The Marsh Wren

SINCE 1976 | THE FRIENDS OF DYKE MARSH | FALL 2018

FODM Quarterly Meeting

Wednesday, November 14, at 7:30 p.m., Huntley Meadows Park, 3701 Lockheed Blvd., Alexandria, VA 22306. Phone 703 768-2525. Free to all.

2019 FODM Meetings

March 3, May 15, September 11, November 14. FODM will host an informal social 30 minutes before each meeting. Check fodm.org for locations.

Calendar of Events

November 10, 8:00 - 12 noon Mount Vernon Environment Expo. See details on page 3.

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The Biodiversity of the GW Memorial Parkway

On November 14, at FODM's quarterly meeting, National Park Service biologist Brent Steury will give a presentation summarizing the George Washington Memorial Parkway's eleven-year biodiversity inventory of its 4,580 acres. The parkway is rich in natural resources, from the rare plant communities of the Potomac Gorge to the birds of the Dyke Marsh Wildlife Preserve.

NPS experts have documented 5,563 species: 101 species new to the flora or fauna of Virginia, seven species new to the District of Columbia, three species new to North America, at least 71 species new to science, 106 species state-listed for rarity, three federally-threatened species and 58 peer-reviewed journal articles published in the last 11 years. In this past year, some never-recorded dragonfly species have been identified in Dyke Marsh.

Steury has worked for the National Park Service (NPS) for over 20 years.

Brent Steury leads a nature walk in Dyke Marsh. Photo by Glenda Booth

For the past 15 years he has overseen the all-taxa biodiversity inventory. During his NPS career, he has authored over 40 journal articles on subjects ranging from

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Restoration, a Commanding Presence on the Potomac

BY GLENDA BOOTH

Just off Dyke Marsh, the machinery of restoration is very visible and working daily in the Potomac River. With big barges, cranes and boats, crews are building the breakwater, the first stage of restoration. U.S. Geological Survey and National Park Service (NPS) experts identified a breakwater as the first priority of restoration, a riprap structure designed to replicate the historic promontory removed by dredgers. Removing the promontory altered the hydrology of the marsh. The breakwater would "redirect erosive flows in the marsh, particularly during strong storms and would re-establish hydrologic conditions that would encourage sediment accretion," says the NPS 2014 plan.

The full moon over Dyke Marsh illuminates a barge and crane, part of restoration activity. Photo by Jim Hutzler

In Memoriam, Myriam Elizabeth Eder, M.D.

Myriam Eder

Beloved wife, mother, physician, world traveler and birder, Myriam Eder passed away on August 27, 2018. With her husband and former FODM President, Ed Eder, she supported FODM and our projects for decades. This summer, Myriam was thrilled to see pictures of the start of the restoration of Dyke Marsh. She loved going on nature walks and was an active participant in FODM activities. Hers was a life well lived. We will miss her.

Cleaning Up the River – Alexandria's Plan

The Virginia Department of Environmental Quality in July approved Alexandria's plan to remediate its combined sewer overflow system by 2025. City officials maintain that the plan will reduce the average number of overflows each year from about 60 to fewer than four. In 2017, the Virginia General Assembly passed and the governor signed a law requiring Alexandria to complete remediation by July 2025 or face penalties.

Combined sewer systems collect rainwater, domestic sewage and industrial wastewater in the same pipes. During many wet weather events, flows exceed capacity and the untreated wastewater is discharged into the Potomac River from four outfalls. This means that Alexandria's system has sent millions of gallons of raw sewage into Hunting Creek and the Potomac River for years.

In developing the plan, Alexandria formed a stakeholder group to advise city officials. Two FODMers served on that committee, Dixie Sommers and Jack Sullivan. Thank you for your service.

You can read more about the plan at https://www.alexandriava.gov/Sewers

David Vela Nominated to Head NPS

David Vela

President Donald Trump has nominated David Vela to be the nineteenth Director of the National Park Service (NPS). Mr. Vela has a long history with NPS, including serving as Superintendent of the George Washington Memorial Parkway. Most recently, he was the Superintendent of Grand Teton National Park. Upon the announcement, Mr. Vela said, "Having worn the uniform of the National Park Service for more than 28 years, I greatly value all that it represents and the importance of ensuring that we build a next generation workforce that is ready to take on the challenges and opportunities facing our agency." If confirmed by the Senate, he will be the agency's first Hispanic director. The Senate confirmation hearing will be on November 15.

