



The Nature of Chapman Forest

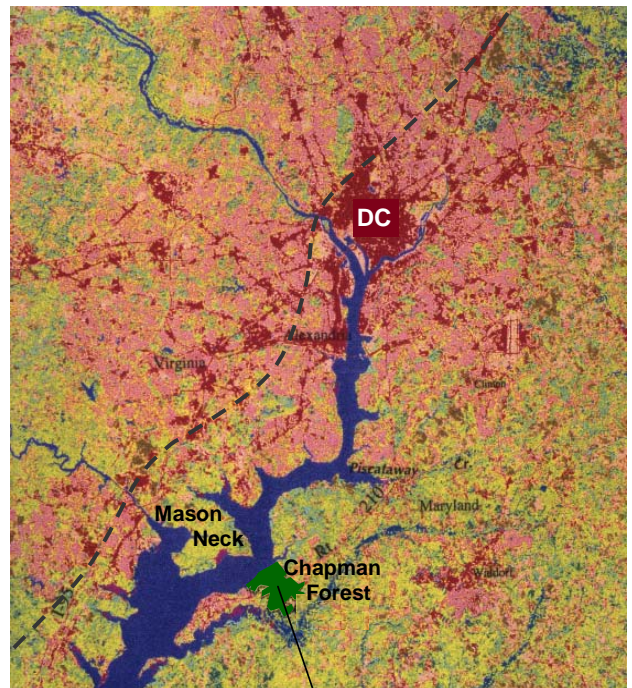


*On the Potomac near the Nation's Capital
—expansive & unspoiled nature & history—*

Chapman Forest serves as a dramatic reminder of the great woodlands that once cradled the Potomac River. The forest, comprising Chapman State Park and the Glendening Natural Environment Area, was purchased in 1998 by the State of Maryland and by the nonprofit Conservation Fund to preserve its rich biodiversity and historical treasures.



Context In the false-color satellite map, the Potomac River runs from Point of Rocks, MD, crosses the fall-line (dashed) at Georgetown (below which the river exhibits tides), flows between Mason Neck and Chapman Forest, and exits just below the mouth of Mattawoman Creek, at the approximate boundary between fresh and slightly brackish (oligohaline) water. Thus the full extent of the Potomac's contribution to the world's small amount of *tidal*-freshwater habitat is depicted.



The fall-line is a sloping escarpment that divides two physiogeographic provinces: the Piedmont, underlain by eroded bedrock, and the lower-elevation, inner Coastal Plain, comprising layers of gravels, sands, and clays eroded from the primeval Appalachian Mountains and further influenced by oceanic incursions. Along the fall line, towns nucleated at the head of tide (the navigation limit of seafaring ships) and around mills that harnessed the rapids falling down the escarpment.

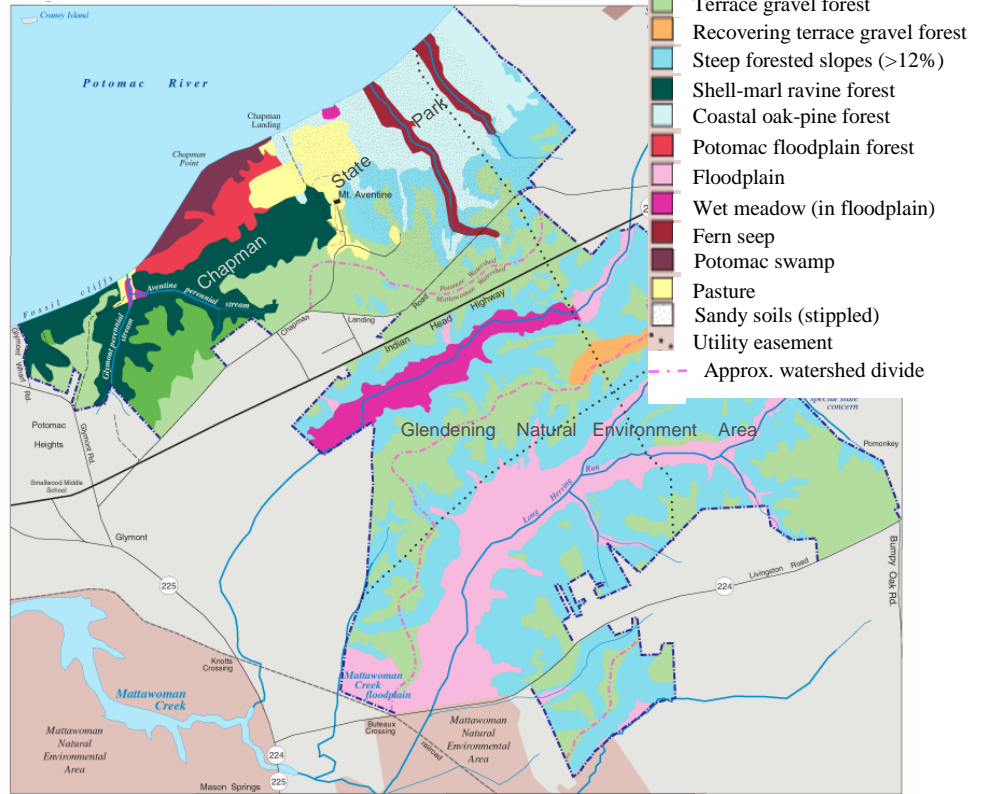
Despite its proximity to Washington DC, a fall-line city, Chapman Forest is among the best 10-20% of Coastal Plain woodlands with respect to large, unfragmented area, biodiversity, and linkage to other greenways, according to a MD Dept. of Natural Resources analysis. If left intact, it will continue to offer a unique place to enjoy untrammelled nature, of increasing value as urbanization (red & pink) expands from Washington.



