

Dameron Marsh Natural Area Preserve

Self-Guided Nature Trail

The following text is geared to a fall walk, but works well throughout the year.

Parking lot...

- Welcome to Dameron Marsh Natural Area Preserve— one of 45 Natural Area Preserves that the Commonwealth of Virginia manages for the protection of biodiversity.
- All Preserves in the system have rare or exemplary plants, animals or natural communities. Dameron Marsh has the federally threatened Northeastern Beach tiger beetle and two rare or exemplary communities
- There are 316 acres of beach, marsh, fields, and forests. DM NAP was acquired in 1998 with assistance from Northern Neck Audubon Society, the Nature Conservancy, the US Fish and Wildlife Service, and VA Natural Area Bonds
- Dameron Marsh received its name from Lawrence Dameron of Suffolk England who purchased this property in 1655. It became part of a plantation called Guarding
- The shore on which the preserve is located is exposed to high winds and tides accompanying severe storms. These events can cause drastic changes to the physiography of the preserve. The beaches and shoreline are constantly shifting - the eastern beach on the erodes approximately 2 feet annually, while the southeastern spits and beaches accrete (grow more sand)

Plans for the management of the preserve:

- DM NAP is managed by the Virginia Department of Conservation and Recreation, Natural Heritage Division as a natural area preserve. The primary purpose for establishing the preserve is for the protection of the natural resources. The preserve protects over 240 acres of wetlands that support nationally significant marsh and shorebird nesting habitat, exemplary wetland plant communities, and the beaches provide critical habitat for the northeastern beach tiger beetle, a federally threatened species.
- Other uses such as scientific research, environmental education and interpretation such as this tour will always be secondary. A professional preserve steward closely monitors and manages the area to ensure survival of the resources that the site supports.

The very large leaved plant near the parking lot is a Royal Paulownia, a native of the Far East. At maturity, they have clusters of hanging wisteria-looking blooms in the spring. (*Preserve stewards are attempting to eradicate these invasive alien trees*) The seed pods of this plant were once used as packing material for fine porcelain from the orient, like Styrofoam peanuts today, and as a result have colonized all over the U.S. The wood is highly valued in Japan for dowry chests, and mature specimens of Paulownias have actually been cut down and stolen by Paulownia rustlers! Some other plants you may see in the parking lot are pictured below. Look for the chat in the tree... (also Lance Johnson saw a cuckoo there this summer!)



Wool Grass—*Scirpus cyperinus*



Thistle—*Cirsium spp?* non-native and invasive but sometimes attract butterflies



Trumpet creeper—*Campsis radicans*



Boneset
Eupatorium hyssopifolium



Smartweed or Knotweed -
Polygonum spp?



Tickseed sunflower
Bidens coronata

Stop 1...

- There once was a house right here which accounts for the pile of rubble (*in high summer it's just an extra high pile of weeds.*) Even as late as the early 20th century, there were several more houses in this area, now lost to high water and erosion. Mr. Carter Harding, a native of the area, lived in a home near here and remembers a big storm that left high water up to the second story.
- (*Depending on the season, you might see 'out of place' garden plants and trees which have survived. In the spring for example, you will see daffodils, a dead give away of old homesites.*) look up—*Grapes should be ripe! Try them—I did—they are nasty!*
- The very large leaved plant is a Royal Paulownia, a native of the Far East. At maturity, they have clusters of hanging wisteria-looking blooms in the spring. (*Preserve stewards are attempting to eradicate these invasive alien trees*) The seed pods of this plant were once used as packing material for fine porcelain from the orient, like Styrofoam peanuts today, and as a result have colonized all over the U.S. The wood is highly valued in Japan for dowry chests, and mature specimens of Paulownia have actually been cut down and stolen by Paulownia rustlers!
- Near the numbered sign you will notice that there is some phragmites that is snaking its way across the trail—these rhizomes are the key to success for this ugly beast!



Rhizome of common reed—
Phragmites australis



Grapes—*Vitis spp?*
(Muscadine is my guess—*Vitis rotundifolia*)



High tide bush
Baccharis halimifolia



Wax myrtle
Morella cerifera



Sea side goldenrod
Solidago sempervirens



Rag weed
Ambrosia artemesifolia



Switchgrass -
Panicum virgatum

Stop 2...

