

Phase I Inventory of Virginia's National Battlefields and Historic Parks, 1991

During 1991, phase 1 inventory data for flora, fauna, and geographic information were gathered from 7 of Virginia's historical parks and related sites (Table 1). The following is a brief park-by-park summary of the existing data. The parks at Fredericksburg, George Washington Birthplace, and Richmond have recently had aerial photos taken of park property and surrounding land. The other parks have miscellaneous aerial photographs, some related to past management activities.

Colonial National Historical Park stands out as the park currently generating GIS maps for natural resource management purposes. Other parks do not have many maps specifically related to natural resource management.

Most parks, with the exception of Booker T. Washington (BOWA) and Colonial (COLO), have had no faunal surveys. A mammal survey was completed at BOWA during 1984 and 1985. Two fish surveys have been done within the last 5 years at COLO. In addition, COLO has species lists for birds, mammals, reptiles, and amphibians.

Floral surveys have been completed within the last 5 to 6 years at George Washington Birthplace, Petersburg, and Richmond. Colonial has an extensive species list compiled from many inventories. The inventories were usually 1 year in duration and covered a portion of the park. Appomattox and Fredericksburg have forest management plans; these include inventories of woody species. Booker T. Washington had a 1-year species inventory of the flora completed during the summer and early fall. In addition, yearly forays for fungi are made on one day per annum at BOWA.

Appomattox Court House National Historical Park (APCO)

Aerial Photography

Appomattox Court House had few aerial photographs, however 6 were catalogued. All photos were black and white, included the park and surrounding land, and were housed either in

the park library or in the maintenance office map file. The most recently dated photograph was a single frame taken in January of 1980 (scale 1:660). One photo, of unknown scale and year, had a soils composition overlay. Air Photographics of Lynchburg, Virginia, took 2 aerial photos; the year and month of these prints are unknown.

Maps

Eleven maps were catalogued (Table 2). These were located in the library, the supervisor's office, and the maintenance office map file. The most recent map was dated 1977, except for a photographic revision of a U.S.G.S. topographic map (1981).

Fauna

No faunal surveys have been conducted at APCO. The only discussion of faunal data is from the Natural Heritage inventories for rare species. In 1990, Loggerhead Shrikes were searched for in the field but not found. Also, a stream inventory for rare mussels and fish failed to detect any special status species. Surveys for each taxonomic group, that is birds, mammals, fish, reptiles, amphibians, and invertebrates, need to be completed.

Flora

The only floral work completed at the park was a forest management plan (Hamilton, 1985). Hamilton's survey was limited to woody species in forested areas of the park. She included some distribution and abundance information for woody taxa. Surveys are still needed for non-woody and non-vascular species, as well as for non-forested areas of the park.

Booker T. Washington National Monument (BOWA)

Aerial Photography

Three sets of aerial photographs were catalogued. A black-and-white photograph of the park and surrounding land was taken in 1956 (scale 1:660). Two sets of color photographs of 2 and 3 frames, respectively, were taken in 1983.

Maps

The park maintains a map file in the Supervisor's Office. Maps potentially useful for natural resource management were catalogued (Table 3). All maps were on a paper base (none digital).

Mammals

The only faunal survey completed at the park was a mammal survey conducted from October 1984 to September 1985 by Litton and Rabenau of Ferrum College. Eight small mammal species were trapped and 12 large mammal species were detected by using scent stations. The authors noted a few shortcomings of the study. First, moles were not trapped successfully, although they were observed. Also, bats were observed but not trapped.

Taxonomic completeness of the mammal survey was probably 50-80%. All major habitat types present - fallow fields, pine forests, oak-hickory forest, and riparian forests - were sampled. The development and natural zones in the park were surveyed, but the historic area was not studied in an effort to keep traps concealed from the public. It appears that sampling was conducted in all the relevant seasons.

Birds

A list of 69 avian species compiled by a volunteer is on file at the park. The list has no date or author. A survey would need to be done to ensure taxonomic, geographic, ecological, and seasonal completeness of a species list. The Natural Heritage survey for endangered and special status species found no rare birds in the park.

Fish, Reptiles, Amphibians, Invertebrates

No survey or observation data exists for these groups.

