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### The Path Ahead

We are "firmly on track toward an unlivable world." Those stark words came from U.N. Secretary-General Antonia Guterres in April as he released the latest climate report from the Intergovernmental Panel on Climate Change (IPCC).

The report focuses on the "increasingly severe, interconnected and often irreversible impacts of climate change on ecosystems, biodiversity, and human systems." The planet is experiencing significant changes in ecosystem structure, species range shifts, and changes in timing across terrestrial, freshwater, and ocean systems. The risks to human life—from food and water shortages to heat waves to overwhelmed infrastructure—are accelerating as well. We are entering an era of what the report calls "complex, compound and cascading risk" to life.

Like the previous IPCC reports, this one calls for an immediate reduction in greenhouse gases and large-scale changes in the way we use land and water resources. It also calls for conservation actions that will lessen the impact of climate-induced floods, fire, and drought.

The climate and biodiversity crises highlighted in the IPCC report are at the heart of the new 15-year vision for Native Plant Trust that the Board of Trustees approved in February. "Leadership in a Rapidly Changing World" provides the framework for actions that will save plants and create climateresilient landscapes. It's an ambitious vision that asks all of us to help shape a more sustainable relationship with our imperiled natural world. You can find it at www.NativePlantTrust.org, About Us.



**DEBBI EDELSTEIN**Executive Director

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### NATIVE PLANT NEWS

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### COVE

Northern blueberry (*Vaccinium boreale*) on Cadillac Mountain © Arthur Haines

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# **IN BRIEF**

### Petcavage Intern Probes Ginseng Mystery

-Michael Piantedosi, Director of Conservation

American ginseng (*Panax quinquefolius*) is uncommon or rare throughout New England and across much of its known range in the central and eastern United States. Its commercial value as a medicinal plant has led to overharvesting and poaching in the wild. In response to these pressures, Native Plant Trust has banked the seeds of this declining species to possibly restore populations in the future. However, so far we have had mixed results in germination trials we regularly perform to test the viability of banked seed.

Every species has particular germination requirements that are sometimes difficult to discover. Techniques that have worked with other species have not yet succeeded with ginseng. Cracking this mystery requires time-consuming research that our staff members can do only for short periods, so we are pleased that for the first time, we are able to dedicate a person to this complicated task, thanks to a new conservation internship funded by Edward Petcavage (see p. 23). Our first Petcavage Conservation Intern, Amelie LeTierce, is on the case, equipped with a stack of literature and *P. quinquefolius* seeds. Ultimately, we hope LeTierce's research will produce a clear standard for storing and germinating the seeds of American ginseng, which will enable us to protect this species now and in the future.





02



### Raising Giant Silk Moths

-Uli Lorimer, Director of Horticulture

Countless threads bind plants and other organisms together. To foster those relationships, we have been raising giant silk moths—specifically, cecropia, promethea, and polyphemus moths—for several years at Garden in the Woods. It is a cherished activity for our interns and a unique opportunity for visitors to encounter these charismatic creatures, whose lives often unfold high in the tree canopy or under the cover of night and are rarely witnessed by humans.

Moths and butterflies depend on particular host plants for various parts of their life cycle, and the plants often benefit from the relationship. Giant silk moths need native oak, hickory, cherry, or birch trees to complete their transformation from caterpillar to adult moth. In May or June, we place pairing cages outdoors by the Education building so that visitors can watch the moths emerge from the cocoons of the previous summer. The adult male and female moths mate, and we collect the eggs and affix them to a leaf on one of their host plants in the Garden. The eggs hatch, and the emerging caterpillars—each the size of a rice grain—begin feeding on the leaves. As the growing caterpillars defoliate each branch, we shepherd them to a fresh one. To protect the caterpillars, we enclose them in mesh bags with signs to tell visitors what is going on. Once the caterpillars mature, they form pupae (cocoons), which we collect and keep over the winter. The process begins anew in late spring.

# Spring Brings New Programs, Old Favorites

—Kathryn Acerbo-Bachmann, Interim Director of Public Programs

Over the past year, Native Plant Trust has welcomed thousands of new and returning learners to programs conducted safely online. As we plan for the season of renewal, we are offering almost 100 programs in a variety of formats, both in person and online, to create broader access to the outdoors, innovation, and research from a book talk series to field studies throughout New England. This season's programs also offer a variety of learning opportunities for gardeners, including workshops on cultivating native mosses, shade gardening, rewilding with native trees, and slow gardening. Also, new landscape studies will be offered in person throughout New England, featuring designers such as STIMSON landscape architects. For plant professionals, many of our programs are eligible for continuing education. Please check the Classes & Field Studies listings at www.NativePlantTrust.org for details.

# Two Volunteers Receive 2021 Service Awards

—Jane Roy Brown, Writer-Editor
As more than a few grateful staff
members have remarked over the
years, Native Plant Trust could not
achieve what it does without the help
of numerous volunteers. The Volunteer
Service Award recognizes leadership,
consistent dedication, and effectiveness
in furthering the mission and activities
of Native Plant Trust. The award's two
2021 recipients represent the range of
volunteer skills and service that benefit
the organization.