The area's geology:

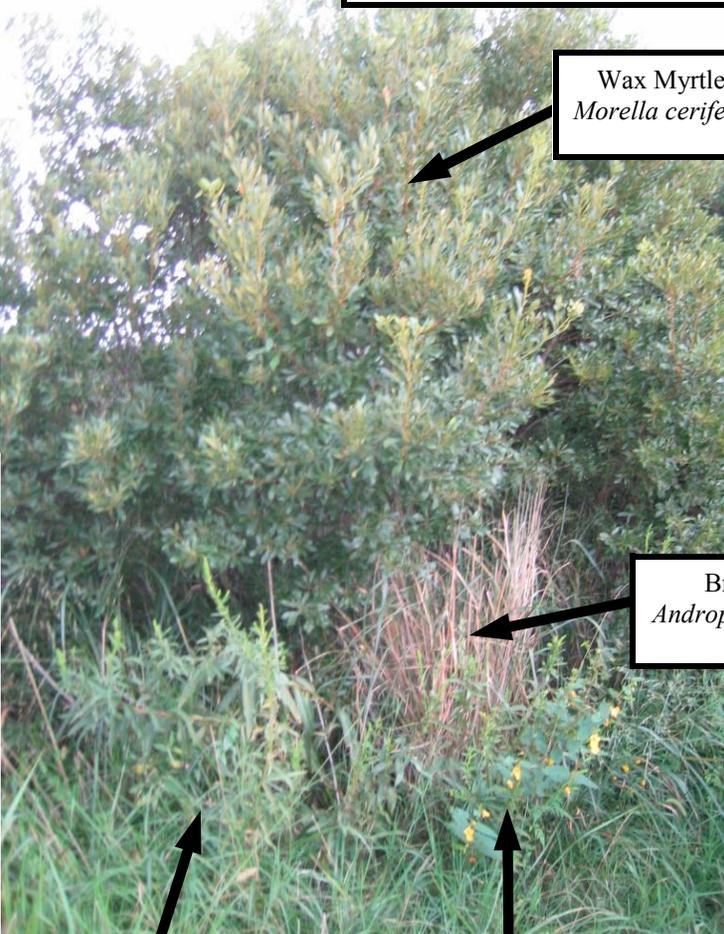
- 120,000 years ago the sea level was 15-25 feet higher than it is today.
- 18,000 years ago if you looked east you would see a broad canyon containing the ancestral Susquehanna River.
- Sea level continues to rise about 2mm a year.
- The shore line of Dameron Marsh is eroding at a rate of about 8—10 feet a year. There were once three islands off the tip of the marsh (Carter's Filer's father promised to give her those islands when she was a little girl!) that are now gone. Since 1937 - 250 feet have been lost from the shoreline and sea level rose nearly 2 feet in that time.
- Previous landowners drained these fields and this led to belts of different vegetation that reflect the response of plants to changes in thickness of the unsaturated zone (the zone between the land surface and the water table) and the frequency of flooding after rains. In some of the deeper ditches cat-tails have established themselves and are indicators not only of a wetland but of the salinity of the water. The Narrow-leaved Cat Tail that you can see from here is more tolerant of salt water than the Common Cat tail.
- Look for Narrow-leaved Cat tails, Partridge Pea (will be in fruit on later trips), High Tide Bush in bloom, and Broomsedge (remember that it is not a sedge—that is a misnomer—it is really a grass).

Cattails are behind the switchgrass—rather hard to see this year—a good lead in for old field succession and how much everything has changed in just a few years...

Wax Myrtle
Morella cerifera



Broom sedge
Andropogon virginicus



Seaside Goldenrod
Solidago sempervirens

Partridge pea
Cassia fasciculata
(Formerly *Chamaecrista*)



Stop 3...

- Notice that the trail is sometimes underwater here —good evidence of changes in hydrologic conditions due to rainfall.
- Old field succession. The seeds of most of the plant sequences that will cover an abandoned field in the years to come are there at abandonment but won't germinate all at once or under the same conditions. Grasses germinate well in bare soil are some of the first colonizers of old fields. Soon other plants such as goldenrod and camphor weed make their way into the line up, followed by shrubs and pioneer trees such as persimmon, black gum, cherry, pine and red cedar. Eventually these fields will be forested wetlands comprised primarily of Loblolly Pine. This is a community we call Maritime Loblolly Pine Forest. Because these same forests are made up of different species of trees to the north and south of us—the maritime loblolly pine forest in Virginia is considered a globally rare community.
- Look up for eagles, marsh hawks or vultures wheeling overhead.
- There are several species of sedges here if you look closely...- Remember the old mnemonic “Sedges have edges, rushes are round, grasses are hollow right up from the ground”. It is pretty reliable though not absolute. Most sedges have a triangular shaped stem “the edges”, narrow leaves arranged in threes and prefer wet places. Many have an umbrella shape. Towards the top of the stalk there will be 3-5 leaves extending horizontally, and radiating above that will be spiky ‘flowers’, usually yellow or brown. There are literally dozens of species of sedges (*Cyperus*, *scirpus*, *carex*, etc.) and are often difficult to distinguish from each other.



