

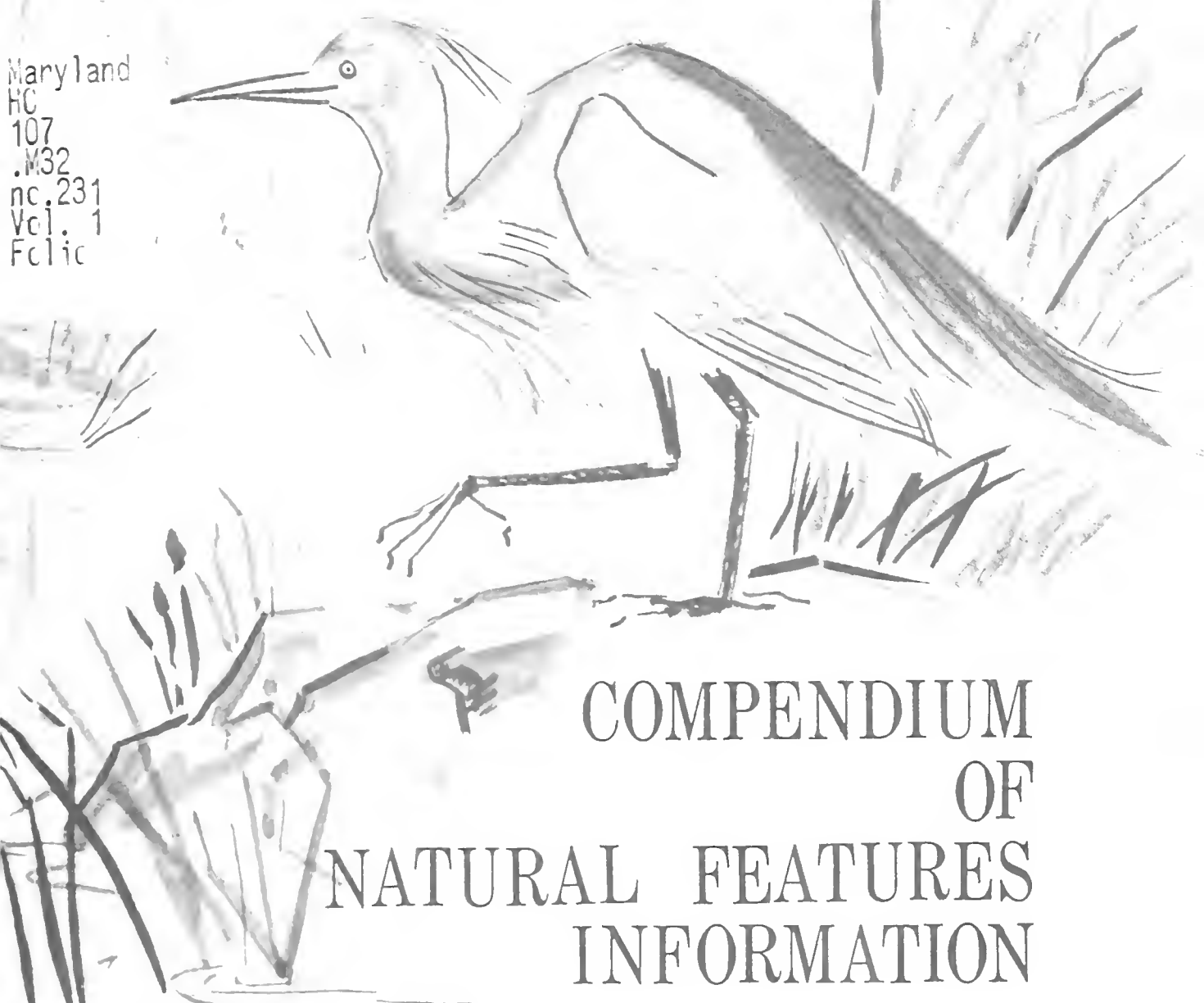
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COMPENDIUM
OF
NATURAL FEATURES
INFORMATION

VOLUME I

COMPILED BY : MARYLAND DEPARTMENT of STATE
PLANNING · SMITHSONIAN INSTITUTION CENTER
for NATURAL AREAS

U. S. GOVERNMENT PRINTING OFFICE

1975

*Maryland State Planning Dept.
Publications.*

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INFORMATION
VOLUME I

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MARYLAND DEPARTMENT of STATE PLANNING

and

SMITHSONIAN INSTITUTION CENTER

for NATURAL AREAS

MAY 1975

TITLE: COMPENDIUM OF NATURAL FEATURES INFORMATION

COMPILED BY: MARYLAND DEPARTMENT OF STATE PLANNING
SMITHSONIAN INSTITUTE CENTER FOR NATURAL AREAS

DATE: May 1975

SUBJECT: This compendium has been prepared as a resource document for those who are interested in Maryland's Natural Heritage. Volume I of the Compendium discusses the sources of the information used to update the Catalog of Natural Features prepared by the Department of State Planning and reproduces in its entirety the Report of the Smithsonian Institution Natural Areas of the Chesapeake Bay Region: Ecological Priorities. Maps prepared to supplement the discussion are reproduced in Volume II.

AGENCY: Maryland Department of State Planning

SOURCE OF COPIES: Maryland Department of State Planning
301 W. Preston Street
Baltimore, MD 21201

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vol. 1
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PREFACE

This Compendium has been prepared as a resource document for those who are interested in Maryland's Natural Heritage. The material included has been derived from a wide range of sources, and has been compiled by two organizations: The Maryland Department of State Planning, and the Center for Natural Areas, Ecology Program, Smithsonian Institution. The Compendium is organized in two volumes: Volume I contains descriptive and bibliographic material on the various natural features, Volume II contains maps of the natural feature locations.

The Compendium was prepared to serve as a resource document for State and local planning. The information contained in it will be incorporated into the Generalized State Land Use Plan. The Compendium should be of equal value to local governments for use in the preparation of both comprehensive and functional planning as well as in program implementation. As an example, the information should be of particular value to local governments and other interested individuals in formulating their recommendations for areas which might be designated by the Department of State Planning as Areas of Critical State Concern.

The material provided by the Maryland Department of State Planning is presented as an update to the Catalog of Natural Features in Maryland. Section I of Volume I of the Compendium discusses the sources of the information used to update the original catalog, summarizes the type, location, and size of the various natural features and provides a bibliography of reference material related generally to natural heritage studies and Maryland's natural features in particular. A listing of sites within the Department's inventory

is included and they in turn are numerically referenced to a set of County maps, depicting the location of the various sites. Reproductions of the County maps are contained in Volume II of the Compendium.

The second section of Volume I reproduces in its entirety the Report of the Smithsonian Institution Natural Areas of the Chesapeake Bay Region: Ecological Priorities. This report, previously available through a very limited distribution, is being reproduced by the Department of State Planning because it represents the largest singular effort in assessing many of the States' coastal resources. The report has not been edited by the Department and the findings and conclusions are those of the original authors. It should be noted that those findings were substantiated by numerous professionals expert in the natural and physical sciences. Maps prepared to supplement the discussion of the Smithsonian report are reproduced within Volume II.

Much of the data collected by the Department and the Smithsonian were obtained in 1973 and 1974. The reader should take into account that natural features information is frequently dynamic as are the influences on those sites.

We trust that this information will be useful to many and hope that those who make use of it will keep the authors advised of new findings concerning these areas or additional sites.

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APPENDIX II: Map Supplement
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SECTION I

Catalog of Natural
Features in Maryland

AN UPDATE

Maryland Department
of State Planning

HONORABLE MARVIN MANDEL
GOVERNOR OF THE STATE OF MARYLAND

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I: INTRODUCTION

The Catalog of Natural Features in Maryland^{*} was initially published in 1968 by the Department of State Planning. Since that time, it has served as a reference for general planning, and much of the data was incorporated into the Maryland Outdoor Recreation and Open Space Plan. The Department initiated a revision of the Catalog in 1973 to expand (and in some cases to modify) the original information. Several data collection methods, including surveys and personal interviews, were undertaken to expand the scope of the Catalog.

^{*} Maryland Department of State Planning (R.G. Metzgar, comp.) Catalog of Natural Areas in Maryland. Baltimore, Maryland, Department of State Planning, 1968: hereafter cited as the Catalog.

II: NATURAL FEATURES UPDATE

The Update was based on the Department of State Planning's Catalog of Natural Areas in Maryland. The 175 sites listed in the Catalog provided an initial data source. In that it had been six years since the data collection effort was completed for the Catalog, the first effort was to update those sites listed. Each listed site was reviewed by the Department of State Planning staff. Every effort, with the exception of field verification, was made to insure that the sites listed in the Catalog were accurately described. Some sites, in fact, were deleted due to recent urban encroachment.

Another primary data source was the survey of ecologically important Natural Areas of the Chesapeake Bay Region.^{*} The excellent maps and supportive text material of the Survey were incorporated into the Update while still in draft form. The Survey not only provided more specific data on many sites that were noted briefly in other sources, but also contributed many additional sites.

Other peripheral data collection and verification efforts - surveys and personal interviews - were also undertaken. While the two data sources indicated above provided the majority of the sites in the Update, peripheral efforts verified the sites.

During the summer of 1973, the Department of State Planning mailed a questionnaire to several thousand interested individuals and groups in order to obtain their assistance in updating the Catalog. The Maryland Environmental Trust joined with the Department of State Planning in conducting this survey. The letter from the Maryland Environmental Trust, enclosed with the

* Smithsonian Institution, Center for Natural Areas (D.W. Jenkins, com.). Natural Areas of the Chesapeake Bay Region: Ecological Priorities, Washington, D.C. Washington, D.C. Center for Natural Areas, unpublished; hereafter cites as the Survey. (see Volume II)

questionnaire forms and brochure, states that:

"... it is of the utmost importance that all unique natural areas be identified so that they can be made a part of the inventory.

This is where you, the citizens, can play a crucial role. The professionals with the State have, themselves, been inventorying Maryland's natural areas. However, there are surely areas within the State that are of ecological value which may not be known to them but which may be known to you, to a friend, or to someone in your area.

The purpose of the enclosed material is to provide you with an opportunity to identify these areas so that the natural features document can be as complete as is humanly possible. The information you supply will become a part of the Department's inventory..."

Prior to this questionnaire, the Department of State Planning's staff made a lengthy search of existing publications and documents that contained references to unique natural features and scenic areas in Maryland. Initially, departmental material, including all pertinent material in the Department of State Planning library, was inventoried and analyzed. Subsequently, the libraries of other State agencies, particularly the Department of Natural Resources, as well as local college and university libraries were inventoried. A bibliography was created under the direction of a natural resources planner by an individual skilled in library science. Together, they produced a bibliography of material that proved to be useful in updating the Catalog.

The questionnaire expanded and, in some cases, verified information obtained about sites discovered during the literature search. In addition, Department of State Planning staff sought more current information in order to "standardize" the coverage of the inventory.

This information was obtained by interviewing recognized experts on geographic areas or specific subjects. Their extensive field work proved

to be an important source of data previously missing from the inventory. In addition, they assisted in making the quality of the inventory more uniform.

Personal and telephone interviews were conducted. The Department of State Planning staff attempted to contact anyone who could possibly contribute to the effort. Quite often these interviews made the staff aware of additional contact persons. This "chain-line" process increased the time spent, but usually paid dividends in information. In all, nearly fifty specialists were interviewed.

Information from these diverse sources was combined, analyzed, and mapped to form one cohesive inventory. Every sort of unique natural feature and scenic area imaginable has been included. No effort was made to compare similar sites, or to qualitatively evaluate different kinds of sites. All sites were mapped at a scale of 1"=1 mile (1:63,360). At this scale, some sites were represented as "point" information. An example of this kind of data would be an individual Maryland Champion Tree. "Area" information was also mapped; the boundaries of these areas were described as accurately as possible in order to reflect the configuration of the site.

III: INFORMATION TYPES

For the purpose of analysis, the diverse sites inventoried were further grouped into thirteen categories, including:

Archaeological Sites	Wildlife Habitats
Caves	Wetlands
Rock Outcrops	Stream Valleys
Lakes or Ponds	Scenic Areas
Springs	wilderness Areas (DNR proposed)
Natural Areas	Nesting Sites
Champion Trees	

In several cases, a site had to be evaluated in some detail in order to determine in which category it should be grouped. Sites were categorized based on the primary attribute or importance of the site. Many sites, however, could have been placed in more than one group. Obviously, additional information or a slightly different perspective could change the number of sites and acres subcategorized in Table 1.

Before considering an analysis of the data in the Revision, some additional explanation of the manner in which data were compiled is in order. In several instances, the sizes of the archaeological sites, caves, and geologic formation outcrops were "regularized" in order to approximate their extent. Since the actual extent of many sites will be unknown until subsurface explorations are conducted, this technique seemed reasonable. As a result, the total acreage for archaeological sites and caves are only representative, and the actual extent of the site as indicated on the map may not be exact.

The "Natural Areas" category was used for those sites which include several equally significant attributes. For example, a site that "blends" from an oak-hickory forest to a wetland and is an ideal habitat for an endangered species could not equitably be classified as only one of the above.

