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Active

WETLAND DELINEATION
SURRENDER FIELD AND SURRENDER GROUND

A REPORT PRESENTED TO:
NATIONAL PARK SERVICE
COLONIAL NATIONAL HISTORICAL PARK
VIRGINIA

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PROJECT SUMMARY:

During the fall of 1990, a cursory examination of the Colonial National Historical Park, located on the Virginia Peninsula between the James and York Rivers, was conducted to determine possible areas of wetland habitat. A wetland delineation was performed on an area within the Yorktown Battlefield of the Colonial National Historical Park. The study area was located east of U.S. Highway 17 and north of the intersection of U.S. Highway 17 and the Colonial Battlefield Tour (Figure 1). The study area has been divided into 2 sub-areas for convenience and these sub-areas are labelled as Surrender Field (S.F.) and Surrender Ground (S.G.) (Figure 1).

OFF-SITE METHODOLOGY:

The U.S. Fish and Wildlife Service National Wetland Inventory map for the study area was first examined for the presence of wetlands; however, this source of information provided no indication of wetlands. The U.S. Geological Survey Yorktown, VA quadrangle was next reviewed for elevation changes

delineation. The Surrender Ground wetland required only one baseline (a 40-foot topography line manifested as a steep slope in the wetland), and eight sample points, to achieve delineation.

Vegetation, soil, and hydrology data taken at both wetlands were similar, for the most part, and will be reported for both areas together.

VEGETATION:

A large amount of FACW, FAC, and OBL species were measured in the herbaceous stratum. Saururus cernuus (OBL), Lonicera japonica (FAC), Senecio aureus (OBL), Boehmeria cylindrica (FACW), Acer rubrum seedlings, and Glyceria striata (OBL) were the primary dominant herbs which contributed to the hydrophytic classification of the vegetation.

The shrub-sapling layer generally demonstrated only one or two species at each point. This stratum had a greater degree of FACU species dominants, generally due to the abundance of Asimina triloba (FACU). Cornus florida (FACU), Ulmus americana (FACW), Acer rubrum (FAC), and Lindera benzoin (FACW) also contributed as dominants to this layer.

The tree vegetation stratum provided the greatest evidence for classifying the vegetation as hydrophytic. All dominant tree species were either FAC or FACW species. The Surrender Field wetland contained a large degree of Acer rubrum (FAC), Liquidambar styracifera (FAC), and Ulmus americana (FACW). The Surrender Ground wetland contained sweetgum and american elm populations also, in addition to Fraxinus pennsylvanica (FACW).

Both wetlands contained significant stands of Platanus
occidentalis (FACW) throughout.

SOILS:

Soils were sampled before vegetation, at areas of suspected transition (slopes, basins, areas containing [unquantified] transitory vegetation). When samples demonstrated hydric soils, vegetation and hydrology were evaluated in order to draw the line of delineation. Hydric soils in both wetlands were either of hue 10 YR, with a value of 4-5, and a chroma of 1 or 2-with-mottles; or of hue 2.5 YR, with a value of 4-6, and a chroma of 2-with-mottles. Mottles, when present, were an obvious, strong, rust red (10 YR 4/8).

Soils close to the culverts running beneath U.S. Highway 17 in both wetlands were saturated and exuded water upon applied pressure.

HYDROLOGY:

The most obvious signs of hydrology were anthropogenic, consisting of several culverts permitting passage of the intermittent stream below U.S. Highway 17. The northern culvert is noted on the topography map; two southern culverts, located where the Colonial Battlefield Tour runs under U.S. Highway 17, are not.

Soil samples nearly always demonstrated mottling, and oxidized rhizospheres were present. Additionally, the Surrender Field wetland contained obvious watermarks with ice scours, floatable trash, blackened leaf litter, basin-shaped topology, and buttressed trees.