Since becoming a Plant Conservation Volunteer about 20 years ago, George Kocur not only has conducted and helped lead more than 100 rare plant surveys and seed collections, but also has invested hundreds of hours in designing a new database to enable more effective use of this information. **Dubbed the Species Rare Occurrence** Utility (SPROUT), the new database streamlines plant monitoring, integrates new technologies, and increases the data's research potential. "George has helped to process data so they can be more readily used for research to better understand species trends," says Botanical Coordinator Micah Jasny, who presented Kocur's award virtually. "Last summer, for example, the data helped to show that the phenology of rare plants in New England is changing, a finding that holds important ramifications for monitoring and conservation."

David Lindsay exemplifies sound stewardship in a different and equally important sphere, as he has served on Native Plant Trust's Investment Committee since 1985 and chaired it for more than two (volatile) decades. Lindsay helped to keep the organization's endowment on an even keel during the stock market dives of 2000 and 2008, painstakingly reviewing investment performance between quarterly meetings of the committee, whose members, like Lindsay, are active and retired financial professionals. "This award recognizes David's extraordinary longevity and success in managing the organization's endowment," said Executive Director Debbi Edelstein in her presentation of the award. Though he recently stepped down as chair, Lindsay remains on the Investment Committee and also serves as a Council member.

To nominate someone for a Volunteer Service Award, please go to www. NativePlantTrust.org/About. 03



### Mapping Natural Communities at the Sanctuaries

—Frederick C. Sechler Jr., Ecological Programs Coordinator

We are entering the second year of a two-year project to inventory natural communities at Native Plant Trust's sanctuaries throughout the region. Natural communities are recurring assemblages of plants and animals found in particular physical environments. To start the project, we generated a preliminary natural-communities map of each sanctuary and created random points within the map. Conservation staff and volunteers navigate to these points in the field and record data about the plant species and vegetation structure, including canopy, shrub, and herbaceous cover. The project has already revealed new and potentially rare natural communities, including a northern hardwood-black ashconifer swamp at Hobbs Sanctuary in northern New Hampshire. After the initial mapping, we will choose spots to monitor over the long term to measure changes resulting from climate change and other influences.





# To Restore Plants on Cadillac Mountain's Summit, Just Add Soil

-Jane Roy Brown

Native Plant Trust recently wrapped up a six-year experiment in subalpine plant restoration on the summit of Cadillac Mountain in Acadia National Park in Maine. The experiment, contracted by the National Park Service, yielded some surprising and not-so-surprising conclusions, as well as some lingering questions. One of the big takeaways: Plants need soil in order to grow on Cadillac's summit.

"It's not the kind of big breakthrough you want to announce to your clients," says Director of Conservation Emeritus Bill Brumback, who designed and monitored the experimental research. "We all laugh about it."

The story is, of course, more nuanced. At about 1,500 feet in elevation, Cadillac's summit is a subalpine zone where plants are concerned. Although not as sparsely vegetated as a true alpine zone, the summit is not exactly lush either. The research team's initial inventory of the summit's plants underscores the harsh conditions: the plant communities are classifed as barren rock/gravel, scrub, heath, and mixed forb-herbaceous.

A catastrophic 1947 wildfire burned away much of the organic matter in the soils on Cadillac and thousands of surrounding acres. After the fire, annual rains scoured a lot of the remaining soil off the slopes. "More recently, climate change has added to the earlier damage by creating drier soils and heavier rainfalls, leading to more erosion," says Abe Miller-Rushing, Science Coordinator at Acadia.

Despite these events, plants ranging from gray birch to sheep laurel and goldenrods once covered the summit in more abundance, as they do on the lower slopes, but a century of foot traffic has worn down the plant life. Visitors, now numbering more than a half-million a year, are drawn by the summit view of a cerulean, island-dotted harbor. And a paved road takes them right up to it. "Once trampled, plants return slowly, if at all, because of the harsh growing conditions, hence the need for restoration," Brumback says.

During the past few decades, the park staff had attempted small-scale plant restoration on Cadillac and other summits, says Jesse Wheeler, Acadia's Vegetation Program Manager. "We brought in some salvaged plants and roped off areas to exclude foot traffic and allow restoration to occur naturally," Wheeler says. "But we had no reference for how the plants would grow on 'grapenuts gravel'—the crumbled granite that is the soil equivalent on the summit."

Not well, as it turned out. Even in the roped-off areas, or exclosures, plants had not filled in after almost 20 years. "Granted, none of these past measures were as refined as active restoration methods," says Miller-Rushing. "And none of them took into account climate change."

Seeking a more methodical approach and one that would factor in future climate-change impacts, the park staff invited various experts on alpine plant restoration to evaluate the site. "They all agreed that Cadillac's summit conditions are unique—and they had no idea how to restore plants there," says Miller-Rushing.

In 2015 he contacted Brumback, who was then Native Plant Trust's director of Conservation. "We approached Native Plant Trust because they're regarded as experts, and particularly because of the success of restoring Robbins's cinquefoil [Potentilla robbinsiana] in the White Mountains, which Bill was involved with [in the 1990s]." (This formerly endangered alpine plant has since been removed from the federal Endangered Species List because of the restoration's success.)

