over 400 likes on Facebook and have over 400 followers on Twitter.

THE ARBORETUM CURATES three plant collections: The Caroline Black Garden (4 acres), The Native Plant Collection (30 acres) and the Campus Landscape (110 acres). Our horticulture staff does not maintain the landscape on campus, with the exception of the area directly around the New London Hall greenhouse. The Campus Grounds Staff in the Office of Facilities Management is charged with maintenance of the main campus landscape, as well as athletic fields and college housing.

CAMPUS Curator Mary Villa spent a second summer inventorying the campus trees and shrubs in 2014. She was assisted by Caitlin Persa '16 and Avery Thomas '16, who each worked half the summer. Mary creates the “display” labels for trees, shrubs and wildflowers, as well as memorial tree signs, using the department laser engraving machine. This year in addition to many accession tags for the woody plant collections, she made a total of 26 memorial plaques (both replacements and new), 64 new labels for plants in the wildflower garden, new arrows and numbers for the self-guided tour of the Native Plant Collection/Bolleswood Natural Area and also designed and engraved 4 signs for the new Camel Tour.

During the past year Arboretum staff began replanting perennial gardens around the green-

house that had to be removed due to recent greenhouse and New London Hall renovations. The vision was to create gardens that are attractive year-round, with an emphasis on plant diversity during early spring and fall, when classes are in session. The plantings were also designed to serve as a pollinator garden, and high diversity of floral types was achieved with



TOP: A FRANKLIN TREE WAS PLANTED ON THE WEST SIDE OF NEW LONDON HALL TO REPLACE ONE THAT WAS DAMAGED DURING THE BUILDING'S RECENT RENOVATIONS.

BOTTOM: ARBORETUM STAFF AND SUMMER WORKERS INSTALLING PERENNIAL GARDEN ON THE SOUTH SIDE OF THE COLLEGE GREENHOUSE.



a combination of native and non-native species. By late June 2015 the final phase of perennial garden planting was completed in conjunction with the reconstruction of the sidewalk south of the greenhouse. The Arboretum is very lucky to have a talented and experienced garden designer in Curator Mary Villa, who was responsible for choosing the plants and their arrangement.

The Shain Library renovation necessitated the removal of plantings on the east, south-east and northeast sectors of the building's landscape. The Arboretum was consulted by Facilities Management regarding removals and a new design. A particularly mature paperbark maple on the south side of the library was protected during construction by fencing, and it appears to have survived the process. In fall 2014, well before the building renovation was completed, contractors installed landscape plants on the south and east sides of Shain Library. An unrelated project to install another cell phone tower on the library roof, and new backup generators next to the building necessitated the last minute removal of two specimen Serbian spruce trees and associated shrubs on the north side of the library. Damage to mature landscape specimens from construction equipment and vehicles is always a problem, one that the Arboretum does its best to help mitigate. During the library project unauthorized delivery and worker parking off paved surfaces was a regular problem.

CAROLINE BLACK GARDEN This collection is currently surrounded by eight foot tall light weight fencing attached to posts and trees, for the purpose of excluding white tailed deer from eating the garden plants. There were a number of intrusions by white tailed deer into the Caroline Black Garden this year, with little damage, and the plastic fence surrounding the area had to be repaired and replaced in some locations.

Since the conversion of College owned faculty houses to student residences on Winchester Drive (which surrounds the Caroline Black Garden to the north and east), the number of people using the garden as a short cut to the main campus has increased dramatically. This pedestrian traffic is causing extensive wear and tear on the garden, especially the turf and the gates. After classes ended, three gates on the north and south sides of the garden were permanently closed. Next year bids will be solicited to construct a 10 foot high, chain link fence around the garden perimeter to permanently exclude deer and commuters.

NATIVE PLANT COLLECTIONS In spring 2015 hemlocks in the Gries Conifer Collection were treated for control of hemlock wooly adelgid and hemlock scale insects with soil injected, systemic insecticides by Bartlett Tree Experts. These specimens were last treated five years ago for the adelgid, but never for the scale.