Flora

In the spring of 1986 a partial species list of vascular plants was compiled by Richard Crites of Virginia Western Community College and the Blue Ridge Chapter of the Virginia Wildflower Preservation Society. The list was the result of 2 walks taken on March 29 and May 20, 1986, near the Jack-O-Lantern Creek and Trail, near Gill's Creek, and through one forested area (near the pole

building). Trees were also sampled along a single transect and importance values were estimated. Ninety-seven species were counted. The inventory was not geographically, ecologically, taxonomically, or seasonally complete.

Another inventory of vascular plant species was conducted from April - October of 1989 by Frances and Michael Mengak of Ferrum College. Eighty-four species were counted. (Specimens are filed at Ferrum College). The investigators felt that sampling should have begun earlier in the spring. An additional year of sampling, which was planned but not carried out, would also have yielded additional species. Some of the more inaccessible habitat across the river was not sampled.

Volunteers from the Department of Biology at Virginia Tech have made annual forays for fungi since 1982. Searches are conducted one day per annum. Forty or 50 of the dominant species have been observed. Dr. Orson Miller of VPI & SU remarked that as many as 700 - 800 species of fungi could be present, but would not be observed without an in-depth survey. Annual forays do not represent a thorough search of the park or of all its habitat types.

Colonial National Historical Park (COLO)

Aerial photographs

Aerial photographs and maps were catalogued in August 1991 with the help of Chuck Rafkind, the Natural Resource Manager. Phase I inventory data files for maps and photographs were created on Dbase IV at the park's Natural Resource Management Office. Eight aerial photos were catalogued. All were taken between the years 1973 and 1989 and were black-and-white, color, or color infrared. All scenes included the park and surrounding land. Photos included a color infrared image from EROS, color and black-and-white prints of the same EROS imagery, Forest Service photos used in fire management, U.S.G.S. baseline photographs for topographic quadrangle maps, and Soil Conservation Soil Survey sheets.

Maps

COLO is in the process of producing GIS generated maps. When the park was visited, some draft maps existed, but the decision as to which data layers were to be included on final copies had

not been made. Draft maps were not catalogued. Final versions of these maps may now be available.

The Cultural Resource staff at COLO was surveying and cataloguing historical maps. Some of these maps may be useful for natural resource management. It was decided that examining these maps would duplicate other efforts. A report on these maps and their attributes by the Cultural Resources staff should indicate potentially useful maps.

Thirty-eight maps were catalogued with the help of Chuck Raskind. Map themes are described in Table 4. In addition, 6 maps from the maintenance office were catalogued. The maps had the following themes and copyright dates: historic and vegetation (1974), topography and vegetation (1940), topography and land type (1941), vegetation and hydrology (1935), vegetation and topography (1955), and contour (1950).

Fauna

Species lists exist for mammals, birds, reptiles and amphibians, but none of the lists include information on abundance, location, date of observation, or resident status. Therefore, it would be difficult to estimate the taxonomic, geographic, ecological, or seasonal completeness of the data.

Mammals

Forty species are listed as occurring at COLO. No rare mammals were reported from the park by the Division of Natural Heritage in 1991.

Birds

The list of avian species known to occur in COLO includes 225 species. Nine special-status species of birds are listed as occurring in or near the park by the Natural Heritage Division in their 1991 Progress Report. Bald Eagles were reported nesting within the park.

Reptiles

Forty-two species are listed. The Rare Species Inventory Report of the Virginia Natural Heritage Division lists 4 special status species that occur in the park.

Amphibians

Thirty-nine species are listed; 3 of them are special-status species.

Fish

In 1987, the U. S. Fish and Wildlife Service surveyed selected streams in the Yorktown Unit of COLO. Nineteen species from 15 genera and 12 families were collected. Abundance was not estimated.

In 1991, the U. S. Fish and Wildlife Service surveyed the Back River system on Jamestown Island. In a draft report to the park (August 1991), 33 species from 11 families were reported to have been collected. Also in this report, historical data from the Biota of Virginia database listed 51 species from fisheries surveys of the James River near Jamestown Island between the years 1942 and 1948. In addition, fish species collected by the Virginia Institute of Marine Fisheries from 1969-1973 and 1980-1989 were reported. Forty-eight species from 21 families were collected in the vicinity of Jamestown Island in conjunction with striped bass studies. (Species observations from the 2 Fish and Wildlife Service studies were the only records added to the database for this project).