MEETING *(continued from page 1)*

plants, to pollination biology, bees, beetles and snails. Prior to joining NPS, he worked in national parks in Guatemala and Bolivia.

This free program will begin at 7:30 p.m. at the Norma Hoffman Visitor Center of Huntley Meadows Park, 3701 Lockheed Boulevard, Alexandria 22306. If you use a GPS device to find the park, enter the street address, not the park's name. Cosponsors are the American Horticultural Society, Friends of Little Hunting Creek and the Four Mile Run Conservancy Foundation.

U.S. Park Police, Emergency Number: 202-610-7500

Editor:
Dorothy McManus

Assistant Editor:
T. D. Hobart

Friends of Dyke Marsh
P.O. Box 7183
Alexandria, VA 22307
info@fodm.org

Visit our website at
www.fodm.org
or on **Facebook.com**

Board members can receive email at info@fodm.org. *The Marsh Wren* is a quarterly publication of the Friends of Dyke Marsh, Inc., a nonprofit 501(c)(3) organization. Letters and submissions to *The Marsh Wren* are welcome. Send them to the address at left. Special thanks to Duncan Hobart for managing our website (www.fodm.org).

President's Message

Glenda C. Booth, President, Friends of Dyke Marsh

The fall migration of many North American birds is well underway and many devotees are marveling at the amazing waterfowl returning to the Potomac River for the winter or passing through. "Migration evolved as a way for birds to exploit resources that are seasonally abundant and avoid times when or places where resources are scarce or weather is very harsh . . . when food is not available they must migrate," wrote Paul Kerlinger in *How Birds Migrate*. Let's hope there are many food sources in Dyke Marsh and the river this winter.

Too Much Trash

On a more troubling note, sadly, 35 devoted volunteers collected 50 bags of trash on September 22. It's sad because this exercise should be unnecessary. Among the items were a car motor, two big plastic garbage cans, a soaked sofa cushion, a tire, Styrofoam pieces from less than one inch to two feet, bottle caps, bottles, cans, fast food wrappers, straws, tampon dispensers, plastic utensils and cigarette butts, a never-ending scourge. We urged people to focus on the little things like plastic and Styrofoam bits which break into tiny pieces and are especially lethal. Birds, fish and other critters mistake them for food.

Our cleanups dramatize the need to stop trash at its source. Some say that the solution is to make products fully compostable. Others advocate user fees. Bottle and can deposit bills and single-use plastic bag fees have died in the Virginia legislature multiple times. If you have suggestions for solving this problem, let us know.

Here's a start. Join us in the "Plastic Free Challenge." Don't use the stuff! Eliminate single-use items like straws, bottles and bags. About half of plastic items are used once and discarded. Most plastics do not decompose. It takes a plastic bottle 450 years. Many plastics break down into small pieces and are never recovered. In landfills, plastics can leach pollutants into the soil and groundwater. We can do better.

Backlog

In this newsletter, we report that President Trump has nominated former GW Memorial Parkway Superintendent David Vela to be the next National Park Service (NPS) Director. This means that NPS could have a new director with some knowledge of the Dyke Marsh Wildlife Preserve and our challenges. Nationwide, one of his major challenges will be the $12 billion maintenance backlog. A bill is crawling through Congress to address this deficit. Here we share a small example of that problem, deteriorating boards in the Dyke Marsh boardwalk, and hope our federal elected officials will provide the resources our national parks so desperately need.

The Dyke Marsh boardwalk is one example of the many maintenance backlog challenges facing NPS. Photo by Glenda Booth

A "New" Dragonfly

Here's some good news, from Ed Eder. On September 6, Ed saw a regionally rare dragonfly, the fine-lined emerald (*Somatochlora filosa*). He wrote, "This is new, not only for Dyke Marsh, but also to the GW Memorial Parkway. A small population also exists at Occoquan NWR. This dragonfly breeds in seeps and forest streams and patrols along paths and over trees next to water. One was initially seen on August 14 and photographed again on September 4. It is likely that a small population breeds in Dyke Marsh. Dragonflies are fascinating insects that evolved from the order *Protodonata* about 325 million years ago. They are amazing aerialists and hunters. All their larvae are aquatic. The numbers of species at Dyke Marsh are relatively modest due to alteration and loss of habitat." Thank you, Ed.

