

Native Plant

SUMMER/FALL 2019

FOR OUR MEMBERS AND SUPPORTERS

NEWS

ONE BOTANIST'S JOURNEY

Oaks under Stress

Native Plant Trust

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BACK COVER **RARE PLANT SPOTLIGHT**
Spiranthes cernua



On the cover: Post oak (*Quercus stellata*)



From the Executive Director



TIME TO ACT

In the last issue of *Native Plant News*, I urged you to read the latest reports on climate change from the U.S. government and the Intergovernmental Panel on Climate Change. Since then, the world has experienced the hottest June and July ever recorded, the Arctic is on fire, and Greenland has experienced what NASA scientists call “a major melting event,” in which more than half its ice sheet has softened and its glaciers lost 12 billion tons of ice in 24 hours (enough to cover all of Florida with five inches of water, according to one scientist). Recently, we have also received several new assessments of the health of our natural systems—and the warning bells are clanging.

In June scientists from the Royal Botanic Gardens, Kew, and Stockholm University published a global analysis of modern plant extinctions in the journal *Nature Ecology & Evolution*. They confirm 571 extinctions since the year 1750—four times the number recorded in the International Union for Conservation of Nature Red List—and posit that the true extinction rate is orders of magnitude larger. Even with what is currently known, the rate of plant extinction is 500 times greater than before the Industrial Revolution.

The accelerating pace of plant and animal extinctions over just the last 50 years is confirmed in a report issued in May by the UN’s Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). This report garnered headlines for its estimate of one million species threatened with extinction, many within decades. Less covered was its call for “transformative change” to address the five key drivers of decline in natural systems. In descending order, they are changes in land and sea use, direct exploitation of organisms, climate change, pollution, and invasive alien species (where numbers per country are up 70 percent since 1970).

“The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever,” says IPBES chair Sir Robert Watson. “We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.” He and the 445 experts contributing to the report argue that we need to act “at every level from local to global” to conserve, restore, and sustainably use the natural world.

It’s time to heed what the planet and the scientists are telling us—by reducing our personal use of chemicals, plastics, and fossil fuels; by managing our own property and our community’s lands to support the health of soil, water, plants, and wildlife; and by investing in Native Plant Trust’s vital work saving imperiled plants, restoring habitat, and helping all of us grow healthy landscapes.

Sincerely,

Debbi Edelstein

Searching for *Schwalbea*, Continuing Acadia Trials

By Jane Roy Brown, Writer-Editor



Schwalbea americana

The Conservation Department is on the hunt for one of New England’s most elusive plants, and we have a cool new tool to help. With funding through the U.S. Fish and Wildlife Service, we are searching for new populations of chaff-seed, or *Schwalbea americana*. This rare species, last seen in New England (on Nantucket Island) in 1963, was recently rediscovered on Cape Cod by Plant Conservation Volunteer Doug McGrady. Using a species distribution model (SDM) developed by the agency, we will be searching within “hot spots” in Massachusetts—places that the model designates as suitable for the species.

To find the hot spots, the SDM overlays the soils, elevation, hydrology, precipitation, and other conditions of the species’ current and past locations onto the Commonwealth’s Geographic Information System (GIS). The GIS then matches the data to locations in Massachusetts.

The resulting maps have revealed that potential sites for *S. americana* exist on Cape Cod, Nantucket, and Martha’s Vineyard. Because this plant has not been seen in New England for more than 50 years, the modeling data come from populations in and south of New Jersey, but they will identify search locations within similar terrain here.

We are also continuing the experimental restoration of native subalpine plants on the summit of Cadillac Mountain in Acadia National Park, where fire, extreme weather, and unintentional trampling by visitors over many decades have damaged plants and soils. We are testing various restoration methods, including sowing seeds collected on the summit directly into prepared soils and installing various configurations of plugs and plants, grown from seed collected on site, in test areas that are off limits to visitors.



2018 Allen intern Shannon Dry installs a native plant garden at Nasami Farm Nursery.

Allen Internship Fully Funded

When Abby Coffin learned that the Chester B. Allen, Jr., Horticulture and Propagation Internship lacked full funding—and therefore was not guaranteed to continue in the future—she was dismayed. “It’s well known that our academic system is not facilitating propagation and horticulture education for future students, and Native Plant Trust is meeting an urgent need,” says Coffin, who is a trustee of the organization.

Despite the munificent bequest of the initial donor, the Allen internship fell about \$100,000 short of full endowment. Coffin filled the gap with her own generous donation. The Allen interns get six months of hands-on experience at Nasami Farm nursery in western Massachusetts, identifying, propagating, and cultivating native plants, while earning minimum wage.

“This internship represents exactly what I believe in,” says Coffin, who holds a certificate in native plant horticulture and design from Native Plant Trust. “I feel lucky to be able to do this.”

New Bridges for Sturgis Sanctuary

By Frederick C. Sechler Jr.,
Ecological Programs Coordinator

Visitors to Annie Sturgis Sanctuary in Vassalboro, ME, soon will find new or rebuilt footbridges at four crossings over the ravines and streams that wind through the landscape. We have contracted with the Maine Conservation Corps to replace two bridges and build two new ones, which will not only benefit visitors challenged by the precarious crossings, but also protect sensitive stream habitats on the banks. Construction will take place in late summer and early fall.



Fred Sechler Jr. © Native Plant Trust

Celebrating Dutchman’s Pipe

By Jane Roy Brown, *Writer-Editor*

American gardeners have cultivated the liana *Isotrema macrophyllum* (a.k.a. *Aristolochia macrophylla*) for three centuries, charmed by its broad, heart-shaped leaves, which provide an attractive sun screen for arbors and porches. Native to the Northeastern Highlands ecoregion, which spans eastern Pennsylvania and northern Maine, large-leaved Dutchman’s pipe also is the host plant for the pipevine swallowtail butterfly. Pale-yellow, pipe-shaped flowers give the species its common name. For all these reasons, the Garden Club of America voted *I. macrophylla* its 2019 Plant of the Year, a distinction bestowed on a native plant “worthy to be preserved, propagated, promoted, and planted.” Abby Coffin, a Native Plant Trust trustee and GCA member, submitted the winning nomination.

