

# Technical Appendix



## Appendix I - *The Planning Process & Public Input*

The planning process for the development of BHPCP followed the following schedule. It allowed for public input at several points during the process.

Schedule	Activities
July – November 2001	Data collection
October 2001	<p><b>Public meeting to accept public comment and input on the development of a master plan for Blockhouse Point Conservation Park.</b></p> <ul style="list-style-type: none"> <li>• Use workstation format to present important characteristics of the site to the public.</li> <li>• Ask for public comments on staff's analysis to date.</li> <li>• Ask for public input on issues, site improvements, etc. to be addressed in the plan.</li> </ul>
November 2001-April 2003	<p>Develop Staff Draft Park Master Plan</p> <ul style="list-style-type: none"> <li>• Conduct field visits with interested groups and general public to gather additional input on plan</li> <li>• Complete field evaluations; develop and refine park concept; develop park layout</li> <li>• Develop text, maps, and graphics for publication</li> </ul>
August 2003	Publish Staff Draft Master Plan
September 2003	<b>Public meeting to solicit public comment and input on the Staff Draft Master Plan</b>
September 2003	Develop Public Hearing Draft
October 2003	Publish Public Hearing Draft
December 2003 or January 2004	<b>Public Hearing held with Planning Board at 8787 Georgia Ave. Silver Spring</b>
Winter 2004	Review Public Hearing testimony at work-sessions with Planning Board
Spring 2004	Planning Board approval of Master Plan
Summer 2004	Brief PHED Committee of County Council
Summer 2004	Publish final Approved Master Plan for BHPCP

## Appendix II - *Forest Stand Delineation*

A Forest Stand Delineation of the Block House Point Conservation Park was done in order to determine priority areas for forest and tree retention before any possible development, and to aid in defining areas necessary for reforestation and/or restoration once the Master Plan process has been completed. The approximately 630 acre property, located at 14750 River Road in Darnestown, Maryland, extends about 283 acres north and 348 acres south of River Road (MD Route 190), and includes the lower Muddy Branch stream valley. It is bordered by Esworthy Road to the northeast, the C&O National Historic Park to the south, and private property to the east and west.

Vegetation studies have been conducted over a 10 year period by the M-NCPPC Natural Resources Management Staff (1995 to present) and the Maryland DNR Heritage Staff (1993, 1997, 1999). A thorough "walk-through" was completed and species lists for woody and herbaceous plants were compiled. Information on dominant and co-dominant species, size class, uncommon species and special habitats, and general health of the stands was recorded.

If a single, general label were to be given to the existing forest type in the uplands and on the hillsides and ravines of Blockhouse Point, the designation of "mesic mixed hardwood forest" could be made for 95% of the park. While most of the canopy trees in the park are oaks, tulip poplar, hickories, American beech, and sycamore, the possible number of associations/combinations that could be assigned when designating individual stands are many. In an effort to create a clear but comprehensive picture of the forested acreage at Blockhouse Point, Six forest stands were identified and are labeled on the Forest Stand Delineation map (*figure 6, page 12*) including:

**Stand 1:** Mixed Oak (includes Mixed Oak/Tulip Poplar, and Mixed Oak/Chestnut Oak) (upland), 445 acres

**Stand 2:** Tulip Poplar (upland), 58 acres

**Stand 3:** Tulip Poplar/Sycamore (floodplain), 61 acres

**Stand 4:** Sycamore/Green-Ash/Maple (riverine), 22 acres

**Stand 5:** Tulip Poplar/Red Maple/Eastern Red Cedar/ Virginia Pine (young successional forest/ old field), 21 acres.

**Stand 6:** White Pine (planted), 2 acres

**Area 7:** Maintained Utility Easements

Individual Forest Stand Descriptions include approximate stand acreage, species noted, retention priority, and comments on the stand's overall structure and condition. Additionally, utility line right-of-ways which are mowed or kept in a "maintained field" condition cover approximately 19 acres of Block House Point Conservation Park and are noted on the map. Finally, there are two pond communities noted on the map; one pond is a former home-site pond in the Muddy Branch floodplain north of River Road. The other is in the Potomac River floodplain and is connected to the C&O canal.

Before the more detailed Forest Stand Narratives are presented, a brief vegetation overview and a few comments about the park's overall vegetational condition are in order. The huge majority of Blockhouse Point Conservation Park acreage is a diverse, maturing, second growth forest with good forest structure -- high canopy and well developed shrub levels, with very few non-native invasive species. It is an exceptionally scenic area with high rocky bluffs above the Potomac River, expansive wetlands and floodplain forests along the river, high quality interior forest, steep-sided forested ravines, and a number of seep-spring areas.

Acreages of high quality mixed deciduous forest and oak/hickory-dominated forest extend in the uplands both north and south of River Road. Chestnut oak, white oak, red oak, tulip poplar, mockernut hickory, and pignut hickory are common tree species in the upland stands, with dominant trees in the 18 to 25" dbh range. Scattered larger specimen are often seen, with a number of oak, tulip poplar, and American beech measuring between 28 and 35"dbh. Large specimen of Virginia pine, white ash, tupelo, and red maple are also seen. Occasionally, black birch and shagbark hickory, both uncommon species in Montgomery County, are noted, as well as American chestnut re-sprouted saplings.