A regionally rare dragonfly, the fine-lined emerald, was seen in Dyke Marsh. Photo by Ed Eder

Check our website and Facebook page for updates on what's going on in our favorite wetland preserve.

Glenda C. Booth

Glenda C. Booth is the president of the Friends of Dyke Marsh and active in conservation issues in Virginia.

Mount Vernon Environment Expo: Join your friends on November 10, 8 a.m. to 12 noon, at the Environment Expo, sponsored by Fairfax County Supervisor Dan Storck at Walt Whitman Middle School, 2500 Parkers Lane, Mount Vernon area. In expert-led workshops and over 20 exhibits, learn about conservation landscaping, reducing your carbon footprint, keeping the Potomac healthy and more. Free. Register at https://www.fairfaxcounty.gov/mountvernon/environment-expo-saving-earth-one-person-time.

The Results of the 2017 Dyke Marsh Breeding Bird Survey

BY LARRY CARTWRIGHT, BBS Survey Coordinator

The 2017 Dyke Marsh Breeding Bird Survey was conducted between Saturday, May 27 and Tuesday, July 4, but any data collected outside of this period that confirmed a breeding species was entered into the database. This permitted us to filter out most migrants that do not use the marsh or surrounding habitat to breed. I also included information provided from the Sunday morning walks and reliable individuals to supplement data reported by the survey teams. The survey tract encompasses the Belle Haven picnic area, the marina, the open marsh, that portion of the Big Gut known as West Dyke Marsh that extends from the George Washington Memorial Parkway west to River Towers, the Potomac River from the shoreline to the channel, and the surrounding woodland from the mouth of Hunting Creek to south of Morningside Lane.

Our methodology uses behavioral criteria to determine the breeding status of each species that is recorded in the survey tract. Species are placed into one of four categories: confirmed breeder, probable breeder, possible breeder, and present. We found 87 species at Dyke Marsh during 2017. There were 46 confirmed breeding species, 8 probable breeders, and 11 possible breeders. An additional 14 species were documented as present, but either were not in suitable breeding habitat, were colonial breeding waterbird species not using a rookery inside the survey tract, or out of range.

Marsh Wrens were last confirmed as Dyke Marsh breeders in 2014 with approximately 16 singing males and fewer than a dozen nests confined to the marsh vegetation north of Haul Road. Marsh Wrens disappeared from the Big Gut in the south marsh after 2006, but a few birds returned to occupy a tributary of the Big Gut that we unofficially call the Northeast Passage between 2011 and 2013. They failed to return to the south marsh in 2014. In 2015 and 2016 no more than three singing males were documented in the marsh surrounding Haul Road. There was no confirmed nesting and Marsh Wrens dropped to a probable breeder status.

A territorial Marsh Wren in the south marsh. Photo by Ed Eder

The same sparse representation of Marsh Wrens was present around Haul Road during the 2017 survey, but surprisingly two or three males in the south marsh occupied territory in the Northeast Passage after a three-year absence. During a June 25 survey, a canoe team spotted a Marsh Wren carrying nesting material. A subsequent canoe trip to the Northeast Passage reported three Marsh Wren nests. Two were apparent dummy nests, built by males to attract females. However, the third nest contained interior lining characteristic of active nests that are accepted and completed by females. A territorial male was close to the nest. Based on this information, I determined that this lone nest was active and met the criteria to confirm breeding.

A Least Bittern peers from the marsh vegetation on Dyke Island. Photo by Ed Eder

I caution against interpreting this one active nest as potentially leading to a return of a viable Marsh Wren breeding population. The decline in the fortunes of this species at Dyke Marsh has been an ongoing process for over two decades. It may be part of a regional decline. Hopefully the marsh restoration will lead to some stability in the marsh habitat and in the absence of other unforeseen negative influences, the Marsh Wren may establish a presence that we can once again enjoy.