Judi Pierce Receives 2018 Volunteer Service Award

By Cayte McDonough, *Nursery Production Manager, Nasami Farm*

When Nasami Farm launched its nursery operations in 2004, Judi Pierce was among the first volunteers. She has since logged hundreds of hours—transplanting tens of thousands of seedlings, processing countless seeds, and assisting with collecting, cleaning and sowing myriad species. She has also helped maintain Nasami’s display beds. Whatever the project, she always shows up with a positive attitude. Thank you for your dedication, Judi!



Cayte McDonough © Native Plant Trust

Welcome Uli Lorimer, Director of Horticulture

If you attend a class or an event this season, you may meet Native Plant Trust’s new Director of Horticulture, Uli Lorimer. The former curator of the Native Flora Garden at Brooklyn Botanic Garden started overseeing Garden in the Woods and Nasami Farm in March.

During his 14 years at BBG, Lorimer tended the 108-year-old Native Flora Garden and helped create an extension that features a native coastal plain meadow and pine barrens. He also collected seed in the wild, propagated new plants for the collection, documented the region’s biodiversity, and contributed to several publications. “Uli’s passion for native plants and ecological landscaping, plus his commitment to outreach and education, make him ideal to lead our horticulture team,” says Executive Director Debbi Edelstein.



© Uli Lorimer

New Partnerships Will Reach Learners throughout New England

By Courtney Allen, *Director of Public Programs*

Last year, we forged new partnerships with like-minded organizations to better serve audiences around New England. This year, the trend continues, enabling us to offer a greater diversity of course subjects, formats, and locations to reach more learners across the region. Joining our veteran partners, the Ecological Landscape Alliance and Massachusetts Association of Conservation Commissions, are the Boston Society of Landscape Architects, Historic New England, Maine Audubon, New Canaan Nature Center (CT), New Hampshire Audubon, North Branch Nature Center (VT), and the Wild Seed Project (ME).

As a result, this season’s programs have included offerings in several new locations. A plant conservation symposium in Maine; a field-studies series at our six native plant sanctuaries in Maine, New Hampshire, and Vermont; and a series of landscape design tours in four states. Learners can also pursue online courses and webinars in botany and horticulture, and programs throughout the region are eligible for professional credit.

We also are offering more Native Plant Studies certificate courses at Nasami Farm in western Massachusetts, which is located within an hour’s drive of northern Connecticut and southern Vermont and New Hampshire. See complete listings for more than 100 classes field studies in the Learn + Grow catalog or at www.NativePlantTrust.org.





One Botanist's Journey: How Bill Brumback Has Worked to Save New England's Rare Plants

By Jane Roy Brown, Writer-Editor

Director of Conservation William (Bill) Brumback stepped into retirement in March, after spending the last 39 years building this organization's conservation program. The fact that Native Plant Trust is internationally known and respected for plant conservation, especially of rare and endangered species, owes chiefly to Bill, despite his habit of deflecting credit and dispersing it liberally among his colleagues.

Bill brought both tactical skill and strategic vision to his work. Like other botanists, he learned the limits of a truck and one pair of legs for reaching remote fields and forests to monitor rare plant populations. So Bill helped set up two collaborative, regional networks designed to multiply the power of all participants: New England Plant Conservation Program (NEPCoP), whose professional botanist members document, monitor, and collect seeds from rare plant populations in all New England states; and Plant Conservation Volunteers (PCVs), a militia of skilled amateur botanists whose field work extends the reach of the pros. Bill also established one of the first seed banks for imperiled plants—a.k.a. the Seed Ark—to conserve the region's 388 rare and endangered plants.

As the field-gathered data mounted, he oversaw the production of two editions of *Flora Conservanda* (1996, 2012), which established historical baselines for rare plant populations and provided the framework for conservation action and research. He and his team

Top: Illustration, Alpine-bearberry (*Arctous alpina*)
by Elizabeth Farnsworth

Left: Brumback transplants seedlings of
Jesup's milk-vetch, grown from wild seed.
Jane Roy Brown © Native Plant Trust

BILL BRUMBACK

also produced the comprehensive *Flora Novae Angliae* (2011) by Research Botanist Arthur Haines; Go Botany (2013), an online public database; and the region's first "State of the Plants" report (2015), by the late Elizabeth Farnsworth, senior research ecologist.

By the time he retired, Bill was also the organization's longest-serving staff member—and a trove of institutional memory. To capture what he knows about the organization's growth in conservation leadership during his tenure, *Native Plant News* caught him by one ankle as the other foot was stepping out the door. Alas, what we cannot capture is Bill's intractable Baltimore accent.

"I was realizing that many of the things that interested me about plants also pertained to the world around me."



© Native Plant Trust

When did you start here?

I started in June 1980 as the organization's first propagator. I had come out of grad school with a master's in horticulture through the Longwood [Gardens] program at the University of Delaware.

When did you get interested in plants?

After college and before grad school, I worked with a buddy in Holland, planting perennials and bulbs. I discovered that I liked them, and I liked the physical work. Afterward, we planned to open a perennial nursery together and decided to get some experience. I worked for a container nursery for about six years and started taking courses in botany and taxonomy. I was realizing that many of the things that interested me about plants also pertained to the world around me. I went to Longwood and did my thesis on endangered species programs for North American botanic gardens. I was interested in endangered species—how they were listed, how to protect them. Then the propagator job opened up here.

When did your work switch to conservation?

We started getting known for propagating rare species for restoration projects. After 10 years as propagator, in 1990, I wanted to do something different. So, my director, David Longland, proposed starting a conservation program. We started the New England Plant Conservation Program [NEPCoP] in January 1991. NEPCoP is a voluntary collaboration of 60 public agencies and organizations, and its purpose is to prevent the extirpation and promote the recovery of the region's rare and endangered plants. It runs by task forces in each state. A regional advisory council meets and oversees all the activity.