Arborists from Tomorrow's Trees spent a

LEFT: SENIOR GROUNDSPERSON BRYAN GOULET USES A PROPANE WEED TORCH TO KILL THE INVASIVE JAPANESE STILTGRASS.

RIGHT: SPREADING COMPOST ON OUTDOOR THEATER IS ONE REGULAR ORGANIC TURF MANAGEMENT PROCEDURE.





total of about two weeks doing aerial pruning and removals in the Native Plant Collection, along the eastern end of Benham Avenue, and also pruned a large black oak in the Caroline Black Garden.

Arboretum staff installed campus standard trash and recycling receptacles at the Williams Street entrance and on the east entrance to the Outdoor Theater. They also removed two trees in collection area 16 (near the intersection of Gallows Lane and Williams Street) in anticipation of a design for a new collection of willow (*Salix*) trees and shrubs next year.

Masons repaired the slate steps at the Williams Street entrance, and a painting contractor scraped and painted the windows and doors of Buck Lodge in spring 2015.

In efforts to minimize pesticide use, the grounds staff employed a backpack propane torch during September to burn up patches of the invasive annual Japanese Stiltgrass (*Microstegium vimineum*) before the plants set seed. In spring they applied beneficial nematodes to turf areas to control grubs the root zone. In addition to damaging grass in lawns, many of the grubs mature to become Japanese beetles which defoliate a wide variety of species.

The town of Waterford rebuilt and repaved the eastern section of Gallows Lane. Improvements included curbing and catch basins that now direct storm water into a wetland that flows north from 33 Gallows Lane. This has reduced the flooding at the north end of the Native Plant Collection that sometimes occurred with heavy rainfall events.

A project was initiated to plan and construct a boardwalk along the Arboretum pond edge and another for access to the nearby bog. Better access to the pond and bog has been requested by some botany and biology department faculty for a number of years. The Arboretum contracted with Docko, Inc., a Mystic, Connecticut based firm with extensive experience with construction projects in aquatic environments to help develop a design, select materials and methods, and create a budget. Boundaries, Inc. was hired to survey the location, locate and mark wetlands, and draw a site plan. Initial funding for design, permitting and some construction costs is from a grant to the Arboretum from the Sun Hill Foundation. It is anticipated that construction could begin in 2016, assuming adequate funding is obtained.

EARLY 2015 WAS PARTICULARLY COLD AND SNOWY, BUT THE ENTRANCE TO THE NATIVE PLANT COLLECTION REMAINED OPEN.

**NEW PLANTINGS AND ACCESSIONS
BY COLLECTION
(JUNE 2014 THROUGH MAY 2015)**

*New taxa in collection

**NEW PLANTINGS
CAMPUS LANDSCAPE COLLECTION**

- Acer palmatum* 'Bloodgood' (1) - Bloodgood
Japanese Maple
Acer saccharum (1) - Sugar Maple
Amelanchier x grandiflora 'Autumn Brilliance'
(1) - Autumn Brilliance Serviceberry
Betula platyphylla (4) - Asian White Birch
Crataegus viridis 'Winter King' (4) - Winter
King Hawthorn
Fothergilla x intermedia 'Mt. Airy' (20) - Mt.
Airy Fothergilla
**Franklinia alatamaha* 'Wintonbury' (1) - Win-
tonbury Franklin Tree
**Hydrangea paniculata* 'Limelight' (3) - Lime-
light Hydrangea
**Ilex crenata* 'Green Luster' (4) - Green Luster
Japanese Holly
Juniperus chinensis var *sargentii* (45) - Sargent's
Juniper
**Lagerstroemia indica* 'Sarah's Favorite' (1) - Sar-
ah's Favorite Crapemyrtle
Liriodendron tulipifera (2) - Tuliptree
**Lonicera fragrantissima* (5) - Winter Honey-
suckle
**Physocarpus opulifolius* [Summer Wine] =
'Seward' (12) - Summer Wine Ninebark
**Picea abies* 'Nidiformis' (10) - Bird's Nest
Spruce
**Rhododendron* 'April Snow' (5) - April Snow
Rhododendron
**Rhododendron* 'Baden Baden' (3) - Baden
Baden Rhododendron
**Rhododendron* 'Lemon Lights' (7) - Lemon
Lights Azalea
**Rosa* 'Carefree Wonder' (5) - Carefree Wonder
Rose
**Rosa* [Double Knock Out] = 'Radtko' (1) -
Double Knock Out Rose
**Viburnum x rhytidophylloides* 'Alleghany' (1) -
Alleghany Viburnum