Persimmon trees
Diospyrosora virginiana

Narrow leaved cat tail
Typha angustifolia



A nut sedge *Cyperus spp?*

Stop 4...

This is a good place to reflect on the history of the area.

- Algonquian Indians and their predecessors lived in this area since at least 6500 BC. Many Prehistoric Native American village sites are now several hundred yards offshore, due to the rising level of the Bay.
- Captain John Smith's map of Virginia of 1612 suggests that the Marsh lay within the chiefdom of Wiccomico, known to have had about 130 men in 1600. It was bordered on the south by the chiefdom and possibly the village of Cuttatawomen.
- The Algonquians lived in villages and dwelt in barrel shaped houses, covered with mats or bark, with a smoke hole in the top. These were easily disassembled and relocated as weather, farming, and hunting needs dictated.
- They fished and collected oysters and clams from the then crystal blue waters of the Chesapeake Bay. We know they were here because they left behind their trash---a pile of oyster shells, and arrowheads and spear points that still turn up from time to time in the plowed fields. They grew corn, beans, squash, pumpkins, gourds, sunflowers and tobacco. They also collected a wide variety of plants for both food and medicinal purposes. Many of which you can see at this stop...
- They ate the fruit from the female **Persimmon** trees and used **Dogbane** to make rope and cordage. The berries of **Winged Sumac** were used to make a medicine for stomach pain and the pulp of the stalk was used as a dye.
- Persimmons (*Diospyros virginiana*) are the deciduous trees visible all along the trail. They grow to about 50 feet tall and more are found along the old hedgerows in the preserve. In the summer and fall you'll see the persimmons hanging on the tree. When ripe they will be an orange fleshy fruit, but remember the old rule, you must wait until the first frost before trying to eat a persimmon, otherwise they are very astringent and will pucker your mouth up. There is a nice patch of partridge pea to the left of the sign.



Persimmon
Diospyrosora virginiana



Partidge pea
Cassia fasciculata
(Formerly *Chamaecrista*)



Barnyard Grass—*Echinochloa spp?*

Stop 5...

- To the right in the lower lying swale is salt meadow hay (*Spartina patens*). Salt meadow hay has a tidy mowed look and is usually dry enough to walk on. Historically cattle grazed on the salt meadow hay marshes and the grass was often mowed for fodder.
- In 2001 Natural Heritage staff initiated a Wetland Restoration project on the preserve, here you can see faint evidence of one of the many ditch plugs installed in 2001. These low earthen berms were installed to stop drainage of the fields.
- Paid for by money from the US Army Corps of Engineers Wetland Restoration Trust Fund—this was a cooperative project involving DCR's Land Steward, The Nature Conservancy's Wetland Scientist and staff from the Army Corps of Engineers.
- 40 acres of old fields are in the process of being restored to forested wetlands. To the south of the trail, the low grass that you see is Salt Meadow Hay which has spread into this area since the water level has risen.
- You can see *Phragmites australis* in the distance. This grass threatens the marsh with all out invasion. It could easily take over all of the wet areas of Dameron Marsh. With help again from the Wetland Restoration Trust fund, we are actively spraying this grass (both with back pack sprayers and aurally from a helicopter) with a chemical called Rodeo—which works much like Round-up but is approved for use in wetlands.
- Look for Saltmarsh fleabane in bloom. It has tiny pink flowers concentrated into flowerheads resembling milkweed and it blooms from mid-summer through fall. (*Crush the leaves and you'll get a medicinal smell which gave rise to another of its common names – camphorweed.*)
- There is a good example of the invasive exotic plant *Sericea Lespedeza*—we have been trying to eradicate this plant.



Saltmarsh fleabane
Pluchea odorata



Salt meadow hay
Spartina patens



Sericea lespedeza
Lespedeza cuneata

Stop 6...

- Winged sumac (*Rhus copallina*), a shrub or small tree typical of advancing old field succession is found along this stretch of the trail. Its fruit in the fall is a large drooping cluster of tiny seedheads starting out reddish/rusty and turning brown. They often persist on the shrub in the fall after the leaves have fallen. The ‘wings’ in the name refer to narrow wing-like “leaves” along the stem of the plant in between the stems of the compound leaves..The berries were of Winged Sumac were used to make a medicine for stomach pain and the pulp of the stalk was used as a dye. I have heard that you can make a tangy leomade-like drink out of the berries-



Stop 7...

