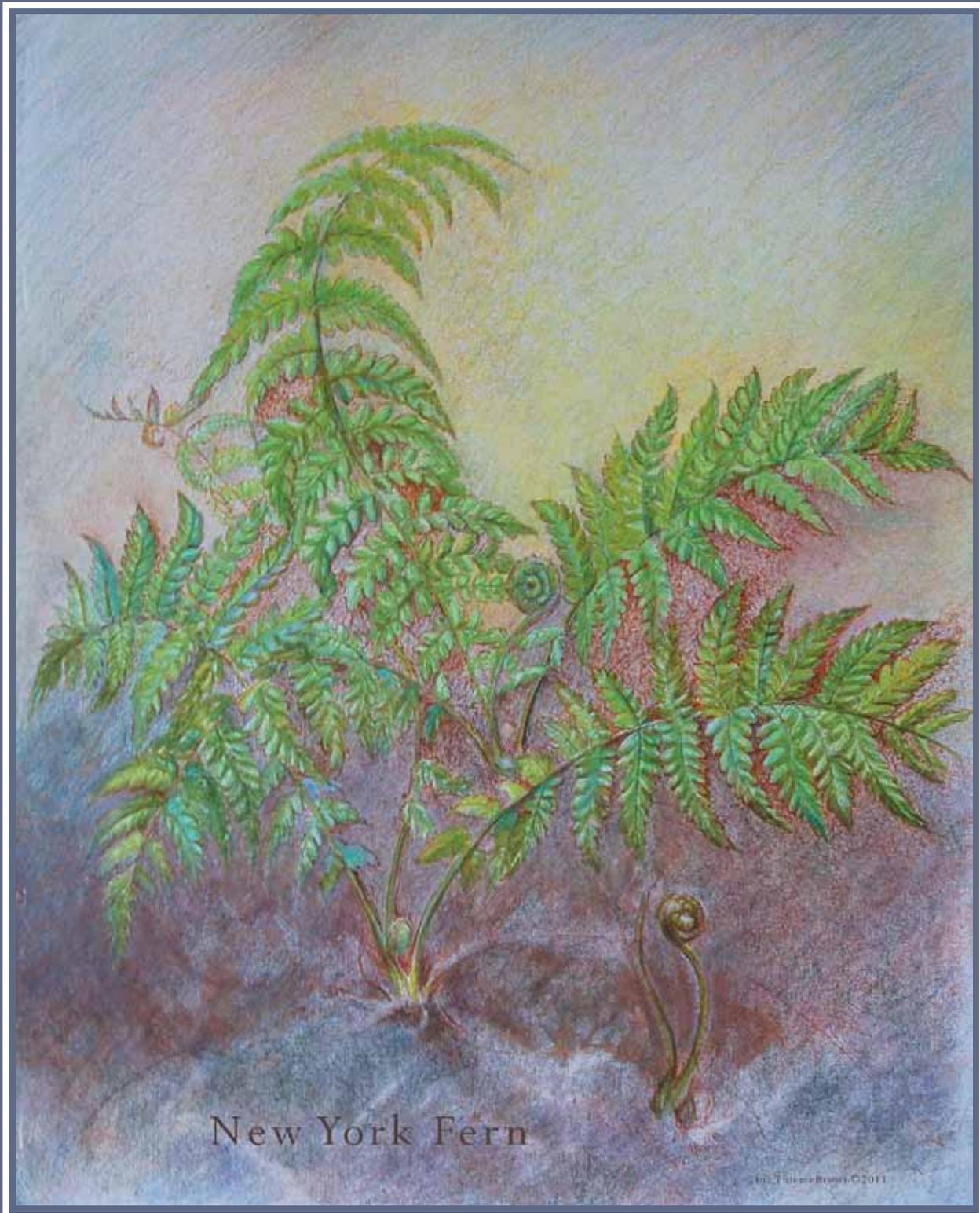


# *Marilandica*

Fall 2011

A Publication of the Maryland Native Plant Society

Volume 2, Issue 2



New York Fern

© Tina Thieme Brown 2011

Tina Thieme Brown

# Marilandica

A Publication of the  
Maryland Native Plant Society



www.mdflora.org  
P.O. Box 4877 Silver Spring, MD 20914

## CONTACTS

### Membership

Karyn Molines, mnps@chesapeake.net

### Marilandica Editor

Carolyn Fulton, FultonCarolynO@gmail.com

### Webmaster

Iris Mars, info@mdflora.org

### General Inquiries

info@mdflora.org

## MNPS CHAPTERS

### Catoctin

Jim and Teresa Gallion, jimbo21793@aol.com

Joe Metzger, jmetzger50@hotmail.com

### Eastern Shore

Leslie Hunter-Cario, horticulture@wetland.org

### Greater Baltimore

Ann Lundy, annlundy@verizon.net

### Montgomery County

info@mdflora.org

### North East

Matthew Bazar, info@mdflora.org

### Prince George's/Anne Arundel Counties

Matt T. Salo, mtsalo1@gmail.com

### Southern Maryland

Karyn Molines, mnps@chesapeake.net

### Washington, DC

Mary Pat Rowan, blair-rowan@starpower.net

### Western Mountains

Liz McDowell, boyerandmcdowell@earthlink.net

## EXECUTIVE OFFICERS

Kirsten Johnson, President

kh.johnson@ymail.com

Marney Bruce, Vice President

Linda Keenan, Vice President

Marc Imlay, Vice President

Ginny Yacovissi, Secretary

Matt Cohen, Treasurer

## BOARD OF DIRECTORS

Ken Bawer

Karyn Molines

Matthew Bazar

Glenn Rice

Carole Bergmann

Mary Pat Rowan

Melanie Choukas-Bradley

Roderick Simmons

Cris Fleming

Gary Steele

Carolyn Fulton

Lou Aronica, Emeritus

Albert Hartley

Joe Metzger, Emeritus

Brett McMillan

## Letter from the President

Dear Members,

I returned yesterday from our Annual Conference, this year at La Plata, in Charles County. Our two speakers complemented one another perfectly: Kathy McCarthy of DNR's Natural Heritage Program took us on a tour of special places and rare species of Southern Maryland, whetting our appetites for the afternoon field trips. Jim Long of Mattawoman Watershed Society gave us a different kind of tour. With Captain John Smith's journal as a guide, Jim described the history of the settlement of Southern Maryland focusing in on the Mattawoman Creek watershed, which is so important to the health of the Chesapeake Bay. Like all of Southern Maryland, the Mattawoman is under serious threat from development.

Kathy and Jim ended their presentations with a plea to MNPS members to get involved in local county planning processes, and make ourselves heard in favor of conservation and sensible growth policy. They emphasized how influential citizen voices can be at the county level. The conference always refreshes my enthusiasm for field botany and natural history. This year I'm also inspired to try to make our Society an even more effective advocate for conservation of Maryland's diminishing natural areas. Recently our Conservation Advocacy Chair, Linda Keenan, testified on behalf of MNPS at a public hearing on Prince Georges County's Preliminary Priority Area Functional Master Plan. Are there other members who would be willing to follow planning and land use decisions in your county and tell us about significant developments and upcoming opportunities for comment? Please contact me.

Looking ahead to next year: We've been spending 2011 — the Year of the Fern — learning the Maryland ferns, and I'm pleased to announce that the Board voted to declare 2012 the Year of the Oak. Brown & Brown list 20 *Quercus* species in Maryland. Let's get started this fall as the ferns fade and the acorns drop and the cool weather invites us outdoors.