The project with Native Plant Trust had two goals: to develop methods for the revegetation of the summit and to identify









techniques that could be used on other summits at Acadia and other national parks. After conducting an initial plant inventory, staff members from Native Plant Trust and Acadia National Park and consulting botanist Jill Webber built, planted, and monitored 96 plots to test a suite of variables. Restoration plots contained seedlings of various species grown at Nasami Farm from seeds gathered at the summit. Seed plots were sown with the same 9 to 11 species throughout the trials. In total, 20 species were used in the experiments.

Chief among the tested variables was the growing medium-compost, loam, and native soil—as well as its optimal depth. The research also compared the results of planting seedlings vs. sowing seed, and of sowing seed vs. allowing seeds naturally present on the site to sprout. To rid the loam of contaminants, including seeds of unwanted species, the park staff laboriously sterilized and trucked it to the site via the summit road—an advantage that does not exist elsewhere in Acadia or in other national parks.

As for the "aha!" that soil was the secret, Brumback says the surprise was the order of magnitude of its impact relative to other methods. "Simply adding soil produced about the same number of seedlings as adding soil and seeds," he explains. The reason, he says, is likely two-fold: When soil is added, seeds already present in the nutrient-poor gravel soil are able to survive after

germinating, and seeds from nearby vegetation that blow into the added-soil plots also are able to get a start.

"As with many scientific studies, when you get the answer it's like, 'Of course!" says Wheeler. "But it wasn't so obvious that just soil would be enough, and the research made that really clear."

Some other surprising results remain to be explained. For instance, the species that appeared when soil alone was added often were different than those that came up after seeds were sown. The performance of particular species presented other mysteries: Lowbush blueberry (Vaccinium angustifolium) did not fare well in the trials, while green alder did. Both are robustly present elsewhere on the mountain. Which species will dominate the soil plots in the future? Will it be the current native vegetation, or some new combination of species? The answers might forecast whether certain species at Cadillac's lower elevations could migrate upslope in warmer, drier conditions and survive on the summit.

The complete findings of the research fill a 75-page report, which will prove useful as the National Park Service shifts from restoring historical conditions to managing for climate change and resiliency, says Miller-Rushing. The changing climate is already squeezing the ranges of several of Acadia's common native trees, he says, and at least four species of trees will likely disappear from the park by the end of this century.

Funding for the project came from the National Park Service and Friends of Acadia. Schoodic Institute at Acadia National Park provided additional support.



# Director of Horticulture Uli Lorimer Talks about His Book, The Northeast Native Plant Primer



*Native Plant News*: Who is the audience for this book?

Uli Lorimer: I'm speaking to a broad, nonprofessional audience who may not yet fully understand the value of native plants at a time of climate change, when they are increasingly important for supporting as much insect and wildlife as possible.

NPN: Does that include novice gardeners?

UL: Yes. For example, look at the advice about making mistakes. I've made a lot of mistakes, and the point is to learn from them and to not be afraid to make them. Each experience will lead you to discover what's important to you and get you outside, interacting with plants and the animals they attract. I also offer practical information about how to plant.

NPN: What were your goals in writing the book?

**UL:** I emphasize that gardens are habitat, and that through our gardens we have an opportunity to create bridges of habitat between larger, disconnected natural areas. I wanted to offer solid, basic gardening advice. And I tried to make the book useful by including lists—deer-resistant natives, pollinator favorites, and so on—as well as icons in each plant description showing what other life that plant supports.

*NPN*: I was struck by this quote: "Nowhere is our estrangement from nature as evident as it is in our backyards. The American love affair with lawns and

over-pruned foundation plantings ... is the end result of an oversimplification of nature, a distillation that emphasizes our superiority over it."

**UL:** We need to have a deep and abiding respect for all creatures, to understand that we're a part of their system, not standing above it. People still look at gardens as ornament, or else they embrace gardening only to the degree that it's neat and tidy. Often that tidy space is not very ecologically diverse. Research backs up that if you let leaves stay on the ground, for instance, there's more biodiversity—not just pollinators, but also beetles and flies and spiders.

*NPN*: How does your book differ from others about native plant gardening?

UL: For one thing, I did not include native cultivars. Most cultivars are created solely for aesthetic traits, and in some cases those diminish their habitat value. I talk about using native annuals, which is unusual. And I try to show the versatility of native plants, because they present gardeners with a lot of choice and utility, as they are adapted to this region's growing conditions. So if you have a tough spot in your garden, try a native species that

To order The Northeast Native Plant Primer, call 508-877-7630 ext. 3601, or go to "For Your Garden" at www.NativePlantTrust.org.