Biodiversity: varied habitats

Lying near the fall line, Chapman Forest contains elements of Coastal Plain and Piedmont habitats, in addition to some montane (mountain-like) aspects in its calcium-rich Shell-marl Ravine Forest (e.g., where Chinquapin Oak and Glade Fern grow).

Arching over Cornwallis peninsula and thus bridging the Potomac and Mattawoman watersheds, the forest ranges from sea level to 170 feet. Ravines and stream valleys deeply incise the landscape, lending variety to the site. For example, supporting soils vary widely and include acidic, elevated terrace-gravels, richer alluvial slopes and floodplains, very rich shell-marl, sandy soils, and wetlands.

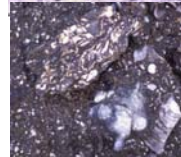
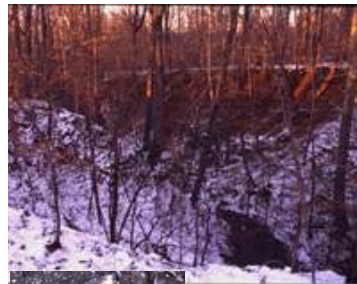


Habitat sampler

Terrace Gravel Forest Elevated tables with gravelly, acidic soils leached of nutrients. Oak-hickory association, open understory, and an herb layer sprinkled with low-bush blueberry and huckleberry. Includes very mature examples.



Shell-Marl Ravine Forest Rare, coastal-plain habitat. Veins of marl (pictured), shell-laden from past oceanic incursions, supply calcium when exposed by ravines. Presence of additional nutrients leached from nearby terrace-gravels. Montane aspects through disjunct calciophilic residents such as Chinquapin Oak, Glade Fern, Broad-leaved Sedge, globally rare Five-toothed Vertigo wood snail. Old-growth aspects.



Shell marl

Coastal Oak-Pine Forest Sandy soils resembling outer Coastal Plain (E. shore). Fiber-optic trail (dotted, NE corner of map) provides access. Fern seeps, tiger beetles, ant-lions, Prickly-pear Cactus (bloom pictured).



Floodplains Soils range from rich alluvial to anaerobic wetland. Includes Potomac floodplain & valleys along many of the 8-miles of streams. Spring wildflowers include Trout Lily, Spring Beauty, Dutchman's Breeches, Cut-leaved Toothwort, Virginia Bluebell. Pictured: Mattowoman tributary with successional beaver pond and wet meadow.



Steep slopes Erodible coastal plain soils and many streams lend high relief, a possible source for the relatively high richness of plant species since steep slopes resist direct human disturbance. Regional bird surveys indicate slopes harbor a higher density of neotropical migrants that breed in our area.