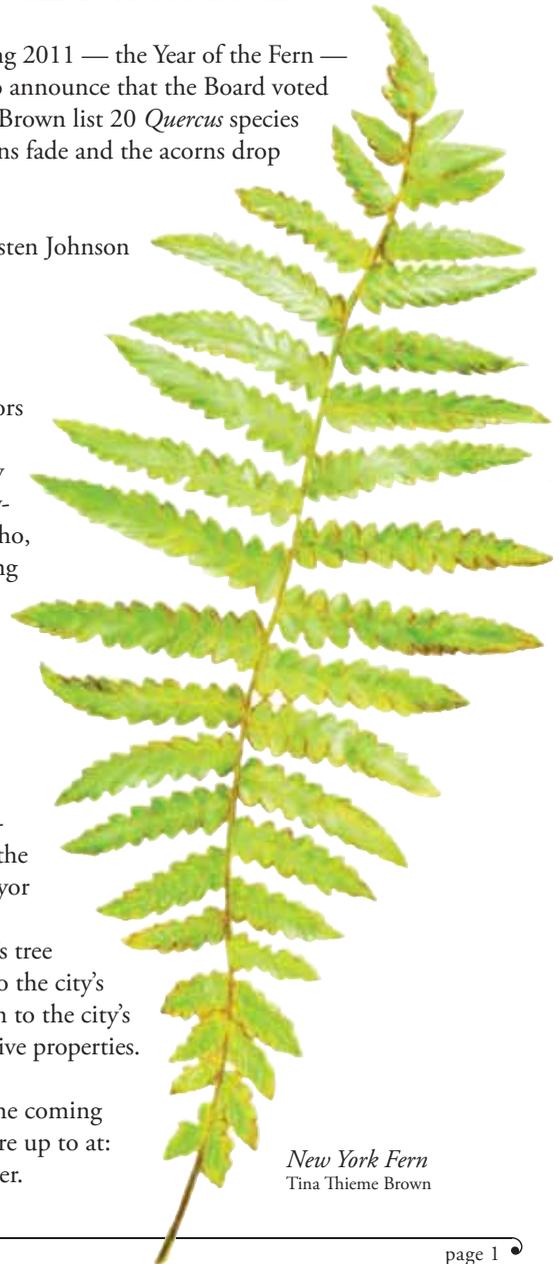
~ Kirsten Johnson

## Greater Baltimore Chapter

The Greater Baltimore Chapter board of directors has increased to thirteen, and Chris Partain has taken over as Chair. Outgoing chair Ann Lundy will remain on the board. We also want to acknowledge the past leadership of Louisa Thompson who, along with Ann, was instrumental in establishing the chapter. Starting this fall, the chapter is increasing our monthly meetings to once a month; the meetings are still on the third Wednesday of the month. We are also trying to expand our membership by broadening the locations of our monthly meetings.

On the advocacy front, we joined the TreeBaltimore Working Group this summer, and signed the Strategic Action Plan that was presented to Mayor Stephanie Rawlings-Blake in August. The Tree Baltimore Initiative seeks to increase Baltimore's tree canopy to 40% by 2037. We also sent a letter to the city's Office of Sustainability expressing our objection to the city's use of certain tree species that have shown invasive properties.

We have many activities planned this fall and the coming year, including workshops! Check out what we're up to at: [www.mdflora.org/chapters/baltimore/baltchapter](http://www.mdflora.org/chapters/baltimore/baltchapter).



*New York Fern*  
Tina Thieme Brown

# Fern in Focus—New York Fern

*Thelypteris noveboracensis* (L.) Nieuwl.  
Marsh Fern Family (*Thelypteridaceae*)  
Melanie Choukas-Bradley



As the first raindrops of tropical storm Irene penetrated the tall forest canopy, I wound my way along tea-colored Rock Creek. Crossing the Fenwick Branch footbridge and passing a small skunk cabbage wetland, I walked under some low hanging witch-hazel boughs and began to switchback into the upland woods. As Irene unleashed her first serious rain band, I noted signs of early autumn everywhere: the yellow axillary floral clusters of blue-stemmed goldenrod, the first ragged flower heads of white wood aster, some spiky jumpseed racemes, and many fallen tulip-tree leaves. Then a fresh pale green on the slope just above the creek caught my eye. Delicate, shiny-wet, and trembling under the tropical rainfall, a zig-zag cluster of New York fern fronds formed a striking spring-like contrast to the signs of impending autumn all around. Squinting through the rain, I checked more closely to verify my initial ID: Yes, these New Yorkers were “burning their candles at both ends,” their lowest *pinnae* tapering dramatically toward the base of each frond. This feature readily distinguished them from the somewhat similar-looking hay-scented ferns growing just a little farther up the trail. And as I had learned from naturalist Dwight Johnson during the Maryland Native Plant Society’s Year of the Fern, the New York fern *pinnae* were only “twice cut” while

*Delicate, shiny-wet, and trembling  
under the tropical rainfall, a zig-zag cluster  
of New York fern fronds formed a striking  
spring-like contrast to the signs of  
impending autumn all around.*

the hay-scented fern was “thrice cut.” [Dwight’s *Key to the Common Ferns of Maryland* is posted on the MNPS website ([www.mdflora.org](http://www.mdflora.org)).] Although New York and hay-scented are two ferns that I had sometimes found difficult to distinguish from each other *before* the Year of the Fern due to their sometimes shared habitat, similar colors, textures and growth patterns, I would never confuse either of them with the third fern sharing this particular slope above Rock Creek. The dark evergreen Christmas fern fronds, an even darker green during the Irene drenching, were easily distinguishable, growing just above the New York and hay-scented ferns amidst twining American beech tree roots.

**New York Fern Fronds:** Thin, delicate, pale green, with lower *pinnae* tapering to the base and the lowest ones minute. The oft-repeated mnemonic—“New Yorkers burn their candles at both ends”—which refers to the frond’s tapered base as well as its apex, is helpful as a quick diagnostic. (See also **Habitat and Range**, below.) According to *The Peterson Field Guides’ Ferns*: “Fertile fronds are larger, narrower, and more upright than sterile fronds” but they are otherwise similar. Pinnules have smooth margins and they are arranged in a pinnate-pinnatifid pattern. Small round *sori* with kidney-shaped *indusia* are borne near the pinnule margins. MNPS board member Carole

Bergmann tells *Fern in Focus*: “From an artistic/sensory point of view, I love its color, its delicate form, and the characteristic ‘scent’ you can perceive when you are surrounded by a large colony of New York ferns. The story is that ‘hay scented fern’ has a great scent (and it does), but I personally find the New York fern colony scent to be very distinctive and wonderful! One of those sensory delights that is part of walking in a lush woods.” Indeed, and especially fragrant during Irene!

**Rachis:** Pale green, pubescent or glabrous.

**Stipe:** Pale green or yellowish, slightly pubescent or glabrous above; browner below, sometimes with a few scales.

**Rhizome:** Slender, dark brown, widely creeping with a few scales.

**Height and Growth Habit:** 1-2 feet tall. As MNPS board president Kirsten Johnson notes: “New York ferns cover the ground in a zig-zag fashion rather than in clumps like many other ferns.”

**Habitat and Range:** Mixed woods and moist but not wet margins of seeps and streams, southeastern Canada and eastern U.S. MNPS board member Cris Fleming remarks: “One thing I always notice about New York fern is its close association with its habitat...if I am walking along a stream valley and I see a mass of pale green ferns on a slope, I usually ‘guess’ that it is NY fern and it almost always is. It grows in such thick profusion in this type of habitat that I can ‘call’ the ID before I really see the individual ferns.” In his July 2011 article, *Annals of the City of Alexandria Herbarium: Small Stream Forests of the Fall Line and Coastal Plain*, MNPS board member Rod Simmons describes the typical habitat of regional small stream communities: “The herbaceous layer is diverse,” he writes, “though large expanses of the forest floor are typically carpeted in lush colonies of New York Fern (*Thelypteris noveboracensis*).”

**Locations in Maryland:** According to Wesley M. Knapp, Eastern Region Heritage Ecologist and Botanist with Maryland DNR’s Wildlife and Heritage Service: “This fern is found throughout Maryland and is common.” MNPS board member Karyn Molines reports: “New York fern is one of the common ferns on the hillsides just above the freshwater wetlands at Jug Bay Wetlands Sanctuary.” And Carole Bergmann observes: “I would say that New York fern is far and away the most common fern in Montgomery County parks. I have found it in every Regional, Conservation, and Stream Valley Park I’ve surveyed in the county... It is a fern that loves moist woods, and our Montgomery County Park system is built around the stream valleys, since we received much of our current parkland in ‘dedication’ because it was not able to be built on (wetland, stream valleys, floodplains). Most of our Montgomery County park land is perfect habitat for New York ferns.” She notes that Christmas fern is extremely common in the parks as well and Kirsten Johnson adds: “Dwight has the impression that Christmas fern, rather than New York, is the most common fern in Baltimore County.”

*Carole Bergmann, Tina Thieme Brown, Marney Bruce, Cris Fleming, Kirsten and Dwight Johnson, Wesley M. Knapp, Karyn Molines, and Rod Simmons contributed to this article.*

# Mattawoman Bottomlands

On June 26, Jim Long led a group of about 30 from MNPS and VNPS into the rich and diverse Mattawoman bottomlands. Among the many plant species seen, Adder's Tongue Fern (*Ophioglossum vulgatum*) and Ragged Fringed Orchid (*Platanthera lacera*) were among the highlights. Of course, Netted Chain Fern (*Woodwardia areolata*) was also present in abundance, as expected in a wet coastal plain area.