Was NEPCoP innovative, or did you model it on other programs?

In other parts of the country, collaborations had not developed to this extent. People were getting together and discussing things, locating sites for protection through The Nature Conservancy and similar organizations, but NEPCoP took a different tack. We were trying to develop a partnership, because in conservation, if you don't partner with other organizations, nobody gets anything done. Our initial focus was on collecting seed and propagating plants, reflecting the organization's concentration on horticulture at the time. In our task-force meetings, it became obvious that we needed to get a better handle on what was

actually growing in the wild rather than to focus on seed collection. We were using records that were 10 to 30 years old. After that first year, we in NEPCoP decided that it would be more useful to establish the status of rare plant populations in the wild.

How did Plant Conservation Volunteers come to be?

About two years after NEPCoP started, [botanist and former trustee] Frances Clark suggested that we could enlist and train volunteers who were not professional botanists to collect seed and monitor wild populations. We started a Plant Conservation Volunteers program in Massachusetts. Other states started seeing that the data were good and repeatable, and that the volunteers were not revealing the location of the plant populations, which was a big concern among the professionals. Pretty soon PCVs were doing good work in all six states.

“We were trying to develop a partnership, because in conservation, if you don’t partner with other organizations, nobody gets anything done.”



Jane Roy Brown © Native Plant Trust

At least 70 globally and regionally rare species have lost half their populations over time. How will that play out in the future?

Were these conventional approaches to plant conservation?

Actually, we were looking for the organization's niche in conservation. The main focus of plant conservation at that time was land preservation, and we took on the complementary role of ex-situ plant conservation, which included monitoring, managing, and banking seed of rare species. In 1982, about two years after I got here, the Center for Plant Conservation [CPC] started, and we held the 501(c)(3) certificate for it when it started, in Boston. [CPC is now based at San Diego Zoo Global.] Even before we started a conservation department, I was collecting seed for CPC's national collection, so we had a strong basis in collecting protocols. No other group was approaching endangered species conservation the way we did, so it made sense to focus on endangered plants based on this strength, which carried through in both horticulture and conservation.

You've done a lot of work on rare alpine species in the White Mountains. Tell us about that.

We have about 20 rare alpine plants that we have monitored or collected seed from in various places in the Whites, and that has been a lot of fun. And in the late 1990s, we worked on a recovery project for *Potentilla robbinsiana*, a federally listed endangered species, on Mt. Washington. A trail ran right through the middle of the main population. Several groups collaborated on the project. The Appalachian Mountain Club moved the trail away from the plants and collected seed. We grew seedlings from that, then transplanted them back in the alpine zone, both on Mt. Washington and in another location where there is an existing population. The populations grew from that point on. In 2003 the federal government removed the plant from the endangered species list because of the recovery of the natural population, which was due more to moving the trail, and to the success of the reintroduced populations.

How has the conservation department's focus been refined under your tenure?

It's more that conservation has changed and we've changed with it. We started out thinking about seed banking, then became interested in updating the status of plants in the wild, and now we're back to focusing on seed banking. Nationally and internationally, the number of groups involved in plant conservation has increased, the rigor and science of plant conservation has increased, and we've tried to keep up with that. Now we're asking questions now about whether or not to introduce plants outside of their historic range because of climate change. That's something we previously would not have considered.

What accomplishments are you especially proud of?

All of the things we've done were achieved in collaboration with staff here and at other organizations. That said, the NEPCop and PCV programs were big milestones. And the recovery of *Potentilla robbinsiana*, because it demonstrated that the organization knew something about conservation. *Flora Novae Angliae*, by our research botanist, Arthur Haines, is a real milestone in terms of contributing our botanical expertise. Go Botany, the website based on *Flora*, provides an electronic format for *Flora* in the future. Also the "State of the Plants" report, written by Elizabeth Farnsworth.

What are your concerns about the future of New England's plants?

In pulling together "State of the Plants," Elizabeth found that at least 70 globally and regionally rare species have lost half their populations over time. How will that play out in the future? We're going to have to find resilient sites, or refugia, where we can preserve particular plants and maintain them free of invasive species, where the native species can evolve on their own. Where are these sites? How can we protect them? These are management questions, and management is the largest challenge for rare plants in New England, because it's expensive and it's forever. This region is trying to turn back into forest, and habitats for many rare species are changing. How are we going to deal with that, and deal with the cost, and get the right knowledge to manage them?

“No other group was approaching endangered species conservation the way we did . . .”

Brumback and colleagues survey *Astragalus* seedlings on the Connecticut River.



Jane Roy Brown © Native Plant Trust





Another Hole in the Canopy?

Oaks under Stress in Southern New England

By Anna Fialkoff, Senior Horticulturist

Branches illuminated by an orange fungus called crowded parchment mushroom (*Stereum complicatum*) caught the eye of visitors gazing up into the oak canopy at Garden in the Woods during the 2018 season. Since this mushroom feeds on decaying wood, it does not actually cause oaks to die but can serve as an indicator of dead branches and trunks. Elsewhere in Massachusetts and southern New England, horticulturists and scientists are noticing an alarming oak dieback. Worrisome scenes of oak decline are visible along the Mass Pike in eastern

Massachusetts, as well as areas east of I-95 in Connecticut, Rhode Island, and Maine.

Some affected trees look ravaged, their canopies dwindling to a few spindly branches as main limbs fall away. Their leaves turn crispy brown mid-season, before the surrounding forest foliage displays the normal spectrum of autumn color. In other instances, the entire tree seems to die suddenly and without warning, except, perhaps, for a mushroom fruiting at the base of the trunk.

Top: Dead red oak in Curtis Woodland Garden, winter 2019
Anna Fialkoff © Native Plant Trust

Left: *Stereum complicatum* on oak
© Melanie Kenney

ANOTHER HOLE IN THE CANOPY?