Despite the obvious deer predation problem at Blockhouse Point, the understory is generally well developed and commonly includes sizable thickets of mountain laurel in the uplands, and some what surprisingly, enlarging patches of paw-paw. Other noted understory upland tree/shrub species include low bush blueberry, native azalea, high-bush blueberry, witch hazel, serviceberry, musclewood, and dogwood.

While the herbaceous layer in the upland forest at Blockhouse point is somewhat sparse, a number of ferns including Christmas fern, New York fern, hay-scented fern, broad beech fern, and ebony spleenwort, along with a number of small flowering plants and vines including spotted wintergreen, partridgeberry, white wood aster, wild licorice, ground pines, Virginia creeper, greenbriar, and sweet cicely were noted.

Stream and river buffer and floodplain acreages in Blockhouse Point are dominated by tulip poplar, sycamore, silver maple, and red maple. Dominant trees are in the 18 to 25" dbh range. River birch, mixed oaks-especially pin oak and red oak, slippery and American elm, black willow, and hackberry are also seen in the floodplain areas of Blockhouse Point Park. A few individual swamp white oak and swamp chestnut oak, both uncommon trees in Montgomery County parks, were noted in the floodplain areas.

Spicebush is the dominant shrub in understory floodplain communities. Also commonly noted were musclewood, arrow-wood, pawpaw, and poison ivy. As on most other MNCPPC park properties, the herbaceous layer is much fuller in the floodplain forest than in the upland forest. Herbs and vines commonly seen include Jack-in-the-pulpit, wingstem, stinging nettle, avens, wild ginger, Indian cucumber, sweet cicely, enchanters nightshade, bloodroot, hog peanut, Virginia knotweed, naked-flowered tick trefoil, greenbriar, and grape vine, among others. Fern species cover large areas of floodplain including hay-scented fern, sensitive fern, Christmas fern, and New York fern.

Gypsy moths did damage the Blockhouse Point forests during the late 1980's and as the cyclical population growth of gypsy moths is on the upswing again, care should be taken to prevent large amounts of future defoliation to this predominantly oak forest. As mentioned previously, the growing deer population is a serious concern in the Blockhouse Point Conservation Park. Regeneration of native woody species is basically at a standstill at this point due to deer predation. Non-native invasive plants are not absent from Blockhouse Point forests. Japanese honeysuckle (*Lonicera japonica*), Garlic mustard (*Alliaria petiolata*), Vietnamese stiltgrass (*Microstegium vimineum*), and Asiatic bittersweet (*Celastrus orbiculatus*) among others were all noted in the park, especially in the Muddy Branch and Potomac River floodplains. Currently, however, Blockhouse Point is one of the M-NCPPC parks least affected by non-native invasive species.

Beyond a general description of the high quality contiguous forested areas of Blockhouse Point, a word should be said about other special habitats in the park which support a number of uncommon plant communities. Between 1992 and 1999, Maryland Department of Natural Resource Heritage Botanists conducted 3 separate surveys at Blockhouse Point and identified several significant habitats and communities, as well as a number of endangered, threatened and watchlist plants. Both along Muddy Branch

and in the steeply sloped tributary areas north of River Road, and south of River Road adjacent to the federally owned Canal National Historic Park are rock outcrop areas, which support locally less common plant communities, and a few State Listed plants. There are additionally several higher quality swamp areas in Blockhouse Point Park, especially south of River Road, where lizard's tail, arrow arum, crested wood fern, marsh fern, monkey flower, and large colonies of skunk cabbage live.

#### *Stand Narratives:*

**Stand 1.** Forests dominated by mixed oak species, or by a combination of mixed oak/chestnut oak or mixed oak/tulip poplar, comprise the largest stand acreage by far in Block house Point Conservation Park. Approximately 445 acres of upland forest in Blockhouse Point are dominated by mixed oaks, including chestnut (*Quercus prinus*), white (*Q.alba*), southern red (*Q.falcata*), black (*Q.velutina*), and northern red oak (*Q.rubra*), or by a combination of mixed oaks with an especially large number chestnut oak or tulip poplar (*Liriodendron tulipifera*). Though size class does differ somewhat over the 630 acre park, the overwhelming majority of dominant trees in Stand 1 fit into the 15 to 25" dbh range. Other tree species typically found in Blockhouse Point's mixed oak woods include black gum (*Nyssa sylvatica*), mockernut (*Carya tomentosa*), pignut (*C.glabra*), American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), and white ash (*Fraxinus Americana*). Some sections of predominantly oak forest have varying amounts of black cherry (*Prunus serotina*), Virginia pine (*Pinus virginiana*), and Eastern red cedar (*Juniperus virginiana*).

Understory tree and shrub specimen found in Block house Point's mixed oak woods include large thickets of mountain laurel (*Kalmia latifolia*), which extend for acres on hillsides, hilltops and ridgelines both north and south of River Road, as well as several large colonies of pawpaw (*Asimina triloba*). Flowering dogwood (*Cornus florida*), serviceberry (*Amelanchier arborea*), low-bush blueberry (*Vaccinium vacillans*), highbush blueberry (*V.atrococum*), deer-berry (*V.stamineum*), pinxster-flower azalea (*Rhododendron periclymenoides*), maple-leaf viburnum (*Viburnum acerifolium*), blackhaw (*V.prunifolium*), arrow-wood (*V.dentatum*), spicebush (*Lindera benzoin*), American chestnut (*Castanea dentata*), chinquapin (*C.pumila*), witch-hazel (*Hamamelis virginiana*) and wild hydrangea (*Hydrangea arborescens*) were also noted.