Right: Netted Chain Fern, *Woodwardia areolata*.  
Photo by Ginny Yacovissi



Left: Fertile Frond of Adder's Tongue, *Ophioglossum vulgatum*.  
Photo by Ginny Yacovissi

Right: Ragged Fringed Orchid, *Platanthera lacera*.  
Photo by Ginny Yacovissi

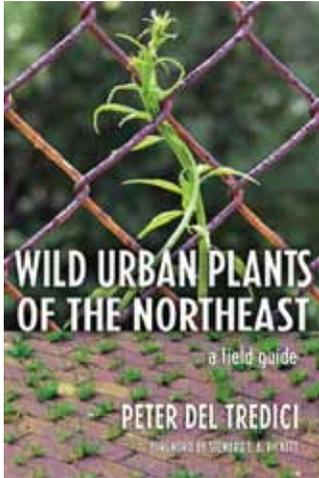


## Book Review

Christa Partain

**Wild Urban Plants of the Northeast:  
A Field Guide** by Peter Del Tredici  
Cornell University Press, 2010. \$29.95

Even for a self-described plant geek like me, some plants tend to go unnoticed. Like the places in which they are found, these plants are forgotten, even ignored. Road verges, vacant lots, and abandoned industrial sites are not botanically attractive, and the plants in those sites reflect a degraded environment. As a group, these plants are usually not particularly ornamental and many are not native. What they have in common is that they are opportunistic and they are survivors. In the plant ecologist's parlance, they are ruderal species, meaning that they grow in waste places. Most plant enthusiasts and urban dwellers dismiss them as members of two detested categories: invasives and weeds.



In his book, *Wild Urban Plants of the Northeast: A Field Guide*, Peter Del Tredici asks us to re-evaluate our assumptions about these "spontaneous urban plants." He argues that they have value. Like other plants, they provide "ecosystem services," which include temperature reduction, food and habitat for wildlife, erosion control on slopes and disturbed ground, stream and river bank stabilization, nutrient absorption in wetlands, soil building in degraded land, and tolerance of pollution and contaminated soil.

Because the urban environment is continually disturbed, this plant community of opportunists, pioneers, or invasives – whatever label you want to use – will inevitably persist. As Del Tredici says, "In an urban context, the concept of restoration is really just gardening dressed up to look like ecology." Indeed, in our highly homogenized landscape, what's the harm of allowing Tree of Heaven to provide shade in the inner city or for Common Reed to soak up excess nutrients in superfund sites? We are not living in reality if we expect to restore fragments within urban landscapes to some period 1000, 500, or even 200 years ago.

Del Tredici does not argue for giving up on preserving wilderness areas or rare habitats; he

simply points out that reviling non-natives does not work in the urban context. "Ecological functionality should be recognized as being of equal value to ecological form."

For the past six months, I have been working to identify wild urban plants alongside artist Lynn Cazabon, who has dedicated herself to photographically documenting wild plants within Baltimore's urban landscape. Her project, called *Uncultivated* (see: [uncultivated.info](http://uncultivated.info)), seeks to draw attention to the tiny pockets of wildness within the urban environment in order to break down hierarchies that privilege certain aspects of nature over others. Like Del Tredici, Cazabon's project does not value native plants over non-native, but instead simply presents the plants in these spaces. In fact, these sites are surprisingly diverse and contain more native plants than I had assumed.

Like many other field guides, the author organizes the plants by taxonomic group. Within each entry, Del Tredici discusses a given plant's name(s), nativity, morphological characteristics, habitat preferences, cultural significance, and, interestingly, its ecological functions. Closely related species are sometimes included. The author also includes five to six color photos with each entry, including close-ups of the flower and leaves, its overall habit and a shot of the plant in a typical setting. The intriguing appendix places some of these plants in a historical context, lists urban horticultural uses (such as "cosmopolitan urban meadows"), and provides key characteristics of twelve common plant families. Del Tredici also includes a comprehensive glossary, but it is not illustrated as many other field guides are.

This book will confront native plant enthusiasts with a paradigm shift in the way they view the landscape around them. Whether you find this provocative book heretical or refreshing, you are sure to come back to it, both figuratively and literally, especially if you frequent urban areas.

*Chris Partain is President of the Baltimore Chapter of MNPS.*

## The Path Not Taken

By a frustrated member of the Connecticut Botanical Society sedge identification project, with apologies to Robert Frost. Reproduced by permission.

Two traits diverged in a murky key,  
And sorry I could not fathom both,  
And know the sedge, long I stood  
And pondered each as well as I could:  
Were there two stigmas or three?

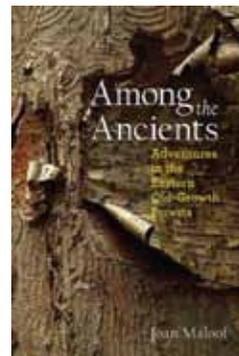
I went for three, just as fair,  
And having perhaps the better claim  
Because I threw my hands up in the air  
For as except the little beak  
They both to me looked just the same.

And both that morning equally lay  
In mysteries of Haine and Gray  
Oh, I kept the first for another day!  
Yet knowing how way leads on to way,  
I wondered if I should maybe pray.

I shall be telling this with a sigh  
Somewhere ages and ages hence:  
Two traits diverged in a murky key, and I –  
I took the one less stupified  
And never will know the difference.

## New Book Note

*Among the Ancients* by Joan Maloof  
Washington, DC: Ruka Press, 2011.



*Among the Ancients*, by Salisbury University faculty member Joan Maloof takes readers to twenty-six old growth forests—one in each state east of the Mississippi River and all open to the public. On this journey, readers come face to

face with old growth: from giant hemlock groves in Pennsylvania to a stand of pines in Wisconsin, and to the "Big Tree" in Alabama. Maloof also shows the forests from a human perspective including the link between old-growth forests and our own survival. *Among the Ancients* is both an adventure story and a passionate plea to preserve the few untouched stretches of forest that remain.

*Dr Maloof will be the speaker at the Montgomery County Monthly Meeting on October 25.*

# Pocono Plateau

At the end of May, a group of 16 MNPS members spent the weekend exploring the flora of the Pocono Plateau, one of the Nature Conservancy's top 40 Last Great Places. Led by Jennifer Ritzer of the Monroe County Environmental Education Center we visited Tannersville Bog, a sphagnum boreal bog owned by the Nature Conservancy. The next day Dr. Roger Latham led us through the Pocono glacial till barrens at Long Pond Preserve, home to many state and globally rare or endangered species. This preserve contains a dwarf-shrub savanna, which was maintained for many centuries using fire, and an undammed glacial lake. It is now being managed by the Nature Conservancy.



Bob and Ginny Yacovissi

*Calla palustris* at Tannersville Bog.



Bob and Ginny Yacovissi

*Sarracenia purpurea* at Tannersville Bog.



Bob and Ginny Yacovissi

*Rhododendron canadense* at Long Pond Preserve.



Kirsten Johnson.

At Long Pond Preserve.

*This is the first of a series of three peer-reviewed articles on floral visitors and phenology of three rare Potomac Gorge plant species. In supporting this project, the National Park Service hoped to learn whether pollinator limitation contributes to the rarity of these plants.*

# Phenology, Insect Associates, and Fruiting of *Valeriana pauciflora* Michaux (Valerianaceae) in the Potomac River Gorge Area of Maryland and Virginia, United States

Edward M. Barrows<sup>1</sup>, Aaron F. Howard<sup>2</sup>, and Brent W. Steury<sup>3</sup>

<sup>1</sup>Laboratory of Entomology and Biodiversity, Department of Biology and the Georgetown University Center for the Environment, Box 571229, Georgetown University, Washington, D.C., 20057-1229

<sup>2</sup>Laboratory of Entomology and Biodiversity, Department of Biology, and the Georgetown University Box 571229, Georgetown University, Washington, D.C., 20057-1229

<sup>3</sup>National Park Service, George Washington Memorial Parkway, Turkey Run Park Headquarters, McLean, VA 22101

## Abstract

This study examines selected phenological aspects of *Valeriana pauciflora* Michaux (Valerianaceae) in the U.S. Potomac River Gorge Area, reports some of the insect associates of this plant, and provides evidence that it does not require pollination by animal vectors in setting fruit in Turkey Run Park, Virginia. *Valeriana pauciflora* overwinters as rosettes that begin to elongate in early spring. Flowers appeared as early as 5 May during the study period and mature fruit occurred as early as 1 June. Both younger flowers with porrect stamens and older flowers with reflexed stamens were nectariferous. Corollas senesced by 5 days of age. *Valeriana pauciflora* readily set fruit without pollination by animals in a pollinator-exclusion experiment. Insect inflorescence associates include aphids and their tending ants and potential pollinators such as *Bombus griseocollis*, *Ceratina* sp., *Epargyreus clarus*, *Eurytides marcellus*, and *Poanes zabulon*.