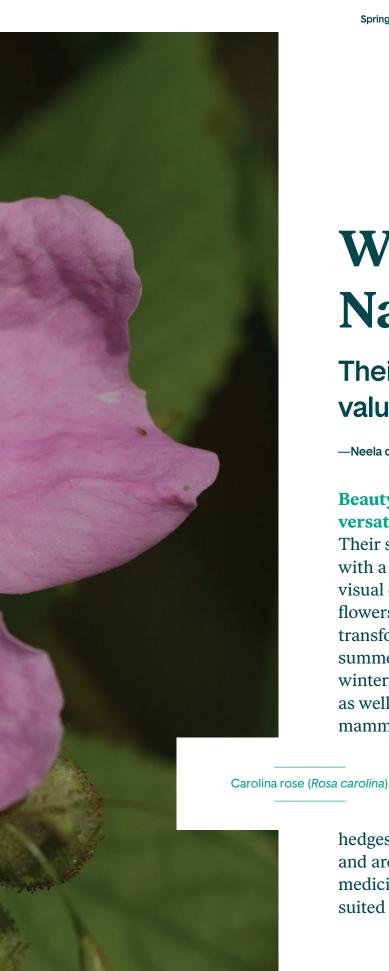
evolved in those conditions.

Catch one of Uli's upcoming author talks at Garden in the Woods. For dates and how to register, see "Happenings" (inside back cover).



02





# Wild about Native Roses

# Their beauty and wildlife value belong in our gardens

-Neela de Zoysa, with photographs by Uli Lorimer

# Beauty, ecological value, utility, and versatility—our native roses have it all.

Their striking, five-petalled pink blossoms with a crown of pollen-laden stamens are a visual delight in late spring. Their fragrant flowers attract a wide range of pollinators and transform into bright-red fruits, or hips, in late summer. The hips last through the fall and winter, providing winter color in the landscape as well as cold-season sustenance for birds and mammals. Native roses are tough, hardy shrubs

and ramblers, equally at home on roadsides and swamp edges. Some have beautiful fall foliage and make great—and impenetrable—garden

hedges. In general, they need little maintenance and are easy to cultivate. Their edible and medicinal properties also make native roses wellsuited for permaculture.



02

According to research by

their foliage.

entomologist Doug Tallamy, more

butterflies use rose plants as hosts

for their caterpillars, which feed on

than 100 species of moths and

New England is home to eight species of native North American roses, two of which have probably been introduced to this region. The six indigenous species are Virginia rose (*Rosa virginiana*), Carolina rose (*R. carolina*), swamp rose (*R. palustris*), smooth rose (*R. blanda*), shining rose (*R. nitida*), and bristly or prickly rose (*R. acicularis*). (The climbing rose *R. setigera*, native throughout much of North America, is thought to be introduced in New

England, as is *R. arkansana*, or prairie rose.) Like milkweeds, some rose species are wide-ranging, while others prefer specific site conditions—wet and swampy, dry and sandy, and so on. Like most cultivated roses, nearly all our native roses need about six hours of sun.

Each and every part of the rose plant is a gift from the Earth. Native Americans in the Northeast have a long tradition of using rose leaves, bark, stems, and roots in medicines. Rose-hip extract, for

example, can be used to hasten a woman's labor during delivery. Emetics are prepared from rose bark, and cold treatments from rose stems. Rose hips are particularly nutritious and high in health-promoting phenolic compounds and other phytochemicals, including vitamin C. Native people consume the hips raw as well as in syrups, sauces, and medicinal remedies. Europeans, too, have a long culinary history with rose hips, incorporating them in tea, wine, syrup, jelly, and jam. Rose-seed oil is used to nourish the skin and reduce inflammation

Humans are not alone in benefitting from all parts of the rose plant. Mammals and birds that eat rose hips include white-footed mice as well as ruffed grouse, northern mockingbird, and fox sparrow. Despite the prickles, white-tailed deer and other hoofed mammals browse the twigs and foliage. Cottontail rabbits nibble the lower shoots and foliage of young plants. All these animals help to distribute the seeds.

These plants are also important hosts for caterpillars of many moths and butterflies, and their dense, prickly thickets provide nesting habitat for birds and protection for small mammals. The abundant pollen of rose blossoms attracts various long-tongued bees, including honey bees and bumblebees, as well as short-tongued halictid bees, syrphid flies, bee flies, and beetles. Although the flowers of most roses do not provide nectar, several species do attract butterflies. According to research by entomologist Doug Tallamy, more

than 100 species of butterflies and moths use rose plants as hosts for their caterpillars, which feed on their foliage. Other insects that native roses support include notorious pests of cultivated roses—shoot-boring beetles, flea beetles, scarab beetles, aphids, and the larvae of sawflies, gall wasps, and thrips—which consume shoots, leaves, and flowers. It helps to think of these insects and caterpillars as vital food for songbirds, bringing yet another tier of wildlife into your garden.



03

02 Swamp rose (Rosa palustris) with beetles



From the gardening standpoint, native roses do not require the cosseting that cultivated roses need. Cultivated garden roses depend on fertilizer and herbicides to perform well, but natives are less prone to the diseases that affect hybrids, including fungal blights such as black spot, powdery mildew, and rose rust. Many native roses, including the four we recommend for gardeners (see sidebar), also exhibit resistance to the mite-borne, viral rose-rosette disease and offer the genetic variance that will confer resistance on cultivated species. (The invasive multiflora rose [*R. multiflora*] is the main host for rose rosette, an additional reason to clear it out.)