Although experts are not predicting that the region's oaks are on the verge of dying out, they are monitoring signs of stress that could indicate more widespread damage to come, "Two years ago I didn't worry about oaks," says Audrey Barker-Plotkin, senior scientist and research manager at Harvard Forest, "and I'm not concerned that oak as a genus is going to disappear in New England." She adds, however, that even though the *Quercus* genus may not be devastated by a single pathogen throughout its entire range—as with hemlock by the woolly adelgid and ash by emerald ash borer—the compounded effects of multiple stressors are leading to oak dieback in specific areas. These tend to be the forests of southern New England, where red, white, and black oak (*Quercus rubra*, *Q. alba*, *Q. velutina*) dominate.

Oaks and other trees in developed areas already contend with stresses inherent in built environments, such as constricted root zones and poor soil quality, along with fluctuations in temperature and rainfall. Invasive insect pests, including winter moth and gypsy moth, can defoliate oaks repeatedly for years, weakening the trees over time. Defoliated trees are then vulnerable to invasion by secondary pathogens such as the two-lined chestnut borer (*Agrilus bilineatus*) insect, or honey mushroom fungus (*Armillaria mellea*). The latter can cause root rot in significantly stressed oaks, ultimately killing them. Rolf Briggs, the owner of Tree Specialists, a tree-care company that serves west-suburban Boston, says that he witnessed an "unprecedented" amount of root rot caused by *Armillaria* in eastern Massachusetts last year.

More extensive oak dieback in the region would be ecologically devastating. "In Massachusetts, oak species are the third most important in terms of volume, after white pine and red maple," says Barker-Plotkin. Because they are so prolific, oaks are some of the region's best carbon sinks, accumulating huge quantities of carbon in their growth rings as they mature. And, as one of the dominant trees of southern New England's hardwood forests, oaks produce an abundance of mast, or fruit that feeds wildlife. "A hundred years ago we lost an important mast species, the American chestnut [*Castanea dentata*]," Barker-Plotkin says, alluding to the species' destruction throughout its range by a fungal pathogen.

Acorns are significant sources of starch, fat, and protein for more than 100 species of mammals and birds—including white-tailed deer, wild turkey, blue jay,

Early successional pioneer species *Betula populifolia* (gray birch) and *Prunus pensylvanica* (pin cherry).

Top R: Caterpillar of gypsy moth, *Lymantria dispar*, on oak branch.

Top L: Crowded parchment mushroom, *Stereum complicatum*, on dead oak branch.

Bottom: Arborists from Nature Works at Garden in the Woods, autumn 2018



Dan Jaffe © Native Plant Trust



Melanie Kenney © Native Plant Trust



Anna Falkoff © Native Plant Trust

Oaks support at least 477 native butterfly and moth species, more than any other tree genus in New England.

and American crow—and also may be one of the few food sources available to these animals in fall and winter.

Oaks also serve as important host plants for lepidopterans. As entomologist Douglas Tallamy points out in his book *Bringing Nature Home*, oaks support at least 477 native butterfly and moth species, more than any other tree genus in New England. The larvae, or caterpillars, of these winged insects forage on oak leaves. Caterpillars, in turn, are a major food source for songbirds, which consume them in abundance during nesting season and again during the birds' energy-intensive fall migration.

BATTLING INVASIVE MOTHS

Unlike native caterpillars, which munch leaves but do not decimate the host plants on which they feed, invasive moths can chew swaths through forests. Gypsy and winter moths, both invasive species, tend to over-forage on oaks, maples, birches, and other deciduous trees and shrubs. In early spring, larvae of winter moth (*Operophtera brumata* L), which originated in Europe, hatch on buds and begin chomping on

the emerging leaves. Winter moths can be defoliating machines, turning an entire tree's leaves into Swiss cheese and removing the tree's ability to convert the sun's energy into sugars that season, not to mention wiping out the food supply for native caterpillars and birds. In places where winter moth populations have exploded—coastal Maine, eastern Massachusetts, Rhode Island, eastern Connecticut, and Long Island—broad ribbons of skeletal trees remain in their wake. Even though a season of defoliation does not kill a tree, infestations over several seasons can take a big toll on the tree's health.

A recent scientific success story may spell doom for the winter moth, or at least reduce the scale of its devastation. One of the first outbreaks of winter moth occurred in North America, in British Columbia. In the 1970s, scientists released a parasitoid fly (*Cyzenis albicans*) there to quell the outbreak. Parasitoids, unlike true parasites, eventually kill their host organisms—caterpillars, in this case—and the experiment succeeded in stabilizing the winter moth population. Starting in the early 2000s, this host-specific biological control has been introduced from coastal Maine to southeast Connecticut by Joseph Elkinton, professor of entomology in the Department of Environmental Conservation at the University of Massachusetts Amherst. As of 2017, the fly has been established at 32 of the 44 release sites, and “winter moth is now a non-pest and has declined by two orders of magnitude” in all of the previously high-density winter moth populations in the northeast United States, Elkinton reports.

While winter moth is declining, however, gypsy moth is ramping up. Another defoliator of many deciduous tree species, the gypsy moth, native to Europe and Asia, seems to have a taste for all species of oak. After a widespread gypsy moth outbreak in the 1980s, a fungal pathogen (*Entomophaga maimaiga*) that was accidentally imported from Japan in 1989 was found to be effective in suppressing the gypsy moth, and the oak populations recovered.

But since the severe drought of 2015, the gypsy moth has come roaring back. The reason is that the fungus that kills gypsy moth thrives when conditions are moist. At other times the pathogen does not destroy enough larvae to suppress the population as a whole. Because drought continued in parts of the region through the typically wet Spring months in 2017, gypsy moth probably will be a problem again in 2019, despite last year's relatively wet growing season, says Elkinton. He predicts that fatalities will

occur among the oak species that dominate southeastern New England forests, even if conditions change and gypsy moths dwindle over the next few years.