## Introduction

*Valeriana pauciflora* Michaux (Valerianaceae) occurs in Alabama, Illinois, Indiana, Kentucky, Maryland, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia (United States Department of Agriculture 2010). It grows in rich woods and alluvium (Fernald 1950). This species is a G4 plant in the U.S., an S2 plant in Virginia (Townsend 2009), and an S1 plant in Maryland (Maryland Natural Heritage Program 2010). In Maryland, *V. pauciflora* was locally abundant in Cecil County along the Susquehanna River (Brown and Brown, 1984), and it currently occurs in the Potomac River flood plain in Montgomery County.

*Valeriana pauciflora* flowers occur from May through June in Maryland and Virginia (Brown and Brown 1984, pers. obs.). Flowers are borne in dense corymbs that elongate into loose ones. The flowers are nectariferous and have narrow, tubular 1–1.8 cm-long corollas that are pink through white and usually have five lobes. Corollas senesce before flowers are 6 days old (pers. obs.). The fruit are oblong through lanceolate, 4–5 mm long, indehiscent, and unilocular (Fernald 1950; Brown and Brown, 1984). A fruit's calyx has plumose bristles that unroll and spread when it is mature.

Our goals were to report information about selected aspects of the phenology of *V. pauciflora* and to determine if this species requires pollination by animal vectors in setting fruit in Turkey Run Park, Virginia, which is in the Potomac River Gorge Area. Evidently, there is no published information on the phenology of this plant in our study area, nor is there published information on the pollination ecology and other aspects of the reproductive biology of this species.

## Materials and Methods

We made observations on *V. pauciflora* from 2005 through 2011 in Maryland and Virginia in three sites. Site-1 is Cabin John Island in Chesapeake and Ohio Canal National Historical Park, Maryland. There, we observed *V. pauciflora*, which had about 100 inflorescences from 10 April through 29 May 2005. Site-2 is Turkey Run Park within the national park called the George Washington Memorial Parkway, Virginia, along the Potomac River. There were four large groups of 20–80 *V. pauciflora* shoots growing in Turkey Run Park near the shore of the river. We studied three of these groups near the base of the Zig-zag Path in 2007–2011. In 2007, the studied groups had a total of about 400 flowering shoots. Site-3 is a biodiverse suburban yard, in Bethesda, Maryland, called the Wehawken Nature Preserve. In 2005, we planted one plant in the ground in the Preserve that we obtained from the United States Botanic Garden (USBG), which indicated that the original source of the plant was the Potomac River Gorge. We divided the plant in 2006, 2007, and 2008 and planted its new ramets (all part of one clone) in an area that was about 1.3 m x 0.6 m. From 2007 through 2011, the clone had about 20 inflorescences per year. We watered the clone during dry spells as needed, after we found that some *V. pauciflora* ramets died during dry spells.

To examine floral changes over time, we marked a total of 61 first-day flowers on shoots in Site-3 in May 2010 by tying colored threads around their pedicels. We marked 24 first-day flowers on 10 May, 14 on 12 May, and 23 on 13 May. To obtain information on stigma receptivity and more information on floral nectar, we examined large flower buds and flowers with porrect anthers or reflexed anthers in Site-2 and Site-3 in May 2011. The temperature range during our

floral observation periods was 8–29° C. To determine whether a bud or flower had nectar, we removed a corolla from its ovary, laid it on the top of a petri dish, and gently pressed the corolla's base with the sides of forceps tips. If a corolla had nectar, it flowed out of the corolla's base during this process. To learn whether stigmas were receptive to pollen, we used a hydrogen-peroxide test, which assumes that stigmas with peroxidase activity produce oxygen bubbles and are, therefore, receptive to pollen (Kearns and Inouye, 1993). In performing this test, we placed a flower's stigma into a solution of 3% hydrogen peroxide (in water) in a Petri dish and examined the stigma for 1 minute under a dissecting microscope at 10 power. We scored stigmas that produced oxygen bubbles as receptive ones and those that produced no oxygen bubbles as non-receptive ones. We examined *V. pauciflora* for floral visitors and possible pollinators during 30 hours of direct observation from 2007–2011 during daylight hours and during 3 hours from 9 pm to 12 midnight on 23 May 2007.

We observed 10 flowers before their anthers dehisced and 10 plants after their anthers dehisced. Each flower was on a different shoot. To find out when plants set fruit, we made observations at study sites, and we defined fruit set as swelling of a flower's ovary. We scored a shoot as having mature seeds when it had one or more open capsules, and we scored a shoot as senesced when it was limp, brownish, and mostly, or fully dry, in May.

To determine whether *V. pauciflora* must be pollinated by animals before it can set fruit, we made preliminary observations in 2007, and we performed a pollinator-exclusion experiment in 2008 in Site-2, using the same *V. pauciflora* patches in both years. The cages were 8 cm in diameter and 11 cm tall. Each cage had sides of hexagonal "chicken wire" with each hexagon about 2.5 cm wide x 3.5 cm long. One-mm-mesh, light brown, nylon gauze was used to cover the wire frames of the cages. The gauze of a control cage had a hole (2 x 4 cm) in each of its two opposite sides that allowed direct access of potential pollinators to flowers. The gauze of the test cages had no pollinator-entrance holes. We tied each cage to a 1.2 m-long, bamboo supporting stake, enclosed all of a shoot's flower buds within a cage before the shoot started flowering, and adjusted the altitude of a cage as needed when its inflorescence elongated. The test cages did not exclude possible pollinating ants or thrips; however, we did not see these insects on anthers or stigmas. In 2007 we used 10 shoots enclosed in pollinator-exclusion cages, and in 2008 we used 17 control shoots (those with control cages) and 20 test shoots (those with test cages). To determine whether there was a statistical fruit-set difference between the 2008 control and test groups, we used the Chi-square test (Preacher 2010). To determine whether thrips, which are possible *V. pauciflora* pollinators, were present in buds and flowers, we examined 23 large buds and 102 flowers under a dissecting microscope at 10 power.

## Results and Discussion

**Phenology.** We observed that *V. pauciflora* overwinters as rosettes that produce stolons with leafy shoots in spring (fig. 1). Times of early flowers were 12 May 2005 (Site-1), 5 May 2007 (Site-3), and 12 May 2007 (Site-2), and flowers were produced until late May. Inflorescences in direct sun often showed partial, temporary wilting.

In the 2010 sample, all 61 marked first-day flowers from Site-3 had

fully porrect stamens in the morning, and their pistils appeared fully elongated by 6 pm. In day 2, the three lobes of each style tip were spread, and 49% of the flowers still had porrect stamens, 49% had recurved stamens, and 2% had a missing corolla. In day 3, 84% of the flowers had recurved stamens, and 16% of the pedicels had missing corollas; and in day 4, 66% of the flowers had recurved stamens, 34% of the pedicels had missing corollas, and attached corollas were wilting or already had wilted and dried.

Many examined large flower buds contained nectar. Flowers with porrect stamens and flowers with reflexed stamens had nectar and receptive stigmas. In the 2011 sample from Site-2, there was nectar in 80% of the 20 large flower buds, in 85% of 20 flowers with porrect stamens, and in 100% of 30 flowers with reflexed stamens. Stigmas were receptive in all of the flowers with porrect stamens and in 63% of flowers with reflexed stamens. In the 2011 sample from Site-3, there was nectar in 100% of 3 large flower buds, in 100% of 12 flowers with porrect stamens, and in 20% of 20 flowers with reflexed stamens. Stigmas were receptive in all of the 32 flowers. In flowers from both sites, stigmas with slightly through widely spread apical lobes, but not unspread lobes, produced oxygen bubbles when immersed in hydrogen peroxide.

Fruit started to expand 2–5 days after their associated corollas fell. Our earliest observation of mature fruits, *i.e.*, those with fully expanded bristles, was on 1 June in 2008 at Turkey Run Park (fig. 2).

**Inflorescence insect associates.** Many inflorescences in all three sites harbored often dense groups of dark aphids (possibly *Aphis fabae* Scopoli) or green aphids. The ants *Campanotus* sp. and *Prenolepis imparis* Emery consumed honeydew from the aphids. On 29 May 2007, in one of our study groups in Site-2, we examined 112 intact shoots. We found that 69 shoots were in flower, 43 shoots were no longer in flower, and 59 of these 112 shoots harbored aphids and ants. At this site, we also found eight shoots whose tops were missing, each with only a stalk without flower buds, flowers, or fruit. Possible reasons for this inflorescence damage include browsing by *Odocoileus virginianus* Zimmerman (White-tailed Deer) and picking flowers by *Homo sapiens sapiens* L. since the damage was adjacent to a main path in the Park. We did not directly observe any nonhuman mammals damage *V. pauciflora* shoots.