Native roses seem to be an ecological gardener's dream, yet they represent less than two percent of the horticultural rose trade. Why are they overlooked? "I suspect that one of the main reasons is that roses are prized for their blooms, and though native roses are gorgeous when they bloom, that happens once a year and for a relatively short time," says Native Plant Trust Retail Manager Noni Macon, who oversees the organization's plant sales. "While native roses should be in every garden, the marketplace is filled with myriad competitors bred to bloom all season."

That may be true, but for superior year-round interest, look to the natives. Rose cultivars and hybrids, bred to produce more petals at the expense of fertile parts (stamens), have lost their ability to produce hips, and their foliage does not change color in the fall. And most have lost what some gardeners consider the most precious attribute of roses, their fragrance.

—Neela de Zoysa is a botanist and long-time instructor at Native Plant Trust who teaches a course on native New England roses.



# Native roses for New England gardens

Director of Horticulture Uli Lorimer recommends the following four native roses for your garden. Their pedigree as garden specimens dates in this country to the 18th century, when Rosa palustris and R. setigera grew in the gardens of Thomas Jefferson and his contemporaries. R. virginiana and R. carolina were exported to Europe. For more information about these native roses, consult the Garden Plant Finder at www. NativePlantTrust.org/For Your Garden.

Carolina rose or pasture rose (R. carolina): Plant of short stature, not exceeding three feet in height, that expands into a dense bush over time. With upright stems and few branches, this rose is great for hedges, mid-height in a flower border, and as a ground cover for restoring disturbed sites. Hips tend to blacken and shrivel in the winter, so it is not of winter interest. This rose grows in average to wet soils and is salt and drought tolerant. Exposure: Full sun to part shade.

Virginia rose (R. virginiana): Similar to the Carolina rose in foliage, distribution, and growth habit, this rose is short and shrubby and also grows no more than three feet tall. (The leaf stipules, small appendages at the base of the leaf stalk, are the traditional way to tell them apart; in the Virginia rose they flare at the upper end.) Hips are globe-like and attractive. It grows in sandy and even saline soils and is suitable for both coastal gardens and cities. If fall foliage is a priority, this rose's golden fall leaves are widely ranked as the most glorious in the genus. Exposure: full sun to part shade.

Swamp rose (R. palustris): Tall and graceful, growing to five to seven feet high, this can adapt to almost any soil type, including sandy soils. Especially good for wetto-soggy soils where few other roses do well, and even for slightly submerged areas on the edges of ponds and streams. Exposure: full sun.

Climbing rose (R. setigera): The only native climbing rose, this Iso has a distinctive leaf that bears three leaflets, as opposed to five to seven in other species. It can climb up to 12 feet high and be trained on a trellis, allowed to trail, or planted in an informal hedge or naturalized thickets. It has great fall foliage and tolerates a wide range of soils and average to wet conditions. R. setigera is a dioecious species, requiring separate male (staminate) and female (pistillate) plants to produce fruit. Exposure: full to part sun. — N. de Z.



# Native Plant Trust 2021 YEAR IN REVIEW

The combination of generous members and donors, terrific volunteers, and a first-rate staff 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.



Native plants can't always be seen from a footpath. Our 2021 Farnsworth Horticulture Intern Sylvia Maina and Horticulturist Jordane Wiseman took to kayaks to examine hard-to-reach populations along the Sudbury River in Massachusetts. © Native Plant Trust

# **BY THE NUMBERS**

685

RARE PLANT POPULATIONS MONITORED

82

SEED COLLECTIONS FROM 57 RARE TAXA

108

RARE PLANT
POPULATIONS
DISCOVERED

42,000

genetically unique plants produced by our nursery

178

species grown at the nursery

83,000

SEEDS OF RARE SPECIES ADDED TO THE SEED ARK 84

species (including 26 new ones) planted at Garden in the Woods

154

PUBLIC PROGRAMS
SERVING 4,122 PEOPLE

21,892

HOURS DONATED BY 344 VOLUNTEERS

### Year in Review 2021

# **CELEBRATING YOU**

Thank you to everyone who understands that plants are the cornerstones of life on our planet and whose financial support has helped conserve and promote New England's native plants. We especially want to recognize those of you who have made Native Plant Trust one of your philanthropic priorities.

### CONSERVATION CIRCLE AND LEADERSHIP GIFTS

The total giving noted here is for fiscal year 2021, ending December 31, and 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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Abby and Peter B. Coffin
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Foundation
Jackie and Thomas Stone
Martha Wallace and
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### \$25,000 - \$99,999

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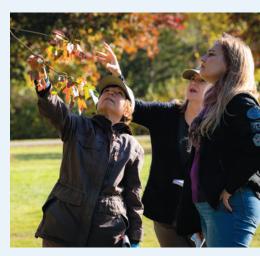
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Thanks to a grant from the Hope Goddard Iselin Foundation, in 2021 we piloted a new community engagement program to connect people with native plants in their own neighborhoods and provide ecological and historical context. In partnership with Framingham Parks & Recreation, our guides led tours accompanied by Spanish and Portuguese interpreters. © Melissa Blackall