The Least Bittern is another species at Dyke Marsh that receives our special attention. Our survey teams have documented the retreat of Least Bitterns from the southern portion of the Big Gut, apparently because of the accelerated erosion. The data collected during the 2017 survey suggests that there is a strong presence of Least Bitterns at least in some areas of Dyke Marsh. Three separate surveys conducted on June 25, two by canoe and one by foot, collectively reported nine Least Bitterns. Five of the birds were in the north marsh, including two breeding pairs in a tributary of the Little Gut along the southern edge of the Haul Road peninsula, and the remaining four were in the upper portion of the Big Gut. Additional breeding pairs also were identified near the Northeast Passage and close to the boardwalk at the end of the Haul Road peninsula during other June surveys. Despite these apparent positive signs, we found no Least Bittern nests or fledged young and Least Bittern could only be listed as a probable breeder. My primary concern is that Least Bitterns are being forced into increasingly smaller areas of acceptable breeding habitat at Dyke Marsh and that these heavier concentrations will have a negative impact on breeding success. It seems odd to be able to document Least Bittern activity in northern locations of the marsh while the entire southern half of the Big Gut remains devoid of these birds.

An interesting relationship developed between Ospreys and Bald Eagles at Dyke Marsh during the 2017 breeding season. Volunteers documented ten active Osprey nests in an area extending from Porto Vecchio in the north to Angel Island in Pipeline Bay. Five of these nests, including the highly visible nest at the marina, produced fledged young while the remaining five failed. Two of the Osprey nesting attempts were disrupted by a pair of Bald Eagles. The Bald Eagles in question could have been the Tulane Drive breed-

SURVEY *(continued on page 5)*

SURVEY *(continued from page 4)*

ing pair, whose nest also failed by early April or a confused Bald Eagle duo that started building a nest along Haul Road in June when most eagle nests would be fledging young.

A pair of Bald Eagles was first reported perched beside the Osprey nest on Dyke Island on April 7, effectively blocking repeated attempts by the Osprey breeding pair to access the nest. The Bald Eagles soon became interested in the Osprey nest on the adjacent Coconut Island and perched beside this nest as well. With the larger and more dominant eagles controlling the situation on the islands, both Osprey pairs eventually abandoned their breeding efforts. The Bald Eagles never made any attempts to destroy or use either the Dyke or Coconut Island nests but seemed content in just preventing the Ospreys from using them.

An Eastern Kingbird removes a fecal sac from a nest in a Black Locust. Photo: Ed Eder

Bald Eagles did have a successful breeding record in 2017. The Morningside Lane breeding pair had at least one healthy, active youngster in the nest last seen on June 8. The bird apparently fledged within the following week.

Dyke Marsh hosts a respectable number of neotropical migrant songbirds, including Great Crested Flycatchers, Eastern Kingbirds, Warbling Vireos, Yellow Warblers, Orchard Orioles, and Baltimore Orioles, that are confirmed as breeders every year. A walk down Haul Road will likely reveal all six species to the careful observer. Sometimes the careful observer turns out to be a female Brown-headed Cowbird. One observer on July 7 reported a bedraggled female Yellow Warbler feeding two Brown-headed Cowbird fledglings that were bigger and likely outweighed her.

Most songbirds are careful about concealing nests to protect them from predators and brood parasites like Brown-headed Cowbirds that victimized the unfortunate Yellow Warbler. Eastern Kingbirds sometime don't concern themselves with such incidentals as nest concealment. During a June 18 canoe survey into the Big Gut, I was surprised to find a completely exposed Eastern Kingbird nest with nestlings about 40 feet up in a dead Sycamore. Another canoe team doing a different route on the same day also reported an exposed Eastern Kingbird nest containing nestlings, this one just four feet off the ground. Eastern Kingbirds are quite aggressive and perhaps this aggressiveness just might help negate the need for complete caution and total nest concealment.