- This observation deck was completed in 2002 after just a few months of hard work from our Operations Steward and a few good volunteers. One volunteer (Bob Healy) generously gave over 200 hours of his time and energy to the completion of the deck.
- Stress that minimizing disturbance is the best way to keep out the invasive grass Phragmites. The area that you are looking at here was an area that we parked vehicles and staged equipment during deck construction. There was very little phrag in this area before construction. There was some—but not much. This is a good lesson on how quickly and completely this plant can take over.
- This area was sprayed in 2004. Plans to control this grass in 2004 were postponed in 2003 due to the fact that salt spray from Isabel caused this plant to die and go dormant before we could spray it. If plants are not actively growing the chemical can not be delivered to the roots. Getting the chemical into the roots of this plant is a key to successful control.
- There is a large patch of Marsh mallow to the left at the bottom of the boardwalk. This will be in seed now. Marsh mallow (*Hibiscus moscheutos*) also called Rose mallow, is the huge showy plant of the marsh. Stems can reach 6 feet high and the flowers are 4-8 inches across. Generally white, but sometimes pink, these flowers always have a red center.
- Near the end of the boardwalk is a wax myrtle that has fruit on it—birds LOVE these berries.



Boardwalk construction
October 2002



Marsh mallow
Hibiscus moscheutos



Wax myrtle berries
Morella cerifera

Onto the boardwalk...



- Once you reach the end of the boardwalk...everything in front of you is the salt marsh community, regularly flooded by salt water. Salt marshes are the most productive ecosystems on earth, producing more organic material per acre per year than tropical rain forests or modern agriculture. They have very low diversity (number of species) compared to fresh water marshes.
- Salt marshes perform many important functions. They provide important habitat for many organisms, especially juvenile marine organisms. They are an important food source. Few organisms actually eat the grasses. Instead, the debris is decomposed by microbes and the slimy particles (detritus) form the food. Marshes trap sediment and the dense root (rhizome) network retards erosion. Nitrate in groundwater discharging into the marsh is converted to nitrogen gas so that it does not fertilize the marine water.
- All salt marsh plants require full sunlight for best growth. People whose property includes marshes should prune back all overhanging vegetation and remove trash (and *Phragmites*) to provide the marsh with full sunlight.
- The seaward-most grass, common cordgrass (*Spartina alterniflora*) extends down to mid-tide level (low marsh). Marine grasses do not grow below mid-tide level. Although submerged grasses (SAV or Submerged Aquatic Vegetation) were once abundant around the Preserve (see the 1937 air photo), about 90% of the area they once occupied is now barren.
- Between the common cordgrass and the observation deck, in areas periodically flooded by high spring tides (high marsh), the common plants are:
 - Black Needle-Rush (*Juncus roemerianus*) - note the black-tipped round stems.
 - Salt Grass (*Distichlis spicata*) - sometimes you can see salt crystals on the leaves.
 - Three-Square (*Scirpus robustus*) - look for triangular stems and spiky seed pods. This genus is especially important for wildlife, including ducks.
 - Common Reed (*Phragmites*) - unfortunately.
- The loblolly pine community, seen in the distance, occupies the highest ground. Three of the four major communities in the Preserve can be seen from the observation deck, the marine salt marsh, the field succession and the loblolly pine communities.

- Take a look over the railing of the deck.
- Notice the raccoon prints in the mud. There may be other prints.
- From here you have a good view of Marsh Elder and Camphor weed that has gone to seed.
- If you turn around and look at the wax myrtle you are likely to see Yellow Rumped Warblers feasting on Wax Myrtle berries. You can see the yellow on their rump when they fly. A common name for this bird is “Butter Butt”.



Stop 8

- If you again look over the railing—you will see a handsome example of Salt Meadow Hay.
- More tracks.
- Look out into the distance to the shallow cove. You might spy some geese or swans. You might see 300 swans from this observation deck if you’re lucky.
- Unfortunately, you might also see Mute Swans which are a non native bird species that competes with migrating tundra swans for food and nest areas, and devastate native submerged plants in the bay.