Table 1: NATURAL FEATURES SUMMARY
SITES (NUMBERS)/ACREAGE

COUNTY	Allegany	Baltimore City	Balto. County	Calvert	Caroline	Carroll	Cecil	Charles	Dorchester	Frederick	Garrett	Harford	Howard	Kent	Montgomery	Prince Georges	Queen Annes	St. Marys	Somerset	Talbot	Washington	Wicomico	Worcester	STATE TOTALS
Archaeological	(2) 15	(1) 2	(12) 10				(3) 9	(2) 190	(1) 2	(3) 20	(2) 8	(1) 10		(1) 3	(9) 11	(6) 356		(1) 200		(1) 2	(2) 35		(2) 4	(55) 929
Caves	(22) 103		(2) 10		(2) 10					(9) 45	(12) 36		(1) 5								(56) 950			(104) 1,159
Outcrops	(2) 4,282		(1) 400	(2) 575		(1) 2,780	(2) 1,280			(2) 8	(2) 8	(2) 1,585		(2) 921	(7) 421	(8) 185	(1) 1,600	(4) 1,130		(1) 400	(1) 435			(46) 16,014
Lakes & Ponds					(3) 154				(1) 170	(1) 105	(1) 4,057			(3) 176		(1) 237	(2) 100				(1) 5	(6) 157	(1) 192	(23) 5,947
Springs	(3) 81										(1) 5							(1) 10	(1) 1	(2) 7	(1) 519			(9) 623
Natural Areas	(3) 33,453	(13) 1,874	(9) 4,897	(3) 2,148	(3) 3,081	(1) 78	(7) 4,174	(6) 17,720	(2) 354	(7) 10,128	(5) 65,466	(4) 2,360		(1) 150	(10) 1,575	(5) 332	(8) 10,666	(7) 5,760	(1) 1200	(3) 4,034	(2) 4,835	(6) 4,940	(10) 11,012	(119) 194,695
Wildlife	(2) 707		(2) 1,012		(1) 1,523	(2) 4,417	(1) 1,690	(1) 20,426	(3) 20,426	(1) 60	(4) 316	(3) 2,919		(4) 6,428	(9) 3,026	(6) 6,597		1) 64	(2) 2,560	(3) 758	(2) 5,946	(1) 140	(5) 1,775	(52) 60,364
Wetlands	(11) 11,397		(4) 2,390	(7) 7,148	7) 5,046	(7) 16,059	(14) 31,197	(10) 334,482		(6) 1,293	(6) 1,293	(4) 18,292		(5) 7,745		(18) 4,455	(8) 3,669	(5) 747	(5) 44,074	(3) 3,253		(6) 10,470	(6) 40,059	(126) 341,776
Stream Valleys		(1) 3,500	(6) 16,876	(1) 1,452		(2) 5,307					(2) 3,238	(1) 5,800	(2) 4,500		(1) 3						(1) 3,923			(17) 44,599
Scenic Areas	(7) 4,947		(6) 12,721	(1) 100	(1) 24	(3) 5,947	(3) 116			(16) 77,303	(8) 22,763	(4) 2,278	(5) 6,831	(2) 260	(46) 1,904	(3) 1,862	(1) 2,700	(2) 8,553	(2) 9,553	(4) 3,026	(9) 1,639		(2) 43	(2) 153,016
Wilderness	(6) 12,250		(2) 1,175	(7) 550	(1) 550				(1) 934	(3) 4,100	(16) 500		(1) 800						(4) 6,602			(5) 2,586		(39) 45,412
Total Acreage	(45) 45,881	(43) 17,220	(5) 38,816	(14) 11,423	(16) 10,378	(7) 11,342	(23) 27,555	(25) 52,077	(18) 155,434	(40) 87,661	(59) 97,690	(19) 33,344	(8) 11,336	(18) 15,683	(76) 6,940	(47) 14,024	(20) 18,735	(19) 7,911	(15) 57,310	(15) 11,473	(84) 17,775	(20) 16,236	(31) 53,084	(713) 864,534
Nesting Sites**				6			2	35	24					4			46	61	9	167			1	369
Trees***					1	3	5	1		1	4	15	3	1	11	6	5	3	5	9	3		1	115

* See County Summary

** Nests—Eagle, Osprey, Heron

*** Trees—Champion, National/State

Further, the Department of State Planning staff did not subdivide such areas into their respective parts since this would have been inappropriate with respect to the detail of the inventory.

The "Wilderness Areas" inventoried* are those proposed by the Department of Natural Resources in conformance with the standards established by that Department. All such Wilderness Areas will be located on property already owned by the State. The designation of land as a Wilderness Area does not indicate additional State purchase-- it is only a subclassification of State-owned property.

Areas identified for their "Scenic" attributes were recommended by a variety of resources and include many large areas such as the Middletown Valley in Washington County. The extent (acreage) of these areas inflate the totals for the various counties. The recommendations, based on questionnaire response and interview, were made in part by several local governments, the State Highway Administration, and several historical societies.

The "Nesting Sites" of eagles, osprey and herons, obtained primarily from the Survey and the Department of Natural Resources, were not measured. Their frequency, location and distribution, however, could be described.

All "Champion Trees" compiled by the Department of Natural Resources were included. Should information on the extent or character of champion trees be necessary, the original publication can be consulted.

Several tables have been compiled to provide an indication of the frequency and distribution of natural features in Maryland. These sites can be referenced using Appendix A & B of this Section and the county maps found in Volume II.

* See Appendix C

Seven hundred and thirteen sites, not including nesting sites and champion trees, are considered in the inventory. Washington County contains the largest number of sites inventoried, while Baltimore City contains the least. The average number of sites inventoried for a county is 30 (See Tables 2 - 4).

The summary tables show (Table 2-4) several unusual features which deserve further attention. First, though Washington County has the largest number of sites (due to the large number of caves in the carbonate rocks of Washington County), it is at the low end of the spectrum of total acreage. Second, Dorchester County has the largest amount of acreage by far, yet one site in public ownership (Blackwater Refuge) contains over 23,500 acres. Third, while Montgomery County has a large number of sites, it has the smallest total acreage within the inventory: a substantial number of small scenic areas has inflated the total number of sites. Fourth, Frederick County has the third largest total acreage within the inventory: a substantial number of large scenic areas has inflated the total acreage.

In Allegany County, three natural areas account for over 95 percent of area inventoried. Three-quarters of the acreage for Anne Arundel County are wetlands. As expected, the major category for most of the eastern shore counties is wetlands. Howard County has the least diverse inventory; stream valleys and scenic areas comprise all but five acres, and seven of the eight sites listed. Washington County has the largest number of caves, as well as a substantial number of geologic formation outcrops.

It should be remembered that the previous analysis was designed to provide an illustration of the information as it now exists. CONCLUSIONS SHOULD NOT BE DRAWN ABOUT THE COMPARATIVE VALUE OR CRITICALITY OF SITES, OR QUALITATIVE DIFFERENCES BETWEEN COUNTIES AS A RESULT OF THIS COMPARISON.

Efforts were made to "even out" coverage whenever possible; differences, however, still exist within the inventory which are due to the inconsistencies of the original data collection process. Some counties, through their own efforts or those of interested experts, have "better" or "more" original data.

It seems likely that as this inventory becomes more widely distributed, the contributions of concerned agencies and individuals will have a tendency to equalize the quality and quantity of the inventory. This inventory is considered to be unique in that it is the first produced for the entire State, yet it still must be thought of as preliminary.

Supporting data may be examined at the Department of State Planning's Baltimore Office upon request.

TABLE 2 - COUNTY SITE SUMMARY

<u>Jurisdiction</u>	<u>Sites* (Number)</u>	<u>Area of Sites (Acres)</u>	<u>Approx. % in Public Ownership</u>
Allegany County ¹	39	45,881	52%
Anne Arundel County	43	17,220	16%
Baltimore County	42	38,816	47%
Baltimore City	5	5,376	25%
Calvert County	14	11,423	1%
Caroline County ²	15	10,378	8%
Carroll County	7	11,342	53%
Cecil County	23	27,555	66%
Charles County	25	52,077	5%
Dorchester County	18	155,434	15%
Frederick County	37	87,661	22%
Garrett County	43	97,690	47%
Harford County	19	33,244	53%
Howard County ³	8	12,136	38%
Kent County	18	15,683	14%
Montgomery County ³	76	6,940	43%
Prince George's County	47	14,024	29%
Queen Anne's County ²	20	18,735	8%
St. Mary's County	19	7,911	2%
Somerset County	13	57,310	89%
Talbot County	15	11,473	3%
Washington County ¹	85	17,775	54%
Wicomico County	20	16,226	7%
Worcester County	<u>28</u>	<u>53,084</u>	<u>52%</u>
	679	825,394	34%

* Excluding nesting sites and champion trees

1 Allegany/Washington Wash 900-089 - site is counted and acreage is accounted for in Allegany County.

2 Queen Anne's/Caroline County site 900 (in both counties)-site extends into each county but total acreage is accounted for in Caroline County only - site is counted in Caroline

3 Montgomery/Howard site 900 in each county - site is counted and acreage is accounted for in Howard County

TABLE 3 - STATEWIDE SITE CATEGORIES SUMMARY

<u>Site Categories</u>	<u>Sites (Number)</u>	<u>Area of Sites (Acres)</u>
Archeological Sites	55	929
Caves	104	1,159
Rock Outcrops	46	16,014
Lakes and Ponds	23	5,947
Springs	9	623
Natural Areas	119	194,695
Wildlife Habitats	52	60,364
Wetlands	126	341,776
Stream Valleys	17	44,599
Scenic Areas	122	153,016
Wilderness Areas	39	45,412
	<hr/>	<hr/>
Total	713**	864,534***
Nesting Sites*		369
Champion Trees		115

* Eagle, Osprey, Heron

** 34 Areas are included in other site categories - net site total is 679

*** Includes 39,140 acres of potential wildlands that are included in other site categories - net area total is 825,394

TABLE 4: COUNTY SITE CATEGORIES

SUMMARY

Allegheny County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	2	15
Cavea	22	103
Rock Outcrops	2	4,282
Lakes and Ponds		
Springs	3	81
Natural Areas	3	33,453
Wildlife Habitats		
Wetlands		
Stream Valleys		
Scenic Areas	7	4,947
Wilderness Area	6**	12,250*
Subtotal	45	45,881
Bird Nests		
Champion Trees		
Total	45	45,881

Allegheny County

* 9,250 acres are already included in other areas - only 3,000 acres are added here.

** 1 site is shared with Washington County, but all acreage is shown here.

SUMMARY

Anne Arundel County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	12	52
Caves		
Rock Outcrops	2	12
Lakes and Ponds	3	594
Springs		
Natural Areas	13	4,458
Wildlife Habitats	2	707
Wetlands	11	11,397
Stream Valleys		
Scenic Areas		
Wilderness Area		
Subtotal	43	17,220
Bird Nests	14	14
Champion Trees	17	17
Total	74	17,251

TABLE 4 con't

SUMMARY
Baltimore County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	12	10
Caves	2	10
Rock Outcrops	1	400
Lakes and Ponds		.
Springs		
Natural Areas	9	4,897
Wildlife Habitats	2	1,012
Wetlands	4	2,390
Stream Valleys	6	16,876
Scenic Areas	6	12,721
Wilderness Area	2	1,175*
Subtotal	44	38,816
Bird Nests		
Champion Trees	19	19
Total	63	38,835

Baltimore County

* 675 acres are already included in other sites, only 500 acres are added here.

SUMMARY
Baltimore City Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	2
Caves		
Rock Outcrops		
Lakes and Ponds		
Springs		
Natural Areas	3	1,874
Wildlife Habitats		
Wetlands		
Stream Valleys	1	3,500
Scenic Areas		
Wilderness Area		
Subtotal	5	5,376
Bird Nests		
Champion Trees	3	3
Total	8	5,379

TABLE 4 con't

SUMMARY
Calvert County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		•
Caves		
Rock Outcrops	2	575
Lakes and Ponds		
Springs		
Natural Areas	3	2,148
Wildlife Habitats		
Wetlands	7	7,148
Stream Valleys	1	1,452
Scenic Areas	1	100
Wilderness Area		
Subtotal	14	11,423
Bird Nests	6	6
Champion Trees		
Total	20	11,429

SUMMARY
Caroline County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves		
Rock Outcrops		
Lakes and Ponds	3	154
Springs		
Natural Areas	3	3,081
Wildlife Habitats	1	1,523
Wetlands	7	5,046
Stream Valleys		
Scenic Areas	1	24
Wilderness Area	1*	550
Subtotal	16	10,378
Bird Nests		
Champion Trees	1	1
Total	17	10,379

Caroline County

* This site is shared with Queen Anne's County, but all acreage is shown here.

TABLE 4 con't

SUMMARY
Carroll County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves	2	10
Rock Outcrops		
Lakes and Ponds		
Springs		
Natural Areas	1	78
Wildlife Habitats		
Wetlands		
Stream Valleys	2	5,307
Scenic Areas	2	5,947
Wilderness Area		
Subtotal	7	11,342
Bird Nests		
Champion Trees	3	3
Total	10	11,345

SUMMARY
Cecil County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	3	9
Caves		
Rock Outcrops	1	2,780
Lakes and Ponds		
Springs		
Natural Areas	7	4,174
Wildlife Habitats	2	4,417
Wetlands	7	16,059
Stream Valleys		
Scenic Areas	3	116
Wilderness Area		
Subtotal	23	27,555
Bird Nests	2	2
Champion Trees	5	5
Total	30	27,562

TABLE 4 con't

SUMMARY
Charles County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	2	190
Caves		
Rock Outcrops	2	1,280
Lakes and Ponds		
Springs		
Natural Areas	6	17,720
Wildlife Habitats	1	1,690
Wetlands	14	31,197
Stream Valleys		
Scenic Areas		
Wilderness Area		
Subtotal	25	52,077
Bird Nests	35	35
Champion Trees	1	1
Total	61	52,113

SUMMARY
Dorchester County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	2
Caves		
Rock Outcrops		
Lakes and Ponds	1	170
Springs		
Natural Areas	2	354
Wildlife Habitats	3	20,426
Wetlands	10	134,482
Stream Valleys		
Scenic Areas		
Wilderness Area	1	934*
Subtotal	18	155,434
Bird Nests	24	24
Champion Trees		
Total	42	155,458

Dorchester County

* All acreage is already included in other areas.

TABLE 4 con't

SUMMARY
Frederick County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	3	20
Caves	9	45
Rock Outcrops		
Lakes and Ponds	1	105
Springs		
Natural Areas	7	10,128
Wildlife Habitats	1	60
Wetlands		
Stream Valleys		
Scenic Areas	16	77,303
Wilderness Area	3	4,100*
Subtotal	40	87,661
Bird Nests		
Champion Trees	1	1
Total	41	87,662

Frederick County

* All acreage is already included in other sites.

SUMMARY
Garrett County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	2	8
Caves	12	36
Rock Outcrops	2	8
Lakes and Ponds	1	4,057
Springs	1	5
Natural Areas	5	65,466
Wildlife Habitats	4	316
Wetlands	6	1,293
Stream Valleys	2	3,238
Scenic Areas	8	22,763
Wilderness Area	16	16,415*
Subtotal	59	97,690
Bird Nests		
Champion Trees	4	4
Total	63	97,694

Garrett County

* 15,915 acres are already included in other areas - only 500 acres are added here.

TABLE 4 con't

SUMMARY
Harford County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	10
Caves		
Rock Outcrops	2	1,585
Lakes and Ponds		
Springs		
Natural Areas	4	2,360
Wildlife Habitats	3	2,919
Wetlands	4	18,292
Stream Valleys	1	5,800
Scenic Areas	4	2,278
Wilderness Area		
Subtotal	19	33,244
Bird Nests		
Champion Trees	15	15
Total	34	33,259

SUMMARY
Howard County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves	1	5
Rock Outcrops		
Lakes and Ponds		
Springs		
Natural Areas		
Wildlife Habitats		
Wetlands		
Stream Valleys	2	4,500
Scenic Areas	5	6,831
Wilderness Area	1*	800
Subtotal	9	12,136
Bird Nests		
Champion Trees	3	3
Total	12	12,139

Howard County

* This site is shared with Montgomery County, but all acreage is shown here.

TABLE 4 con't

SUMMARY
Kent County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	3
Caves		
Rock Outcrops	2	921
Lakes and Ponds	3	176
Springs		
Natural Areas	1	150
Wildlife Habitats	4	6,428
Wetlands	5	7,745
Stream Valleys		
Scenic Areas	2	260
Wilderness Area		
Subtotal	18	15,683
Bird Nests	4	4
Champion Trees	1	1
Total	23	15,688

SUMMARY
Montgomery County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	3	11
Caves		
Rock Outcrops	7	421
Lakes and Ponds		
Springs		
Natural Areas	10	1,575
Wildlife Habitats	9	3,026
Wetlands		
Stream Valleys	1	3
Scenic Areas	46	1,904
Wilderness Area	*	
Subtotal	76	6,940
Bird Nests		
Champion Trees	11	11
Total	87	6,951

Montgomery County

* A site is shared with Howard County; all acreage is included in Howard County.