Herbaceous and vining species observed in Blockhouse Point's Stand 1 include wild grape (*Vitis* spp.), bellwort (*Uvularia sessifolia* and *U. perfoliata*), spring beauty (*Claytonia virginica*), wild yam (*Dioscoria villosa*), jack-in-the-pulpit (*Arisaema triphyllum*), mayapple (*Podophyllum peltatum*), striped wintergreen (*Chimaphila maculata*), violet wood sorrel (*Oxalis violaceae*), ground-cedars (*Lycopodium flabelliforme*, *L. obscurum*), cranes-fly orchis (*Tipularia discolor*), partridgeberry (*Mitchella repens*), greenbrier (*Smilax rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*), brambles (*Rubus* spp.), white wood aster (*Aster divaricatus*), poison ivy (*Rhus toxicodendron*), black cohosh (*Cimicifuga racemosa*), violets (*Viola* sp.), and rattlesnake plantain (*Goodyera pubescens*).

Some fern species noted include Christmas fern (*Polystichum acrostichoides*), New York fern (*Thelypteris noveboracensis*), sensitive fern (*Onoclea sensibilis*), lady fern (*Athyrium filix-femina*), and hay-scented fern (*Dennstaedtia punctilobula*). Throughout Stand 1 are areas where mosses, especially pincushion moss, are evident.

While the density of the herbaceous coverage varies from the relatively lush areas bordering the tulip poplar/sycamore dominated Stands to the hill-tops in the mixed oak/chestnut oak woods where the dominant ground cover is leaf litter and downed branches, the level of exotic invasive coverage remains minimal throughout Stand 1. Exotic invasives including Japanese honeysuckle (*Lonicera japonica*), Asiatic bittersweet (*Celastrus orbiculatus*), and Vietnamese stiltgrass (*Microstegium vimineum*) generally occur only along trails, paths, and forest edges in Blockhouse Point's mixed oak, mixed oak/tulip poplar stands.

Though the large majority of the mixed oak acreage in Blockhouse Point is of extremely high quality (good structure and species diversity, few exotic invasives, etc.), a few acres of oak forest have been affected by gypsy moth damage. Deer browse is also evident throughout Stand 1. It will be very important to both monitor for gypsy moth egg masses and to maintain the managed hunt program in the future.

It's hard to pinpoint the location of the highest quality mixed oak woods in Blockhouse Point Conservation Park. In comparison with other M-NCPPC park properties of equal or larger size, Blockhouse Point undoubtedly has the largest solid blocks of high quality oak forest in the park system. Though the exact species mix does change somewhat due to elevation, proximity to streams, soil composition, etc., over the property, proportion of chestnut oaks, hickory, white oaks, tulip poplar in the mix), the general high quality character of the mixed oak woods remains.

The rock outcrops which support different fern, lichen, moss, herbaceous and woody communities, including some State Listed plants, are located in or on the edge of Stand 1 forests.

Stand 1 has been given priority "1-High" status. In this large stand there are areas with steep slopes and areas within the environmental buffers for floodplains, but even where the land is considered by definition to be buildable, Stand 1 contains many specimen trees and represents high quality contiguous forest that connects the largest undeveloped or most vegetated tracts of land within and adjacent to the site.

**Stand 2.** Approximately 58 acres of Blockhouse Point Conservation Park are dominated by *Liriodendron tulipifera*. The majority of the dominant tulip poplar in Stand 2 range from 16 to 30" dbh, with scattered 30 to 40" specimen. The forest sections designated as Stand 2 are very similar in overall general forest composition to those designated as Stand 1, with the difference in Stand designation being in the number of oak present. In Stand 1, there are areas where oak and tulip poplar are both important; In Stand 2, tulip poplar is the dominant tree.

*Acer rubrum*, *Nyssa sylvatica*, *Platanus occidentalis*, *Fraxinus pennsylvanica*, *Fagus grandifolia*, *Ulmus americana*, *Juglans nigra*, *Prunus serotina*, and assorted *Quercus* species, were other tree species noted in Stand 2. A population of *Betula lenta*, uncommon to rare in the Maryland Piedmont, lives in one section of Stand 2 south of River Road, near what might be called a grove of relatively large *Ilex opaca* (another uncommon plant for the piedmont).

*Lindera benzoin* dominates the understory, with *Carpinus caroliniana*, *Ilex opaca*, *I. verticillata*, *Rhododendron periclymenoides*, *Smilax rotundifolia*, *Viburnum prunifolium*, *V. dentatum*, *Hamamelis virginiana*, *Vaccinium vacillans* and very much deer browsed *Euonymus Americana* also noted.

As in Stand 1, the herbaceous layer in Blockhouse Point Stand 2 is relatively sparse, with the exception of the area areas directly surrounding a seep or trib. Herbaceous and vining species noted include *Podophyllum peltatum*, *Uvularia sessifolia*, *U. perfoliata*, *Arisaema triphyllum*, *Rubus* sp., *Viola* spp., *Agrimonia parviflora*, *Gallium circaeans*, *Cimicifuga racemosa*, *Osmorhiza claytoni*, *Sanguinaria canadensis*, *Medeola virginiana*, *Dioscorea quaternata*, *Lycopodium flabelliforme*, *Vitis* spp., *Tussilago farfara*, and *Claytonia virginica*.