III. Results

Great Run

- The Great Run wetland area between Route 637 and the CNHP Tour Road. is dominated by bottomland hardwood swamps as depicted by the NWI maps. Throughout most of the area, the Great Run swamp occurs to the west of Great Run and to the east of an unnamed adjacent creek (Fig. 5), except at the north end of the study site near Route 637 and the south end near the Tour Road. Outside of this boundary, the slopes rise steeply from the floodplain which leads to an abrupt vegetational change to an upland character. At the section near the Tour Road (near where the two streams join), the floodplain extends to the edge of historical battle trenches (G7 a & b, 10 a-c). At the section near Route 637 (near the headwaters of the unnamed stream), the floodplain and wetland extend to the base of a sharp topographic rise (near G5). The total wetland area is approximately 45.7 acres (18.5 ha) between Route 637 and the Tour Road.

Upland sites sampled were G1 (near Route 637), G6 (to the east of Great Run) and G4 (to the south of the unnamed creek). The vegetational data for the dominants in these areas is summarized in Table 1. Liriodendron tulipifera and Quercus alba dominate the canopy, Carpinus caroliniana and Asimina triloba dominate the sapling and shrub stratum, respectively, and Mitchella repens and Carex sp. dominate the herbaceous layer. Wetland hydrologic indicators are absent and the soil had a chroma of greater than 2.

Wetland sites sampled were G2, G5, and G3 (Fig. 5). Fraxinus spp. (includes F. tomentosa, F. pennsylvanica, and F. caroliniana), Acer rubrum, and Platanus occidentalis dominate the canopy (Table 2). The sapling stratum

was dominated by Asimina triloba and Ilex opaca, the shrub stratum by Asimina triloba, the vines by Lonicera japonica, and the herbaceous layer by Glyceria striata, Cinna arundinaceae, and Boehmeria cylindrica. In all wetland sites, more than 50% of the dominants were hydrophytes (FAC, FACW, or OBL) according to the National List of Plant Species That Occur in Wetlands: Northeast Region (Reed 1988).

The chroma of the soil matrix showed a chroma of 2 or less for all but one site (G5) which was very sandy. Organic streaking from the A horizon was found in this exceptional soil. Wetland hydrologic indicators included buttressed American elms, crawfish dens, a flat floodplain, and oxidized rhizospheres in some of the wetter locations.

Baptist Run

The Baptist Run wetland is located between Route 637 and the CNHP Tour Road (Fig. 6). Like Great Run, its vegetation is also dominated by bottomland hardwood swamps as depicted by the NWI maps. On the south side, an old Colonial roadbed bounds the swamp for most of its length from Route 637 eastward. The road veers off to the south approximately 100 m from the east end near the Tour Road. For the remainder of the border, where the historical road is not present, the wetland/upland boundary is delineated by a steep natural slope. There is an abrupt vegetational change to uplands at this border (sample B2, Fig. 7: ecotone point b, and Fig. 6: B1 = wetland, B3 = upland). On the north side of Baptist Run, the topography slopes gently towards the Tour Road and so there is no sharp topographically mediated ecotone. The vegetation responds by also changing gradually in composition.

In addition, the woods on the north border are very young and so are overwhelmingly dominated in the canopy by Pinus taeda, an early successional tree in the Virginia Coastal Plain. This meant that sampling the canopy would not have provided reliable vegetational information on the wetland status of the canopy stratum because Pinus taeda is a FAC species that usually dominates cut-over woods, particularly uplands. Therefore, joint soil probe and herbaceous samplings were conducted to determine the wetland/upland boundary along this zone of gradual transition (B4 a-d, B8 a-c, B9 a-c of Figs. 6 & 8). We determine that the total wetland area for Baptist Run is approximately 14.7 acres (6.0 ha) between the Route 637 and the Tour Road.

The upland vegetation (B3) near Baptist Run is dominated by Liriodendron tulipifera in the canopy, Carpinus caroliniana and Cornus florida in the sapling stratum, Cornus florida in the shrub stratum, and Lonicera japonica and Carex sp. in the herbaceous layer (Table 3). No vines were sampled.