A female Yellow Warbler feeds a much larger Brown-headed Cowbird fledgling. Photo by Ed Eder

Several years ago, I noticed a trend for Mallard hens to have delayed single broods or perhaps even multiple broods containing fewer young. In the 1990s, the norm would be to observe a Mallard hen in April or May with perhaps a half dozen or more recently hatched young in tow. After 2000, volunteers noticed Mallard hens with as few as two or three recently hatched ducklings much later in the summer. Volunteers still reported large broods after 2000, but with reduced frequency. The 2017 breeding season now holds the record for reduced size late broods at Dyke Marsh. On September 17, several volunteers observed a Mallard hen in the marina in the company of two youngsters no more than one week old. A review of my records indicates that this is the first September record for breeding Mallards since I became compiler in 1994.

I have speculated in an earlier report that perhaps small broods were the result of increased predation of young, but

SURVEY *(continued on page 6)*

The 2017 Breeding Bird Survey Results

Confirmed - 46 Species: Canada Goose, Wood Duck, Mallard, Mourning Dove, Ruby-throated Hummingbird, Osprey, Bald Eagle, Red-bellied Woodpecker, Downy Woodpecker, Pileated Woodpecker, Eastern Phoebe, Great Crested Flycatcher, Eastern Kingbird, Warbling Vireo, Red-eyed Vireo, Blue Jay, Fish Crow, Purple Martin, Tree Swallow, N. Rough-winged Swallow, Barn Swallow, Carolina Chickadee, Tufted Titmouse, Marsh Wren, Carolina Wren, Blue-gray Gnatcatcher, American Robin, Gray Catbird, Brown Thrasher, Northern Mockingbird, European Starling, Cedar Waxwing, House Sparrow, House Finch, American Goldfinch, Orchard Oriole, Baltimore Oriole, Red-winged Blackbird, Brown-headed Cowbird, Common Grackle, Prothonotary Warbler, Common Yellowthroat, Northern Parula, Yellow Warbler, Northern Cardinal, Indigo Bunting.

Probable - 8 Species: Chimney Swift, Least Bittern, Barred Owl, Hairy Woodpecker, Eastern Wood-Pewee, Acadian Flycatcher, White-breasted Nuthatch, Song Sparrow.

Possible - 22 Species: American Black Duck, Yellow-billed Cuckoo, Common Gallinule, Spotted Sandpiper, Green Heron, Black-crowned Night-Heron, Red-shouldered Hawk, Red-tailed Hawk, Eastern Screech Owl, Great Horned Owl, Belted Kingfisher, Northern Flicker, Willow Flycatcher, American Crow, House Wren, Wood Thrush, Eastern Towhee, Louisiana Waterthrush, Kentucky Warbler, American Redstart, Scarlet Tanager, Blue Grosbeak.

Present - 11 Species: Ring-necked Duck, Rock Pigeon, Ring-billed Gull, Caspian Tern, Forster's Tern, Double-crested Cormorant, Great Blue Heron, Great Egret, Black Vulture, Turkey Vulture, Blackpoll Warbler.

Meet the Plants of Dyke Marsh - Pokeweed

BY PATRICIA P. SALAMONE

Close-up of berries. Photo credit: Joseph A. Makin, Lady Bird Johnson Wildflower Center.

When you think of fall colors, magenta may not be the first to spring to mind. But when the stems of the pokeweed plant (*Phytolacca americana*) turn from green to magenta, it's as much a sign of fall as any red or orange leaf.

Pokeweed is a large, coarse herbaceous plant; it can reach 8 to 10 feet in height. The plant's top growth dies back in the fall, persisting into winter as dry, hollow, papery stems, but it resprouts from its perennial taproot in the spring.

The genus name *Phytolacca* comes from the Greek: "phyton" means plant and "lacca" refers to an insect (*Laccifera lacca*) that secretes a resinous substance—lac—used to produce a red ink or dye. Pokeweed berries can also produce a red dye, which is said to have been used in colonial times to color inferior wine, among other uses.

As the specific name "*americana*" suggests, the plant is native to much of North America; in fact, there are only eight of the 48 contiguous states that it is not native to.

Pokeweed prefers open areas and edge habitats such as forest edges, clearings, roadsides, areas under power lines, and pastures; it particularly thrives in disturbed areas. Its national wetland indicator status is facultative upland (FACU), meaning it is sometimes found in wetlands but is usually found in uplands.

The leaves are large (5 to 9 inches long) and lance-shaped and are borne alternately along the stem. The small greenish white flowers grow in clusters, blooming in late summer to early fall. They ripen into drooping clusters of beautiful dark purple berries on magenta stems.