Several species of fern were observed, including *Polystichum acrostichoides*, *Botrychium virginianum*, *Adiantum pedatum*, *Athyrium filix-femina*, *Onoclea sensibilis*, *Thelypteris noveboracensis*, and *Dennstaedtia punctilobula*. In the wetter areas near the seeps, patches of *Osmunda cinnamomea* live.

As with the mixed oak forests of Stand 1, it is hard to pinpoint where the highest quality tulip poplar forests of Stand 2 are in Blockhouse Point. With a few exceptions, Stand 2 forests are usually found surrounding seeps, in ravines, and along the hillsides above tributaries to Muddy Branch and the Potomac. Tulip poplar also dominate a few scattered, relatively flat sections of forest where perhaps a clearing occurred in the more recent (+/-50 years) past. As with the mixed oak forest in Stand 1, most of the maturing, second growth tulip poplar forests are of high quality, with good structural and species diversity. The dbh of dominant trees is consistently over 20", with a number of specimen trees. There are far fewer exotic invasive species in Stand 2 than are commonly found on most M-NCPPC properties. Unfortunately, exotics including *Lonicera japonica*, *Celastrus orbiculatus*, *Microstegium vimineum*, *Rosa multiflora*, and *Alliaria petiolata* do appear along the paths and in clearings caused by openings in the canopy of Stand 2. Deer damage is obvious throughout Stand 2 forests. There has also been a sizable amount of damage done by horses to the tulip poplar trees along the property boundary line with Calathea Farms (horses have gnawed the bark off many trees along the trib).

Stand 2 has been given the priority of "1-High". A great deal of Stand 2 is associated with intermittent or perennial streams and their buffers, steep slopes, and/or specimen trees. Even the technically buildable areas of Stand 2 represent high quality contiguous forest that connects the largest undeveloped or most vegetated tracts of land within and adjacent to the site.

**Stand 3.** Approximately 61 acres of Blockhouse Point Conservation Park are dominated by *Liriodendron tulipifera* and *Platanus occidentalis*, with *Acer rubrum* and *Betula nigra* also figuring prominently in the Stand composition. The majority of the dominant tulip poplar and sycamore in Stand 3 range from 20 to 30" dbh, with scattered 30 to 40" specimen. Red maple and river birch generally fall within the 12 to 20" dbh range, with scattered larger (~24"dbh) trees noted. The forest sections designated as Stand 3 are entirely associated with the Muddy Branch stream valley floodplain in Blockhouse Point Conservation Park.

Many additional tree species were noted in Stand 3 including *Acer negundo*, *A.saccharinum*, *Nyssa sylvatica*, *Fraxinus pennsylvanica*, *Fagus grandifolia*, *Ulmus Americana* and *U.rubra*, *Juglans nigra*, *Prunus serotina*, *Salix nigra*, *Celtis occidentalis*, and assorted *Quercus* species, including *Quercus palustris*, *Q.bicolor*, *Q.alba*, *Q.rubra*, *Q.imbricaria*. The Muddy Branch floodplain forest is a rich woods with scattered pin oaks measured 20 to 25" dbh and the uncommon (in Montgomery County) swamp white oak noted occasionally.

*Lindera benzoin* and *Asimina triloba* are common in the tree and shrub understory, with *Carpinus caroliniana*, *Ilex verticillata*, *I.opaca*, *Viburnum prunifolium*, *V.dentatum*, *Hamamelis virginiana* also noted.

The herbaceous level is richer and more diverse in Stand 3 than in Stand 1 or 2 of Blockhouse Point Conservation Park. Herbaceous and vining species noted include *Podophyllum peltatum*, *Polygonatum biflorum*, *Symplocarpus foetidus*, *Arisaema triphyllum*, *Rubus hispidus*, *Rubus* sp., *Viola* spp., *Circaea quadrisulcata*, *Actinomeris alternifolia*, *Urtica dioica*, *Asarum canadense*, *Geum virginianum*, *Dentaria laciniata*, *Agrimonia parviflora*, *Saururus cernuus*, *Gallium circaeans*, *Osmorhiza claytoni*, *Medeola virginiana*, *Dioscorea villosa*, *Claytonia virginica*, *Impatiens capensis*, *Collinsonia canadensis*, *Geranium maculatum*, *Smilax rotundifolia* and *Toxiodendron radicans*.

Numerous species of fern, sometimes forming a lush groundcover, were observed including *Polystichum acrostichoides*, *Onoclea sensibilis*, *Osmunda cinnamomea*, *Thelypteris noveboracensis*, *T.hexagonoptera*, *Adiantum pedatum*, *Dennstaedtia punctilobula*, and *Dryopteris intermedia*.

Stand 3 basically encompasses the Muddy Branch stream valley floodplain, and while the dbh of dominant trees is consistently over 20", with many significant and specimen trees, there are also large, relatively open areas along the stream where herbaceous plants provide the dominant cover. From mid July through the October, the 4 to 6 foot tall wingstem blankets some open floodplain areas.

Just south of River Road in Stand 3, several uncommon plants have been noted in a large wetland community which includes *Saururus cernuus*, *Peltandra virginica*, *Dryopteris cristata*, *Thelypteris palustris*, *Mimulus moschatus*, and large colonies of *Symplocarpus foetidus*. Unfortunately, exotics including *Lonicera japonica*, *Celastrus orbiculatus*, *Microstegium vimineum*, *Rosa multiflora*, and *Alliaria petiolata* do appear along the paths and in clearings and have a much bigger presence in Stand 3 than in Stand

1 or 2. They are encroaching into higher quality areas like the wetland noted above. Over the past five years, Vietnamese stiltgrass in particular has become established in several sizable areas of floodplain from the very northern edge of the park at Esworthy Rd. down to the Potomac River. A sizable wetland just north of River Road once filled with lizards tail has now been almost entirely over-run by Vietnamese stiltgrass.