**NEW ACCESSIONS (EXISTING PLANTS)
IN THE CAMPUS LANDSCAPE**

- **Carya illinoensis* (1) - Hardy Pecan
**Cornus alba* 'Argenteo-marginata' (1) - Varie-
gated Tatarian Dogwood
**Hydrangea macrophylla* 'Nantucket Blue' (7) -
Nantucket Blue Bigleaf Hydrangea

- **Rhododendron* 'Polar Bear' - Polar Bear Azalea
**Rhododendron* 'Ponticum Roseum' (2) - Ponti-
cum Roseum Rhododendron
**Rosa rugosa* (1) - Rugosa Rose

**NEW PLANTINGS
IN THE CAROLINE BLACK GARDEN**

- Corylopsis spicata* (1) - Spike Winterhazel
Juniperus chinensis var. *procumbens* 'Nana' (2) -
Dwarf Japgarden Juniper
Juniperus conferta 'Blue Pacific' (3) - Blue Pacific
Shore Juniper

DAWN REDWOOD AND
WEeping CHERRY IN THE
CAROLINE BLACK GARDEN,
MAY 2015.



**NEW PLANTINGS
IN THE NATIVE PLANT COLLECTION**

Cercis canadensis ‘Forest Pansy’ (1) - Forest Pansy Eastern Redbud
Clethra acuminata (1) - Cinnamon Clethra
Fothergilla gardenia (5) - Dwarf Fothergilla
**Franklinia alatamaha* ‘Wintonbury’ (1) - Wintonbury Franklin Tree
Lonicera sempervirens (6) - Trumpet Honeysuckle
Rhus aromatica ‘Gro-Low’ (3) - Gro-Low Fragrant Sumac
Viburnum opulus ‘Wentworth’ (1) - Wentworth Cranberrybush Viburnum

**NEW ACCESSIONS (EXISTING PLANT)
IN THE NATIVE PLANT COLLECTION**

**Magnolia fraseri* (1) - Mountain Magnolia

NATIVE WILLOW COLLECTION (GIFT OF PROFESSOR JULIA KUZOVKINA, UCONN):

**Salix amygdaloides* (2) - Peach-leaved Willow
Salix bebbiana (2) - Beaked Willow
**Salix candida* (4) - Sage-leaved Willow
Salix discolor (4) - Pussy Willow
Salix eriocephala (2) - Diamond Willow
**Salix humilis* (3) - Prairie Willow
**Salix humilis* var. *tristis* (3) - Dwarf Prairie Willow
**Salix interior* (3) - Sandbar Willow
**Salix lucida* (4) - Shining Willow
**Salix myricoides* (2) - Blue-leaf Willow
Salix nigra (1) - Black Willow
**Salix pedicellaris* (2) - Bog Willow
**Salix petiolaris* (6) - Meadow Willow
Salix sericea (2) - Silky Willow
**Salix serissima* (3) - Autumn Willow

**SUMMARY OF PLANT COLLECTION
ACCESSIONS**

As of June 1, 2015 there were 6,429 accessioned living plants representing 776 taxa as 2,529 trees, 3,858 shrubs, and 42 vines.

COLLECTION	TREES	TAXA	SHRUBS	TAXA	VINES	TAXA
NATIVE PLANT	1,027	130	1,235	157	31	11
CAMPUS LANDSCAPE	1,330	230	2,182	212	7	2
CAROLINE BLACK GARDEN	172	76	441	139	4	2

PEOPLE

IN NOVEMBER 2014 Maggie Redfern was selected as the new Arboretum Assistant Director by a committee composed of Director Dreyer, Curator Villa and Botany Professor T. Page Owen. Maggie spent the last seven years in the Public Programs Department at Harvard University's Arnold Arboretum, has a graduate level certificate in Landscape Preservation and an undergraduate degree in Architecture. Her primary responsibilities are with the coordination of Arboretum public education and volunteer programs. The complete Arboretum staff and associates are listed on page 20.