Biodiversity: *oak trees*

Though it is less than 1/2 % the size, Chapman Forest appears to have more species* of Oak Trees than Smoky Mountain National Park, an International Biosphere Reserve. Species richness may be attributable to proximity to the Piedmont physiogeographic province, with its many oak species, together with habitat variety represented by dry, acidic terrace gravels, rich, circumneutral Shell-Marl Ravine Forest (e.g., Chinquapin Oak), and wetlands and streams (Willow Oak, Swamp Chestnut Oak).



* Scarlet	<i>Quercus coccinea</i>	Chinquapin Oak	<i>Q. muehlenbergii</i>
Northern Red	<i>Q. rubra</i>	White	<i>Q. alba</i>
Southern Red	<i>Q. falcata</i>	Black	<i>Q. velutina</i>
Pagoda	<i>Q. pagoda</i>	Blackjack	<i>Q. marilandica</i>
Pin	<i>Q. palustris</i>	Willow	<i>Q. phellos</i>
Chestnut Oak	<i>Q. prinus</i>	Post	<i>Q. stellata</i>
Swamp Chestnut Oak	<i>Q. michauxii</i>		

Big Trees

No other site known in the area has such a diversity and size of trees. The large trees are well distributed, with others on the site coming close to or equaling the largest sizes.



Sassafras



Beech



State co-champion
Chinquapin Oak



Tulip Polar



Biodiversity: *rare, threatened, and endangered species*

Over three-dozen species deemed in Maryland to be rare, threatened, or endangered (RT&E's) are found within Chapman Forest. Such a large number occur in part because of its widely varied habitats, including uncommon Shell-Marl Forest. Deep ravines also provided refuge from past disturbance, and some areas are relatively undisturbed. Additional species may be rare, but too little data is present statewide (SU ranking).



Small-flowered Baby Blue Eyes (S1)



Deciduous Holly (S2)



Halberd-leaved Hibiscus (S3)



Camphorweed (S1, SE)



Bald Eagle
(S2S3B, LT)



Glade Fern (S2, ST)
largest population known in MD.



Eastern Mosquito-Fern (SU)



Five-toothed Vertigo
(G3, SU)

Eastern Pondmussel (G4G5, SU)



Tidewater Mucket (G4, SU)
"Species of concern" nationally^(a)

Rank describes rarity determined by scientific criteria

S state

G global

B suffix: breeding population (as opposed to migrant, e.g.)

1 Highly rare; critically imperiled.

2 Rare; imperiled.

3 Watch list; rare to uncommon.

U Possibly rare in Maryland, but of uncertain status.

Status describes recognition by law:

LT: Listed threatened federally

SE: State endangered

ST: State threatened



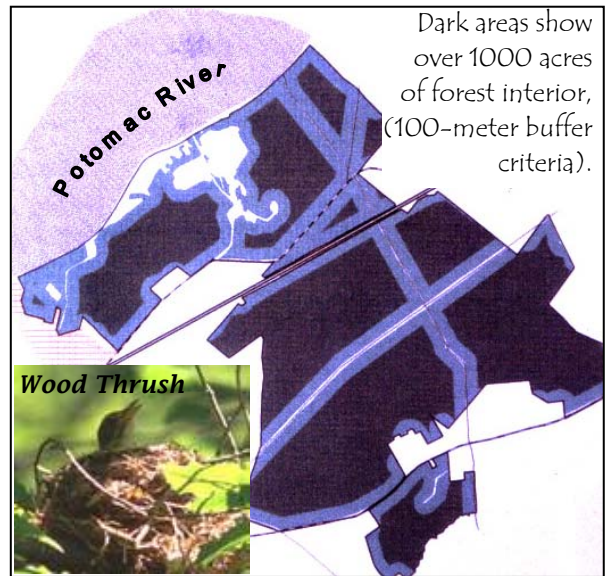
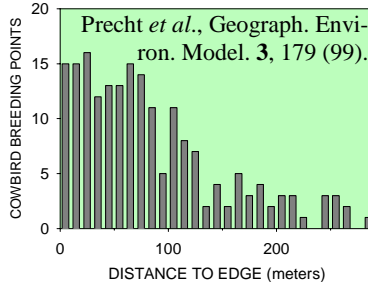
Common name	Scientific name
Camphorweed	<i>Pluchea camphorata</i>
Deciduous Holly	<i>Ilex decidua</i>
Eastern Mosquito-fern	<i>Azolla caroliniana</i>
Glade Fern	<i>Diplazium pycnocarpon</i>
Halberd-leaved Rose Mallow	<i>Hibiscus laevis</i>
Small-flowered Baby-blue eyes	<i>Nemophila aphylla</i>
Five-toothed Vertigo	<i>Vertigo ventricossa</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Eastern Pondmussel	<i>Ligumia nasuta</i>
Tidewater Mucket	<i>Leptodea ochracea</i>

^(a) Williams, J.D., M.L. Warren Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. "Conservation status of the freshwater mussels of the United States and Canada." *Fisheries* **18**, 6 (1993).