Invertebrates

No surveys have been done. Collections incidental to fish surveys done by the Fish and Wildlife Service have been made. Four species of insects and 4 species of snails are listed as special-status by the Virginia Division of Natural Heritage (1991).

Flora

The park maintains a file of 785 floral species records. Each record lists family, species, and NPflora symbol. No further documentation per record exists. Approximately 100 species records were added to this project's database by reviewing additional sources, all of them gathered at the park with the exception of Salle's thesis (1972). The floral database is probably more than 80% complete. Colonial Parkway and Jamestown Island have each been sampled over the course of one growing season. Yorktown need to be surveyed, and all areas could be monitored for longterm trends. Many species lists have been compiled, but estimates of abundance and community composition and change over time need to be investigated.

Six rare species (recommended special concern at the state level) are listed on the park's floral database. Another 9 species have been recorded as in or around the park by the Virginia Division of Natural Heritage.

Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (FRED)

Aerial Photographs

A series of color infrared photographs of the park and surrounding land was taken in June of 1990 and is filed in the Resource Management Office (RMO). Scenes are of Wilderness, Chancellorsville, the Burton Farm, Wilderness (Longtree Drive) and Hamilton's Thicket, Jackson Trail West, Salem Church, Fredericksburg, the Fredericksburg Visitor Center and Cemetery, Jackson Shrine and Spotsylvania Battlefield.

There are 2 black-and-white photographs of Chancellorsville and Fredericksburg quadrangles (baseline photos for U.S.G.S. quads). They are dated 1980 and 1972, respectively. In addition, 3 black-and-white aerial photos of Spotsylvania hang in the map racks in the RMO. Their scales and dates are unknown.

Maps

In 1980 American University produced maps of the park based on aerial photographs. They are referred to as the Jeck maps (in reference to the investigator). The maps have historical and vegetation overlays. Several other maps were catalogued in addition to these historical vegetation maps (Table 5).

Fauna

No faunal surveys have been completed at FRED.

Mammals

Few observations of mammals have been made. A Wildlife. dbf (Dbase 3) file listed only 4 mammals sighted in 1988 and 1989. The list contained mostly birds and one reptile observation.

Records included date, time of day, geographic coordinates, number of animals observed, sex, age category, and community type.

Birds

A list of bird sightings is maintained in a Wordperfect file at the park's resource management office. Brief lists were made in the springtime of each year from 1988 to 1991. The 1991 list is the longest with 37 species. The lists are not geographically, ecologically, taxonomically, or seasonally complete.

Fish, Invertebrates

An environmental impact statement on the Po River was completed in 1988. The river passes through a small part of the park. Six fish species, 3 insect species, and 1 freshwater clam were listed. More comprehensive surveys are needed for these groups.

The Virginia Division of Natural Heritage reported no rare animals.

Flora

A survey of woody vegetation of Spotsylvania Battlefield was completed by David Orwig of Penn State in 1991. Fifty-six species were identified. The survey provided distribution information for a portion of the park and abundance data for tree species during a single season. No threatened or endangered taxa were observed.

A listing of observed wildflowers has been kept on a Wordperfect file since July 1987. Seasons covered include a single day in July of 1987, April - August 1990, and March - April 1991. Abundance was not estimated, but locations of observations are listed. No special status taxa have been observed.

A complete survey of non-woody taxa needs to be completed for Spotsylvania Battlefield. Surveys of the complete flora are needed for the rest of the park.

George Washington Birthplace National Monument (GEWA)

Aerial Photographs

A set of 38 frames of black-and-white aerial photographs is filed in the Research Management Office at George Washington Birthplace. The photographs were taken in March 1988 and include the park and surrounding land. The scale is unknown.

A black-and-white photograph (scale 1" = 660') taken during 1988 or 1989 is also kept in the RMO. One 3-color infra-red photo of the park and its surroundings hangs on the wall.