With a landscape and greenhouse management staff of only three full time people, the Arboretum is very dependent on part time workers from the student body to maintain collections and natural areas. The Arboretum hires 10-15 students each semester, and some students are also employed to assist the curator. During the summer two or three temporary, full time people are hired from June through August to assist with maintenance and one is recruited as a curatorial intern.

SUMMER 2014

A.J. Boyce '17
Kevin Irakoze '16
Caitlin Persa '16
Avery Thomas '16

STUDENTS FALL 2014

Elias Aquino '16
Dana Bergenfeld '17
Chris Burnham '17
Will Fetchko '15
Connor Grove '17
Nadiya Hafizova '15
Nicole Hogan '16
Jake Le Suer '16
Dominic Lentini '18
Alex McGurk '17
Brion Morrissey-
Bickerton '17
Gabe Ryan '17
George Scarles '15
Avery Thomas '16

STUDENTS SPRING 2015

Dana Bernenfeld '17
Nino Boornazian '15
Chris Burnham '17
Walker Cammack '16
Anna Curtis-Heald
'17
Connor Grove '17
Nadiya Hafizova '15
Jason Hamburger
Josh Hausman '18
Nicole Hogan '16
Jake Le Suer '16
Dominic Lentini '18
Brion Morrissey-
Bickerton '17
Colin Munson '16
Caitlin Persa '16
Tom Redstone '15
Gabe Ryan '17



ABOVE: NEW ASSISTANT
DIRECTOR MAGGIE
REDFERN

BELOW: SUMMER 2015
ARBORETUM INTERNS
(FROM LEFT): SCOTT
KALUZNY '17, PETER HINE,
SAMEH REZK '18 AND
SETHU BABU '17

VOLUNTEERS

The Arboretum trains and schedules 25 volunteer adults from local communities to help present educational programs and lead tours of the plant collections. In December we held a "thank you" reception for our volunteers and conducted a short survey about their interests and advice. In late-April we presented a half-day docent training session with both general information and a sample tour of the Native Plant Collection. The Arboretum is very grateful to the following individuals who graciously volunteered their time to lead tours and other programs:

Allen Gauthier	Linda Sargent
Anthony Graesch	Lydia Pan
Arlene Raymond	Manuel Lizarralde
Beverly Chomiak	Mike Wuenscher
Brian Pistolese	Pam Wright
Caroline Driscoll '84	Richard Conway
Jim Luce	Sally Taylor
Jo-ann Crystoff	Sandra Morse
Joan Flynn	Sean Kane '87
Jonathan Goodhue	Susan Munger
Kathryn Williams	Tracy Burrell
Linda Boodman	Trish Helm





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

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

MEMBERS

The Arboretum gratefully acknowledges gifts from the following individuals and organization 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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- Harlow, Margaret H.
- Meehan, Chip
- Moulton, David
- Parnall, Ruth '65 MA'98 & Walker, Donald L.

ARBORETUM STAFF AND VOLUNTEERS AT A SPRING 2015 DOCENT TRAINING WORKSHOP.



LEFT: HORTICULTURIST LEIGH KNUTTEL SUPERVISES GREENHOUSE AND OUTDOOR MAINTENANCE FOR THE ARBORETUM.

Record, Stephen & Mary Sue
 Redfern, Claudia D.
 Rotch, Susan
 Sargent, Thomas A.
 Taylor, Sally
 Williams, John & Kathryn

SUPPORTING, FAMILIES, INDIVIDUALS AND ORGANIZATIONS

Anderson, Joellen
 Anderson, Nancy
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 Askins, Robert
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 Boodman, Linda R.
 Botelle, Heather L.
 Branford Garden Club, Inc.