Briggs of Tree Specialists has observed worrisome signs in eastern Massachusetts. “I’ve been seeing the egg sacs covering trees and their branches in alarming numbers in towns west of Boston,” he says.

Briggs adds that his clients are feeling overwhelmed by everything they need to consider for tree care, from pest problems to safety concerns. He points to a long waiting list for removing dead and dying trees this spring. And although he says that tree removal is “the bread and butter of most tree-care companies,” Briggs wants to focus most of his business on prevention and client education, observing that clients often don’t notice a tree’s decline until it is too late.

In spite of the threats facing oaks in southern New England, these experts express hope, especially because the chief pests are local and sporadic rather than pervasive and continuous. As Elkinton points out, “Stressors come and go. We may have great losses, but they’ll be replaced by other trees,” as other forest species fill in. As one of the few scientists studying gypsy moth in the Northeast, Elkinton hopes to train successors to carry on his work after he retires.

Barker-Plotkin also takes a longer view, investigating how climate change will affect New England forests. The projections for New England include warmer and wetter weather, which is favorable to the fungal pathogen that keeps gypsy moth in check. But national projections point to an overall increase in pests and diseases, she says. With unpredictability as the new norm, vigilance continues to be the best watchword for stewards of trees and forests.

WHAT YOU CAN DO

- **Contact an expert arborist if you see signs of tree decline.**
- **Contact your local cooperative extension service if you see symptoms or signs of pathogens. The Sentinel Plant Network (www.sentinelplantnetwork.org) is a great resource for identifying pests and diseases.**
- **Look to public gardens to provide education about current and emerging pests and diseases.**
- **Study environmental science. The health of forests and trees depends on the next generation of researchers, tree-care specialists, and horticulturists. Start by sampling our certificate program courses at www.nativeplanttrust.org/learn.**
- **Donate professional services and/or funding to Native Plant Trust’s properties to help manage their canopies and reduce safety hazards. Contact Tracey Willmott at twillmott@NativePlantTrust.org.**

—A. F.

Native Plant Trust

2018 Annual Report

The combination of a first-rate staff, terrific volunteers, and generous members and supporters enables this small organization to have a big impact. With your continued support, we'll move forward on our ambitious agenda to save, grow, and teach people about native plants.



BY THE NUMBERS

1,200,000 visitors to Go Botany website

45,000

plants grown from sustainably collected seed

6,338

volunteer hours in conservation

2,078

volunteer hours in horticulture

1,220

volunteer hours in public programs

778

rare plant sites surveyed

637

questions answered on Go Botany

233

seed collections of 131 rare species for the Seed Ark

175

courses and field trips in 6 states & online

44 federal & state partners in conservation projects

17 education partners

12 pollinator gardens installed in 6 states

5

orchid seed & tissue collections for Smithsonian's North American Orchid Conservation Center

MESSAGE FROM THE TREASURER

The year that ended December 31, 2018, marked a significant turning point for the nation's first plant conservation organization. After a comprehensive process, the Board of Trustees voted to change the name of the organization to Native Plant Trust, which more accurately reflects both our mission and our history. Indeed, the new name echoes the original one, as we were founded in 1900 as the Society for the Protection of Native Plants.

In 2018 Native Plant Trust continued to attract support for key initiatives and ended the year with an operating surplus of \$11,594 and with \$1,245,491 on hand in donor-restricted funds for core programs. In addition, there remained \$216,468 in board-restricted funds for capital improvements from an unrestricted bequest in 2017. An increase in spending in communications, which is part of General and Administrative costs, reflects donor-funded investment in brand consultants and a graphic design firm, whose work continues in 2019.

The performance of the endowment, managed since 2002 by the Investment Committee, reflected general market trends and was down 5.1% on December 31, 2018, but recovered in January 2019. The endowment portfolio—corpus plus appreciation—was \$6,046,454 as of December 31, 2018. Total net assets were \$13,866,863.

Thanks to the hard work of our Board, dedicated staff, committed volunteers, and the generous gifts of our many members and supporters, Native Plant Trust had a successful and memorable year in 2018.

Sincerely,



Janet Ganson

Fiscal Year 2018 Operating Results

Income

Grants and Contributions	\$	1,895,410
Program Income	\$	628,751
Membership Dues	\$	296,865
Investment Income	\$	230,401
Total Income	\$	3,051,427