**Nectar-feeding and potentially pollinating floral visitors of *V. pauciflora*** were infrequent. Observed nectar feeders were bees and butterflies. We saw three apid bee species visit *V. pauciflora* flowers. In Site-1 on 14 May 2005 at about 4 p.m., a *Ceratina* carpenter bee, with loads of pollen the color and size of *V. pauciflora* pollen tried to enter a flower, perhaps seeking nectar. In Site-2 on 25 May 2008, one *Bombus griseocollis* DeGeer (Brown-belted Bumble Bee) visited and probed *V. pauciflora* flowers, possibly obtaining nectar. On 26 May 2008, a bee (possibly the introduced *Anthophora pilipes villosula* Sm., Shaggy Fuzzyfoot Bee) visited and probed several flowers, possibly obtaining nectar. Four butterfly species visited *V. pauciflora* flowers during our observation periods. In Site-1 in May 2005, we saw two adult *Eurytides marcellus* (Cramer) (Zebra Swallowtail, Papilionidae) imbibing nectar from *V. pauciflora*. In Site-2, on 13 May 2007, an unworn adult *E. marcellus* probed two flowers at 11:40 am, but did not appear to be consuming nectar. In early afternoon, a worn *E. marcellus* visited about 80 flowers, evidently imbibing their nectar.

On 25 May 2008, an *E. marcellus* with many white pollen grains resembling pollen of *V. pauciflora* on its abdomen, antenna, and legs sucked nectar from several flowers (fig. 3). On 22 May 2007, a new adult of *Epargyreus clarus* (Cramer) (Silver-spotted Skipper, Hesperidae) imbibed nectar from about 40 flowers (fig. 4). On 25 May 2007, a male *Poanes zabulon* Boisduval & LeConte (Zabulon Skipper, Hesperidae) took nectar from about 10 flowers, and on 16 May 2008, another male nectared on *V. pauciflora*. In May 2007, several *Pieris rapae* L. (Imported Cabbage Butterfly, Pieridae) flew to flowers, but did not imbibe nectar from them. On 13 and 15 May 2010 and 24 May 2011, we visited the *V. pauciflora* in Site-2, in an attempt to capture flower visitors to determine whether or not they were carrying pollen of this species. Although all of the days were sunny and warm, we did not see any potential pollinators on *V. pauciflora* flowers.

During our nocturnal search for floral associates, we saw two moth species and one scarab beetle species resting on *V. pauciflora* flowers, but no insects that were feeding on their nectar. Flowers of this species extend outward during light hours and droop during dark hours, which suggests that the flowers attract diurnal pollinators rather than nocturnal ones.

**Pollination and fruit set.** Our examination of the 10 inflorescences in pollinator-exclusion cages in July 2007 found that nine of the 10 inflorescences had green fruit. The inflorescence that did not produce fruit died prematurely. We collected cages on 4 August 2007 and examined their contents. The nine infructescences left  $3.56 \pm 5.03$  SD (0–16) fruit in the cages. Seven of these nine inflorescences left normal-looking fruit in the cages.

The cage of plant-1 contained an adult *Prochoerodes transversata* (Drury) (Large Maple Spanworm, Geometridae), and the cage of plant-2 had a case of a bagworm (0.4 cm in diameter and 1.5 cm long, made of silk and grass stems), probably *Eurukuttarus confederata* Grote (Grass Bagworm, Psychidae). We had tied the gauze of each cage tightly to a stake above an inflorescence and to the stake and stem of an inflorescence below the flowers. We did not tie the gauze so tightly below the flowers that the twine would squeeze stems. Therefore, it is likely that the bagworm squeezed through the space between the gauze and stem in search of a pupation site. We found one forewing in the cage that looked like a psychid forewing. The *P. transversata* may have entered the cage as a larva or an adult. The larva might have fed on *V. pauciflora*; however, Covell (1984) records 11 diverse plant genera, but not *Valeriana*, as some of the hosts for this moth. Plant-1 left one normal-looking fruit in the cage. Bees and flower flies might have been able to squeeze into cage bottoms near stems. However we saw no bees or flies in the cages. It is possible that ants, thrips, or both, pollinated some of the flowers, but we never saw these insects doing so at any site, although ants can be common and are seen on corollas where they obtain honeydew from aphids. We found no thrips associated with 20 buds and 50 flowers from Site-2 and 3 buds and 52 flowers from Site-3.

Of the 17 control shoots of 2008, 13 set fruit and four died before setting fruit. Of the 20 test shoots, 14 set fruit, and six died before setting fruit. The occurrence of fruit production in the pollinator-exclusion cages is consistent with the hypothesis that *V. pauciflora* does not require pollination from insects or *Archilochus colubris* L. (Ruby-throated Hummingbird, Trochilidae) in setting fruit. We found no

difference in fruit set frequency (recorded as “yes” or “no”) between the test and control groups (Chi-square = 1; df = 1;  $P > 0.05$ ). Some premature shoot death might have been due to our handling shoots while adjusting cages.

We observed hundreds of *V. pauciflora* inflorescences annually in the Potomac Gorge Area during our study years. This species grows as groups of shoots, and without genetic analysis, the number of plants per group is unclear because this species reproduces by both seeds and ramets. Shoots frequently produce fruit, and this species evidently produces fruit without pollination by animals. An unknown proportion of its seeds may be of low quality due to selfing, which can cause inbreeding depression and concomitant lower-quality offspring in plants (Crnokrak and Roff 1999). There appears to be no published work regarding the quality of offspring from selfed and out-crossed flowers of *V. pauciflora*.

In conclusion, we found that in the Potomac Gorge, *V. pauciflora* flowers in May and has mature fruit by early June. Bees and butterflies are floral visitors and potential pollinators of this species. Flowers of this species can set fruits without being pollinated by animals. Future research on *V. pauciflora* should include a detailed study of its population-limiting factors because it is an uncommon plant in the Gorge.

#### Acknowledgements

Georgetown University and the National Park Service (NPS) provided financial support for this study. The NPS provided a permit to work in our study site. Cris Fleming and Donald A. M. Mackay provided constructive criticisms regarding a preliminary draft of this paper.

#### Literature Cited

- Brown, M. L., and R. G. Brown. 1984. *Herbaceous Plants of Maryland*. Port City Press, MD. 1127 pp.
- Covell, C. V., Jr. 1984. *A Field Guide to the Moths of Eastern North America*. Houghton Mifflin Company, Boston, MA. 496 pp.
- Crnokrak, P., and D. A. Roff. 1999. Inbreeding depression in the wild. *Heredity* 83: 260–270.
- Fernald, M. L. 1950. *Gray's Manual of Botany*. Eighth Edition. American Book Company, New York, NY. 1632 pp.
- Kearns, C. A. and D. W. Inouye. 1993. *Techniques for Pollination Biologists*. University Press of Colorado, Niwot, Colorado. 583 pp.
- Maryland Natural Heritage Program. 2010. *Rare, Threatened and Endangered Species of Maryland*. April 2010 Edition. Maryland Department of Natural Resources, Wildlife and Heritage Services, Annapolis, Maryland. [http://www.dnr.state.md.us/wildlife/Plants\\_Wildlife/rte/pdfs/rte\\_Plant\\_List.pdf](http://www.dnr.state.md.us/wildlife/Plants_Wildlife/rte/pdfs/rte_Plant_List.pdf) (accessed 20 December 2010)
- Preacher, K. J. 2010. Calculation for the Chi-Square Test. <http://www.people.ku.edu/~preacher/chisq/chisq.htm> (Accessed 20 December 2010).

Townsend, J. F. 2009. Natural Heritage Resources of Virginia: Rare Plants. Natural Heritage Technical Report 09-07. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Unpublished report. April 2009. 62 pages + appendices. [http://www.dcr.virginia.gov/natural\\_heritage/documents/plantlist09.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/plantlist09.pdf) (accessed 20 December 2010)

United States Department of Agriculture. 2010. Plants profile. *Valeriana pauciflora* Michx. Largeflower Valerian. <http://plants.usda.gov/java/profile?symbol=VAPA2> (accessed 20 December 2010).