Brennan, Jim
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 Clark, Sheila
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 Cowen, James
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 Coyne, Jeanne H.
 Crosby, Howard & Phyllis
 Crosby, Rebecca T.
 Davies, Judith
 Davis, Anne B.
 DeLaura, L. Joyce
 Doyen, Joann
 Dreyer, John & Jean
 Driscoll, Caroline K.
 Fallon, Dennis and Marilynn
 Flynn, Ken & Joan
 Gauthier, Allen R.
 Glastonbury Garden Club
 Gluck, Emery & Jeannine



BELOW: DOCENT KATHRYN WILLIAMS LEADING A TOUR OF THE CAMPUS LANDSCAPE COLLECTION.

Hammen, Kari B.
 Harris-Pierce, Rebecca
 Hayes, Christie M.
 Henderson, Adelaide
 Hermann, Guy and
 Crystoff, Jo-Anne
 Hernandez, Robert W.
 Howell-Heller,
 Penelope
 Isbister, Anne H.
 Javitch, Ronald A.
 Johnson, Kate
 Joseph, Patricia A.
 Kaczorowski,
 Margaret Steele
 Kolar, Jeannie
 Kovach, Eva
 Kozlowski, Sandra
 Kraynak, Susan L.
 Krisciunas, Diana
 Kronick, Joan
 LaBranche, Donna
 Lantz, Paul & Kathy
 Legg, Bonnie
 Leinbach, Jill L.

Leonard, Wardwell &
 Viola
 Lizarralde, Manuel &
 Anne-Marie
 Longwood Gardens
 Library
 Main, Linda
 Malootian, Markay
 Manning, Gloria &
 Ronald
 Marston, William
 Mayer, Gail
 Schwenker
 McAllister, Lyndon
 McCabe, Maureen &
 Andersen, Jeffrey
 McGuire, James &
 Ellen
 Morse, Sandra
 Munger, Susan H.
 Myers, Sally & Bob
 Mystic Garden Club
 New London Garden
 Club
 Nickerson, Judith W.

North Stonington
 Garden Club
 Nortz, Rebecca A.
 Pan, Lydia C.
 Patterson, Robert
 Pinson, Betty A.
 Pistolese, Brian
 Pyka, Emily
 Redfern, Maggie and
 Goodhue, Jonathan
 Reynolds, Elizabeth F.
 Ricci, Richard C. &
 Fawn Walker
 Richards, Susan G.
 Riverside Park
 Conservancy
 Robins, Ann
 Robinson, James T.
 Roper, Peter & Terri
 Ryder, Thomas S
 Santucci, Marlene
 Sargent, John & Linda
 Sargent, Saraellen
 Seebeck, Barbara R.

Slosberg, Alida
 Liesbeth
 Small, Melanie
 Solomon, Janis
 Sullivan, Beth
 Taylor, Joan
 Thames River Garden
 Club
 Tuttle, Hazel F.
 Twigg, Martha B.
 Wagner, Thomas and
 Miriam
 Walsh, Louise S.
 Walther, David C.
 West Hartford
 Garden Club
 Westerlund, Wendy
 Westport Garden
 Club
 Williams, Barbara P.
 Winslow, Katherine D.
 Wolfskehl, Karen
 Zuniga, Beto

CAITLIN PERSA '16 IS
 ONE OF MANY WORK
 STUDY STUDENTS
 EMPLOYED BY THE
 ARBORETUM TO ASSIST
 WITH MAINTENANCE AND
 CURATORIAL PROCEDURES.



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Maggie Redfern, *Assistant Director*
Mary Villa, *Curator/Information Manager*
Leigh Knuttel, *Horticulturist*
Bryan L. Goulet, *Senior Groundsperson*
Kraig Clark, *Groundsperson*
Christine Donovan, *Department Assistant*

ASSOCIATES

Robert A. Askins, *Research Associate*
Phillip T. Barnes, *Research Associate*
Beverly A. Chomiak, *Research Associate*
John W. Deering, *Earth Management Consultant*
Anthony P. Graesch, *Research Associate*
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T. Page Owen, *Research Associate*
Douglas M. Thompson, *Research Associate*
R. Scott Warren, *Research Associate*

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Lewis Bowker, *Arborist*
Ron Burridge, *Mechanic*
Mike Campagna, *Groundskeeper*
Nick Korenkowicz, *Groundsperson*
Lynn Manza, *Groundskeeper*
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