TABLE 4 con't

SUMMARY

Prince George's County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	6	356
Caves		
Rock Outcrops	8	185
Lakes and Ponds	1	237
Springs		
Natural Areas	5	332
Wildlife Habitats	6	6,597
Wetlands	18	4,455
Stream Valleys		
Scenic Areas	3	1,862
Wilderness Area		
Subtotal	47	14,024
Bird Nests		
Champion Trees	6	6
Total	53	14,030

SUMMARY

Queen Anne's County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves		
Rock Outcrops	1	1,600
Lakes and Ponds	2	100
Springs		
Natural Areas	8	10,666
Wildlife Habitats		
Wetlands	8	3,669
Stream Valleys		
Scenic Areas	1	2,700
Wilderness Area	*	
Subtotal	20	18,735
Bird Nests	46	46
Champion Trees	5	.5
Total	71	18,786

Queen Anne's

* A site is shared with Caroline County - all acreage is included in Caroline County.

TABLE 4 con't

SUMMARY

St. Mary's County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	200
Caves		
Rock Outcrops	4	1,130
Lakes and Ponds		
Springs	1	10
Natural Areas	7	5,760
Wildlife Habitats	1	64
Wetlands	5	747
Stream Valleys		
Scenic Areas		
Wilderness Area		
Subtotal	19	7,911
Bird Nests	61	61
Champion Trees	2	2
Total	82	7,974

SUMMARY

Somerset County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves		
Rock Outcrops		
Lakes and Ponds		
Springs	1	1
Natural Areas	1	1,200
Wildlife Habitats	2	2,560
Wetlands	5	44,074
Stream Valleys		
Scenic Areas	2	8,553
Wilderness Area	4	6,602*
Subtotal	15	57,310
Bird Nests	9	9
Champion Trees	5	5
Total	29	57,324

Somerset County

* 5,680 acres are included in other areas - only 922 acres are added here.

TABLE 4 con't

SUMMARY
Talbot County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	1	2
Caves		
Rock Outcrops	1	400
Lakes and Ponds		
Springs		
Natural Areas	3	4,034
Wildlife Habitats	3	758
Wetlands	3	3,253
Stream Valleys		
Scenic Areas	4	3,026
Wilderness Area		
Subtotal	15	11,473
Bird Nests	167	167
Champion Trees	9	9
Total	191	11,649

SUMMARY
Washington County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	2	35
Caves	56	950
Rock Outcrops	9	435
Lakes and Ponds	1	5
Springs	2	7
Natural Areas	2	4,835
Wildlife Habitats	2	5,946
Wetlands		
Stream Valleys	1	3,923
Scenic Areas	9	1,639
Wilderness Area	*	
Subtotal	84	17,775
Bird Nests		
Champion Trees	3	3
Total	87	17,778

Washington County

* A site is shared with Allegany County - all acreage is included in Allegany County.

TABLE 4 con't

SUMMARY
Wicomico County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites		
Caves		
Rock Outcrops		
Lakes and Ponds	6	157
Springs	1	519
Natural Areas	6	4,940
Wildlife Habitats	1	140
Wetlands	6	10,470
Stream Valleys		
Scenic Areas		
Wilderness Area		
Subtotal	20	16,226
Bird Nests		
Champion Trees		
Total	20	16,226

SUMMARY
Worcester County Site Categories

<u>Site Categories</u>	<u>Number</u>	<u>Acres</u>
Archeological Sites	2	4
Caves		
Rock Outcrops		
Lakes and Ponds	1	192
Springs		
Natural Areas	10	11,012
Wildlife Habitats	5	1,775
Wetlands	6	40,059
Stream Valleys		
Scenic Areas	2	42
Wilderness Area	5	2,586*
Subtotal	31	53,084
Bird Nests	1	1
Champion Trees	1	1
Total	33	53,876

Worcester County

* All acreage included in other sites.

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APPENDIX A

Natural Features Library List Interpretation Guide

This appendix has been prepared as a guide for use in interpreting the computer library list of Natural features. Each site as referenced by a seven digit site identifier and two lines of text. The guide is keyed (alphabetically) to the printout format which appears at the top of the next page.

Appendix A

Printout Format:

(A)	(B)	(C)	(D)	(E)	(F)	(G)
SITE I.D.	SITE NAME	T Y P E	O W N E R S H.	AREA (ACRES)	LOCATION	DESCRIPTION
VVXXYZZ 12062351	DEA WAIN CAVE				40001 45- ANG RUN 1MT	GREENBRIER LMST;
	PART-STRUCTURE FALLEN INTO TRASH DUMPED HERE					
						Description (G)

(A) Site I.D.:
 VV = County Number
 XX = Election District
 Y = Source
 ZZ = Site Number

VV County Name

01	Allegany
02	Anne Arundel
03	Baltimore
04	Baltimore City
05	Calvert
06	Caroline
07	Carroll
08	Cecil
09	Charles
10	Dorchester
11	Frederick
12	Garrett

VV County Name

13	Harford
14	Howard
15	Kent
16	Montgomery
17	Prince George's
18	Queen Anne's
19	St. Mary's
20	Somerset
21	Talbot
22	Washington
23	Wicomico
24	Worcester

XX Election Districts - Vary by County

Y Source - Source Numbering Sub-System Comprehensive

0.= Open Space Plan II, D.S.P. publication now 1972.

1.= Catalogue of Natural Areas in Maryland D.S.P. publication August 1968.

2.= Bibliographic Reference; D.S.P. reference card file of sites obtained from search of any available publications on related topics.

3.= Smithsonian Center for Natural Areas - Survey of the Ecologically Important Natural Areas of the Chesapeake Bay Region.

4.= Environmental Inventory Questionnaires D.S.P. pamphlet July 1973.

5.= Personal Interviews.

6.= Other Sources.

7.= Any combination of the above.

8.= Any single tree of interest or importance - the majority obtained from The Big Tree Champions of Maryland 1973 Maryland Forest Service - DNR.

Appendix A, con't

9.= Eagle nest, osprey nest, or heronry obtained from any of the above sources or indicator of an area "proposed for consideration as a Wildland" by D.N.R.

ZZ Site Number

(B) Site Name.

(C) "Type" Codes:

1. Wetland	24. Reservoir Watershed	47. River Valley Basin
2. Canal	25. Wooded Watershed	48. Geologic Area/Site
3. Spring	26. Woodland Meadow	49. Serpentine Barrens
4. Waterfalls	27. Virgin Forest	50. Archeological Area/Site
5. Dam Site	28. Virgin Oak Pine Forest	51. Historic Area/Site
6. Recharge Area	29. Mature Forest	52. Scenic Area
7. Mudflats	30. Tree	53. Unique Vegetation
8. Moss Bog	31. Marsh, Nat'l, Champion Tree	54. Unique Ecological Area
9. Lake	32. Scenic Woods	55. Natural Area
10. Pone	33. Virginia Bluebell Area	56. Wildlife Area
11. Wooded Pond	34. Vegetation at Limit of Range	57. Wildlife Sanctuary
12. Breeding Pond	35. Wooded Bluff	58. Wildlife Demonstration Area
13. Mill Pond	36. Mountain	59. Waterfowl Area
14. Pond and Historic Grist Mill	37. Mountain Gorge	60. Wildlife Management Area
15. Brackish Estuary	38. Scenic Overlook	61. Relict Community
16. Fresh H ₂ O Marsh	39. Cliffs	62. Rare Animal
17. Salt H ₂ O Marsh	40. Cave	63. Rare Plant
18. Fresh and Salt H ₂ O Marshes	41. Mountain Plateau	64. Agricultural Area
19. Swamp	42. Ravine	65. Peninsula
20. Fresh H ₂ O Swamp	43. Valley	66. Island
21. Swamp Forest	44. Pastoral Valley	67. Trail
22. Hardwood Shoreline Area	45. River Valley	68. Estate
23. Wooded Area	46. Marsh and Stream Valley	69. River Bed

(D) Ownership Codes:

PU Public	PC Private/Corporation
PR Private	C Chesapeake Bay Foundation
LP Local/Public	PQ Private/Quasi-Public
SR State Roads Commission	D Balto. City Dept. Recreation and Parks
SP State/Private	E Private and State Dept. of Forests and Parks
ST State	F Private, Public, and Quasi-Public
CO Corporation	G Balto. City
FP State Dept. Forests and Parks	H Private and Federal
FE Federal	CN County
QP Quasi-Public	I Private, State and Federal
NP National Park Service	J State/Federal
PP Private and Public	NR Md. Dept. of Natural Resources
A Potomac Edison Co.	DI U.S. Dept. of Interior
B Under Option - U.S. Dept.	L Local
CH Church	
DA U.S. Dept. of Agriculture	

(E) Areas in Acres

(F) General Location - usually references county topographic maps (source: Maryland Geological Survey) as quadrangle maps (source: U.S. Geological Survey).

(G) Site Description - Common Abbreviations

ALPHABETIC INDEX - ABBREVIATIONS

- A AA - Anne Arundel
 Arche - Archaeological
 Amph - amphibians
 A - Area
 Amp - Amphitheater
 ALT - Alternate
- B BDG - Bridge
 Betw, Btw - between
 BWI - Baltimore, Washington, International
 Balto. - Baltimore
 BORS, BDR - border(s)
 BW Parkway - Baltimore Washington Parkway
 BLKW - Blackwater
 BTM - Bottom
 BLVD - Boulevard
 B&O - Baltimore and Ohio
- C CTRL - Central
 C - Circa, Century (after #)
 CBF - Chesapeake Bay Foundation
 CHR, CH - Church
 CN, CO, CNTY - County
 CR, CK - Creek
 CTR - Center
 CUMB - Cumberland
 CHES - Chesapeake
 CORNR - Corner
 CRLL - Carroll
 CEM - Cemetary
 CONSERV - Conservation
 CARO - Caroline
 CHK - Choptank
 Circum - Circumference
 Conwgo - Conowago
 C&O - Chesapeake and Ohio
 CHR - Charles
- D DEG - Degrees
 DORC, DORCH - Dorchester
 DEMO - Demonstration
 Dept - Department
 Dev - Development
- E E - East
 ESE - East Southeast
 Ex - Example
 Exwy - Expressway
 ENE - East Northeast
 ENVIR - Environment
 EST - Establish
 ESP - especially
 ELEM - elementary
 ELV - elevation
- F FNDN - Foundation
 Ft - Foot, Feet
 FRED - Frederick
 FED - Federal
 FLWY - Flyway
 FRM - Farm
- G GORG - Gorge
 GN, GRN - Green
 GOVT - Government
 GEOL - Geological
 GUNP - Gunpowder
 GEN - General
- H HWY - Highway
 HIST - Historic, History
 HGTS - Heights
- I ISL - Island
 INT, INTCN - Intersection
 INST - Institution
 IMP - Importance
 IND - Indian
 INTERP - Interpret
 INT - Interior (Department of)
- J JCT - Junction
- K
- L LTL - Little
 LWR - Lower
 LTD - Limited
 LNDG - Landing
 LGE, LG - Large
 LMST - Limestone
 LA - Lake
 LANDMK - Landmark
- M MD - Maryland
 M, MI - Miles
 MIN - Minutes
 MT, MTS - Mountain(s)
 METRO - Metropolitan
 MRSH - Marsh
 ML - Mill
- N NNE - North northeast
 N - North
 NW - Northwest
 NNW - North Northwest
 NC - Nature Conservancy
 NALT - Natural
 NATL - National
 NLC - Natural Landmark Classification
- O OCC - Occupants
- P PG - Prince George's
 PND - Pond
 PT - Point
 PREHIST, PREHIS - Prehistoric
 PRESVN, PRESV - Preservation
 PENN - Pennsylvania
 PRT - Part
 PRK - Park
 PATUX, PTX - Patuxent
 PIS - Piscataway
 PANA - Panoramic

Alphabetic Index - Abbreviations con't

- Q QA - Queen Anne's
- R RD - Road
RDG - Ridge
RES - Research
RTE, RT - Route
RIVR, RI - River
RESV - Reservoir
RR - Railroad
RECM - Recommend
- S Shr - Shore
S - South
SE - Southeast
SW - Southwest
SSE - South Southeast
SSW - South Southwest
ST - Street
SP - Species
ST, STE - State
SS - Southside
SECT - Section
SI - Smithsonian Institute
SANC - Sanctuary
SUS, SUSQ - Susquehanna
SHELTR - Shelter
SIG - Significant
SPR - Spring
- T TAL - Talbot
TER - Terrace
- U U.S. (#) - U.S. Route number
U.S. - United States
- V VA - Virginia
VILL - Village
VAL, V - Valley
VEG - Vegetation
- W W - West
WVa - West Virginia
W/ - With
WDLF - Wildlife
WMA - Wildlife Management Area
WNW - West Northwest
WSW - West Southwest
WASHI - Washington
WICOM - Wicomico
WORCST - Worcester
WSHD - Watershed
- XYZ