Forest-interior and other bird habitats

Forest Interior refers to areas buffered from openings by woods of sufficient width to appeal to forest interior dwellers, or FIDS. These species are often vulnerable to various edge effects, such as predation by forest-edge or open-area specialists, which tend to avoid forest interior (see plot). FID habitat is critical for many migratory neotropical birds, but is increasingly scarce due to human disturbance.

An oft-cited example of the impact of forest fragmentation is cowbird parasitism of nests, e.g. those of the Wood Thrush, a FID neotropical migrant whose call, a fluty "ee-oh-lay", is a favorite during Chapman Forest summers. Quantitative breeding-bird surveys find the Forest is especially rich in Wood Thrushes and Ovenbirds, and harbors above average numbers of other neotropical FIDs that are of concern because of declining numbers.



Older forest has added value for many species. The pileated woodpecker at right is a resident benefiting from large old woods, where decaying trees provide insect forage.



In addition to deep woods, Chapman Forest's Potomac shoreline, streams, marsh, and meadows host a wide range of terrestrial and water-dependent birds. To the right is pictured a nesting Bald Eagle.



Aquatic Resources: Potomac and Mattawoman Creek Watersheds

Potomac River Over two miles of unblemished shore ranging from 60-foot bluffs to floodplain. Uncommon tidal freshwater. Narrow sand and pebble beaches maintained by tidal action. Shallow riverine wetland with submerged aquatic vegetation and fish spawning; numerous freshwater snails and mussels.



Wetlands Frequent feature due to clay lenses, riparian topography, and extensive floodplains. Included are a large Potomac scrub-shrub swamp, seeps, open wet meadows, forested swamps, and vernal pools (seasonal ponds used for breeding by amphibians).



Salamander larva from vernal pool.



Vernal pool



Swamp Milkweed, wetland obligate



Streams Over eight miles of perennial streams. Included are sandy, shallow "fern seeps" in the Coastal Oak-Pine sector, deeply incised ravines in the Shell-Marl Forest, and broad valleys in the Mattawoman drainage. Bird surveys show mature forest near streams to be rich in neotropical migrants. One Mattawoman tributary supports spawning runs of anadromous* "river herring" (i.e., alewives and bluebacks), whose numbers on the east coast are severely depleted compared to the mid-70's. Mattawoman Creek remains renowned as an anadromous fish nursery.



River herring spawning in April just downstream of the Forest. Alewives may tie the Forest to waters as distant as the Gulf of Maine.

*Anadromous fish live in the ocean but migrate to freshwater to spawn.

Directions to Chapman Forest

This 2200 acre preserve, which includes Chapman State Park and the Glendening Natural Environment Area, encompasses exceptional natural and cultural heritage.

Experience the tranquility, awaken to the markedly diverse natural habitats, or contemplate the role of human habitation stretching to pre-colonial times.

Take the Beltway to Indian Head Highway (Rte. 210) south toward Indian Head (from Va., Exit 2; from Md., Exit 3a). After 14 miles, pass through the town of Bryans Road at the intersection with Rte. 227, marked by a traffic light. Continue past the Bryans Road traffic light for 1.1 miles to Chapman's Landing Road, which veers to the right. Follow Chapman's Landing Road for 1.6 miles to the gated entrance of Mt. Aventine on the right. Mt. Aventine is the antebellum (~1840) manor house built by the historically important Chapman family, who acquired land here in 1750.

Park in front of the gate, but without blocking it to allow access by Dept. of Natural Resources personnel.

Pass through the pedestrian gate provided by the Southern Maryland Audubon Society, and walk back in time, down the unpaved road to Mt. Aventine, where you can enjoy a remarkable view of the Potomac River and see eagles soaring year round.



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