Marjorie D. and
Nicholas P. Greville
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Scolnick
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Expanding the number of pollinator kits available for home gardeners to purchase this spring will have an immediate and direct impact on pollinators throughout the region. A grant from the Further Forward Foundation last summer increased our ability to sustainably collect, clean, and propagate seed over the fall and winter, and allowed us to make essential greenhouse repairs to accommodate all the additional plants. Alexis Doshas © Native Plant Trust

### \$5,000 - \$9,999

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### \$1,000 - \$4,999

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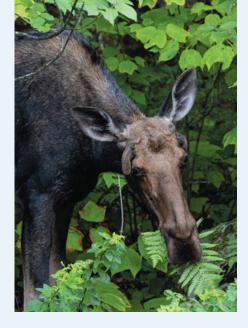


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Of the thousands of seeds collected in 2021 to be used in future restoration and research projects, one highlight was the globally rare New England endemic New England blazing star (*Liatris novae-angliae*). Our thanks to the 172 people who took part in the Seed Ark Endowment Challenge Match last year to ensure the forever protection of such rare and endangered species. © Uli Lorimer

Anne H. Isbister and Christopher Ballog Yutaka and Sally T. Ishizaka Althea and David Kaemmer Dr. Barbara M. and Robert A. Keller Louise Keogh-Weed and John Keogh Warren King Helmut Klohn and Michael Davison Catherine O. and Mia Koning Marta Jo Lawrence Lucinda H. and David S. Lee Emily L. and George Lewis Faye H. and David P. Lieb Deborah and Bob Lievens David L. Lindsay Brian K. and Anne S. Mazar Stephen J. McCarthy Deirdre Menoyo Elizabeth A. and Bernard Meyer Wyatt J. and Gwyn A. Mills Enid R. Mingolelli Anthony Mirenda and Tracey Cornogg Eliott Morra and Kimberly E. Gurlitz Moth Design John W. Murphy Bean and Edward Nardi Dr. Christopher Neill and Dr. Linda A. Deegan Lita and Donald Nelsen Ken Nimblett Noanett Garden Club **Thomas Norton** Deborah Nowers and Henry E. Peach Carolyn M. and

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Conservation Circle and Sustainer members enjoyed many "Surprising Sights and Accidental Encounters" with Arabella Dane, photographer and Trustee of Native Plant Trust, during the Heart of the Habitat event last year. Her astounding images reminded us that plants don't exist in a vacuum and are truly integral to all types of landscapes. © Arabella Dane

Robert Treat Paine Association Jessie B. and Jon Panek Plimpton-Shattuck Fund Dr. Sandra Poole and Dr. David Meeker Barbara F. and Frederick M. Pryor Elisabeth A. Raleigh Pamela P. and Griffith L. Resor Patrick Riordan and Steve Hatfield Estate of Sandra S. Rodgers† Lucas Rogers and Mathieu Gagne Barbara V. and George R. Rowland Amy and John Saar Sheel and Aditi Saxena

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Our thanks to the 128 people who took part in the challenge match to fund a team of software engineers to bring our powerful new conservation tool, the SPecies Rare Occurrence UTility (SPROUT), from prototype to full operation. We are delighted to report that SPROUT is now in use by our Conservation staff and volunteers for the 2022 field season. © Native Plant Trust



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Gifts in honor of Cayte McDonough's retirement last spring are supporting the seed collection program at Nasami and continuing her legacy both in the field and in the greenhouses. During her 20-year Native Plant Trust career, Cayte transformed the native plant nursery, pioneered propagation techniques, and developed the common seed collection program.

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Judith D. King

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Christopher A. Klem Patricia A. Lavery City of Lawrence Jaeok and Kang Lee Leslie and Bryan Lorber Curtis W. Marble Virginia McIntyre and John Stevens Mezitt Horticultural Foundation Dr. Janet C. Miller Martha S. and Todd S. Moore Dr. Sandra O. Moose Morgan Stanley Global Impact Funding Trust, Inc. Bruce Nelson Network for Good Liz O'Connor Melinda S. and Robert E. Oleksiak **Gregory Palermo** Dr. Leroy M. and. Dr. Winifred B. Parker Pennsylvania Legal Aid Network Town of Plymouth Ellen M. Poss Bonnie B. Potter Ute and Patrick Prevost Christine A. Psathas and Robert E. Shabot Ramelle C. and

Michael Pulitzer

Internships, funded by several forward-thinking donors, are an important part of our work to educate the next generation. Their training includes a wide range of experiences, such as seen here where Horticulture Intern Annalise Michaelson and Director of Horticulture Uli Lorimer are inspecting the 2021 crop of cecropia. An article in this issue (p. 2) explains more about the giant silk moths project. © Native Plant Trust