*Edward "Edd" Barrows is Professor of Biology and Director of the Laboratory of Entomology and Biodiversity, Environmental Studies, and the Center for the Environment at Georgetown University. Edd's research focuses on behavior, ecology, evolution, and conservation, usually involving arthropods and plants as study organisms. He is also an expert in scientific communication and the author of Animal Behavior Desk Reference: A Dictionary of Animal Behavior, Ecology, and Evolution.*

*Aaron Howard is a PhD candidate at Georgetown. His main research involves plant ecology and evolution, especially with regard to floral displays and clonality in monoecious, polliniferous plants. His current research plants are *Asclepias incarnata* (Swamp Milkweed) and *A. syriaca* (Common Milkweed). He previously performed research on wetland communities and on the biology of *Rhithropanopeus harrisi* (Mud Crab).*

*Brent Steury is the Natural Resources Program Manager for the national park known as the George Washington Memorial Parkway, where he currently oversees all aspects of the park's inventory and monitoring program. His research has focused on the distribution of threatened and endangered vascular plants on the Mid-Atlantic Coastal Plain. Brent has authored 20 journal articles, numerous technical reports, and discovered more than a dozen vascular plants that were new records for the floras of Maryland, Virginia, or the District of Columbia. In addition to his interest in plants, Brent has published papers on reptiles, amphibians, moths, bees, and land snails.*



Figure 1. An elongating rosette of *Valeriana pauciflora* (Site-1, 4 May 2005).



Figure 2. A mature fruit of *V. pauciflora* with fully expanded plumose calyx bristles (Site-2, 1 June 2008).



Figure 3. A nectaring *Eurytides marcellus* (Zebra Swallowtail) on *V. pauciflora* (Site-2, 25 May 2008). The butterfly's proboscis is extended into a flower, and the butterfly has white pollen on its antenna, body, and legs. It fluttered its wings quickly as it imbibed nectar.



Figure 4. A nectaring *Epargyreus clarus* (Silver-spotted Skipper Butterfly) on *V. pauciflora* (Site-2, 22 May 2007). The butterfly's proboscis tip is in a flower, and the inflorescence is in direct sun and partly wilted.

# Conservation Watch



## New Maryland Law Addresses Invasive Plant Species

On April 12, 2011, Gov. Martin O'Malley signed into law HB 831, a bill that had passed both houses of the state legislature unanimously. Although it will be several years until the regulations described in TITLE 9.5 INVASIVE PLANTS PREVENTION AND CONTROL are fully implemented, MNPS recognized the passage of this bill as an important step in control of invasive plants in Maryland and testified in its favor at a House of Delegates hearing. This law will be implemented in stages by the Maryland Department of Agriculture (MDA). First an Invasive Plants Advisory Committee will be established. The Committee will have representatives from government as well as from the plant and landscaping industry. In addition, there will be two individuals with relevant experience, a consumer, and a member of an environmental group on the Committee. By October 1, 2012 the Committee is to establish a science-based protocol to be used as a basis for creating a two-tier list of plants known to be invasive in Maryland. The law stipulates: "*Tier 1*

*invasive plant*" includes invasive plant species that cause or are likely to cause severe harm within the state. "*Tier 2 invasive plant*" includes invasive plant species that cause or are likely to cause substantial negative impact within the state.

By October 1, 2013, the Committee will write the regulations creating the actual lists of Tier 1 plants (largely outlawed in MD trade) and Tier 2 plants (retailers and landscape contractors must provide consumer labeling regarding invasiveness). The new regulations will be phased in, ultimately giving MDA responsibility for enforcement. Although no date has been established for the new regulations to be implemented, this is a positive move in the right direction by the State of Maryland. MNPS will monitor implementation of the law and provide input as it progresses, beginning with the selection of Committee members. The new law is online at [http://mlis.state.md.us/2011rs/chapters\\_noln/Ch\\_142\\_hb0831T.pdf](http://mlis.state.md.us/2011rs/chapters_noln/Ch_142_hb0831T.pdf)

- Carol Jelich

## Mattawoman Watershed

The Mattawoman Creek watershed, which drains into the Potomac River, is located about 15 miles southwest of Washington, DC. It supports Maryland's best fish-spawning and nursery grounds, as well as hotspots of biodiversity, but is now declining due to urbanization. Recent news for the watershed is mixed. Good news came in July when a 773-acre undeveloped property along the creek was protected from development through the efforts of the Chesapeake Office of The Trust for Public Land (TPL), the Mattawoman Watershed Society, and the Maryland Department of Natural Resources (DNR). The property had been slated for a new residential subdivision, but has instead been conserved as an addition to Myrtle Grove Wildlife Management Area. TPL coordinated the purchase of the property by DNR under Maryland's Program Open Space. With a prior 202-acre purchase of an adjacent property (now owned by Charles County), nearly 1,000 acres are now protected.

Also, the ongoing Charles County revision of its Comprehensive Plan has a ground-breaking Smart Growth option called Scenario 1. Scenario 1 represents a dramatic positive change in attitude. Unfortunately, a recent close vote by the Board of Commissioners is keeping

the process alive for the Cross County Connector extension, even though the highway doesn't appear in two of the three Comp Plan scenarios. An October 19 Open House will allow the public to voice their choice of option.

In other negative developments, the Maryland Department of Environment just issued a wetland permit to deforest 118 acres of wetlands in southern Maryland, 74 of which are in the Mattawoman watershed, to enable an additional high-voltage power line along an existing right-of-way for the Mid-Atlantic Power Pathway (MAPP). This despite the fact that the need for the line is uncertain, and that Pepco Holdings, Inc., which applied for the permit, has asked the Public Service Commission for a one-year delay in the review of the project. MDE is also considering a wetland permit to destroy a total of 8.5 acres of wetland, wetland buffer, and 100-year floodplain, as well as a tributary, for a project called Waldorf Crossing that presses against Mattawoman in Waldorf. The Mattawoman story shows how efforts to restore the Bay and protect valuable wetlands resemble the myth of Sisyphus, with two steps back for every step forward.

- Jim Long and Kirsten Johnson

## Bear Branch Stream, Sugarloaf Mountain

Why would a brook trout restoration project preempt conservation of native plant communities? Faced with this question one sunny day in July as I biked around the shady northwestern side of Sugarloaf Mountain on Mt. Ephraim Road toward its intersection with a small stream known as Bear Branch. Words fail to capture this magical area. Along this rustic road is a woodland forest where Melanie Choukas-Bradley and I teach plant identification for Audubon Naturalist Society. I remembered the rattlesnake plantain orchid that lay in hiding near the stream, along with lady slippers and whorled pogonia orchids; Indian cucumber root, Solomon's seal, false Solomon's seal, Canada mayflower; and roadside edges hosting patches of partridgeberry, viburnum, mountain laurel, dewberry, pennywort, trailing arbutus, bowman's root, showy skullcap, horsetails, ferns, and more.

But suddenly I stopped, stunned by the sight of massive piles of

gravel and concrete forms in the middle of Bear Branch stream and Mt. Ephraim Road. All those lilies, orchids, shrubs and other plants were trampled and torn from the soil, the beautiful wetland refuge destroyed. I later learned that Potomac Conservancy, in cooperation with Trout Unlimited and others, had acquired permits from Frederick County to allow rerouting a stream crossing on Mt. Ephraim Road, so that brook trout can cross the road to swim up and down stream.

Why would Frederick County and conservation groups endanger an intact native plant community for a single species restoration project? If the trout were doing fine on the other side of the road, was it worth all the damage to allow them to cross the road? Could the project have been carried out in a less damaging way? And what is the effect on aquatic life of the destruction of a healthy streamside plant community?