Maps

Few maps of the park exist. The U.S.G.S. topographic map that contains the park (Colonial Beach South, VA - MD, 1986) is filed in the RMO. Two maps produced by the park are also present. One of them is a map of park boundaries and land ownership (1979). The other is of elevation and land use (1936). These maps were interpreted as useful but needing modification by the park's resource manager.

Mammals

Eckerlin's reptile and amphibian survey (see reptile and amphibian section below) included a list of 22 mammal species seen while completing a study of the park's herpetofauna. No attempt was made to survey mammals in a systematic fashion, but the month of observation was recorded.

Birds

Three bird observation lists are filed at the park's resource management office. The first is a list of 31 species and their abundance as observed between 4:30 p.m. and 9 a.m. on 10/25 and 10/26/89. The observers were Enoch and Sylvia Johnson. The second is a list of 29 species and their abundance as observed from 9-11 a.m. on 11/11/89 by the Westmoreland Bird Club. A seasonal checklist is also on file. It is based on field trips made by Enoch Johnson. The report is dated 1985, but does not indicate how many field seasons are included. One hundred and forty-nine species are listed and categorized as commonly, uncommonly, or rarely sighted in the park in each of the 4 seasons. There is no discussion of geographic or ecological completeness of the list.

Eckerlin's herpetofauna survey included a list of 117 bird species. No attempt was made to survey birds in a systematic fashion, other than to record the month of observation during the period March 1986 - April 1989.

Reptiles and Amphibians

Surveys for reptiles and amphibians were completed from March 1986 - April 1989 by Ralph Eckerlin of Northern Virginia Community College in Annandale, Virginia. The list is probably 50% - 80% taxonomically complete; approximately 60 species were expected and 30 were observed. Eckerlin noted that additional collecting would have added to his list. The survey appears to be geographically, ecologically, and seasonally complete.

Fish and Invertebrates

No surveys have been completed for these groups.

Flora

A floral inventory was completed at the park between May 1984 and May 1985 by Gary Lam. Four hundred species of vascular plants were listed. Species location was documented but abundance was not. Geographical and ecological coverage within the park boundaries was thorough, but an additional year of sampling may have led to the discovery of more species. For the park's size, a large number of species were documented. The large number of species was due to human presence and also to a variety of geological features and community types.

In addition, the park's forested area was sampled. The age distribution (number per age class) was estimated for 5 species. Six additional tree species were listed but not evaluated for age distribution due to their small contribution to overall stand composition. This survey did not document any species in addition to Lam's inventory. A site description of GEWA prepared by Virginia Institute of Marine Science listed 2 species in addition to those on Lam's list.

Petersburg National Battlefield (PETE)

Aerial Photographs

Eleven black-and-white photographs dated 1983 - 1988 were taken of the park and surrounding land. Identified locations included: Fort Wadsworth and Poplar Grove National Cemetery, Main Unit Exit to Stop 5, Main Unit Stop 5 to Visitor's Center, Confederate Fort Gregg and Fish Hook Unit, Five Forks Unit, Poplar Grove and Wadsworth. All photographs are stored in the map room at the Headquarter's Unit Visitor's Center.

Maps

Sixteen maps were catalogued (Table 6).

Fauna

No faunal surveys have been conducted at the park. In addition, the Virginia Natural Heritage Inventory found no records of rare animals at the park and did not survey the park.

Flora

A floral inventory of the park was completed in 1990 by researchers at Virginia Tech (Rosenzweig and Porter). One hundred and seventy-five species were recorded. Vouchered specimens are stored at Virginia Tech. Locations of collections are listed, and 1 year of abundance estimates were made. The survey was geographically complete (within park boundaries), and all major habitat types were sampled. Additional sampling in early spring is needed as is more than one season of investigation.

Richmond National Battlefield Park (RICH)

Aerial photographs

Color infrared photos taken in cooperation with Virginia Tech during 1989 are stored in the RMO at the Chimborazo Visitor Center. The photos are scenes of: Garthwright House, Watt

House, Beaver Dam Creek, Cold Harbor, Chickahominy Bluffs, Drewrys Bluff, Fort Harrison, Parkers Battery, and Malvern Hill.

Three baseline photographs for U.S.G.S. topographic maps (Drewrys Bluff, Richmond, Dutch Gap) are filed in the RMO.

Maps

Types of maps catalogued are listed in Table 7.