APPENDIX B

NATURAL FEATURES INVENTORY LIST

ALLEGANY COUNTY

0104181	CHESAPEAKE & OHIO CANAL	02NP	4475	ALONG POTOMAC RIVER/SEGMENT OF C & O CANAL FROM WASH TO CUMBERLAND; STRUCTURE & ROUTE MOSTLY INTACT; HISTORIC IMP
0105702	CUMBERLAND NARROWS	37LP	320NW-CUMB-RT 40	1.5MI/ANTICLINE FORMATION; JUNIATA AND TUSCARORA FORMATIONS
0107703	DAN'S MOUNTAIN	36PP	1900SW-10MI OF CUMB	/ABUNDANT WILDLIFE; OAK, HICKORY, MAPLE, BEECH, BIRCH TREES; PART OF WILDLIFE MANAGEMENT AREA
0133184	GREEN RD&STOWN HILL MTS	55PP	13600N 4MI-PAW PAW W VA	/SCENIC OAK-HICKORY FOREST, SCHEDULED TO EXPAND GREEN RIDGE STATE PARK
0107105	PINTO GEOLOGIC SECTION	48PR	5SSW 1.7MI-CRESAPTWN	/GEOLOGIC EXPOSURE OF DEVONIAN AND SILURIAN FORMATIONS; FOSSIL BEARING
0116106	POTOMAC BLUE SPRING	03NP	11SSE 3.6MI-CUMBERLND	/PART OF C&O CANAL NATIONAL MONUMENT; POSSIBLE SUPPLEMENTAL WATER SUPPLY FOR CUMBERLAND
0101075	SCENIC OVERLOOK - RT 40	38PU	2ALONG RT40 E-CNTY	/IMPRESSIVE PANORAMIC VIEW
0103201	DEVILS DEN CAVE LIMESTONE FORMATION	40PR	5N-WARM SPRING RD	/CAVE IN TONOLOWAY LIMESTONE FORMATION
0103202	MURLEY BRANCH SPRING	03PR	5N 39DEG39MIN/W78-37	/ABOVE BASE OF TONOLOWAY LIMESTONE FORMATION; 10 TO 15 FEET WIDE
0103203	TWIG S CAVE	40PR	5N 39DEG38MIN/W78-37	/ABOVE BASE OF GRAY TO BLACK CRYSTALLINE LIMESTONE; STREAM THROUGH CAVE
0103206	ATHEYS CAVE	40PR	5N 39DEG39MIN/W78-35	/DEVELOPED ALONG SETS VERTICAL JOINTS IN TONOLOWAY FORMATION; BLUE-BLACK LIMESTONE STRATUM
0122207	DEVILS HOLE CAVE	40PR	5N 39DEG39MIN/W78-38	/FORMED IN KUPFER LIMESTONE; VERTICAL SHAFT 30 FEET DEEP
0105208	GREISES CAVE	40PR	5W SIDE SHRIVER RD	/ALONG SERIES OF PROMINENT JOINTS IN TONOLOWAY LIMESTONE FORMATION; WATER WITHIN CAVE
0116209	HORSE CAVE	40PR	5N 39DEG37MIN/W78-39	/SHALLOW CAVE IN FAVORITES ZONE OF KEYSER LMS; NATURAL BRIDGE INSIDE; STALACTITES IN REAR
0121210	ROCKY GAP CAVE	40PR	5S RIM ROCKY GAP GORG	/ALONG VERTICAL JOINTS IN TUSCARORA SANDSTONE; FLAT CEILING THROUGHOUT
0121211	STEGWATER ORCHARD CAVES	40PP	5W FLANK IRONS MT	/13 CAVES IN WOODLAND; NICE DISPLAY OF HELICTITES, STALACTITES, AND ARGONITE CRYSTALS
0103212	TWELL CAVES	40PR	5E .5MI-DEVIL HOLE	/13 LEADS DEVELOPED IN TONOLOWAY LIMESTONE; CAVE CRICKETS IN FISSURE
0105213	ALLEGANY HIGH SCHOOL CAVE	40PR	5S SIDE WILLS CREEK	/20 FT CRAWLWAY
0105214	ROWMAN'S ADDITION CAVE	40PR	5QUARRY, VALLEY RD	/E SIDE OF RD; 35 FT CHIMNEY
0129215	CUMBERLAND BONE CAVE	40CO	5N 39DEG41MIN/W75-47	/REMAINS OF NOW EXTINCT SPECIES HAVE BEEN FOUND THERE
0129216	CUMBERLAND QUARRY CAVE	40PR	5S SIDE WILLS CREEK	/SERIES OF CLOSELY FOLDED ANTICLINES AND SYNCLINES LOCATED HERE
0129217	DRESSMAN CAVE	40PR	5QUARRY WCASH VALLEY	/SMALL SKYLIGHT OCCURS IN CEILING; FLOWSTONE DEVELOPED IN PLACES
0105218	GOAT CAVE	40PR	5END PATTERSON ST	/TWO LONG LOW PASSAGES OCCUR ALONG BEDDING PLANES
0105219	HAYSTACK MOUNTAIN CAVE	40PR	5S SIDE WILLS CREEK	/COLLAPSE OF SANDSTONE BEDS CREATED SHELTER CAVE
0105220	LOVERS LEAP CAVE	40PR	5N SIDE WILLS CREEK	/FISSURE IN TUSCARORA SANDSTONE; SIGNS OF BEING WATERWORKING FORMATIONS PRESENT
0129221	SAVAGE RD QUARRY CAVE	40PR	5ALONG JENNINGS RUN	/TWO CAVE; COAL AND SPELEOTHEMS PRESENT
0105222	VALLEY RD QUARRY CAVE	40PR	5W SIDE SHRIVER RD	/TWO SMALL CRAWLWAY
0107223	FORT HILL FISSURE CAVES	40A	5E END FORT HILL	/THREE CAVES; HARBOR PASSAGES WITH SEVERE VERTICAL SLOPING WALLS; ENCRUSTED WITH FOSSILS
0107224	WOODS CAVE	40PR	5E US 220S-RAWLINS	/ENTRANCE EACH END
0107225	BERTON BRENS INDIAN VIL	50PR	5E-CRESAPTWN	/EVIDENCE OF C. AD 1000-1500 OCCUPATION; ARTIFACTS FOUND
0107226	SHARPE OLD FIELDS VII	50P	10E-OLDTOWN	/SITE OF MAJOR EARLY 17TH-EARLY 18TH C VILLAGE; MANY ARTIFACTS, BUT NO SYSTEMATIC EXCAVATIONS
0105227	SCENIC OVERLOOK	50PR	47N OF RT 50; I-81-RT 220	/2ND DEP FOREGROUND
0129228	CUMBERLAND SCENIC AREA	50PR	5W-CRESAPTWN-ROAD OK	/RD 2000S; DEER MORE ABUNDANT WILDLIFE
0135000	BARRIERS OVERLOOK	50ST	2INT THOMAS, LAFFORD	/AREA CLOSE TO FLYWAYS FOR MIGRATION OF SOULBIRDS AND RAVENS
0135002	WHITE SPRING SPRINGS	05ST	20GREEN RD	/ST FORESTED; SPRINGS FLOW THROUGH SLATE ROCK; SUR QUIPPED BY 40 FEET AREA

Allegany County con't

0103461	WARM SPRINGS	03ST	60WARM SPRING RD	/SPRINGS BETWEEN
	TOWN CREEK RD AND MURLEYS BRANCH;		FAVORITE PICNIC AREA	
0133427	GREEN RIDGE LOG ROLL	51PR	100W-GREEN RIDGE RD	/SITE OF HISTORIC
	LOG ROLL; PANORAMIC VIEW			
0107429	DANS ROCK	48CO	1W-MIDLAND 2MI	/ELEVATION 2895 FT
0104439	SHALE BARRENS	48PR	179GRN RDG FOREST, CUMR/N OF FLINTSTONE,	
	SW DOLLY RD; 3MI OF OLDTOWN, S OF MILL CREEK; N OLD DOCK TRAIL			
0103439	SHALE BARRENS	48PR	244NW 3MI OF OLDTOWN	/DEVONIAN SHALE

ANNE ARUNDEL COUNTY

0205101	ANGELS BOG & FRESH POND	34PR	30ESE-JACOBSVILLE 3MI/EXCELLENT SITE ACCORDING TO SMITHSONIAN REPORT; POSSIBLE RARE ANIMAL SPECIES; SPHAGNUM BOG	
0204182	BLUEBELL MEADOW ISLAND	33PR	2PRIEST BRIDGE	/WILDFLOWER COVERED
0205703	BADKIN POINT	16PR	50ESE-GLEN BURNIE; BAY/2 MI WATERFRONT	/SOME CYPRESS KNEES; EXCELLENT BIRD HABITAT; IMPORTANT TO CHESAPEAKE BAY FISH
0205104	CORCORAN TRACT	28FP	3RENE-ANNAPOLIS 5.5MI	/CONSIDERED LAST TRACT VIRGIN TIMBER IN TIDEWATER MD; 2ACRE BAMBOO GROVE; WILDLIFE PRESERVE
0203105	ELEVATION WHITE ROCKS	48PR	2SE GLEN BURNIE 3.5MI/ONLY UPLAND OUTCROP OF RARITAN IN MD COASTAL PLAIN; BOULDERS PURE FOR GLASS SAND	
0206106	HOCK TRACT	55SR	15NNW-ANNAPOLIS	/AREA DESCRIBED AS WEEMS CREEK LIVING SCIENCE MUSEUM; OUTSTANDING AREA FOR ECOLOGICAL STUDIES
0207708	MAYO POINT	26PR	80S-AN APOLIS 4.3MI	/AREA MATURE HARDWOODS AND SALT MEADOWS; OVERWINTERING SWAN OCCUR HERE; HIGH EROSION
0204709	ROUND BAY BOG	08PR	110NW-ANNAPOLIS 6MI	/WIDE VARIETY BIRD LIFE; CRANBERRY, HOLLY, MAGNOLIA FOUND
0201710	SEVERN RIVER HEADWATER	23SP	900W-ANNAPOLIS 5MI	/SEVERN RUN IN AREA
0207781	LYONS CREEK VALLEY	21PR	2674ALONG LYONS CREEK	/DUCK, MINK, HAWK
0207706	IVY NECK/JAVA FARM	54PR	389SSW ANNAPOLIS	/AREA SERVES AS SITE FOR RESEARCH OF ESTUARINE ENVIRONMENT BY SMITHSONIAN INSTITUTION
0204711	SOUTH RIVER HEADWATERS	16PR	3563W-ANNAPOLIS 5MI	/MARSHES CONTAIN HARDWOODS, CLAMS, CRABS, DUCK; SCENIC WEST SHORE
0207712	BEARDS CREEK	16PR	369ALONG BEARDS CREEK	/TYPHA SP, CRABS, CLAMS FOUND; CFB AND SMITHSONIAN INST. RELIEVE AREA SHOULD BE PRESERVED
0204704	FLAT CREEK	16PR	290ALONG FLAT CREEK	/WILDLIFE HABITAT BORDERED ON NW BY RT50/301, ON SE BY RIVA RD
0207705	MUDDY CREEK	17PR	807BOTH SIDES MUDDY CR	/NATURE CONSERVANCY CONSIDERS THIS IMPORTANT AREA; WILDLIFE HABITAT
0207206	CALVERT FORMATION	03PR	10N END CALVRT CLIFFS	/FAIRHAVEN DIATOMACEOUS EARTH MEMBER; 55 FT THICK
0205469	ROYD POND	10PR	115N-BAYSIDE BEACH RD	/ONE OF FEW FRESH WATER PONDS IN MARYLAND
0204482	PATUXENT WILDLIFE RES CTR	55DI	650ALONG AA-PG BORDER	
0205207	OLD MARGARETS CHURCH	50PR	2W-INTCN OF RT3 & 231	/ARCHEOLOGICAL SITE
0204208	SEVERN FOREST-MARTIN POND	11PR	140NEAR MARTINS POND	/MUCH NATURAL VEGETATION ON THIS AREA ON SEVERN; GREAT WHITE OAK AND KILN NEAR POND
0205301	GIBSON ISLAND	16PC	120S END MT RD	/NATURE CONSERVANCY FEELS THIS IS IMPORTANT WETLANDS; PART MAINTAINED AS BIRD SANCTUARY
0204302	BREWER POND	10PR	339SE-HELENA ISL 1 MI	/SHORFLINE SURROUND -ED BY IRREGULAR WETLANDS; MATURE HARDWOODS AND OVERWINTERING SWAN FOUND
0205209	PODICKORY ARCHE SITE	50PR	5NW SANDY PT ST PARK	/ARCHEOLOGICAL SITE
0205210	BELLFIELD	50PR	5S-RT50/301	/SKIDMOPE/ COLONIAL FARMSTEAD
0205211	BRICK KILN	50PR	5-RT 50/301 1 MI	/COLONIAL INDUSTRY
0205435	MEREDITH CREEK	56PR	57JUST S-BAY BOG	/SHORES MOSTLY UNHABITATED; MANY WILDLIFE FORMS HERE; EX HERONS, EGRETS, DUCK, GEESE
0205422	HACKETT POINT	22C	31MEREDITH CREEKES BAY	/MIXED HARDWOODS; WILDLIFE HABITAT; PRESEVED AS ENVIRONMENTAL EDUCATION AREA
0206212	PROVIDENCE	50PR	5END-RT672	/ORIGINAL SETTLEMENT IN ARCHEOLOGICAL DISTRICT
0206303	POPLAR POINT	29PR	130N BANK S RT	/RT 2 UNDEVELOPED FOREST
0207213	LONDONTOWN	50PR	5S RT	/W-GLERE BAY ARCHEOLOGICAL SITE
0207304	CEDAR POINT	29PR	98S BANK-S RT	/UNDEVELOPED AREA

Anne Arundel County con't

IRREGULAR SHORELINE PROVIDES NESTING AREA FOR OSPREY
 0206305 HARNES CREEK 29PR 90N SHORE-SS RT /PRIMARILY WETLANDS
 EAGLE NEST LOCATED HERE
 0207214 INDIAN MOUND 50PR 5SE-GOVERNORS BDG 3M/INDIAN MOUNDS AND
 JOHN BELTS QUAKER MEETING HOUSE-1690
 0207485 PATUXENT MARSH 16PC 1000N BORDER GOVERNOR BDG/UNIQUE AREA
 0207215 WOODSTOCK 50PR 5S-RT255W-RT468 /WILLIAM PENN SIGNA
 -TURE ON DISPLAY
 0207216 CHALK POINT 50PR 5N END CHALK PT RD /ARCHEOLOGICAL SITE
 0207307 DEER COVE CREEK 17PR 349NEAR CAPE MARE /NATURE CONSERVANCY
 CONSIDERS THIS AN IMPORTANT AREA; MUCH WILDLIFE
 0207217 HERINGEN 50PR 5NEAR RT423 /SITE PREDATES 1670
 0207483 LYONS CR JUG BAY MARSH 16PR 44001MI N-WAYSONS CORNR/MUCH MARSH VEGATA-
 TION; GOOD FOR RAIL HUNTING; WILD RICE, MALLOW, PHRAGMITES PREDOMINATE
 0204241 PREHIS IND VILLAGE SITE 50PR 4NW-DAVIDSONVILLE /DISTINCTIVE ARTI-
 FACTS FOUND; DATES BTW AD 300-600; BEING RUINED BY FILL-REMOVAL OPERATIONS
 0205240 MARTINS PREHIS IND CAMP 50PR 1NW-ANNAPOLIS /VERY IMP AREA TO
 CULTURAL INDIAN HISTORY OF MD; 24 LAYERS CULTURAL DEBRIS FOUND SO FAR
 0203308 GAYLUSSACIA BRACHYSERA 54PR 5N-PASADENA. 3MIS177/RARE PLANT CONSID-
 ERED WORTHY-PROTECTION BY NATURE CONSERVANCY; POSSIBLY OLDEST LIVING PLANT
 0201309 HELIX ANTAS RULLATA 54ST 5LIMITS BWI AIRPORT /RARE HERB WORTHY
 OF PRESERVATION