- Tina Thieme Brown

# Coming Events

## LATE FALL and WINTER FIELD TRIPS

These are the field trips scheduled at press time. For up-to-date news of MNPS field trips, and for locations and directions for events listed below please visit our website, [www.mdflora.org](http://www.mdflora.org) and find us at [meetup.com](http://meetup.com). *Unless indicated, MNPS field trips are generally geared to adults. Please see the information provided for individual field trips, some of which may welcome children. If you have questions, feel free to contact the field trip leader.*

### October 2, 2011, Sunday, 9:00 am – 11 am **Uncultivated: Exploring Wild Urban Plants, Clipper Mill Road at Ash Street, Baltimore**

Artist Lynn Cazabon will discuss her ongoing project, *Uncultivated*, while demonstrating how she chooses a site and photographs the plants she finds. She and horticulturist Chris Partain will also discuss attributes of the plants we discover at this site. *Uncultivated* is a multi-faceted representation of the urban landscape of Baltimore which seeks to draw attention to the tiny pockets of wildness within the urban environment (<http://uncultivated.info>). This field trip follows the artist's talk at MNPS's September meeting in Montgomery County. Contact: Chris Partain, [cpartain@gmail.com](mailto:cpartain@gmail.com)

### October 8, 2011, Saturday, 1:00 pm – 6 pm **Aquatic Plants by Canoe, Marshy Point, Baltimore**

Leader: Bob Stanhope  
Marshy Point is part of the U.S. National Park Service's Chesapeake Gateways Network. Naturalist Bob Stanhope will begin the event in the Nature Center with a half hour presentation, then take us out on the water. We will paddle from shallow water (seeing redhead grass and marsh plants) to deeper water (seeing wild celery and hearing duck hunting tales) – two miles round trip. The full moon will rise around 5, and the sun will set around 6:40, promising to be a magical evening. For canoe rental info, location and directions visit [www.mdflora.org](http://www.mdflora.org). This trip is limited to 8 canoes, 3 people each. Rain date: Sunday, October 9, 4 pm – 7 pm Contact: Chris Partain, [cpartain@gmail.com](mailto:cpartain@gmail.com)

### October 15, 2011, Saturday, 9:00 am – 12:00 noon **Soldiers Delight Natural Environment Area**

Leader: Chris Partain  
Soldiers Delight Natural Environment Area is the largest serpentine barren in MD. Serpentine barrens support a unique flora, which is adapted to low essential nutrients, but high concentrations of heavy metals. The area has 39+ rare, threatened, or endangered plant species. Contact: Chris Partain, [cpartain@gmail.com](mailto:cpartain@gmail.com)

### November 5, 2011, Saturday, 10:00 am - 1:00 pm **Tree Anatomy Walk, Wheaton Regional Park**

Leader: Richard Murray, arborist  
This ever-popular walk will look at tree architecture, branching patterns, and contrast how trees adapt to environmental influences. Aging stages, defect patterns and how trees compensate for wounding will be discussed. Easy walk. Heavy rain cancels. Contact: Richard Murray, [richardmurray@shannontree.com](mailto:richardmurray@shannontree.com)

### Sunday, December 18 **Winter Solstice Walk, Chapman Forest**

Leader: Rod Simmons  
Watch the MNPS website for details of Rod Simmons' popular annual Winter Solstice Walk, sponsored by MNPS, VNPS's Potowmack Chapter, and the Arlington Regional Master Naturalists. This year's Winter Solstice Walk will feature old-age trees at Chapman Forest, including the National Champion American Basswood, State Champion Chinquapin Oak, State Champion Pagoda Oak, and many other notable trees.

## Fall Field Botany Quiz

Can you name these native plants?

1. The bright yellow flowers of this genus are sometimes blamed — falsely — for hay fever. Distinguishing the various species can be tricky, but this one is recognized by its purplish stem, its axillary flowers, and its relative shade tolerance.
2. This tall composite has a characteristic shape at flowering time. Its upper branches are much longer than its lower branches, and each branch bears clusters of small white flowers. It's a familiar sight in sunny places, including urban waste areas.
3. This graceful monocot has cream-colored flowers in spring, but in the opinion of your quizmaster, it reaches its peak beauty in late summer when pairs of deep blue berries hang from the leaf axils.

Answers on page 13.



Above:  
MNPS group members

Right:  
Climbing Fern,  
*Lygodium palmatum*,  
and Ground Pine,  
*Lycopodium obscurum*



Field trip to Severn Run, September 11, led by Chris Partain. The highlight was climbing fern, *Lygodium palmatum*, which is classified as threatened in MD.

# Coming Events

## MONTHLY MEETINGS

Many MNPS members have thought of the monthly meetings in Montgomery County – formerly usually at the White Oak Library, now usually at the Kensington Library – as the regular meetings of the Maryland Native Plant Society. MNPS's other chapters are becoming increasingly active and holding monthly meetings as well, so from now on the meetings known at press time of all the chapters will be listed chronologically. (As always, the meetings of the Montgomery Chapter will take place on the last Tuesday of each month (with the exception of the December meeting). Unless otherwise noted, those meetings will be at Kensington Library, Knowles Road, in Kensington.)

### **October 18 ~ Tuesday, 7:00 PM** **Butterflies of Western Maryland**

Western Mountains Chapter location: Discovery Center at Deep Creek Lake State Park

Speaker: Fran Pope

Directions: From I-68 take exit 14 A (Rt. 219 South to Deep Creek Lake). Continue south on 219 for 18 miles. Turn left on Glendale Road. Continue one mile, crossing over Glendale Bridge. Immediately after crossing Glendale Bridge, turn left onto State Park Road and proceed one mile until you see the sign for the state park facilities.

### **October 19 ~ Wednesday, 6:00 PM**

Nursery tour 6:00 PM, Presentation 7:00 PM

Doors open at 5:30 for plant purchases

#### **Blue Water Baltimore**

Baltimore Chapter, location: Herring Run Nursery

Speaker: Darin Crew

Blue Water Baltimore's mission is "to use community based restoration, education and advocacy to achieve clean water in Baltimore's rivers, streams and harbor, so that citizens of the Baltimore region will enjoy a vibrant natural environment, livable neighborhoods, and a healthy, thriving Inner Harbor and Chesapeake Bay."

Directions: From I-83 take exit 10A for Northern Parkway east. From Northern Parkway, turn right on Hellen Rd. Herring Run Nursery is on the right; park in the lot for Baltimore Municipal Golf Corporation. The nursery is a ¼ mile walk from the parking lot; follow the signs.

### **October 25 ~ Tuesday, 7:30 PM, doors open at 6:30**

#### **The Old-Growth Forest Network: America's Next Idea**

Montgomery County Chapter meeting, Kensington Library

Speaker: Joan Maloof

Forest protection activist and author, Joan Maloof, speaks about her travels to the Eastern old-growth forests for her newest book, *Among the Ancients: Adventures in the Eastern Old Growth* (published April 2011, Ruka Press). When Maloof realized that less than 1% of the eastern old-growth forests remained, she started the *Old Growth Forest Network* to identify one forest in each county, which will remain unlogged. She will discuss the progress of the network in MD. Joan Maloof received her PhD from the University of Maryland. She has published research articles about pollination biology. Since 2002 she has expanded her

ecological studies into the forest. Her book *Teaching the Trees: Lessons from the Forest* (Univ. of GA Press, 2005) won an Honorable Mention from the Association for the Study of Literature and the Environment.

### **November 16 ~ Wednesday evening** **Baltimore's Tree Canopy and TreeBaltimore**

Baltimore Chapter meeting, Cylburn Arboretum in the greenhouse classroom.

Speaker: Erik Dihle

Please watch [www.mdflora.org](http://www.mdflora.org) for details as they become available.

### **November 29 ~ Tuesday, 7:30 PM, doors open at 6:30**

#### **An Ozone Monitoring Garden**

Montgomery County Chapter meeting, Kensington Library

Speaker: Jeannie Allen, Science Education Specialist, Sigma Space Corp.

Though air quality in our region has improved, in summer we still experience ozone levels that are well above what is healthy for plants, animals, and people. Several common native plants are sensitive to ozone, and when over-exposed will show specific changes in their leaves. Come and learn how ozone is formed; how to recognize ozone damage and which plants may show it; and hear an update on our regional air quality based on NASA observations of Earth from space.

### **December 13 ~ Tuesday, 6:30 PM**

#### **Annual Holiday Social and Members Share Night, plus Annual MNPS Business Meeting**

Montgomery County Chapter meeting, Kensington Library

If you have images or stories of your local or distant adventures experienced in the past year, do bring them to share! Please bring a Power Point presentation (on a disk or portable drive) or slides to share with the group. A slide projector (Vivitar) and carousels will be available. Please bring holiday cookies or other treats to share. Beverages provided.

### **January 31 ~ Tuesday, 7:30 PM, doors open at 6:30**

#### **Oaks in Winter, Tree ID Workshop**

Montgomery County Chapter meeting, Kensington Library

Speaker: Cris Fleming, MNPS Board Member and Former President  
Join Cris for her traditional winter tree identification workshop, one of our most popular programs. This year Cris will focus on Maryland's native oaks.

## Fall Field Botany Quiz

Answers from page 12

1. *Solidago caesia*, Bluestem Goldenrod
2. *Conyza canadensis*, Horseweed or Fireweed
3. *Polygonatum biflorum*, Solomon's Seal

## Look for MNPS Events & News

- 📍 on our website [mdflora.org](http://mdflora.org)
- 📍 on Facebook
- 📍 on Meet up

# Maryland Native Plant Society Nominees for 2012 Officers and Board of Directors

## President

**Kirsten Johnson**, Baltimore City. *Current President*; retired attorney; law practice included work with non-profits and charitable organizations. Master's Degree in biology, Governance Committee Chair. Volunteer for Irvine Nature Center, Cylburn Arboretum. Liaison, MNPS Baltimore Chapter.