Stand 3 has been given the priority of "I-High". All of Stand 3 is associated with a perennial stream and stream buffers, has nontidal wetlands/seeps, has scattered specimen trees, and represents contiguous forest connecting vegetated tracts of land.

**Stand 4.** Stand 4 (approximately 22 acres) is dominated by *Platanus occidentalis*, *Fraxinus pennsylvanica*, and *Acer saccharinum* with dominant trees in the 20 to 30" dbh range. The numerous other common tree species in this riverine association include *Acer rubrum* and *A. negundo*, *Celtis occidentalis*, *Liriodendron tulipifera*, *Ulmus rubra* and *U. americana*, *Salix nigra*, *Juglans nigra*, *Robinia pseudo-acacia*, mixed oaks-especially *Quercus palustris*, *Q. rubra*, *Q. alba*, and a few *Q. bicolor* and *Q. michauxii*.

*Lindera benzoin* is the dominant shrub, and *Asimina triloba* is a very common understory tree in the Stand 4 understory communities. Also noted were *Carpinus caroliniana*, *Toxiodendron radicans*, *Ilex verticillata*, *Viburnum prunifolium*, *V. dentatum*, and *Staphylea trifolia*.

As in Stand 3, the herbaceous and vining layer in Stand 4 is much fuller in the river floodplain forest than it is in the upland forest at Blockhouse Point. Herbs and vines commonly seen include *Arisaema triphyllum*, *Actinomeris alternifolia*, *Urtica dioica*, *Asarum canadense*, *Medeola virginiana*, *Claytonia virginica*, *Circaea quadrisulcata*, *Sanguinaria canadensis*, *Amphicarpa bracteata*, *Tovara virginiana*, *Desmodium nudiflorum*, *Smilax rotundifolia*, *Vitis* spp., *Podophyllum peltatum*, *Polygonatum biflorum*, *Symplocarpus foetidus*, *Rubus hispidus*, *Rubus* sp., *Viola* spp., *Geum* spp., *Geum virginianum*, *Dentaria laciniata*, *Agrimonia parviflora*, *Saururus cernuus*, *Gallium circaezans*, *Osmorhiza claytoni*, *Dioscorea quaternata*, *Impatiens capensis*, *Collinsonia canadensis*, *Geranium maculatum*, and *Smilax rotundifolia*. Fern species noted in the river floodplain include *Dennstaedtia punctilobula*, *Onoclea sensibilis*, *Polystichum acrostichoides*, *Asplenium platyneuron*, and *Thelypteris novaboracensis*.

In addition to the typical river floodplain forest of Stand 4, there is a large ponded wetland area that empties into the C&O canal close to the

southeastern corner of Blockhouse Point Conservation Park property. The wetland community that surrounds the pond is very diverse and includes many sedges, rushes and grasses as well as *Cephalanthus occidentalis*, *Typha* sp., *Saururus cernuus*, *Scutellaria lateriflora*, and the showy flowered *Lobelia cardinalis*, and *Hibiscus moscheutos*.

Unfortunately, as in Stand 3, non-native invasives have taken over large portions of the riverine forest, especially in the more open canopy areas and where a path cuts through the forest. *Rosa multiflora*, *Alliaria petiolata*, *Lonicera japonica*, *Lonicera tartarica*, *Celastrus orbiculatus*, *Perilla frutescens*, were all noted, with *Microstegium vimineum* again a major concern across the floodplain.

Deer are as much a problem in Stand 4 as they are in the rest of the park. Three very uncommon *Platanthera lacera* were noted near the trib feeding into the ponded wetland. Two of these orchids had been cropped by deer so there would be no bloom/seeds that season.

Stand 4 has been given the priority of "I-High". All of Stand 4 is associated with a river and river buffers, has nontidal wetlands/seeps, has scattered specimen trees, and represents contiguous forest connecting vegetated tracts of land.

**Stand 5.** Approximately 21 acres of Blockhouse Point Conservation Park are designated as Stand 5, "young successional forest/old field". These areas of somewhat weedy forest range in age from about 10 to 25 years. Though the exact composition of these woods varies somewhat from one location to another, *Liriodendron tulipifera*, *Acer rubrum*, *Pinus virginiana*, and *Juniperus virginiana* are the four dominant species throughout. Commonly observed additional trees include *Prunus serotina*, *Quercus* species, including *Q. alba*, *Q. rubra*, *Q. imbricaria*, *Q. falcata*, *Sassafras albidum*, *Robinia pseudoacacia*, and *Platanus occidentalis*. Dbh readings of dominant trees range from 3 to 10" with scattered larger trees, especially along old fence lines.

All of the sections designated as Stand 5 occur north of River Road. The majority of the areas are located at the top (or close to the top) of a hill where a clearing or home-site was made not too far in the distant past. The areas to the west of Muddy Branch and closest to River Road are younger and weedier than the areas east of Muddy Branch which are closer to housing developments and fields off Maidens Bower Dr. and Gorky Dr. An area planted

in white pine located between one of the early succession Stands and a former home-site pond north of River Road has been included in the Stand 5 acreage.