BALTIMORE COUNTY

0308101 BAISMAN RUN VALLEY 25PR 850W-COCKEYSVILLE 3 MI/ONE OF FEW REMAIN-
 ING COMPLEXES WITHIN URBANIZING AREA; USED FOR GEOMORPHOLOGICAL RESEARCH
 0313182 BALTIMORE HIGHLANDS 16D 260SSW-BALTO CITY /50 ACRE LAGOON
 SERVES AS WATERFLOW SANCTUARY; SHALLOW MARSH; WILLOW STANDS
 0303103 BARE HILLS 48PR 400W-JONES FALLS EXWY /SERPENTINE ROCK
 BARREN; STREAMS INHABITED BY RED SALAMANDER AND PICKEREL FROGS
 0315705 HART AND MILLER ISLANDS 66PR 157S-POOLES ISL /ONLY MAJOR UNSPOIL
 ED AND UNRESTRICTED ISL IN UPPER BAY; IMP STOPPING AREA FOR MIGRATORY BIRDS
 0308106 HAYFIELDS 44PR 474NW-BALTO CITY 8 MI/HISTORICAL VALUE;
 PIONEER FARM IN DEVELOPMENT; HEREFORD CATTLE IN US
 0309107 LIMEKILN HOLLOW 44PR 700NE BALTO CITY 3.5M; MARBLE UNDERLAIN
 VALLEY CONTAINS SOME MOST ATTRACTIVE DAIRY FARMS IN MARYLAND
 0310708 LAR LTL GUNPOWDER FALLS V45E 1497BALTO-HARF CNTY BDR/TIDAL MARSH AREA
 IMP BY CRF AND NATURE CONSERVANCY; COVERED BRIDGE PRESENT; HARDWOOD GROVES
 0311109 LONG GREEN CREEK VALLEY 46E 900ENE-TOWSON; W-MANOR /SCENIC VALLEY;
 BY TOWSON ANTICLINE; STREAM EMPTIES INTO GUNPOWDER FALLS
 0301181 PATAPSCO GORGE 42PR 1500PART PATAPSCO RI V /BETW ELLICOTT CITY
 & WOODSTOCK; VARIETY OF HARDWOODS; CONSIDERABLE MEANDERS
 0309111 SHEPPARD PRATT FOREST 23PR 75N-BALTO CITY 1.5 MI/SOME OF OLDEST OAK
 IN AREA ON GROUNDS SHEPPARD PRATT HOSPITAL; ROLLING TERRAIN
 0302112 SOLDIERS DELIGHT 49SP 2076SSW REISTERSTOWN 5M; UNUSUAL METRO
 AREA; UNDERLAIN WITH SERPENTINE ROCK; WILD FLORA; FREQUENT OUTCROPPINGS
 0308113 WESTERN RUN VALLEY 46PR 2500SW BUTLER 3 MI /AREA OF GEOMORPHOLO
 GICAL RESEARCH BY JOHNS HOPKINS UNIVERSITY; ATTRACTIVE VALLEY
 0303714 GRNSPRING-NORTHINGTON V 43PR 5715NW BALTO CITY 6 MI/ROLLING VALLEY IN
 AGRICULTURAL USE; SOME FINE HORSE FARMS; EXTENSIVE ESTATES; VARIED WILDLIFE
 0304714 GRNSPRING-NORTHINGTON V 43PR 4710NW BALTO CITY 6 MI/SAME AS 0303714
 0306201 BEAZER RUN SHELTER 40PR 5N BANK BEVER RUN /SMALL AREA; 2X 20'
 PASSAGE LEADING TO POOL 10' DIAMETER; CLAY PIPE & CHARRED BONES FOUND
 0306202 WELTONS SHELTER 40ST 5AT LOCH RAVEN RESV /SMALL SITE; ONE CAV
 ABOVE QUARRY; PARKING LOT AT LARGE DAM
 0306204 LIBERTY RES. 400IN 25ST 3507BALTO-CRIP CITY /FOR EXTENSIVE NATURAL
 AREA; MANY SMALL STREAMS; INTERLACE AREA; HEAVILY FOR ESTABLISHED WILDLIFE
 0306085 PRETTYBOY RESV WATERSHED 025ST 8685NLY CORNER-BALTO CO /EXTENSIVE NATURAL
 AREA; MIXED FOREST WITH VARIED WILDLIFE; HEADWATERS FOR GUNPOWDER RIVER
 0315704 CARROLL ISLAND 66PR 850NPR W SHORE-CHES ZONE A CLOSED TO PUBLIC
 -LICIT; MUCH AREA IS TIDAL MARSH; PREHIS IND VIL FOUND; EXTENSIVE BIRDS; AREA
 0311710 GUNPOWDER DELTA 16PR 2700NW CARROLL ISLAND ZONE A CLOSED TO PUBLIC
 GUNPOWDER RI & SALT PETER CRICKE & NC CONSIDER THIS IMP AREA

Baltimore County con't

0315727 BLACK MARSH 17PR 710SE SECT HALTO CNTY /CONSIDERED PRIME
WETLAND AREA BY CHE, NC & SI

0311230 KNIGHT PREHIST IND SITE 50PR 10NW-ESSEX /C 3000BC TO 1500AD
MUCH UNDISTURBED DEPOSITS OF ARTIFACTS REMAIN

0302402 HORSEHEAD WOODS 55F 500S-MCDONOGH RD /W-REISTERSTOWN RD
WITHIN DEVELOPED SECT CNTY; ENDANGERED WILDFLOWERS FOUND; IMP BIRDING AREA

0311423 PUTTY HILL NATURAL AREA 53PQ 256NE PARKVILLE /WHITE MARSH RUIN
AREA; INCLUDES ALL TYPES PIEDMONT HABITATS; DIVERSITY OF LANDSCAPES; MUCH VEG

0314423 PUTTY HILL NATURAL AREA 55PQ 34NE PARKVILLE /SAME AS 031-423

0302416 FERDINAND C LEE PROPERTY 29PB 160N-LIBERTY RD /UNTOUCHED AREA FOR
OVER 100 YRS; SURROUNDED BY URBAN COMMUNITY; DENSE GROUND COVER

0301415 CATONSVILLE; BALTO TRAIL 67QP 10RT144 E/LOUIDIN CEM /WOODS, STREAMS, AND
SYLVAN GLADES; CITIZENS TRYING TO PRESERVE AREA FOR HIKING & NATURE STUDY

0301480 PATAPSCO RIVER MARSH 16PR 704RT1 W TO BW-PKWAY /STRUGGLING NATURAL
AREA ENDANGERED BY URBAN DEVELOPMENT; LEAST BITTERN FOUND HERE

0309417 WHITE PINE WOODS 32PR 5E OLD HARFORD RD /S-INT-SUMMIT AVF;
IDEAL HAVEN FOR SMALL WILDLIFE AND BIRDS

0309460 LAKE ROLAND-RE LEE PARK 55G 250S-RUXTON E-FALLS RD/MAN-MADE RESV NOT
MAINTAINED; EROSION PRODUCED EXTENSIVE DELTA AT N END; RARE WILDLIFE FOUND

0306250 BLACK ESTATE 52ST 22WSIDE I83 N-DATRY R/ PART PLANNED USE
AS HWY REST AREA; REMAINING AREA TO BE MAINTAINED AS NATURAL SCENIC AREA

0307251 KAUFMAN PROPERTY 52ST 23E SIDE I83 /N-STABLERS CH. RD;
IS A SCENIC AREA; MEADOWS; SMALL GAME

0311450 HARTLINE ET AL PROPERTY 55PR 44PATTERSON & HYDES RD/DIVERSITY/ENVIR;
SPECIES RAPE ORCHIDS; WOODED, OPEN, & SWAMPY AREAS EXIST

BALTIMORE CITY

0402101 CYLBURN PARK 576 174CYLBURN&GNSPRNG AVE/WOODED BIRD SANG;
NATURE STUDY PROGRAMS CONDUCTED HERE; NURSERY FOR FLORA PLANTED OTHER PARKS

0407102 GWYN'S FALLS VALLEY 46PR 3500NW OUT-BALTO CITY /V WINDS 15 MI SE
FROM NEAR SOLDIERS DELIGHT TO DOWNTOWN BALTO CITY; UNUSUAL PLANTS FOUND

0407403 SETON INSTITUTE 32PR 50' W-MARASH AVE; E-RT 26/EXTENSIVE NATURAL
AREA BEYOND HOSPITAL; POWDERMILL RUN PASSES THROUGH; FOWL OBSERVED HERE

0407410 LEAKIN-GWYN'S FALLS PARK 55G 1200W BALTO CITY /REPORTED TO BE THE
ONLY NATURAL CITY PARK IN NATION; NUMEROUS SPRINGS; 200 YR OLD OAK GROVES

0415410 LEAKIN-GWYN'S FALLS PARK 55G 1200W BALTO CITY /SAME AS 0407410

0424204 BALTIMORE GLASS WORKS 50QP 2N-KEY HWY /SITE FIRST GLASS
FACTORY IN BALTIMORE;

CALVERT COUNTY

0503710 FISHING CREEK 17PR 8785SW-CHEF BEACH 1 MI/SI, CHE, NC CONSIDER
THIS PRIME WETLANDS AREAS; OTTER, WOOD DUCK, EAGLES FOUND

0503312 DEEP LANDING 16PR 200SW HUNTINGTON 2.5MI/DRAINS INTO PATUX-
ENT RI; CITED AS PRIME WETLAND BY SI; VARIETY WILDLIFE AND WATERFOWL

0501703 HELLEN CR HEMLOCK PRESV 53QP 818NW-APPEAL 1MI /CITED AS PRIME NAT
URAL AREA BY SI, NC, CHE; SOUTHERN-MOST STANDS HEMLOCK HERE; RARE WOLF PRESENT

0501316 COVE POINT 77PR 300E-BERTHA 2MI /ONLY HABITAT IN MD
OF NARROW MOUTH FROG; EAGLES NEST & PHRAGMITES FOUND; SI SITES IT IMP AREA

0503407 CAMP MOHAWK 55PR 955SE-LWR MARLBORO 2M/HABITAT LOCATION
FOR WARBLERS, RD BLACK RAILS; ENDANGERED GREEN TREE FROG FOUND IN MARSHLAND

0503712 HALL CR CONSRVATION AREA 46PR 1235S-DUNKIRK 1.5MI /MOSTLY UNDEVELOPED
STREAM N ON E SHORE PATUXENT RI; MUCH WOLF FOUND; SITE FOR CONSERV PROGRAM

0501310 JACK RAY 46PR 410E SHORE PATUXENT RI/QUOTED IMP WETLAND
BY SI; INVALUABLE LINK IN FOOD CHAIN - AQUATIC ECOSYSTEM; CRAB & LARVAE AREA

0501001 DRUM POINT LIGHTHOUSE 21H 100SE TIP CALVERT CNTY/DRUM POINT SOUND
OF LIGHTHOUSE; DIVERSITY OF WILDLIFE

0501215 ST MARYS FORMATION 48PR 40S-COVE PT 1.5 MI /GEOLOGIC OUTCROP
CONTAINING FOSSILS; DEPTH FOSSIL ROCK OVER 150'; IMP TO PALEONTOLOGISTS

0501701 BATTLE CR CYPRESS SWAMP 34QP 288S-PRINCE FRED 4 MI /REGISTERED NATL
LANDMARK; BALD CYPRESS STAND; VARIETY AMPH; SI, NC, CHE RECOMMEND ITS PRESV!!

0502701 BATTLE CR CYPRESS SWAMP 34QP 422S-PRINCE FRED 4 MI /SAME AS 0501701

Calvert County con't

0503383 PATUXENT RIVER MARSHES 16PR 4550NW CALVERT CNTY /UNIQUE AREA ENCOMP
-ASSING GRAVEL PITS & MARSHES ALONG E BANK PATUXENT RIVER
0501702 CALVERT CLIFFS 48PR 260W SHORE CHES 15MI /EXCELLENT FOSSIL
STUDY AREA;FOSSILS DATE TO MIOCENE EPOCH;SI,NC,CBE RECOMMEND PRESERVATION
0502702 CALVERT CLIFFS 48PR 200W SHORE CHES 15 MI /SAME AS 0501702
0503702 CALVERT CLIFFS 48PR 75W SHORE CHES 15 MI /SAME AS 0501702
0502311 KITT POINT 17PR 100S-ADELINE 1 MI /WITHIN PATUXENT RI
WATERSHED;OSPREY,OTTER,MINK,CRABS IMP TO AREA;SI,NC,CBE RECOMMEND PRESERVA
0502706 PARKER CREEK 16PR 1010SE-PRINCE FRED 2.2M/ONE-MOST SCENIC
STREAM VALLEYS IN MD;TYPHA SPECIES PREDOMINATE;UNSPOILED GEOLOGY;IMP BY SI
0501706 PARKER CREEK 16PB 442SE-PRINCE FRED 2.2M/SAME AS 0502706

CAROLINE COUNTY

0602003 CHOPTANK CONSERVATION A
0604320 BERRY RUN/RELI CREEK 16PR 299RELI CR NE/GANEY RD/PRIME WETLAND WITH
-IN CHOPTANK WATERSHED;OTTER,SHAD,BASS,TYPHA SP,SCIRPUS SP FOUND HERE
0608005 GILPIN PT LTD USE AREA
0603721 CHOPTANK RI-LYFORD LANDG21PR 531FROM WILLISTON N /BOTH SIDES UPPER
CHOPTANK RI;OSPREY,OTTER,NESTING WOOD DUCK,MANY FISH SPECIES OCCUPY AREA
0606321 CHOPTANK RI-LYFORD LANDG21PR 866FROM WILLISTON N
0604318 SKELETON CREEK 16PR 399N-CHOPTANK RI /PRIME WETLAND AREA
HABITAT FOR TYPHA,OSPREY,OTTER,VARIETY OF FISH
0604389 HUNTING CREEK 16PR 758BDR DORCH-CARO CNTY/CONTIANS TYPHA SP,
OSPREY,HAWK,& WOOD DUCK
0603102 WILLISTON LAKE 09GP 80NIE-HARMONY 4.2 MI /SPARSELY SUR GUNDE-
ED BY WOODLAND;ABUNDANT BLUEGILLS,CRAPPIE,BASS,PERCH
0603101 WILL CREEK HEMLOCK STAND34PR 15SE-DENTON 4.3 MI /HEMLOCK FAR E A S
OF THEIR RANGE IN MD;REMAINING AREA MOSTLY WOODED SWAMP
0601476 UPPER CHOPTANK MARSHES 16PR 211SE-GOLDSBORO 1.5MI /BIRD HABITAT
0602476 UPPER CHOPTANK MARSHES 16PR 89SE-GOLDSBORO 1.5MI /
0604475 YARDYARD MARSHES 16PR 153NW-PRESTON 4.5MI /EXTENSIVE MARSHES
WHERE HERON,RAIL,SNIFE CAN BE SEEN FROM RT 331
0601007 WOOD MILL POND 11PR 24E-HENDERSON 1 MI /ONE-FEW REMAINING
MAJOR PONDS IN MD;OAK,GUM & BASS CATFISH,BLUEGILLS FOUND
0602708 GARLAND LAKE 11PR 50NE-DENTON 30MI,N317/SUR GUNDED BY OAK,
PINE,ABUNDANT FISH AND FAUNA
0605003 IOX WILD WOLF DEMO AREA 5R 1523NIE FEDERALSBURG
0604742 CHOPTANK RIVER MARSH 56 768W-MOST TIP CARO CO /PRIME WETLAND
AREA;ENDANGERED DELMARVA FOX SQUIR,FL,OSPREY,OTTER FOUND;NO CONSIDERS THE
0604710 LINCHESTER POND 14PR 24SE-PRESTON,NE-RT331/OLDEST CONTINUOUS
BUSINESS EST IN US;SCENIC WOOD AREA;ABUNDANT PIKE,CRAP,IF,BASS
0604744 TUCKERHOE CREEK SHORE 31SP 2368CHK RI N/ROLPH LNDG/EXTENSIVE MARSH
AREA;VARIETY WOLF;NATL CHAMPION SWAMP WHITE OAK FOUND HERE;CIRCUM 21.51
0601088 MASON BRIDGES MARSH DITS5PR 1683CARO - QA CNTY BDR /EXTENSIVE & BEAUTI
-FUL STREAM;NONE OF FEW UNSPOILED STREAMS;DIVERSITY FLORA & FAUNA FOUND