Whole plant with magenta stems. Photo credit: Carolyn Fannon, Lady Bird Johnson Wildflower Center

Don't be tempted, though—all parts of the plant are toxic, especially if fresh and eaten in quantity. Pokeweed was sometimes used by Native Americans and European settlers as food and for medicinal purposes—and it is still eaten in parts of the southern U.S., where it may be called poke salad—but it requires caution: only the very young shoots are used, and they must be boiled at least twice, discarding the cooking water each time.

Birds love the berries, though—apparently they're not affected by the chemicals that are toxic to humans. The berries are said to be particularly attractive to the American robin, cedar waxwing, eastern bluebird, northern cardinal, northern mockingbird, and red-bellied woodpecker, among others.

Though pokeweed has some virtues, its vigorous growth can sometimes make it a problem. For example, in the area along the Haul Road in the Dyke Marsh Wildlife Preserve that has been cleared of invasive exotic plants and replanted with natives, FODM volunteers, under the direction of the National Park Service, recently thinned out the pokeweed plants growing there to give the new plants some breathing room to establish themselves.

SURVEY *(continued from page 5)*

significant loss of ducklings in a brood only a few days old seems highly unlikely. An egg predator would probably consume the whole clutch. Therefore, I tend to discount predation as a significant cause of small broods. We often see these small brood young several weeks after hatching and they appear quite healthy, so survival rates may be good in the first months of their lives. The data also shows that breeding bird survey observers often report the cavity nesting Wood Duck with smaller than normal broods at Dyke Marsh. There may be explanations here that I have not yet entertained. Research continues.

Fledged Orchard Oriole young with their mother perched on branch above. Photo by Ed Eder

The Dyke Marsh Breeding Bird Survey is impossible without the effort and dedication of participating citizen-scientists that conduct the surveys. This year's participants included Eldon Boes, Glenda Booth, Marla Brin, Ed Eder, Myriam Eder, Renee Grebe, Susan Haskew, Gerry Hawkins, Elizabeth Ketz-Robinson, Dorothy McManus, Ginny McNair, Larry Meade, Roger Miller, Heidi Moyer, Sasha Munters, Nick Nichols, Rich Rieger, Don Robinson, Laura Sebastianelli, Phil Silas, Robert Smith, Karen Snape, Ned Stone, Sherman Suter, Todd Kiraly, Brett Wohler, Marcus Wohler and Margaret Wohler.

- Larry Cartwright
Dyke Marsh Breeding Bird Survey Coordinator

Want to Get Involved?

If you would like to get more involved in FODM and serve on the Board of Directors, please contact President Glenda Booth at gbooth123@aol.com by December 15.

Welcome New FODM Members

We welcome to FODM our **new members:** Vineeta Anand, Nancy and David Barbour, Marc Bendick, Ames Bowman, Chloe Hilton, Robin Renee Jenkins, Marianne Jones, Denise Landers, Kurt Moser and Jessica Tabacca.

POLLINATOR *(continued from page 8)*

Wingstem is a generalist, attracting many different pollinators. Photo by Glenda Booth

published in the journal *Ecology*, biologists from Worcester Polytechnic Institute (full disclosure: WPI is my alma mater) studied the response of bumblebees to two related plants, scarlet monkeyflower (*Mimulus cardinalis*), which is primarily hummingbird pollinated, and purple monkeyflower (*Mimulus lewisii*) which is bee pollinated. Their results showed that M. cardinalis flowers "impose foraging costs on bumble bees sufficient to discourage visitation." The combination of traits of these "hummingbird flowers" confuses the bees and slows down their foraging, often leading them to seek nectar from other, easier plants, leaving the scarlet monkeyflower to the more efficient hummingbird pollinators.

Pollination syndromes are useful tools, and we can all think of examples—a bee pollinating an aster, a hummingbird on crossvine—but they don't provide all the answers. For one thing, while there are advantages to specialization, there can also be advantages to diversifying, and many plant species do. A flower may be pollinated by bees, butterflies, and birds, and might exhibit characteristics from different pollinator syndromes. They don't read the books.