Fauna

No faunal surveys have been conducted at Richmond National Battlefield Park. Faunal records from ranger observation cards document the presence of 2 invertebrate, 8 mammal, 40 bird, 6 reptile, and 2 amphibian species.

Flora

A floral inventory has been completed for all units. Sampling occurred from 1985 until 1987. Seven hundred and sixty-two species were observed; no special-status taxa were discovered. Approximately 20% of the species were exotics. The survey covered one growing season; no estimates of abundance were made.

Prepared by Nancy Mason

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Table 1. Names and abbreviations for Virginia's National Historical Parks, Monuments and Sites included in the phase I inventory (National Park Service Mid-Atlantic Region).

Appomattox Court House National Historical Park (APCO)
Booker T. Washington National Monument (BOWA)
Colonial National Historical Park (COLO)
Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (FRED)
George Washington Birthplace National Monument (GEWA)
Petersburg National Battlefield (PETE)
Richmond National Battlefield Park (RICH)

Table 2. Titles of maps catalogued at Appomattox Courthouse National Historical Park in 1991.

2 U.S.G.S. topographic maps (Appomattox, VA and Vera, VA)
Boundary, Appomattox Courthouse
Historical Base Map, Appomattox Court House
Land Classification Map
Soil Condition and Classification
1865 Vegetation Lines
1975 Vegetation Lines
Appomattox Park Area Survey
McLean Tract Development Plan (vegetation)
Proposed Vegetation Lines

Table 3. Maps catalogued at Booker T. Washington National Monument in 1991.

10 U.S.G.S. topographic maps (Moneta SW, Goodview, Hardy, Redwood, Boones Mill, Garden City, Huddleston, Leesville, Smith Mt. Dam, Moneta)

Early Planning Map 1955-1963

Map from the General Development Plan 1958

Historical Base Map 1963-1965

Climatological Data

Roads and Trail System Plan

Elevation, Drainage, and Slope Analysis

General Development Plan

Vegetation Analysis and Visual Factors

BOWA Topographic Base Map Master Plan of 1957

Franklin Co. Property Identification Map 4, 5, 29, 30

Booker T. Washington N.M. Property 1958

Plot of Survey R. C. Holland Estate 1980

1969 Map (changes in the northern boundary)

Table 4. Types of maps catalogued at Colonial National Historical Park in 1991.

adjacent land owners

park boundaries

earthworks (Revolutionary and Civil War)

Johnson Grass project (vegetation and roads)

land status

park development plans

rare, threatened, and endangered species' critical habitats

roads

historic vegetation

vegetation and cover type

hydrology; hydric soils

U.S. Fish and Wildlife Service National Wetland Inventory

fire occurrence and fire hazard

erodible land

8 U.S.G.S. topographic maps (Hog Island, Norge, Surry, Williamsburg, Yorktown, Clay Bank, Cape Henry, Puquoson West)

class A-D fields

flight line

Table 5. Types of maps catalogued at Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park in 1991.

8 U.S.G.S. topographic maps (Brokenburg, Mine Run, Salem Church, Spotsylvania, Fredericksburg, Guinea, Chancellorsville, Stafford)

3 U.S.G.S. topographic/hydrographic maps

12 land status maps

2 protection zones

1 boundary/land use map

1 management zones map

8 U.S. Fish and Wildlife Wetland Inventory Maps

4 historic vegetation maps (the Jeck Maps)

Table 6. Types of maps catalogued at Petersburg National Battlefield in 1991.

3 hydrologic (by Virginia Tech)

1 soil survey of Dinwiddie County

1 boundary survey of the park

6 U.S.G.S. topo quads (Petersburg, Prince George, Dinwiddie, Church Road, Sutherland, Hopewell)

5 historic battlefield and vegetation maps (4 from 1860's and 1870's, 1 from 1990)

Table 7. Types of maps catalogued at Richmond National Battlefield Park in 1991.

3 historic vegetation maps reconstructed in 1988 - 1991

7 boundary maps (1989 to 1991)

3 county soil surveys (Hanover, Chesterfield, Henrico)

6 U.S.G.S. topographic maps (Drewrys Bluff, Richmond, Dutch Gap, Roxbury, Chester, Seven Pines)