CARROLL COUNTY

0707211 ARGO CAVE 40PR 5S-WESTMINSTER /QUARLY IN CAVE
FIELD MARBLE HOUSE ENTRANCES;WALLS OF CAVE PITTED;15' LONGEST HOLE
0707212 SCARLET CREEK CAVE 40PR 5S-WESTMINSTER /FORMED IN MARBLE
-CREEK MARBLE BEDROCK WITH CONCRETE FORMERLY USED AS MILK COOLER
0707020 SCARLET CREEK NATURAL AREA 51ST 7NE-RT47,S-RT42 /VARIED NATURAL
AREA;TUCKERHOE STREAM 2.40 DIAM,HTL 51FT;SIVES INCLUDES SCARLET CREEK FUNGUS
0707001 LITTLE CREEK RESERVOIR 25ST 10W/MALTO-CREEK CHTY BDR/SAME AS 0704009
0707101 LITTLE CREEK VALLEY 64PR 420NE-WESTMINSTER 5MI/MOORE BURNAL LAKE
SCARLET CREEK SLOPE TO SW
0707112 MOORE BURNAL LAKE 60PR 57NE-WESTMINSTER CHTY /BEAUTIFUL COUNTRY
SCARLET CREEK;OAK,HICKORY,BROWN/WHITE
0707102 MOORE BURNAL LAKE 60PR 54NE-WESTMINSTER CHTY
0707003 MOORE BURNAL LAKE 25ST 6S

CECIL COUNTY

0807231 PRINCIPIO CREEK 16PR 115E-PERRYVILLE 1MI /ASSORTED & UNUSUAL WILDLIFE; CONSIDERED IMPORTANT BY SMITHSONIAN INSTITUTION

0805231 PRINCIPIO CREEK 16PR 85E-PERRYVILLE 1MI /SAME AS 0807231

0801232 CABIN JOHN CREEK MARSHES 16PR 719NW-EARLVILLE 4MI /PART ELK RI WATER-SHED; ABUNDANT WDLF; HERONRY OF 150 NESTS; SI REPORTS AREA WORTHY OF PRESV

0805234 RED POINT 21PR 270MOUTH NE RI /MOSTLY W/IN ROONEY SCOUT RESERVATION; ABUNDANT SWAMP LIFE; SI, NC CONCERNED ABOUT ITS PRESV

0801236 SCOTCHMAN CREEK 16PR 46NE EARLVILLE 2MI /PART CR DAMMED TO FORM POND; REST PRIME WETLANDS; MUCH NATURAL FLORA & FAUNA; SI CONSIDERES IMP

0808410 SUSQUEHANNA RIVER BASIN 43PR 1400N-CONOWINGO DAM /RUGGED & FORESTED; HUNTERS ENDANGERING WILDLIFE; UNCONFIRMED EAGLE SITINGS

0802235 ELK RIVER 16PR 110SW-ELKTON 1MI /NC, SI CONSIDER IT WORTHY OF PROTECTION; SWAMP SPARROW NESTS HERE; SCIRPIUS & TYPHA ENDANGERED

0803235 ELK RIVER 16PR 138SW-ELKTON 1MI /SAME AS 0802235

0805235 ELK RIVER 16PR 110SW-ELKTON 1MI /SAME AS 0802235

0807401 PERRY POINT 56PU 44S-PERRYVILLE 1 MI /WDLF WARRANTS AREA PROTECTION; PERRYVILLE MUST DEVELOP TRACT OR REVERT IT TO FED GOVT

0801237 PEARCE CREEK 16FE 437SW-EARLVILLE 3MI /PRESENTLY VMA, DEPT PLANNING WISHES TO MERGE PEARCE POND, CABIN JOHN CR INTO ONE PRESV AREA

0808107 PRINCIPIO FURNACE 50PR 5ENE-PERRYVILLE 3MI /REMAINS-IRON WORKS DATING BACK TO 1715; IRON USED FOR REVOLUTIONARY WAR SUPPLIES

0805188 SUSQUEHANNA FLATS 07ST 11546SE-HAVRE DEGRACE 3M/IMP FEEDING AREA FOR FISH & WATERFOWL; SHALLOW BODY WATER FOR SIZE; NC, SI CITE AS PRIME AREA

0807188 SUSQUEHANNA FLATS 07ST 314SE-HAVRE DEGRACE 3M/SAME AS 0805188

0805101 BULL MT WILDERNESS AREA 320P 182SSW-NORTHWEST 7MI /BEECH MAPLE FOREST WELL E OF NORMAL RANGE

0808182 CONOWINGO BARRENS 48PQ 2780W-RISING SUN 7MI /UNDERLAIN W/ SERPENTINE PERIDOTITE PEROXENITE ROCK; UNPRODUCTIVE SOIL; STUNTED OAK

0807283 GARRETT ISLAND 66PR 175N-HAVRE DE GRACE 1.5/COMPOSED-GRANITE; LITTLE EROSION; HARDWOOD FOREST; CONSIDERED IMP BY SI & NC; LARGEST ISL IN RI

0806106 OCTORARO CREEK VALLEY 46PR 678WNW-RISING SUN 35MI/OAK HICKORY FOREST SHAD MIGRATE HERE; LWR PORTION ENDANGERED BY ENCROACHING DEVELOPMENT

0808106 OCTORARO CREEK VALLEY 46PQ 192WNW RISING SUN 35MI SAME AS 0806106

0802402 TOWN POINT 55PR 60N/W-HACK PT 1.5 MI /MICRO ESTUARY; IMP NURSERY GROUND FOR SALT WATER SPECIES; GREAT BLUE HERON COLONY

0807208 CONWGO PREHIST IND SITE 50QP 4NW-PORT DEPOSIT /DATES C 3000BC TO 1500AD MANY ARTIFACTS FOUND; REMAINING DEPOSITS WARRANT SITE PRESV

0801233 POND CREEK 16PR 938W-EARLVILLE 5MI /70% CRE CONSIDERS IMP TO PRESERVE; SPECIES SCIRPIUS AND SCARCE WILDLIFE SUCH AS OTTER, BEESE

0803211 BIG ELK CREEK WOODS 55ST 75N/E-ELKTON 2MI /FORESTED AREA; SMALL STREAMS; DIVERSITY-ANIMAL HABITATS IN SWAMP REGION

0803212 LAUREL RUN WOODS 55ST 18S-RT 95 W- RT 545 /NATURAL WOODED AREA BEAUTIFUL LAUREL RUN PLANNED SCENIC HWYWAY

0808213 CONOWINGO NATURAL AREA 55ST 12W-RT 222 /WOODED WILDLAND LOWLAND HARWOODS; SOIL IS VERY SANDY

0807714 SUSQUEHANNA OVERLOOK 38ST 30RT 95; E BANK SUSQ R/WOODED AND ROCKY LAND; SCENIC OVERLOOK-SUSQUEHANNA RIVER

0808822 RICHARDS OAK 53PU 1E-CONWGO DAM 1.5MI /HISTORIC TREE CAMP SITE-LAFAYETTES ARMY IN 1791

0801209 GREAR PREHIS IND VILLAGE 50FE 5NW-CECILTON /ARTIFACTS INDICATIVE OF PREHIST VILLAGE-ABOUT AD 1000-1500; POTENTIAL FOR NEW INFORMATION

0803710 ELKTON NATURAL AREA 55ST 68NE-ELKTON 2MI /SITE-OLDEST PEN CENTRAL RAILROAD TRACKS; STONE BRIDGE OF SCENIC INTEREST

CHARLES COUNTY

0905321 PERRY BRANCH 17PR 190W-TOMPKINSVILLE 1MI/SWAMPY AREA PROVIDES HABITAT FOR MINK; OTTER OSPREY ANADROMOUS FISH; EAGLES AND PLANTS

0905322 DOLLY BOARMANS CREEK 17PR 210SE-MT VICTORIA 175M/SPARTINA PATENS DISTICHLIS SP AND JUNCUS ROEMERIANUS; BASS, OSPREY FOUND HERE

0905323 LLOYD CREEK 17PR 40NW-BANKS ODEP RD /RICH PLANT AND ANIMAL LIFE; SI AND NC CONSIDER THIS AREA OF CRITICAL IMPORTANCE

0905324 PICCOWAXEN CREEK 17PR 240WSW-MT VERNON 2 MI /THE STATE OF MD CONSIDER THIS AN IMPORTANT WETLAND AREA

Charles County con't

0901325 CHAPEL POINT 32PR 70CHAPEL PT RD AND 30/HARWOOD FORESTED;
THE SI AND NC CONSIDER IMP NATURAL AREA

0907708 MARSH ISLAND 16PR 30N- MATIAWOMAN CREEK/SCIRPUS SPP CAN BE
FOUND HERE THE SI AND NC CONSIDER THIS A PRIMARY WETLANDS AREA

0905320 SWAN PT NECK/WISE MARSH 17PR 1487S-CHUCKOLO CREEK /TIDAL MARSH WITH
SPARTINA CYNOSUROIDES;SI AND NC CONSIDER THIS A PRIME NATURAL AREA

0903709 NANJEMOY CREEK 16PR 250UNE TO HILL TOP /TYPHA SP MINK WOOD
DUCK ARE FOUND HERE;THE SI AND NC CONSIDER THIS A CRITICAL NATURAL AREA

0903004 DONCASTER STATE FOREST 52ST 150 NW-BOWIE RD /UNCHANGED NATURAL
AREA WITH A NOTABLE DIVERSITY OF NATURAL FEATURES

0907703 MATIAWOMAN CREEK (LOWER)46ST 400N-RT 225 /NESTING WOOD DUCK
FOUND;SI,NC,POTOMAC TASK FORCE CONSIDER IMP UNUSUAL FAUNA HABITAT

0906289 MATTAWOMAN CREEK UPPER 55PR 1690CHARLES-PG CN RDR /SWAMP FOREST AND
HARWOODS QUERCUS CARVAIWOOD DUCK SI AND NC CONSIDER PRIME NATURAL AREA

0905104 NEWBERG TALROT TERRACE 48PR 600SE-NEWBERG 2MI /SHARP INCREASE-60'
SCARP ELEVATION;RARE CLIFF LIKE AREA FORMED DURING PLEISTOCENE AGE

0903101 GRAYTON TALROT TERRACE 48PR 400SE-GRAYTON 1.7MI /SHARP INCREASE-40'
IN SCARP ELEVATION;FORMED DURING PLEISTOCENE AGE

0903702 MARYLAND POINT 55PR 9700SW-IND HEAD 14MI /HEAVILY FORESTED;
SI,NC,POTOMAC TASK FORCE CONSIDER AREA IN NEED OF PRESERVATION

0904705 ZEKIAH SWAMP 20PR 7500E-LA PLATA 4MI /LGE HARDWOOD AREA;
ARCHEOLOGICAL SITE;MUCH WOLF;VIRGIN TIMBER;SI,NC CITE AS IMP CRITICAL AREA

0908705 ZEKIAH SWAMP 20PR 7500E-LA PLATA 4MI /SAME AS 0904705;
PLUS MOST IMP PHASE WOLF PRESVN & RECREATIONAL DEVELOPMENT IN S MD AREA

0905706 POPES CR & GEOL SECTION 48PR 280E TO ELLENBORO HILL/HIGH TIDAL MARSH;
EXPOSURE LATE TERTIARY;SI,INC CONSIDERS IMP NATURAL AREA

0901707 PORT TORACCO 50PR 180SW-LA PLATA 2MI /HISTORICAL SIGHTS;
-CANCE;SI,NC CONSIDER IMP NATURAL AREA

0904713 GILBERT SWAMP 16PR 902E-ZEKIAH SWAMP /EXCEPTIONAL AREA
FOR MIGRATORY BIRDS;SI,INC CITE AS IMP NATURAL AREA

0902711 CEDAR POINT NECK 17H 400W-NANJEMOY CR /HARDWOODS SPECIES
INC SPARTINA PATENS,DOSTICHLIS SP;SI,NC CONSIDERS CRITICAL NATURAL AREA

0903718 MALLOW'S BAY MRSH,MD NECK55PR 600N FROM SMITH PT /SHALLOW COVES PRO-
VIDE HABITAT FOR ANADROMOUS FISH;EAGLE,OSPREY COMMON

0910716 CHICAMIXEN CREEK 16H 670S BDR CHICAMIXEN RD/CONTAINS TYPHA SP,
SCIRPUS SPP,MINK,OT FR,EAGLE,CRAB,FISH

0907453 BOMONKEY CREEK 54PR 450N PRT CN AT POTOMAC/VIRGIN FOREST;
MARSHES;IMP TO WOLF;SI,NC CITES AS IMP AREA BUT THREATENED BY DEVELOPMENT

0905230 POPES CR IND SHELL MID 50PR 10S-LA PLATA /DATES C 10 BC TO
400AD;ONE OF LGE & BEST PRESV OF OYSTER SHELLS DEPOSITED BY PREHIST IND

0902326 BURGES CREEK 16PR 780N-NANJEMOY CR /HABITAT LOCATION
FOR TYPHA SP,MINK;EAGLE NEST FOUND;SI,NC CONSIDER IMP NATURAL AREA

0903227 THOMAS GUT MARSH 16PR 180LWR THOMAS PT;-224/ONE OF SEVERAL
MARSHES WITHIN POTOMAC RIVER WATERSHED CONSIDERED IMP BY SI & NC

DORCHESTER COUNTY

1015317 BLINK HORN CREEK 17PR 600UPPER CHOPTANK RT /HABITAT FOR OSPREY
& TAXODIUM DISTICHUM;CITED PRIME WETLANDS BY SI,NC,CRE

1011218 BRINGSFIELD IND VIL SITE 50PR 25W-VIEN A /LATE PREHIST SITE;
POTENTIAL FOR YIELDING INDIAN LIFE INFORMATION;GO D CONDITION

10 1316 LOWER MARCHHOPE CREEK 21PR 204S FROM NANTICOKE RT /HIGH RATING AS IMP
WETLAND AREA IN CHESAPEAKE BAY REGION BY SI;VARIED VEGETIFE

1015340 BENTLEY'S CREEK 16PR 750SW TO BLADES RD /TYPHA PREDOMINATES
CITED IMP NATURAL AREA BY SI,NC,CRE

1011314 POINT TO PT,BENKILLE RT 17PR 800W-BANK NANTICOKE RIVER MARSH AREA;IMP
BENTLEY CREEK;CONSIDERED PRIME WETLANDS BY SI,NC,CRE;IMP FLE HABITATS

1005714 POINT TO PT,BENKILLE RT 17PR 910W BANK NANTICOKE RIVER AS 1011314

10 1315 CHOCOME CREEK CR MARSH 16PR 1810E-VIEN A 1 TO 5 /CITED AS PRIME WET
-LAND AREA;TYPHA PINUS,CHAMAECYPARIS,THYOLLES,ALNUS MARITIMA FOUND HERE

1002701 EAST NEW MARKET BASIN 06PR 540S-RT 302 E-NEW MARKET;IMP AS ATTACHMENT
AREA FOR RAINFALL & FOR RECHARGING UNDERGROUND WATER SOURCE FROM NEIGHBLR

1014702 HIGGINS POND 10PR 170SE-CAMBRIDGE 7MI /SPP GROWING BY SHAL
-LOW FRESH WATER MARSH;DANGER-DESQUILMENT;SI,NC,CRE CITE AS IMP WETLAND