Understories in these young forests are usually full of shrubs and vines including *Rhus radicans*, *R.typhina*, *R.copallina*, *Smilax rotundifolia*, *Viburnum prunifolium*, *Parthenocissus quinquefolia*, *Desmodium* spp., and a number of exotic invasives, including *Rosa multiflora*, *Elaeagnus angustifolia*, *Lonicera japonica*, *L.morrowi*, *L.tatarica*, and *Celastrus orbiculatus*.

The herbaceous level varies from section to section in Stand 5, with observed species including *Gallium aparine*, *Asplenium platyneuron*, *Aster divaricatus*, *A.pilosus*, *Glechoma hederaceae*, *Achillea millefolium*, *Agrimonia parviflora*, *Duchesnea indica*, *Daucus carota*, *Clematis virginiana*, *Verbascum thapsus*, *Gnaphalium obtusifolium*, *Solidago* spp. including *S.nemoralis* and *S.graminifolia*, *Dianthus armeria*, *Asclepias syriaca*, *Apocynum cannabinum*, *Lespedeza* spp., *Antennaria plataginifolia*, *Pycnanthemum* sp., and *Cirsium* sp.

In addition to the presence of non-native invasives, deer browse is a very obvious problem in much of Stand 5. These early succession areas seem to be favored by deer for bedding areas and the browse line is very obvious. In one early succession forest dominated by 4 to 10" dbh tulip poplar, a population of about 8 *Galearis spectabilis* had been browsed down to the ground by deer.

Assigning a priority rating to Stand 5 is not as straight forward a matter as it is for Stand 1,2,3, or 4. The rating of "3-low" might be assigned because the woods are young and have poor structural quality with exotics present. However, the rating of "2-moderate" has been given because the forests do represent a portion of wooded property within a large contiguous forest, and if preserved and allowed to grow, will develop into a higher quality forest in time.

**Stand 6.** Approximately 2 acres of Blockhouse Point Conservation Park are covered by white pines (*Pinus strobus*) which were planted near a former dwelling area. Though a few species typically native to the Maryland piedmont have grown up among the planted pines, including black cherry and tulip poplar, this area is still dominated by pines in the 10 to 18" dbh range. The understory is rather sparse except for some poison ivy and Japanese honeysuckle. This is a pine plantation rather than a native forest stand, does not have good structural diversity, and does not have any

streams, wetlands, floodplains associated with it. The rating of 2 "Moderate" is still given because it represents part of an area of contiguous forest in a conservation park.

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## Appendix III - *Archaeology Resources*

### *Prehistoric Cultural Resources*

Because there is an increasing statistical ratio between the frequency of Indian camps and their distance to water sources, an above average number of our County's prehistoric sites have been protected within our Parks's stream valley system. This is most true for Blockhouse Point Conservation Park situated on a primary waterway, the Potomac River. The Park contains the highest number of prehistoric archaeological sites of any other Park in the County. To date, 32 such sites have been identified and each walkover uncovers more.

Prehistorically, Montgomery County is part of the Eastern Woodland cultural complex. Conventionally, the prehistory of the Eastern Woodlands is divided into three major cultural periods: Paleo-Indian (10000 B.C. to 7000 B.C.), Archaic (7000 B.C. to 1000 B.C.) and Woodland (1000 B.C. to European Contact about A.D. 1600). Today, we can add Pre-Paleo-Indian (30000 B.C. to 10000 B.C.). Traditionally, Paleo-Indian culture was thought to center on hunting mega fauna (big game), while Archaic bands depended upon gathering more modern plant varieties and hunting smaller Holocene species, especially deer. The Woodland Period begins with the appearance of agriculture and concomitant tribal organization.

As a gateway to our County, the prehistoric Potomac River channeled numerous migrations into our region beginning as far back as 18000 B.C. While late Ice Age sites dating to 10000 B.C. have been identified just upriver of Blockhouse Point, the earliest known site within the Park boundaries is about 3000 B.C. Since only one Park site has been test excavated (Blockhouse Point # 5), it is not surprising that the majority of the prehistoric sites remain undated. No diagnostic artifacts were recovered from the large campsite at #5.

### *Prehistoric Archaic Occupation - 3000 B.C. to 1000 B.C.*

For now, the prehistory of Blockhouse Point begins in the Late Archaic Period (3000 B.C. to 1000 B.C.). Based on projectile point types from Blockhouse Point #2 and, especially, # 31 made in the "Savannah River" style, we know this kind of spearpoint first appeared in the Southeast with subsequent diffusion up the Atlantic coast. The Savannah River or Broadblade tradition is associated with anadromous fish and shellfish harvesting encouraged by increased wetland and estuary development. During this Late Archaic Period, more people began to occupy semi-permanent camps in areas of high resource potential. These are the dry season macro- or multi-band base camps in stream valleys that are then linked to smaller, short-term occupations in upland locations.

While the larger, semi-permanent base camps would be located near the Fall Line between Montgomery and Prince Georges Counties, Blockhouse Point Conservation Park would have been ideal for the short-term resource camps, making use of the Potomac's linear riverine environment. Here, small bands would have engaged in: quarrying local stone, making tools and spearpoints, hunting, butchering, hide preparation, nut and seed gathering and fishing.

Major Late Archaic faunal species that were available included: deer, elk, woodland bison, black bear, turkey, squirrel, rabbit, beaver, otter, muskrat, duck, geese and water and upland (quail) fowl. These would have been hunted most successively during the fall and winter. Aquatic resources would have included: Coastal Plain marine shellfish (oysters, clams and crabs), freshwater clams and mussels and anadromous fish (shad, herring, rockfish and sturgeon). Anadromous fish runs usually occurred between March and June.