## Vice Presidents

**Marney Bruce**, Montgomery County. *Current VP*; Founder, *Simplicity Matters Earth Institute*; Weed Warrior volunteer for Mont. Co., TNC, ANS; Montgomery County Master Gardener; Habitat Steward for NWF; Fall Conference, Monthly Meeting, Conservation Committees.

**Marc Imlay, PhD**, Charles County. *Current VP*; Conservation Biologist; Habitat Stewardship Committee Chair; Southern MD Chapter; consultant, Mid-Atlantic Invasive Plant Council.

**Linda Keenan**, Prince George's County. *Current VP*; Certified Backyard Habitat Steward, NWF; Certificate in Natural History Field Studies, Grad School and ANS; professional in nonprofit organization management; Conservation Advocacy Committee Chair.

## Treasurer

**Matthew Cohen**, Montgomery County. *Current Treasurer*. Owner, Matt's Habitats, focused on native plants and other environmentally-friendly gardening strategies. A long time gardener and naturalist, he and his wife have transformed their ¼ acre yard in Silver Spring to natives and edible plants.

## Secretary

**Ginny Yacovissi**, Northern Virginia. *Current Secretary*; Weed Warrior for George Washington Memorial Parkway (NPS). Volunteer at native plant propagation beds for Potowmack Chapter, Virginia Native Plant Society. Monthly Meeting Committee.

## Board of Directors

**Ken Bawer**, Montgomery County. *Current Board Member*; IT Specialist; Weed Warrior with Mo. Co. & Nature Conservancy; pursuing Cert. in Natural History Field Studies, Grad School and ANS; interest in conservation. BS Atmospheric & Oceanic Sciences; Graduate work in Developmental Biology.

**Matthew Bazar**, Cecil County. *Current Board Member*; biologist; environmental scientist, U. S. Army; Cecil County Forestry Board; volunteer land steward, Lancaster Co. Conservancy (PA); interested in development issues, habitat preservation, open space preservation.

**Carole Bergmann**, Montgomery County. *Current Board Member*; *past President*; Forest Ecologist for M-NCPPC, founder 12 years ago of Weed Warriors; Grad School and ANS instructor; Fall Conference, Education, Botany and Habitat Stewardship Committees; field trip leader for MNPS and ANS.

**Melanie Choukas-Bradley**, Montgomery County. *Current Board Member*; *past VP*; Nominating Committee; author, *City of Trees* and Sugarloaf books; field trip leader for many orgs.; Grad School and ANS Natural History Field Studies instructor. *Wildflower in Focus* for MNPS.

**Cris Fleming**, Montgomery County. *Current Board Member*; *past President*; Botany, Conference, Governance and Publications Committees; instructor, plant identification courses, Grad School and ANS; field trip leader for MNPS, VNPS, ANS; author, *Finding Wildflowers in the Washington-Baltimore Area*. Former field botanist/ecologist for Maryland Natural Heritage Program.

**Carolyn Fulton**, Baltimore City. *Current Board Member*; *past Secretary*; Marilandica Editorial Committee; Nursery and Finance Committees.

**Albert Hartley**, Montgomery County. *Current Board Member*; computer programmer; accomplished nature photographer who frequently exhibits; avid birder; Cert. in Natural History Field Studies, Grad School and ANS.

**Beth Johnson**, Montgomery County. *Current Board Member*; *past Treasurer*; tax professional and Enrolled Agent with IRS; active with Washington Area Butterfly Club; interest in Lepidoptera and Odonata.

**Brett A. McMillan, PhD**, Carroll County. *Current Board Member*; Asst. Professor of Biology, McDaniel College; Field Botany and Ecology Instructor; research and teaching include graminoids and moss ecology. MA, U of Fl. Research on invasive plant impact on central Fl. understory plants. PhD, Old Dominion University, research on environmental variables/plant distribution, dunes of barrier islands, eastern shore of VA.

**Karyn Molines**, Calvert County. *Current Board Member*; *past President, VP, Secretary*; Fall Conference Chair 1998, 2004, 2007-11; Southern Maryland Chapter. Chief of Southern Parks for Anne Arundel County Dept. of Recreation and Parks.

**Christopher F. Puttock, PhD**, Prince Georges County. *New Board Member*. Curator, Norton-Brown Herbarium (MARY), U of MD. Previous Exec. Dir. of Chesapeake Natives, Inc., 2005-08 Program Coordinator of the Hawai'i Conservation Alliance; 1998-2005 quadrupled activities of the largest herbarium in the Pacific (Herbarium Pacificum). Current goal to revitalize activities of MD's State Herbarium, now in the Research Greenhouse Complex. Trained in systematics, he is working on an electronic flora of the North American paper daisies. VP of Botanical Society of Washington DC.

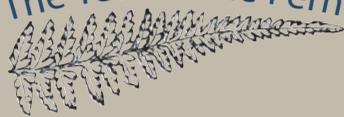
**Glenn Rice**, Frederick County. *Current Board Member*. Park naturalist at Meadowside Nature Center. Designs, develops and maintains interpretive exhibits and publications. Developing natural and cultural history tour of the Muncaster Mill Trail; acting activities chair, Northern Region's annual Harvest Festival. Former science educator, Baltimore Living Classrooms Foundation. Sailed 500+ miles in Chesapeake Bay and watershed with children studying natural and cultural history.

**Mary Pat Rowan**, Washington, DC. *Current Board Member*; landscape architect; Conservation Committee; MNPS field trip leader; Washington, DC Chapter liaison.

**Roderick Simmons**, Northern Virginia. *Current Board Member*; *past President*; Field trip leader; Botany, Fall Conf., Conservation, & Education Committees; Natural Resource Specialist & Plant Ecologist for City of Alexandria, VA; Research Collaborator Smithsonian; Contract Botanist for NatureServe and NPS; Botany/dendrology instructor, field trip leader Arlington Regional Master Naturalists; aids VA & MD natural heritage programs. Past president and active member of Botanical Society of Washington. VA Native Plant Society Board, and field trip leader for many organizations.

**Gary Steele**, Montgomery County. *Past Treasurer*; computer configurations analyst; experienced hiker, trail volunteer, AT corridor monitor; completed several Natural History Field Studies Classes, Grad School and ANS.

## Celebrating The Year of the Fern



### In this Issue

Letter from the President	pg 1
Fern in Focus	2
Mattawoman Bottomlands	3
Book Review	4
Pocono Plateau	5
Barrows, et al.	6
Conservation Watch	11
Upcoming Field Trips	12
Fall Field Botany Quiz	12
Upcoming Meetings	13
Board Nominees	14

Maryland Native Plant Society  
PO Box 4877  
Silver Spring, MD 20914

FOR MEMBERS ONLY

## Maryland Native Plant Society Ballot for Officers and Board of Directors for 2012

In the past, MNPS has mailed ballots for Board elections to all the members every year. This is expensive. Also, we found that few ballots were returned. Beginning in 2009, the Board decided to save postage by including the ballot in the newsletter. To further save time and postage, **members do not need to vote if they favor the proposed slate that the Nominating Committee recommends. A non-response will be counted as a vote in favor of all nominees.** If you do not favor one or more of the nominees, then please do cast your vote by mailing in a ballot.

Candidates are running for one year terms unless two-year term is specified. Candidates' bios are printed on the back of the ballot.

If you would like to mail in your ballot, it must be received at MNPS, P.O. Box 4877, Silver Spring, MD 20914 by December 5, 2011—or you may bring it to the December Monthly Meeting. The results will be announced at that evening meeting.

If you decide to mail in your ballot, please choose from one of the following:

\_\_\_\_\_ I vote for all of the Board nominees

\_\_\_\_\_ I vote for all of the Board nominees, with the following exceptions:

## Nominees for 2012 Officers and Board of Directors

### President

Kirsten Johnson

### Vice-President

Marney Bruce (two-year term)

Marc Imlay, PhD

Linda Keenan

### Treasurer

Matthew Cohen (two-year term)

### Secretary

Ginny Yacovissi

### Board of Directors

Ken Bawer

Matthew Bazar

Carole Bergmann (two-year term)

Melanie Choukas-Bradley

Cris Fleming

Carolyn Fulton

Albert Hartley

Beth Johnson

Brett A. McMillan, PhD

Karyn Molines

Christopher F. Puttock, PhD

Glenn Rice

Mary Pat Rowan

Rod Simmons

Gary Steele