Dorchester County con't

1003703 LE COMPTE BRYANT REFUGE 57ST 485SW-VIENNA 3MI /REFUGE FOR ENDANG-
ERED DELMARVA FOX SQUIRREL WHICH NEEDS THIS HARDWOOD-SOFTWOOD FOREST HABIT
1011705 SAVANNAH LAKE 10PR 1300SSW VIENNA 9.5MI /LISTED AS CRITICAL
NATURAL AREA BY SI; HABITAT FOR TERRAPIN, NUTRIA, OTTER; PRIME WETLAND AREA
1005312 HILL HOOK MARSH 17PR 3970E SHORE HONGA RI /IMP COMMERCIAL
SHELLFISH AREA; SI, NC, CBF CITE THIS AS CRITICAL TO CHES BAY ECOSYSTEM
1013313 GREEN BRIAR SWAMP 21PR 4600SSE-BLKW REFUGE 8MI/NOW BEING DRAINED
& CLEARED ALTHOUGH CITED VITAL TO CHES ECOSYSTEM; DELMARVA FOX SQUIRREL HERE
1002209 BLINK HORN NATURAL AREA 55ST 14N-E NEW MARKET 5MI /WELL WOODED BUFFER
ZONE; SMALL STREAMS ENHANCE VALUE AS WDLF HABITAT AREA
1007411 GRAYS MARSH 16CN 250W/IN CAMBRIDGE CITY/RICH IN FINEFISH &
SHELLFISH; PROPOSALS FOR DEVELOPMENT OVERIDDEN BY LOCAL RESIDENTS; SCENIC
1004704 LWR DORC COASTAL MARSHES 18SP 22438S-CAMBRIDGE 10 MI /IMP OVERWINTERING
FEEDING GROUNDS-WATERFOWL; MICRO ORGANISMS IMP CHES BAY LIFE PRODUCED HERE
1016704 LWR DORC COASTAL MARSHES 18PR 4160S-CAMBRIDGE 10 MI /SAME AS 1004704
1009704 LWR DORC COASTAL MARSHES 18H S-CAMBRIDGE 10 MI /SAME AS 1004704
1013704 LWR DORC COASTAL MARSHES 18H S-CAMBRIDGE 10 MI /SAME AS 1004704
1017704 LWR DORC COASTAL MARSHES 18PR S-CAMBRIDGE 10 MI /SAME AS 1004704
1010704 LWR DORC COASTAL MARSHES 18PR 8480S-CAMBRIDGE 10 MI /SAME AS 1004704
1018704 LWR DORC COASTAL MARSHES 18SP S-CAMBRIDGE 10 MI /SAME AS 1004704
1011704 LWR DORC COASTAL MARSHES 18I S-CAMBRIDGE 10 MI /SAME AS 1004704
1005704 LWR DORC COASTAL MARSHES 18H S-CAMBRIDGE 10 MI /SAME AS 1004704
1006704 LWR DORC COASTAL MARSHES 18PR S-CAMBRIDGE 10 MI /SAME AS 1004704
1004007 TAYLOR ISL WMA 56ST 934SE SMITHVILLE 3-5MI/RARE GASTROPHRYNE
CAROLINENSIS HERE; MD HERPETOLOGICAL SOCIETY RECOMMEND PRESVN
1005008 BLACKWATER REFUGE 56FE 5504S-CAMBRIDGE 10 MI /VARIETY FLORA &
FAUNA; NOTED AS WINTERING REFUGE FOR BIRDS; OCCUPIES PART LWR DORCH MARSHES
1009008 BLACKWATER REFUGE 56FE 2970S-CAMBRIDGE 10 MI /SAME AS 1005008
1013008 BLACKWATER REFUGE 56FE 7872S-CAMBRIDGE 10 MI /SAME AS 1005008
1011008 BLACKWATER REFUGE 56FE 2842S-CAMBRIDGE 10 MI /SAME AS 1005008

FREDERICK COUNTY

1107405 LILYPONS 10PR 105SE-ADAMSTOWN 2.75 /MILIMPKINS CAN BE
FOUND; COMMERCIAL GOLD AND TROPICAL FISH BREEDING PONDS
1115701 CATOCTIN MT NATIONAL PRK 55FE 2400W-THURMONT 2 MI /OAK HICKORY FOREST
ABUNDANT WILDLIFE
1110701 CATOCTIN MT NATIONAL PRK 55FE 3328W-THURMONT 2 MI /SAME AS 1115701
1110702 CUNNINGHAM FALLS ST PARK 55ST 614W-THURMONT 2 MI /UNUSUAL FLORA AND
MUCH WILDLIFE; OAK HICKORY FOREST
1115702 CUNNINGHAM FALLS ST PARK 55ST 3962W-THURMONT 2 MI /SAME AS 1110702
1120702 CUNNINGHAM FALLS ST PARK 55ST 787W-THURMONT 2 MI /SAME AS 1110702
1103004 HIGH NOB 55ST 5GAMBRILL STATE PARK /NEARLY 1600' HIGH
1126603 BIGGS FORD IND VIL SITE 50PR 10W-WALKERSVILLE /TWO VILLAGES; CAMPS
BETWEEN 1000-200 BC AND 1000-1500 AD WELL PRESV; MORE TO BE LEARNED HERE
1126403 FOUNTAIN ROCK SPRING 03CO 3S-WALKERSVILLE /LARGEST NATURAL SP
-RING IN FRED COUNTY; UNIQUE AREA SHOULD BE PRESERVED
1103404 RENO MONUMENT 48PR 60W-BOLIVAR 1.5 MI /UNUSUAL GEOL FORM-
ATION AND OAK HICKORY FOREST; APPLACHIAN TRAIL BISECTS AREA
1116401 HIGHLAND FALLS 04PR 5SE-HIGHLANDS /LITTLE CATOCTIN
CREEK FEEDS THE FALLS
1101402 OLAND NATURAL AREA 55PR 60W-LILYPONS 2 MI /WILDLIFE IS PLENTI
-FUL; WORTH PRESVN; UPLAND PLOVER & DICK SIGGEL FOUND
1105206 SHOEMAKER PREHIS VILLAGE 50PR 5E-FMITSBURG /VERY IMP ARCHE RE
CAUSE-LOCATION BETWEEN POTOMAC-SUS RIVER; ARTIFACTS EXISTING BETW 1000-1300 AD
1101208 CANOY IND VILAGE SITE 50NR 5SE-BRUNSWICK /ARCHE SITE- LATEST
PISCATAWAY VILLAGE IN MD 1699-1712 AD; ARTIFACTS FOUND
1116204 CAMP ECHO LAKE AREA 55ST 20RT 70 /ABUNDANCE OF FISH;
EXCELLENT RECREATION AREA
1103275 MIDDLETOWN VAL OVERLOOK 38SP 18RT 40 NEAR RIDGE RD/MOST SCENIC AGRIC-
CULTURAL VALLEY IN MARYLAND
1124275 MIDDLETOWN VAL OVERLOOK 33SP 14RT 40 NEAR RIDGE RD/SAME AS 1103275
1115210 WOLF ROCK FISSURE 40PR 5W-THURMONT 1.5 MI /FAULT BREC 13 OCC-
URRING SUGGEST THE FISSURE IS ACTUALLY A FAULT; FAULT-WEVERTON DIA 1411E

Frederick County con't

1116211 CATOCTIN NATURAL AMP 55ST 20MI 70 S-MYERSVILLE /IMPORTANT ANIMAL
HABITAT; VARIETY OF VEGETATION

1117214 MCKINSTRYS MILL CAVE 40PR 5E-HANSONVILLE 4 MI /LARGEST KNOWN CAVE
IN WAKEFIELD MARBLE; STALACTITES FOUND; 3 ENTRANCES

1112203 CATOCTIN CREEK MEADOWS 55ST 65RT 340; CATOCTIN CR /WILDLIFE; WOODLANDS
FISH & WILDLIFE MANAGEMENT PRESERVE PLANNED

1103182 APPALACHIAN TRAIL 67PR 188WASHT-FRED CN BDR /OVER 2000 MI LONG;
37-WHICH OCCUR IN MD; CROSSING 14 STATES; RECREATIONAL VALUE

1106182 APPALACHIAN TRAIL 67PR 543WASHT-FRED CNTY BDR/SAME AS 1103182

1112182 APPALACHIAN TRAIL 67PR 293WASHT-FRED CNTY BDR/SAME AS 1103182

1116182 APPALACHIAN TRAIL 67PR 752WASHT-FRED CNTY BDR/SAME AS 1103182

1122182 APPALACHIAN TRAIL 67PR 224WASHT-FRED CNTY BDR/SAME AS 1103182

1101286 TUSCARORA CREEK 47H 1555SE-PT-ROCKS 3 MI /NATURAL WETLAND
AREA IS IDEAL BIRD SANCTUARY; UNSPOILED AREA

1107101 AMELUNG GLASSWORKS 50PR 5SE-LILYPONS 1MI /ARCHEOLOGICAL SITE
IS BEING EXCAVATED BY SI AND CORNING GLASS CO

1120106 FRED MUNICIPAL FOREST 32PU 5152NW-FRED CITY 10 MI /OAK HICKORY; DRAIN-
ED BY FISHING CR; CONTAINS DIRT RD AND HIKING PATHS

1121106 FRED MUNICIPAL FOREST 32PU 1983NW-FRED CITY 10 MI /SAME AS 1120106

1106106 FRED MUNICIPAL FOREST 32PU 185NW-FRED CITY 10 MI /SAME AS 1120106

1115106 FRED MUNICIPAL FOREST 32PU 250NW-FRED CITY 10 MI /SAME AS 1120106

1115105 CATOCTIN FURNACE 51PR 30S-THURMONT 3.5 MI /OLDEST IRON FURN-
ACES IN AMERICA; REMAINING WALL, PITS, MOST EXTENSIVE SUCH RUINS IN STATE

1115103 BIG HUNTING CR VALLEY 45J 1248W-THURMONT /OUTSTANDING TROUT
STREAM; SCENIC OAK, HICKORY, HEMLOCK BANKS

1110103 BIG HUNTING CR VALLEY 45J 512W-THURMONT /SAME AS 1115103

1106104 BUZZARD FLATS 41PR 800SW-THURMONT 5.5 MI /OAK HICKORY; SPEC-
TACULAR SCENIC VIEW; UNUSUAL VEGETATION

1126209 MONOCACY RIVER CAVE 40PR 5E-HANSONVILLE 0.4MI /FREDRICK LIMESTONE

1101201 HUCKEYSTOWN CAVE 40PR 5W-HUCKEYSTOWN PIKE /2 ROOM CAVE AT
BASE OF QUARTZITE; CONTAINS ARGONITE FLOWERS

1112711 REVERTON CLIFFS 39PR 50WNW-BRUNSWICK 30MI /QUARTZITE; SOUTHERN
POINT OF SOUTH MOUNTAIN CHAIN IN MD

110104 POINT OF ROCKS 52PR 205W-FRED CITY 12MI /GN METABASALT EX-
POSED; EXHIBIT 2 TIGHT OVERTURNED ANTICLINES

1107110 SUGARLOAF MOUNTAIN 36PR 2700SE-FRED CITY 10MI /FLV-1282; FOOT TRAIL
IN AREA; QUARTZITE BOULDERS FOUND; SCENIC AREA

1104108 MONOCACY BATTLEFIELD 51PR 100S E-FRED CITY 3MI /PROPOSED NATL HIST
-ORIC LANDMARK; JULY 7, 1864 BATTLE DATE

1125707 MIDDLETOWN VALLEY 43PR 1342SW-FRED CITY 8MI /ONE OF MOST SCENIC
AGRICULTURAL VALLEYS IN MD

1103707 MIDDLETOWN VALLEY 43PR 1384SW-FRED CITY 8MI /SAME AS 1125707

1112707 MIDDLETOWN VALLEY 43PR 9473SW-FRED CITY 8MI /SAME AS 1125707

1116707 MIDDLETOWN VALLEY 43PR 7674SW-FRED CITY 8MI /SAME AS 1125707

1110707 MIDDLETOWN VALLEY 43PR 1285W-FRED CITY 8MI /SAME AS 1125707

1114707 MIDDLETOWN VALLEY 43PR 11251SW-FRED CITY 8MI /SAME AS 1125707

112707 MIDDLETOWN VALLEY 43PR 7725SW-FRED CITY 8MI /SAME AS 1125707

1106707 MIDDLETOWN VALLEY 43PR 7871SW-FRED CITY 8MI /SAME AS 1125707

1110212 FRENCHS CREEK CAVE 40PR 5E-SABILLASVILLE 1MI /NON-SOLUTIONAL
ORIGIN DUE TO LOCATION IN CATOCTIN METABASALT

1102205 GROVE QUARRY CAVE 40PR 5SE-FRED 1MI /15' HIGH CHIMNEY
AT REAR OF CAVE

1114202 CATOCTIN CAVE & CAVE 40PR 5NE-PETERSVILLE 2MI /LOCATED IN PRECAM-
BRIAN MICA; CONTAINS THREE ARCHEOLOGICAL SIGNIFICANCE

1102211 CENTERVILLE CAVE 40PR 5NW-LIBERTYTOWN 2MI /NOT LOCATED IN PRE-
FIELD MARBLE; FRONTED OCCURRING IN WAKEFIELD MARBLE

11140211 LE GORE QUARRY 40PR 5E-DO DSWARD 1MI /ON ISRAEL CREEK; RE-
LE GORE QUARRY & ROBERT CAVE JOINED BY CAVERNOUS OPENING; BOTH OF LIMESTONE

1102207 LINCOLN CREEK CAVE 40PR 5NE-NEW MARKET 1.6MI /NOT LOCATED IN
FIELD MARBLE; REPORTED TO CONTAIN INDIAN PICTOGRAPHS