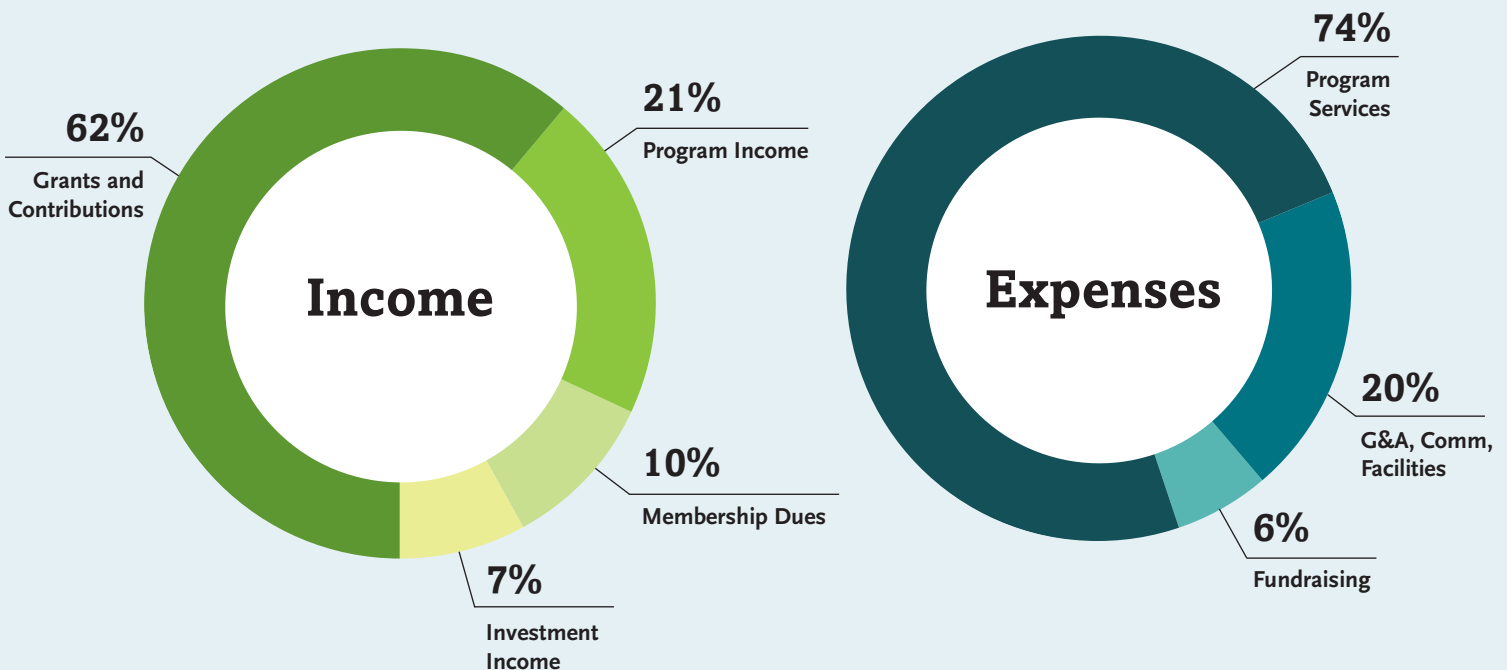
Expenses

Program Services		
Conservation & Sanctuaries	\$	768,868
Horticulture	\$	660,097
Education	\$	313,550
Member Services	\$	224,519
Retail Shops	\$	290,734
<i>Total Program Services</i>	\$	<i>2,257,768</i>
Support Services		
G&A, Comm, Facilities	\$	601,015
Fundraising	\$	181,050
<i>Total Support Services</i>	\$	<i>782,065</i>

Total Expenses	\$	3,039,833
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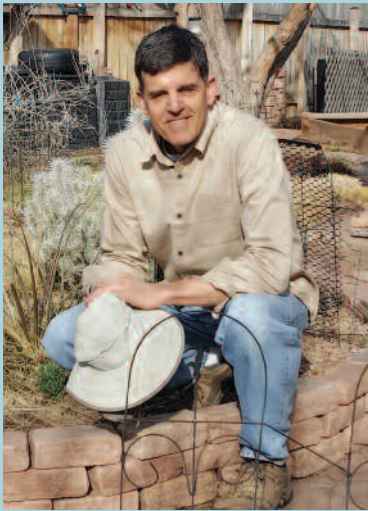
Operating Surplus	\$	11,594
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Note: A complete copy of the audited financial statements is available on our website or upon request by emailing twillmott@NativePlantTrust.org.





LONG-DISTANCE DEDICATION



Stuart Cummings joined the organization in 1996, when he lived in New England. Though he has since moved to Colorado, he remains a generous supporter. He is a member of the Conservation Circle and also the Trillium Society, which is composed of people who include Native Plant Trust in their estate plans.

To join Stuart in protecting native plants in the future with a bequest in your estate plan, or to learn about monthly giving, contact Director of Philanthropy Tracey Willmott: twillmott@NativePlantTrust.org; 508-877-7630 x3502.

Native Plant News: You recently retired from a career as a commercial pilot. Tell us about that.

Stuart Cummings: After graduating from the U.S. Naval Academy, I flew active duty in naval aviation for five years. Then I flew as a test pilot for Grumman Aerospace Corporation. I applied to airlines and was hired by the world-famous Flying Tigers, a freight carrier created by ex-military pilots. The company merged with FedEx shortly thereafter. I flew with FedEx for 30 years, ending my career as an international captain, based in Memphis.

NPN: You are an enthusiastic gardener, passionate about native plants. How did you get into this earthbound activity?

S. C.: I grew up in Waltham, Massachusetts, and I was always into the outdoors. My mom was a great rose gardener. Dad was an Eagle Scout, and I became one too. Gardening is the perfect antidote to life in the air. I get my hands in the dirt and smell the air and hear the bees. I get down to eye level and see the plants, alive and moving with insects. These are the ultimate rewards for a gardener.

NPN: When did you first get involved with Native Plant Trust?

S. C.: In the early '90s, I moved to Connecticut from Long Island and started building big gardens. At first, I was growing hybrid roses, like my mom. Then I started reading and realized that's not what the animals need, and I started creating a pre-Columbian landscape. I had an organic lawn of prairie grasses—wood frogs were living in them! I discovered [what was then] New England Wild Flower Society during that time. Later, when we moved out West, some of your local members helped me find homes for large swaths of plants in my garden, because the new owners wouldn't have understood the garden. The process was bittersweet, but the plants found good homes.

NPN: What do you get out of staying involved with Native Plant Trust while living in Colorado?

S. C.: Native Plant Trust is a connection to home. It's also a magnificent group of people who do magnificent work. It makes me really happy to support them.

NPN: Do you still garden?

S. C.: We have a great garden of tough, native prairie species. As in Connecticut, people gather at the edge of our yard and ask about the plants. And weeding is still a big part of my life—I always have a weed fork in my back pocket.

Celebrating Your Support

We are delighted to thank everyone whose financial support has helped conserve and promote the region's native plants. We celebrate friends like you who understand that plants are the cornerstones of our planet, and we especially want to recognize those who have made Native Plant Trust (formerly New England Wild Flower Society) one of their philanthropic priorities.

CONSERVATION CIRCLE AND LEADERSHIP GIFTS

The total giving noted below for fiscal year 2018, ending December 31, reflects restricted and unrestricted gifts, membership dues, and pledges. Our Conservation Circle honors individuals whose generous support reached \$1,000 or more. Leadership gifts and grants from companies and foundations also had an extraordinary impact.