Tess Raymond Stephanie and Maxwell Repaci Kim Rheinlander John C. Rounds Marjorie H. Roy Roseanne and Jim Saalfield Brenda Salver Dr. Marilyn Sarles Loring L. and Andrew M. Schwarz Barbara and Richard Skaggs Linda Skeff Michelle Smith and Daniel Morse City of Springfield Fredericka and Howard Stevenson Dee and Bob Stewart Town of Stoughton Anne Symchych Heather and Jared F. Tausig David V. N. Taylor Christine Towle and John Lescher Erin Wadlow Jean Walsh and Graham Davies Dr. Denham Ward Sarah S. Webb Catherine M. and Craig L. Weston Deborah Woodcock and Ali Hosseini

Susan and Paul Young

### **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.

Judy A. Artley and
Charles T. Moses
Nancy H. August
John C. Barber
Julia A. Barber
William Brumback
Patricia Callan and
Chuck Crafts
John S. and Jane Chatfield
Terry A. Chvisuk
Edward H. and Sandy Coburn
Frederick R. and
Jeanine Coburn

Martha F. Coburn and Robert W. Carlson

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Mike Kotarba

Christine M. Gradijan

Marjorie D. and

Nicholas P. Greville

Charles A. and

Barbara A. Grunden

Jane C. Hallowell†

**Ervina Hamilton** 

Dena and G. F. Hardymon

Allyson Hayward

Deborah and Richard D. Hellmold

Thelma K. and

John H. Hewitt

Dr. Kristina N. Jones and Dr. Peter Hecht

Larry L. Jones

Kathleen A. Klein

George Kocur

David L. Lindsay

David R. Longland

Ellen West Lovejoy

Eugene I. Majerowicz





George Kocur (top) and David Lindsay (bottom) each received the 2021 Volunteer Service Award in recognition of their outstanding dedication to Native Plant Trust through sharing their exceptional professional expertise over many years. In addition to their certificates, they were also presented with Life Memberships. Three cheers for our wonderful volunteers! Ellen B. and Duncan McFarland

Michele H. Mittelman

Monadnock Garden Club

Sally McGuire Muspratt

Beverly Myers

**Bruce Patterson** 

Judith Pierce

Mav H. Pierce

Peggy Plimpton

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Johanna Ross

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David B. Rundle and Catherine M. Huntley

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Robin Shield

William and Hatsy Shields

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Gwen L. Stauffer

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Dr. Edward S. Valentine

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Weston Garden Club

Cheryl K. Wilfong

Robin E. Wilkerson and

Steve Atlas

Patty Wylde

Margaret F. and

T. C. Price Zimmermann

### TRILLIUM SOCIETY

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

Elizabeth L. Aghajanian
Annemarie Altman
Anonymous (2)
Joyce H. Bisson
Lalor Burdick
William J. Claff
Frances H. Clark
Abby Coffin
Stuart L. Cummings
Ruah Donnelly
Peter V. Doyle and
Ellen Clancy
Christopher R. Ely
Nancy Goodman

George C. and Diantha C.
Harrington
Thelma K. Hewitt
Patti Laier
Mardi J. Mauney
Stephen McCarthy
Deirdre Menoyo
Carole M. Merrifield
Bettina L. Messana
Ken Nimblett
Carolyn M. Osteen
Jessie B. Panek
Geri and Douglas† Payne
Karen D. and
Matthew V. Pierce

Barbara F. Pryor
Neal H. and Betty Sanders
Catherine Schwenk
Dori Smith
Anita E. Springer
Jackie and Thomas E. Stone
Mary Ann Streeter
Leslie Turek
Dr. Edward S. Valentine
Martha J. Wallace
Dr. Nancy L. Weiss
Cheryl K. Wilfong
Patty Wylde

### **TRIBUTES**

In 2021 we received honoraria or memorial donations in tribute to the following friends, colleagues, mentors, and loved ones.

### In Honor of

Nancy J. Benner
Arabella S. Dane
Alexis Doshas
Marjorie D. Greville
Nancy E. Jaysane
Uli Lorimer
Noni Macon
Cathryn McDonough
Darrell Nichols
Mary Lou O'Connor
Polly Pierce
Michael Potsaid
Frederick C. Sechler

### In Memory of

Robert August David A. Bristol Valerie T. Caron Alan J. Dworsky Elizabeth Farnsworth Lester Gediman Beverly J. Greer Susan S. Harding Cheryl M. Johnston Kathleen M. Ladd Ann E. Lord Betty J. Manion Richard G. Nelson Olga P. Reed Jane Warren Gray H. Wexelblat



Family and friends of the late Beverly J.
Greer recently gathered to dedicate a
beautiful hand-crafted bench they have
endowed in celebration of her life. A
long-time horticulture volunteer, Bev
passed in January 2021. The memorial
bench is a wonderful tribute to her special
connection to Garden in the Woods.

© Native Plant Trust

### MATCHING GIFT COMPANIES

We extend special thanks to these businesses and their employees for their generous support in 2021. AbbVie
Apple, Inc.
Great-West Financial
Home Depot Foundation
IBM Corporation
Intuit, Inc.
Microsoft
MilliporeSigma
Novartis US
Pfizer, Inc.
Spotify USA, Inc.