Recent research suggests that, on average, about one third of flowering plants can be classified into the "classical" pollinator syndromes. Ollerton et al. (2009) concluded that "The pollination syndrome hypothesis as usually articulated does not successfully describe the diversity of floral phenotypes or predict the pollinators of most plant species." Sounds like there's more research to be done on this fascinating topic.

For more information:

https://www.wpi.edu/news/birds-vs-bees-study-offers-new-clues-about-how-flowers-evolved-encourage-pollinators-specialize

Ollerton et al., 2009, A global test of the pollination syndrome hypothesis, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2701765/

Pollinator syndrome chart: https://www.fs.fed.us/wildflowers/pollinators/What_is_Pollination/syndromes.shtml

Sunday Morning Bird Walks

Bird walks are held Sunday mornings, all seasons. Meet at 8 a.m. in the south parking lot of the Belle Haven picnic area. Walks are led by experienced birders and all are welcome to join us.

FODM Membership - Dues and Contributions

Support the Friends of Dyke Marsh by becoming a member or renewing your membership. Benefits include the Friends' quarterly publication, *The Marsh Wren*; quarterly membership meetings with knowledgeable speakers; Sunday morning bird walks and notification of activities in and around the marsh. Most importantly, your membership lends your voice in support of the Dyke Marsh Wildlife Preserve and our efforts to advocate for full restoration of the marsh. Just click on the "Join" or "Donate" button on our membership page at www.fodm.org to make your tax-deductible contribution by credit card or from your bank account securely through PayPal. For help, info@fodm.org. If you prefer, you can send a check, payable to FODM, P.O. Box 7183, Alexandria, Virginia 22307. The annual dues are $15.00 per household, $250.00 for life membership for an individual. You will receive a notice by mail or by email when your renewal is due. A financial statement is available upon written request from the Virginia Office of Charitable and Regulatory Programs. Thank you for your support of FODM.

DUES AMOUNT..…… $ _____
ADDITIONAL CONTRIBUTION..…….. $ _____
TOTAL AMOUNT ENCLOSED..……. $ _____

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Please address any questions or comments about *The Marsh Wren* to Dorothy McManus and about membership to Bob Veltkamp. You may contact them by mail at FODM, P.O. Box 7183, Alexandria, Virginia 22307 -7183, by telephone or by email (see page 2).

Pollinator Syndromes

BY PATRICIA P. SALAMONE

The idea behind pollinator syndromes is that plants and pollinators that evolve together can develop physical characteristics that help them interact to their mutual benefit. The plant evolves characteristics that attract the pollinator and the pollinator evolves characteristics that make it more efficient in transferring pollen. As a result, the pollinator gets food—nectar or pollen—and the plant is pollinated, enabling it to set seed and thus have a chance to propagate itself. The various flower traits associated with different pollinators are known as pollinator (or pollination) syndromes.

About 80% of all plant pollination is by animals—insects, birds, and mammals. Of the remaining 20%, almost all (98%) are wind pollinated. A tiny fraction are water pollinated; these are of course aquatic plants and release their seeds into the water.

Wind-pollinated plants generally produce large amounts of small, lightweight pollen. Their flowers are generally neither showy nor fragrant; the wind doesn't care about bright colors or sweet smells, so why should the plant waste energy on traits that don't provide any advantage?

For animal-pollinated plants, though, it's a different story. These plants have evolved many strategies for attracting pollinators through flower shape, color, fragrance, and other characteristics. For example, bee-pollinated flowers are often white, yellow, or blue and have a pleasant fragrance and sticky, scented pollen. Butterfly-pollinated flowers tend to be bright colored, often red or purple, with only a faint odor, producing limited pollen but ample nectar. Bird-pollinated plants tend to be red or orange with a large tubular or funnel-like shape, with no fragrance, limited pollen, and ample nectar.

Crossvine is a hummingbird-pollinated flower. Photo by Alan Lee, Lady Bird Johnson Wf. Ctr.

In addition to evolving strategies for attracting advantageous pollinators, it turns out, plants may also evolve strategies for discouraging unwanted pollinators. In a 2017 paper

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The Friends of Dyke Marsh
P.O. Box 7183
Alexandria, VA 22307-7183