Plant remains can be ordered by prehistoric dietetic importance:

- 1) Nuts - acorn, hickory, walnut and chestnut (harvested from October through January).
- 2) Fruits and vegetables - various berries, gourds and squash (available late summer, July, and early autumn, October).
- 3) Roots and tubers - Indian potato and tuckahoe (most common in freshwater swamps from October to April).
- 4) Grains and edible seeds - goosefoot/lambsquarter, sump weed/marsh elder, sunflower, little barley, ragweed and knotweed (common in freshwater marshes, floodplains and terraced fields from July through September).

The husbandry of wild plant remains, suitable to growing on trash heaps, can be confirmed between 2000 B.C. and 1000 B.C. It is thought that some Late Archaic groups cleared dense floodplains to encourage pioneer species and burned hillsides to increase nut production.

The Late Archaic sites in Blockhouse Point Conservation Park also reflect that culture's preference for more localized lithic material. Quartz, quartzite and salicified sandstone are readily available in the Park, and within the Broadblade tradition, quartzite is often the cobble of choice. Steatite (soapstone) outcrops have also been found within the Park, and the most notable addition to Late Archaic artifacts is hollowing out shallow, lug-handled soapstone vessels for cooking.

### *Prehistoric Woodland Occupation - 1000 B.C. to A.D. 300*

An Early Woodland era occupation (1000 B.C. to A.D. 300) has also been identified in the Park (Kawecki III Site). This comes in the shape of a smaller, notched and stemmed "Calvert" spearpoint, a descendant of the Savannah River projectile tradition. While no prehistoric ceramics have been found in the Park, this era ushers in a true, terra cotta container revolution, spread north from Mexico. The pottery of the time is known as steatite-tempered "Marcy Creek Plain" and a local, Montgomery County coiled variety, named "Selden Island" ware after the nearby Walker Village (18MO20), the County's only prehistoric site listed on the National Register of Historic Places. During this period, the transition to true village sedentism and agriculture develop.

The nearby Selden Island village is the first evidence in Montgomery County of true, year-round settled lifeways. Village features include small round huts, subsurface storage pits and garden cultivation.

Bruce Smith of the Smithsonian Institution has confirmed that eastern North America was the fourth independent center for plant domestication, along with the Near east, China and Mezoamerica. Located on adjacent islands and upriver floodplains, local prehistoric inhabitants would have grown; Chenopodium (lambsquarter/goosefoot), Iva Annuua (marshelder/goosefoot), and Helianthus Annuls (sunflower). These would have been the typical domesticated crops for over 1,000 years before corn was introduced from the Mississippi Valley via Mexico about A.D. 800.

The Early Woodland sites at Blockhouse Point Conservation Park represent a continuum of the hunting/subsistence strategies of the Late Archaic Period. They would have been small, outlying support camps for the near-

by, upstream floodplain villages. These Early Woodland peoples seem to have disappeared by the Middle Woodland Period (A.D. 300 to A.D.900). Too distant to be identified by tribal or linguistic groupings, their disappearance is a prehistoric mystery that waits to be investigated. Montgomery County was not resettled until the Late Woodland Period when the "Montgomery Focus" people established their towns between A.D. 900 and circa A.D.1300. These villagers were replaced by Ohio-based westerners of the Keyser Complex (Monongehela Culture) who abandoned their eastern settlements by about A.D. 1500. When John Smith sailed up the Potomac River into Montgomery County in 1609, the region was a no-mans-land, separating the southern Maryland Algonquian-speaking Piscataways from northern Iroquois and western Souian/Shanee groups.

### *Historical Cultural Resources*

Although named for the Civil War feature of the same type, Blockhouse Point Conservation Park also contains an eighteenth century mill complex and was used as a wood lot by nineteenth century owners William and Sarah Reading. Part of a military complex called the "Camp at Muddy Branch", the blockhouse not only guarded that reach of the Potomac River but also local fording places and the adjacent Chesapeake and Ohio Canal.

#### *Eighteenth/Early Nineteenth Century Occupation*

*Wheeler/Didenhover Mill -18MO390.* The first evidence of an historical use of the Park comes from the November 7, 1782 issue of the Maryland Gazette. C. Wheeler of Loudoun County, Virginia, offered for sale a mill and mill seat on a 243-acre plantation at the Mouth of Muddy Branch. It continued in operation, at least, until the beginning of the nineteenth century when, on October 14, 1815, miller William Didenhover placed an add in the Frederick Town Herald announcing his fulling and dying business:

*Cloth will be received in Frederick Town, by Mr. Valentine Bruner, at his store in Market-Street, near the Market-Square: and also at Buckey's Town, by Mr. George Buckey, at his store: and at Mr. Samuel Lanham and Nicol's Store, on the manor, where he will send every two weeks to receive such cloths as may be left at said store; which shall be dressed and returned in two weeks from the time received.*

*William and Sarah Reading Ownership.* In 1856, William and Sarah Capner Reading from Hunterdon County, New Jersey, acquired 1100 acres of land in Montgomery County around Blockhouse Point with the intention of using its woodland for charcoal, which could be hauled to Georgetown, D.C. by canal boats.