TripAdvisor, LLC

### **GIFTS-IN-KIND**

Gifts-in-kind uniquely allowed us to expand our programmatic impact, even amid the global pandemic in 2021. It is our pleasure to thank the following donors. Kristine Atkinson Chicago Botanic Garden Deborah Hellmold



-By Tracey Willmott, Director of Philanthropy

E dward Petcavage is one of those rare individuals who had a vision and turned it into reality. By funding a new Conservation internship focused on native plant seed ecology, Ed was able to fulfill his long-held desire to expand the research capacity of our Conservation team while offering invaluable practical experience to scientists just starting their careers.

"The new internship is a result of my own experience being mentored by many wonderful individuals within Native Plant Trust and the realization of a need to inspire and encourage more young minds into conserving, protecting, and expanding native plant biodiversity," Ed says.

An article in this issue (p. 2) describes the research of Amelie LeTierce, the first Petcavage Conservation Intern. The man who is making these endeavors possible has been inspired by the mission of Native Plant Trust since first visiting Garden in the Woods in the 1970s. He graduated from our native plant certificate program, served on our Sanctuary Committee, and remains a

dedicated naturalist and land conservationist. His career as a landscape architect expanded his appreciation of the role of native plants in both managed and wild areas.

"As I became educated about native plant communities, my work evolved into creating more sustainable, environmentally sound landscape designs," he says. "There are still so many questions about how plants function and adapt to their surroundings, how they interact with one another and with other species, and how a changing climate impacts them. The planet isn't getting any younger, so we need to find answers quickly."

More people working in conversation increases the odds that these answers will come faster, which is why Ed founded the new internship. By training the next generation to manage the rare and endangered plants stored in Native Plant Trust's seed bank, as well as to conduct field work and laboratory research, the knowledge base about native plants will grow. Ed's foresight, leadership, and generosity are already helping solve unanswered questions.



### Stone's Hawthorn

(Crataegus stonei)

-Arthur Haines, Senior Research Botanist

Stone's hawthorn (*Crataegus stonei*) is not only globally rare, but also botanically unusual. This hawthorn was first described by Charles Sargent in 1903 from a collection taken near Amherst, MA. At the time, this site was the only known one in the world. Not long after its discovery, Stone's hawthorn was found in the nearby town of Leverett and subsequently reported in New York and Pennsylvania. (The New York reports proved erroneous.)

Some later botanists chose not to recognize Stone's hawthorn as a distinct species, regarding it as a variant of the wider-ranging entangled hawthorn (*Crataegus intricata*). However, Stone's hawthorn differs from that species in its anther color and in the presence of persistent hairs (pubescence) on the leaves, flower stalks, and young fruits. These are distinguishing characteristics for hawthorns, a vast genus in the Rose family, and they have biological relevance. For example, the anthocyanic (pink to red) anthers significantly differentiate the Stone's hawthorn flowers from the pallid displays of entangled hawthorn, which has pale-yellow anthers. The red coloration likely affects pollinator response to the flowers of *C. stonei*, although how this color variation influences pollinator response is not yet known. Since

this hawthorn's original discovery, the known populations in western Massachusetts have vanished. Within the last decade, however, the species was discovered at a site in Sunderland, which is not far from the original sites. These plants match the species description except in the number of stamens. Here the unusual meets the rare: Most Crataegus flowers have either 5 to 10 or 12 to 20 stamens, but not both. Flowers from the original collections have 5 to 10 stamens, but the Sunderland population shows flowers with 10 or fewer and 12 or more stamens, both on the same plant and on other plants within the same population. This is the first time I've witnessed variation of this taxonomically significant character among hawthorns in New England. Why this is occurring here is not yet determined, nor are the trait's biological ramifications. Currently, New England not only has the sole known extant population of C. stonei in the world, but also one with an unusual, unexplained trait.

Please support the work of our conservation botanists with a donation to Native Plant Trust. www.NativePlantTrust.org/support. Thank you.



## **HAPPENINGS**



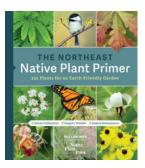
FRIDAY, JUNE 10, 12:30-2:00 P.M. AND WEDNESDAY, SEPTEMBER 14, 6:00-7:30 P.M.

### Talking It Up

Join Director of Horticulture Uli Lorimer for two forthcoming author talks about his new book, *The Northeast Native Plant Primer: 235 Plants for an Earth-Friendly Garden*, at Garden in the Woods, Framingham, MA.

Register at www.NativePlantTrust.org, Learn/Classes & Field Studies.

Native plants have the power to heal our landscapes, welcome wildlife into our gardens, and inspire us. *The Northeast Native Plant Primer* provides a roadmap for including native plants in your garden, whether you are new to gardening or a seasoned professional. For those of us who care about the natural world, the decision to plant natives in the garden is one of the most important choices we can make. With so much under threat from a changing climate, invasive species, habitat loss and fragmentation, and declining numbers of birds and insects, planting natives in your garden makes more of a difference now than ever before.



Use your member discount to order *The Northeast Native Plant Primer*: Call 508-877-7630 ext. 3601, or go to www. NativePlantTrust.org, For Your Garden/Garden Books by Our Experts.

### SIGN-UP

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