† denotes deceased donors

\$100,000+

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Estate of Dr. Allen E. Everett†
Hope Goddard Iselin Foundation
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Jackie and Thomas Stone

\$50,000 - \$99,999

Anonymous
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Martha Wallace and Ed Kane

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Peter and Abby Coffin hosting a Conservation Conversation at their home in Massachusetts

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Jim Hill and SusanA Litowitz at the Conservation Circle's Behind the Scenes tour of Twin Maples, Connecticut

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 Leslie and Walter J. Leslie
 Faye H. and David P. Lieb



Gerri Payne, Jessie Panek, and Thelma Hewitt at Bill Brumback's retirement celebration

Ellen West and
George M. Lovejoy, Jr.
Curtis W. Marble
Elizabeth A. and
Bernard Meyer
Enid R. Mingoelli
Donna L. Nimec
Peggy and Rick Novak
Deborah Nowers and
Henry E. Peach
Donna O'Brien and
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Lise M. Olney and
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Dr. Leroy M. and
Dr. Winifred B. Parker
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Wilma K. Wilensky
Elizabeth and Hugh M.
Wilkinson III
Priscilla H. Williams
Ellen S. Withrow and
Robert Noah
Christina Wood
Kathy H. Wrean and
Hugh W. Chandler, Jr.



Wyatt and Gwyn Mills enjoy the Conservation Circle's Behind the Scenes tour at Twin Maples in Connecticut

\$250 - \$499

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John A. Alic
Michael Alterman
Anonymous (4)
Nancy Askin
James R. Baker
Bank of America
Dotty and Nicholas Beckwith
Rob and Katherine Beede



Marry Wallace and Susan Schadler at the home of Alan Smith

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Dr. Sarah L. Booth and
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Madeline Leone and
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Lorraine A. and Ken Levine
 Wanda and Richard N. Macnair
 Cynthia J. Manson and
 Timothy LaValle
 Dr. Robert D. Mashal and
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 Mary E. Memmott and
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 Sarah Leinicke
 Linea K. and Robert A. Murray
 Greta and Allen Newman
 Melinda S. and
 Robert E. Oleksiak
 C. W. Eliot and Linda Paine
 Alexander S. Parr
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 Jenny and Jeff Peet
 Paul L. Penfield
 Sandra Peters and
 Alan L. Frohman
 Robert A. and
 Veronica S. Petersen
 Karl L. and Pamela W. Reichelt
 Virginia Remeika and
 E. James Burke
 Margaret E. Richardson
 Jacqueline Rigolio
 Catherine and Dennis Ritch
 Karen Roney
 Elizabeth Ross
 Susan Ruf
 Betty and Neal H. Sanders
 Eva Schocken
 Martha W. and
 Peter V. D. Schroeder
 Catherine and
 George G. Schwenk
 Karen I. Sebastian
 Jo Siebel and Stuart Levitz
 Russell P. Selvitella



Bill and Ruth Shelley with Bob Shamberger at the home of Alan Smith

Dr. Ellen Senghas and
 Dr. Mark Kassis
 Anne K. Serrell
 Susan and Adam Shipman
 Sarah and Dan Shure
 Mundi and Syd Smithers
 David B. Soule and
 Patricia J. O'Reilly
 Elizabeth F. and Gary A. Spiess
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 Valerie A. Wilcox
 Cheryl K. Wilfong
 Deborah Wiley
 Alan and Charlotte B. Wilson
 Tobias Wolf and John Skurchak
 Woodstock Garden Club
 Henry L. Woolsey
 Sara L. Wragge

LIFE MEMBERS

These dedicated individuals
 have chosen to play a long-
 term role in the preservation
 of our region's native flora
 by becoming life members.

Anonymous
 Judy A. Artley and
 Charles T. Moses
 Nancy H. August
 John C. Barber
 Julia A. Barber
 William Brumback
 Patricia Callan and
 Chuck Crafts
 Martha F. and
 Robert W. Carlson
 John S. and Jane Chatfield
 Terry A. Chvisuk
 Edward H. and Sandy Coburn
 Frederick and Jeanine Coburn
 Robert S. Coburn
 Virginia and Jay Coburn
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 Nancy Goodman and
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 Nicholas P. Greville
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 Dena and G. F. Hardymon
 Allyson Hayward
 Thelma K. and John H. Hewitt
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Louise Westcott
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Steve Atlas
Patty Wylde
Margaret F. and
T. C. Price Zimmermann

TRILLIUM SOCIETY

The following generous friends have included us in their estate plans, to help ensure our future ability to conserve native plants and their habitats.

Elizabeth L. Aghajanian
Annemarie Altman and
David Cook
Anonymous (2)
Joyce H. Bisson
Lalor Burdick
William J. Claff
Frances H. Clark
Stuart L. Cummings
Ruah Donnelly
Peter V. Doyle and
Ellen Clancy
Christopher R. Ely
Nancy Goodman
Geroge C. and
Diantha C. Harrington
Patti Laier
Deirdre Menoyo
Carole M. Merrifield
Bettina L. Messana
Carolyn M. Osteen
Jessie B. Panek



Past Board Chairs Polly Pierce, Marjorie Greville, Molly Beard, and Geri Payne with current Chair Dr. Alan E. Smith

Geri and Douglas D. Payne
Karen D. and
Matthew V. Pierce
Barbara F. Pryor
Dori Smith
Anita E. Springer
Natalie C. Starr
Jackie and Thomas E. Stone
Mary Ann Streeter
Leslie Turek
Dr. Edward S. Valentine
Martha J. Wallace
Cheryl K. Wilfong
Patty Wylde

TRIBUTES

In 2018 we received honoraria or memorial donations in tribute to the following friends, colleagues, mentors, and loved ones.