The wetland of Baptist Run (B1, B5, B6, B7, B10) is dominated by Fraxinus spp., Platanus occidentalis, and Liquidambar styraciflua in the canopy, by Asimina triloba and Carpinus caroliniana in the sapling stratum, by Asimina triloba and Ulmus americana in the shrub stratum, by the vines Rhus radicans, Decumaria barbara, Lonicera japonica, and in the herbaceous layer by Leersia oryzoides, Senecio aureus, and Microstegium vimineum (Table 4). In all wetland sites, more than 50% of the dominants were hydrophytes (FAC, FACW or OBL species).

The chroma of the soil matrix showed a chroma of 2 or less for all sites. Wetland hydrologic indicators included buttressed American elms, crawfish

✓ added HCH

8-30-05

3 new PNP

Species List

Canopy species

✓ <i>Acer rubrum</i> ✓	Red Maple
✓ <i>Fagus grandifolia</i> ✓	American beech
A ✓ <i>Fraxinus</i> spp. includes <i>F. tomentosa</i> <i>F. pennsylvanica</i> <i>F. caroliniana</i>	Ashes
✓ <i>Liquidambar styraciflua</i> ✓	Sweetgum
✓ <i>Liriodendron tulipifera</i> ✓	Tulip poplar
✓ <i>Nyssa sylvatica</i> ✓	Blackgum
✓ <i>Pinus taeda</i> ✓	Loblolly pine
✓ <i>Platanus occidentalis</i> ✓	American Sycamore
✓ <i>Quercus alba</i> ✓	White oak
✓ <i>Quercus nigra</i>	Water oak
✓ <i>Quercus phellos</i> ✓	Willow oak
✓ <i>Quercus rubra</i> ✓	Red oak
✓ <i>Ulmus americana</i> ✓	American elm
✓ <i>Ulmus rubra</i> ✓	Slippery elm

Shrub and understory species

✓ <i>Asimina triloba</i>	Pawpaw
✓ <i>Carpinus caroliniana</i>	Ironwood
✓ <i>Cornus florida</i> ✓	Flowering dogwood
✓ <i>Ilex opaca</i> ✓	American holly
✓ <i>Lindera benzoin</i> ✓	Spicebush

Vines

✓ <i>Decumaria barbara</i> ✓	Climbing hydrangea
✓ <i>Lonicera japonica</i> ✓	Japanese honeysuckle
✓ <i>Rhus radicans</i> ✓	Poison Ivy
✓ <i>Smilax rotundifolia</i> ✓	Common greenbriar
✓ <i>Smilax glauca</i>	Glaucous greenbriar

Herbs

✓ <i>Athyrium asplenoides</i> ✓	Southern lady fern
✓ <i>Boehmeria cylindrica</i> ✓	False nettle
✓ <i>Botrychium dissectum</i> ✓	Cutleaf grapefern
✓ <i>Carex</i> sp. ✓	Sedge
✓ <i>Cinna arundinacea</i> ✓	Stout wood-reedgrass
✓ <i>Dichanthelium scoparium</i>	Broom panic grass
✓ <i>Festuca elatior</i> ✓	Fescue
A ✓ <i>Galium palustre</i> ✓ new PNP	Marsh bedstraw
✓ <i>Glyceria striata</i> ✓	Fowl manna grass

Herbaceous species (cont.)

Leersia oryzoides
Lycopus virginicus ✕
Microstegium virmineum ✕
Mitchella repens ✕
Panicum scoparium ✕
Polystichum acrostichoides ✕
Saururus cernuus ✕
Sanicula canadensis ✕
Scutellaria laterifolia ✕
Senecio aureus ✕
Thelypteris hexagonoptera
Woodwardia areolata ✕
Viola walteri ✕

flora ✕ new PNP

New PNP

Cutgrass
Virginia bugleweed
Nepal microstegium
Partridge-berry
Panicum
Christmas fern
Lizards tail
Canadian snakeroot TSN# 32765
Blue skullcap
Golden Ragwort
Broad beech fern
Netted chain-fern
Walter's violet