Stop 9

- If you look straight ahead you may be able to distinguish some of the *Phragmites australis* that we have been spraying with a helicopter. Its hard to tell with everything all browned out but you might be able to see some white PVC stakes that I use for monitoring.
- One of the reasons that Dameron Marsh is protected as a Natural Area Preserve (the highest level of protection possible in Virginia) is because of the exemplary wetland community that you can see from here. There are many different zones of vegetation which are hard to see from here. The wetlands are mostly tidal and range from low to high marsh vegetation depending on slight variations in elevation and exposure to salt water.
- The dominate grasses in the marsh are Black Needle Rush, Salt Meadow Hay and Salt Grass. For a nice view of salt grass peer over the railing—it is growing in stately lines from its rhizomes.



Stop 10

- This is a nice view of all three of the rare or exemplary communities.
- The sandy Northeastern Tiger Beetle beaches are just over the rise in the distance.
- The vast marsh community is spread out before you all the land that you can see from here is part of Dameron Marsh.
- The maritime loblolly pine forest is just to the north.

Points of interest along the trail to the house and beach:

1. *The fresh-water pond:*

- Just past the sharp curve in the road there is a trail to a fresh-water pond: We will probably mow this trail again later this fall.

2. *The road north to the beach:*

- The road has been maintained for about half a century, and as a result of continual disturbance it contains many invasive species.
- The large trees around the house are persimmons, not visible in the 1937 air photo.
- The beach in front of the house and associated sand spit to the left constitute the fourth natural community found in the Preserve. The high energy beach is subject to constant wave erosion, exacerbated by high energy events like “northers” and hurricanes. On average, the erosion rate is about 4 feet per year, and 20(?) feet were lost during Hurricane Isabel in 2003. Approximately 250 feet has been lost from the beach since 1937, and during that period sea level has risen approximately one foot.

3. *The beach and spit:*

- If the tide is low enough, you can climb down the small cliff to the beach. The cliff exposes a soil profile. At the land surface is the “A-horizon,” characterized by an accumulation of organic material. The sediment between the A-horizon and sea level is oxidized (rust-colored) and is being locally penetrated by roots. Hydrologically, the exposed cliff exposes the “unsaturated zone” in which the spaces between the grains of sediment are occupied by gas, not water.
- If we could examine the sediment below sea level we would find that it is saturated with fresh water, but few roots would be present. Although some plants are adapted to saturated conditions (they have mechanisms to pump oxygen down into the submerged roots), most are not. This is the reason for the extensive ditching system we have seen, to increase the thickness of the unsaturated zone so crops could be grown.
- You may see accumulations of black sand on the beach. The black grains are denser than the white grains, and geologists call them “heavy minerals.” Also called “accessory minerals” they are winnowed from the less dense minerals by the waves just as a miner pans for gold. The minerals can be traced back to specific rock units in the Appalachian Mountains, the ultimate source of all the sediment that constitutes Dameron Marsh.
- If you are able to walk along the beach to the west (left) you will encounter muddy sediment containing abundant plant debris. This material, which might even be called peat, is the remnant of marshes that once existed here when the beach was north of its present position and sea level was lower. The marsh mud and intertwined rhizomes from marsh plants is difficult to erode and therefore it persists.
- Sand eroded from the cliff has been moved offshore, and to the northwest where a sandy spit has developed. You can get to the spit by walking along the beach or by crossing a short stretch of marsh from the boat ramp. If you take that route, note the abandoned pier and pilings, indicating that this area was once open water. The sand spit enclosed this area and the low energy area behind the spit eventually developed into marsh, making the pier useless.
- The sandy spit is extremely dynamic and is constantly changing. Small spits grow, enclose ponds, and then are breached by storms.
- Animals found on the beach include.
- Plants, some helping to stabilize the incipient dunes, include.

4. *The Loblolly Pine Forest:*

- The Loblolly Pine forests of Dameron Marsh contain understories of red maple, black cherry and sassafras. Shrubs include Southern Bayberry. There are also Muscadine Grapes and Greenbriers. This community is restricted to a narrow geographic range from Delaware to North Carolina, and this special habitat has been subject to intense development pressure. Maritime pine forests such as these at Dameron Marsh are considered globally uncommon to rare, and this is one of the communities that DCR is most anxious to preserve and expand.
- Although the canopy and shrub layers of this community can be quite dense, the herbaceous (non-woody) layer is usually sparse.
- The roots buffer erosion (seen in the air photos as differing shoreline position from adjacent salt marsh or fields) and filter both runoff and groundwater discharge into the Bay.

****This final section of the trail guide was prepared by Lynton Land.....****

****All other sections were a collaboration of all the guides—most notably Susan Tipton and Carter Filer****

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May 2005