In Honor of

Paul Bishop
Greg Cronin
Sandra Crystall
Neela De Zoysa
Linda Goldman
Beverly J. Greer
Marjorie D. Greville
Tim Helbig and Adam Beerman
Carole Herman
Logan Hughes
Dan Jaffe

Mary Kane
Dr. Barbara M. Keller
Eliana Lippman
Virginia McIntyre
Polly Pierce
Doris Pratt
Mark Richardson
Dr. Alan E. Smith
Martha J. Wallace
Carolyn D. Waterman
Gray† and Paul Wexelblat
Steph Zabel

In Memory of

Robert M. August
David W. Budding
Linda Carr
Sally Gates Cook
Shirley G. Cross
Noor Din
Doris Jean Edele
Robert Evans
Dr. Elizabeth Farnsworth
Doris Helen Gordon
Flora B. Hollinger
Lorraine B. Hoyte
Ruth Kimball
Carole Matties
Phoebe D. A. McCarthy
Linda L. Russell
Karen Vanek

GIFTS-IN-KIND

Gifts-in-kind uniquely allowed us to expand our outreach in 2018 without impacting our outgoing expenses. It is our pleasure to thank the following gift-in-kind donors.

Apple Inc.
Donna Bartlett
Doris Christellis
Abby Coffin
Neela De Zoysa
Ruah Donnelly
Emil H. Doyle
Janet W. Ganson
Dr. Robert Gegear
Keurig Green Mountain, Inc.
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D. Robert O'Donnell
Roche Brothers Supermarkets
Dr. Alan E. Smith
Trader Joe's
Wegmans Food Markets, Inc.
Paul M. Wexelblat

MATCHING GIFT COMPANIES

We extend special thanks to the following businesses for their generous support in 2018.

Aetna Foundation, Inc.
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FM Global Foundation
GE Foundation
Google Inc. Matching
Gifts Program
Hartford Fire Insurance
Company
IBM Corporation Matching
Gifts Program
JP Morgan Chase Foundation
Mass Mutual
Medtronic Foundation
Merck Foundation
Pfizer Foundation
Travelers
UnitedHealth Group

2019 PLANT CONSERVATION LECTURE SERIES

Native Plant Trust presents “Plant Communities of Massachusetts,” an overview of the extraordinary diversity of native plant communities in the state, with example plants and environmental features. All talks are free of charge; registration is recommended at www.NativePlantTrust.org.

SPRINGFIELD

Saturday, September 7, 2019, 1-2 p.m.
Central Library, 220 State Street, Springfield MA

TAUNTON

Saturday, September 21, 2019, 2-3 p.m.
Taunton Public Library, 12 Pleasant Street,
Taunton, MA

GREENFIELD

Saturday, October 5, 2019, 1-2 p.m.
Greenfield Public Library, 402 Main Street,
Greenfield, MA

PLYMOUTH

Saturday, November 2, 2019, 1-2 pm.
Plymouth Public Library, 132 South Street,
Plymouth, MA

LAWRENCE

Thursday, November 7, 2019, 6:30-7:30 p.m.
Lawrence Public Library, 51 Lawrence Street,
Lawrence, MA

This statewide initiative is made possible with the support of Local Cultural Council grants.

NATIVE PLANT DESIGN SYMPOSIUM

Join us for a day-long symposium addressing innovative ideas in native plant design and the ecosystems that support them, presented in partnership by Native Plant Trust and Audubon Society of Rhode Island. Through a keynote, panel, and workshops led by specialists in the field, the symposium addresses such topics as plant palettes, design styles, and assessing and working with site conditions. We will delve into landscapes through the lenses of public property, private property, and habitat creation. Appropriate for a wide spectrum of audiences, and you will leave with new resources and new perspectives. Registration includes lunch. Register at www.NativePlantTrust.org and keep checking our website for the most up-to-date details.

Friday, October 25, 2019, 10 a.m.-5 p.m.
Rhode Island Audubon Nature Center, Bristol, RI
Fee: \$86 (Members)/\$105 (Nonmembers)

1

RARE PLANT SPOTLIGHT

Nodding ladies'-tresses (*Spiranthes cernua*)

As sometimes happens with plants, a new look at long-known species can reveal a variation in morphology, or form, that correlates to an undescribed species—a species new to science. Plants within a species naturally display variations in morphology, such as a range in flower sizes and hair density. If these traits vary independently of one another, they simply indicate normal variation. However, if flower size correlates with hair density, and these linked traits also correlate with geography, the correlations might indicate a genetically distinct group of plants that should be reclassified. Discovering such indicators often comes as surprise, especially in a well-known species assumed to be taxonomically stable. Now it has happened again, with a relatively common New England orchid called nodding ladies'-tresses (*Spiranthes cernua*).

In late summer, nodding ladies'-tresses flowers in open, upland habitats, bearing a dense spiral of small white flowers that are visited by several species of bumblebees. It is one of a couple of species of later-flowering ladies'-tresses with densely packed flowers, flat sepals, and gland-tipped hairs along the axis of the flower array. Recent research

reveals that botanists have overlooked several species mistakenly grouped as nodding ladies'-tresses because of their similarity.

One example is Appalachian ladies'-tresses (*Spiranthes arcisepala*, Figure 1). This species is distinguished from nodding ladies'-tresses by the outline of its lateral sepals, which arc downward toward the lower modified petal, the labellum (Figure 2). The lateral sepals of nodding ladies'-tresses, however, are straight and do not curve downward toward the labellum (Figure 3). Appalachian ladies'-tresses is known to occur in all New England states except Rhode Island (although it may be found there, eventually), but in so few sites that its abundance is simply not known. It may turn out to be rare in one or more states.

With more eyes on the lookout for Appalachian ladies'-tresses, the botanical community of New England can better understand its distribution and potential rarity, which will guide decisions about conservation efforts.

—Arthur Haines is the Society's research botanist and author of *Flora Novae Angliae*.

We rely on your generous support
for ongoing botanical research.

2

3