#### *Civil War Occupation*

Not surprisingly, although a slaveholder, William Reading was an ardent Northern supporter as revealed in the following letter to the Montgomery County Sentinel, February, 6, 1861:

#### Address to the People of the South

*To my fellow citizens of the South,*

*Although, but a humble farmer of Maryland, and unaccustomed to writing, I am accustomed to thinking when circumstances require it; and I, doubt not but all-well-meaning men will agree with me that..... when our country is upon the verge of ruin, it demands all our thoughts and efforts for preservation. Several States have already seceded from the Union, and are urging others to follow their example, until all the slave states have withdrawn. While I am a slaveholder, and have all the interests of the South at heart, and feel that our rights have been attacked and gravely insulted by some of the people of the North, I am altogether opposed to secession from the Constitution of the United States and the Union as a means of redress and safety.....Come then, and let us at once do away with this wicked, foolish, and suicidal notion of disunion and secession, and rally around our country, with the Star Spangled Banner floating over us; and let Hail Columbia ring under the arches of our God, whose frown is upon us, but who is willing to smile again upon us, if we are willing to return to our duties, and to Him who has hitherto blessed us as no nation was ever blessed.*

*Wm. Reading - Summitbridge, Maryland, Jan. 30, 1861*

In March of 1861, Reading elected to write another letter to the Sentinel refuting charges that he was a "Northern man".

William Reading's land must have been appropriated by the government before January of 1862, because it was after the Battle of Ball's Bluff on October 21, 1861, that the Nineteenth Regiment, Massachusetts Volunteer Infantry was ordered "to Seneca" at a place called "Muddy Branch", where it relieved some of General Bank's command. Its duties were to guard 13 miles of the Potomac River from Seneca to Great Falls.

It also was instructed to build three defensive blockhouses, 48 feet each way, of the shape of a Greek Cross, four feet thick, twelve feet high, with loopholes for infantry arms, roofed with logs three feet thick and covered with three feet of earth. Two hundred twenty five officers and men were engaged in this work. The blockhouses were constructed between January and February of 1862, with Captain James D. Russell of Company D building the defensive blockhouse between Muddy Branch and Seneca with Lieutenant Samuel Baxter helping.

In building the camp, the regiment's first work was the procuring of logs from the camps that had been abandoned by General Banks' Division. Digging out a round hole about 10 feet across and four feet deep, the men took the logs and built them up about three feet from the ground, stopping the cracks with sticks and mud. On top of the logs the tents (Sibley) were made fast, and fireplaces were built into one side with a barrel or box for a chimney. The officers' quarters had slate firebacks. The 19th Massachusetts regimental history adds that a few of the more industrious built their chimneys of sticks, log house style, and plastered the insides with mud. "In the same way were the houses of the poor whites and Negroes provided with the means to let the smoke escape." Ovens were constructed out of doors in which to bake bread.

On March 12, 1862, the 19th Massachusetts regiment was ordered to join General Sedgwick's Division under the command of General N. J. T. Dana at Harper's Ferry, which was on its way to reinforce Generals Banks and Shields in the Shenandoah Valley. The regiment was loaded on canal boats at Edward's Ferry and were "...lazily drawn along by mules...with hills and mountains making on the opposite side a background beautiful and picturesque...a scene long to be remembered".

Actually, the 19th Massachusetts was still in Sedgwick's Division at the battle of Antietam in September of 1862, where they sustained 50% losses. Thus, many of the Blockhouse's builders had only a few months to live!

More research will fill in the gaps of the camp's occupations. In 1863, a history of the 10th Vermont Regiment mentions that the right wing, under Lieutenant Colonel Edson, was picketed between Edward's Ferry and Muddy Branch.

On July 11, 1864, Confederate Colonel John Singleton Mosby of the 1st Virginia Partisan Rangers, which included a number of Montgomery County men, crossed the Potomac River at Conrad's Ferry to support General Jubal Early's strike at Washington, D.C. On the 12 of July, they went to Seneca Mills and thence to Muddy Branch where they found a "...deserted camp of the 8th Illinois Cavalry, from which the forces had hastily departed, leaving tents standing, with bales of hay, bags of oats, saddles, bridles and everything lying about. These we burned together with a large blockhouse and frame building connected with the camp. We also captured 30 head of cattle left behind by the enemy and also several wagons full of flour, and then re-crossed the river".

#### *Post Bellum/Modern Occupation*

Blockhouse Point remained in the Reading family for 91 years until it was sold to Randell and Roselyn Patten in 1947. For all of those years, the Park remained relatively undisturbed, being used only for logging in the twentieth century. The Maryland-National Capitol Park and Planning Commission acquired the property from the Pattens in 1970.

#### *Heritage Tourism Potential*

Civil War archaeology has missed a point by focusing too much and too long on just battles and leaders. Rather than study purely military actions, the "Camp at Muddy Branch" can reveal the effects of war on the cultural landscape. At Blockhouse Point Conservation Park, we have an opportunity to add to our scant knowledge of blockhouse and bivouac construction techniques, everyday camp life and guard duties. The blockhouse, itself, was built in the form of a "Greek cross". Here, we can unravel the interaction between armies and civilian populations. Here, we can interweave camps, farms, roads, canals and waterways to uncover the impacts and effects of the War on a local environment and region.

Archaeologically, Blockhouse Point has tremendous interpretative interest for the general public in yielding information, not only about little known aspects of the Civil War in Montgomery County, but also about the unrecorded lifeways of the everyday soldier. This is a unique opportunity