GARRETT COUNTY

- 1204007 SAVAGE RIVER BELOW DAM 46SP 1038N-RT135 /SEVERAL MI WHITE-WATER;PRE-OLYMPIC KAYAK RACING TRAILS;SEVERAL CAVES;VERY SCENIC
- 1204008 SAVAGE RIVR STATE FOREST55ST53264NE GARRETT CNTY /NATURAL WILDERNES TALLEST TREE IN STATE HERE;HARDWOOD FOREST;FEW CAMP AREAS;SOURCE 2 RIVERS
- 1206226 SHELTER CAVE 40PR 3S-SANG RUN;W-OAKLND/GREENBRIER LMST
- 1206227 STEEP RUN CAVE 40PR 3S-STEEP RUN;SANG RN/ENTRANCE IN ROCKY STREAM BED;GREENBRIER LIMESTONE
- 1206228 SURVEYORS CAVE 40PR 3E-YOUGHIOGHENY RIVR/STREAM FLOWS INTO CAVE & FORMS SMALL WATERFALL
- 1206229 WEAVER CAVE 40PR 3W-YOUGHIOGHENY RIVR/SPRING FLOWS INTO CAVE;GREENBRIER LMST
- 1214230 WOODS PLACE CAVE 40PR 3N-OAKLAND 4MI /ENTRANCE REPORTED- LY LEADS STEP LIKE TERRACES;CAVE NOT LOCATED
- 1201101 CAREY RUN BIRD SANCTUARY57QP 52WNW-FROSTBURG /ABANDONED FARM;20 ACRES SECOND GROWTH TREES;SEVERAL STREAMS & SPRINGS;MANY BIRD SPECIES
- 1203102 CASSELMAN BRIDGE & RIVER55ST 15E-GRANTSVILLE 1MI /BDG IS NATL HIST SITE;RI SPECIES INCLUDE MUD PUPPIES & DAUDIN HELLBENDER;BDG BUILT 1813
- 1219103 CHERRY CREEK GLADES 54PR 1715NE-DEEP CREEK LA 3M/PEAT DEPOSIT;MANY MAMMALIAN SPECIES HERE;CONEMAUGH FORM - SHALES,LMST,COAL & SANDSTONE
- 1206103 CHERRY CREEK GLADES 54PR 2470SIDES ROCK LODGE RD/SAME AS 1219103
- 1206704 CRANESVILLE SWAMP 61QP 8N-TERRA ALTA W VA /275 ACRES IN W VA; NATURAL BOWLOR FOREST;CERTIFIED NATURAL LANDMARK;SOME UNIQUE FLORA
- 1208222 MOURNING WARBLER 54PR ALONG BACKBONE MT /UNCOMMON MOURNING WARBLER REGULARLY OBSERVED HERE;S-LOCH LYNN HEIGHTS 3MI
- 1214430 YOUGHIOGHENY RIVER GORGE46PR 1472OAKLND;FRIENDSVILLE/30MI ALONG RT; UNSPOILED GEOLOGY, WILDLIFE, AQUATIC LIFE UNEQUALLED IN MD;
- 1206430 YOUGHIOGHENY RIVER GORGE46PR 960OAKLND;FRIENDSVILLE/SAME AS 1214430
- 1202430 YOUGHIOGHENY RIVER GORGE46PR 768OAKLND;FRIENDSVILLE/SAME AS 1214430
- 1202241 SMOKEY SHREW 54PR 5NEAR BITTINGER F-495/HABITAT OF SOREX FUMEUS FUMEUS UNCOMMON IN MD
- 1206718 HOODED MERGANSER 54PR 3CHERRY CREEK GLADES/LOPHOTYTES CUCKLE- ATUS RARE IN PIEDMONT AREA FOUND HERE
- 1219718 HOODED MERGANSER 54PR 3CHERRY CREEK GLADES/SAME AS 1206718
- 1216105 CRYSTAL SPRING 03PR 5E-OAKLAND 2MI W-135/POURS COLD WATER INTO N END MT LA
- 1209706 FINZEL SWAMP 61QP 259NW-FROSTBURG 3 MI /RELICT OF ICE AGE; RICH IN WILDLIFE;UNIQUE VEGETATION
- 1214116 SWALLOW FALLS 04ST 5N-OAKLAND 6 MI /VIRGIN STANDS-HEM- LOCK;MANY CLIFF SWALLOWS
- 1214117 TOLLIVER FALLS 04ST 5N-OAKLAND 6 MI /SERIES LOW CASCADE- ING FALLS ON TOLLIVER CREEK
- 1208118 UNDERWOOD RD QUARRY 48PR 5S-CRELLIN 1.5 MI /VARIETY FOSSILS; GREENBRIER FORM
- 1206119 UNIV OF MARYLAND RESERVE55PU 460SW-GRANTSVILLE W495/PART USED BY MD NATURAL RESOURCES INST
- 1214120 WARRIORS PATH 67PR 900W-OAKLAND 4 MI /INDIAN-CAMPS ALONG TRAIL;USED FOR ACCESS TO HUNTING GROUNDS
- 1904748 CRABTREE CAVE 40PR 3W-SAVAGE RI DAM /LARGEST CAVE IN MD EX CAVE ADAPTED ORGANISMS;ENDANGERED FROM INTRUDERS
- 1206235 DEAD MAN CAVE 40PR 3S-SANG RUN 1MI /GREENBRIER LMST; PART-STRUCTURE FALLEN IN;TRASH DUMPED HERE
- 1206223 JOHN FRIEND NO. 2 CAVE 40PR 3S-FRIENDSVILLE 6 MI/PART OF CAVE OPEN- ED AFTER ROCKSLIDE IN 1870'S
- 1214224 MUDDY CREEK FALLS SHELTER40PR 3BASE-MUDDY CR FALLS/TWO CAVES IN SOFT LIMY SANDSTONE;POTTSVILLE FORM
- 1204225 OLD SALAMANDER CAVE 40ST 3E-CRABTREE CAVE.25M/ABUNDANT SALAMAND- DER POPULATION;NARROW CRAWLWAYS
- 1214112 MUDDY CREEK FALLS 04ST 5N-OAKLAND 6.5 MI /HIGHEST WATERFALL IN STATE;SOREX DISPAR FOUND NOWHERE ELSE IN MD;RAPE IN US
- 1204113 PINE SWAMP RUN GLADE 20PR 180NW-BARTON 4 MI /UNUSUAL GRASS COV- ERED AREA IN MIDST OF OAK-HICKORY FOREST
- 1216114 SAND CAVE 40PR 3SE-OAKLAND 4.5 MI /LARGEST SHELTER CAVE IN MD;SUITED FOR HUMAN HABITATION;ARTIFACTS FOUND

Garrett County con't

- 1204115 SAVAGE RI DAM GEOL SECT 48FF 3SAVAGE RI DAM /OUTCROPPING RED SHALE & GRAY LIMESTONE;LAST INCURSION OF SEA INTO APPALACHIAN TROUGH
- 1208110 HOYES CREST 36SP 7731SW-OAKLAND 12MI /HIGHEST POINT IN MD OVERLOOKING SCENIC MOUNTAINS ABOUNDS WITH WILDLIFE
- 1216110 HOYES CREST 36SP 4947SW-OAKLAND 12MI /SAME AS 1208110
- 1210110 HOYES CREST 36SP 1348SW-OAKLAND 12MI;NE/SAME AS 1208110
- 1204110 HOYES CREST 36SP 1383SW-OAKLAND 12MI;NE/SAME AS 1208110
- 1201110 HOYES CREST 36SP 5024SW-OAKLAND 12MI;NE/SAME AS 1208110
- 1214111 MCCULLOCHS PATH 67PR 1100W-OAKLAND 1 MI /OLDEST TRAIL IN CNTY;ORIGINALLY BUFFALO TRACE USED BY INDIANS & SETTLERS
- 1206708 FRIENDS CAVE 40PR 3S-FRIENDSVILLE 6 MI/SEVERAL CHAMBERS OFF PASSAGEWAY;FORM RARE;POSSIBLE MINING IN PAST;OLD DATES & NAMES ON WALL
- 1214709 HAMMEL GLADE SWAMP 20PR 360NNE-OAKLAND 6 MI /PRIME ROG AREA; BEAVER ABUNDANT
- 1206010 SWALLOW FALLS STATE PARK55ST 1805W GARRETT CNTY /COVERS SEVERAL AREAS IN W GARRETT CNTY;SCENIC AREA;SOME RARE ANIMAL SPECIES HERE
- 1214010 SWALLOW FALLS STATE PARK55ST 5700W GARRETT CNTY /SAME AS 1206010
- 1201020 DEEP CREEK LAKE 09CO 4075NE-OAKLAND 8.5 MI /BEAUTIFUL MAN MADE LAKE;FAVORITE RECREATIONAL AREA
- 1204231 MYER PREHIS IND VIL SITE50PR 2SW-BLOOMINGTON /EVIDENCE OF OCCUPATION BY 2 PREHISTORIC CULTURES;AD 1000 & 1500;ARTIFACTS FOUND
- 1206232 HOYE PREHIS IND VIL SITE50PR 6N-OAKLAND /SCENE OF MAJOR LATE PREHIST VILLAGE;1000-1500 AD;GRAVES & ARTIFACTS FOUND;IMP STUDY AREA
- 1208420 GORTNER 09PR 30US-OAKLAND /REST SPOT FOR VIEWING UPLAND PLOVER;JAMISH AREA
- 1203409 WOLF SWAMP 20PR 352SE-GRANTSVILLE 3.5MI/IMP NESTING AREA FOR NASHVILLE WARBLERS;BEAVER PONDS EXIST
- 1219234 CHIN INGHAM SWAMP 20PR 134S-BITTINGER W-RT495/PART-PLEASANT VALLEY 4H CENTER RICH IN VEGETATION AND ANIMALS
- 1208419 BOTH ROCK 48PR 300SE-GNEGY CH 1.8 MI /EXCEL'ENT SITE;W/ ELV. AT 3220', FOR RAVEN & HAWK MIGRATION VIEWING;1.6 MI E-W VA BDP

HARFORD COUNTY

- 1302104 ROCK RUN BIRD SANCTUARY 57PR 57NW-HAVRE OF GRACE /AN ABANDONED FARM WITH HICKORY WOODS, OLD ORCHARDS, CONCENTRATION OF BIRDLIFE
- 1305184 SUSQUEHANNA RIVER BASIN 43PR 1400CONOWINGO DAM /SAME AS IN Cecil
- 1302185 SUSQUEHANNA RI SHORELINES55SP 950 W BANK SUSQUEHANNA/ECOLOGICAL AND HISTORICAL SIGNIFICANCE
- 1305185 SUSQUEHANNA RI SHORELINES55SP 1050 SAME AS 1302185 /SAME AS 1302185
- 1302185 SUSQUEHANNA FLATS 51PR 2200SUS SE-HAVREDEGRACE/SHALLOW FRESH WATER;IMP FEEDING AREA;CITED BY SI AS PRIME NATURAL AREA
- 1301489 LTL GUNPOWDER FALLS VAL 16PR 450MTH BIRD RT AT GUNP
- 1305280 CONOWINGO BARBERS 114PR 1580 ON N SHORE SUS /UNPRODUCTIVE SOIL, UNDERLAIN WITH SERPENTINE, PERIOTITE, PYROXENITE ROCK
- 1307101 MARGE H-EDGEWOOD MARSH 16FF16840W SHORE CHES BAY /OUTSTANDING WINTER FEED GROUND AND HABITAT;IMP FOR AQUIFER RECHARGE;LIMITED ACCESSIBILITY
- 1304102 DEER CREEK & VALLEY 46PR 1800NORTH HARFORD CNTY /EXHIBITS EFFECTS OF GLACIATION, INCLUDING 'LOST VALLEY'; A WILDERNESS AREA
- 1307102 DEER CREEK & VALLEY 46PR 1400SAME AS 1304102 /SCENIC VALLEY OF UNSPOILED BEAUTY-HEAVILY WOODED (OAK-HICKORY)
- 1305102 DEER CREEK & VALLEY 46PR 2200SAME AS 1304102
- 1302102 DEER CREEK & VALLEY 46PR 400SAME AS 1304102
- 1304104 ROCK RIDGE 55PR 5000NW-BEL AIR, 7.5 MI /INTERESTING COLLECTION OF FERNS BOTH AS TO NUMBER OF SPECIES & GROWTH;LAND THREATENED
- 1304417 ROCKLAND COTTAGE WOODS 27PR 12E-OLD JOB A, S-SUS;MIXED MISCORNYTIC HARDWOODS OF EXCEPTIONAL QUALITY-OAKS, TULIP, POPLAR, BEECH, ASH & HICKORY
- 130521 ATKINSON RESERVOIR 50CH 460E-WILNA 1.5 MI /WATERSHED, PRIME-LIVE AREA WITH EXTENSIVE FOREST COVER RICH IN WILDLIFE HABITATS
- 1305272 SCENIC OVERLOOK 38ST 3RT136-HARMONY CH RD/ PANORAMIC VIEW OF DEER CREEK STREAM VALLEY
- 1305225 HEAVENLY WATERS PARK 50PR 253S-ALT RTI N-RT1 /OLD COUNTRY HOMES, AN EQUESTRIAN CIR & WILDLIFE AREA WITH UNSPOILED FOREST, STREAM, &...

Harford County con't

- 1302232 ROBERT & SPENCER ISLAND 19PR 2275US R1 E-ROCK RN RD/SITE OF SWAMP FOREST-WARDWOODS; THE SI & NC CITE AS IMP NATURAL AREAS
- 1301231 OTTER POINT CREEK 16PR 775S-RT40, E-RT24 /THE SI, NC & CBF CONSIDER THIS AN IMP NATURAL AREA
- 1302726 SWAN CREEK 54PR 650S-HAVRE DE GRACE 5M/MD DARTER ETHEOS-TOMA SELLARE, A RARE FISH SPECIES FOUND ONLY IN SWAN CREEK
- 1304270 PUTNAM NAUTRL AREA 55ST 22.1ALONG O'CONNER RD /SITE OF BEAUTIFUL WOODED AREA TO BE INCLUDED IN E-W SCENIC HWY AT 1.3 MI NNE-PUTNAM
- 1305220 BROAD CR STEATITE QUARRY 50PR 10NW-HAVRE DE GRACE /PREHISTORIC QUARRY USED BY INDIANS 2000-1000BC RICH WITH SOAPSTONE BOWLS & OTHER ARTIFACTS
- 1304414 KING & QUEEN SEAT 48ST 5ROCKS STATE PARK /IT IS A UNIQUE OUT-CROPPING OF ROCK EXTENDING UNSUPPORTED PROVIDING VIEW OF STREAM V BELOW

HOWARD COUNTY

- 1402701 CAMEL'S DEN CAVE 40ST 5SE 1.5MI-WOODSTOCK /PATAPSCO RI 20 FT BELOW SHALLOW ROCK SHELTER IN COCKYSVILLE MARBLE; MANY ARTIFACTS FOUND
- 1402102 DOUGHOREGAN MANOR 68PR 3000ELICOTT CITY 5MI W/MAGNIFICENT MANOR HOUSE OF JOHN CARROLL OF CAROLTON, IMP NATIONAL & STATE HISTORIC FIGURE
- 1406103 LITTLE PATUXENT RI VALLEY 46PR 500 FROM US1 TO R&O RR/MATURE OAK-HICKORY FOREST EXTENDS 1.5 MI ALONG THIS STREAM VALLEY'S BANKS
- 1405704 MIDDLE PATUXENT RI VALLEY 46PR 4000NW-SIMPSONVILLE 2MI/WELL FORESTED OAK HICKORY RI VALLEY, LGR TREES & WILDFLOWERS; WILDLIFE BREEDING-WINTERING AREA
- 1402210 HOWARD HEIGHTS TRACT 55ST 15.1S-170, W ST JOHNS LA/AREA IS ONE OF SEVERAL SCENIC TRACTS ALONG I70-PIEDMONT FOREST & MEADOWS; MANY HABITATS
- 1401211 DORSEY ESTATE 68ST 40SW-ELKRIDGE 4MI /OF SCENIC AND HISTORIC INTEREST; CN PLANS A FUTURE PARK ON A PORTION OF THE LAND
- 1405482 TRIDELPHIA LAKE 24ST 1472ROXBURY, HAVILAND ML/MD. OUTDOOR RECREATION & OPEN SPACE PLAN II-RECM CONSERVING LAND FOR NATURE-WILDLIFE INTERP
- 1404482 TRIDELPHIA LAKE 24ST 384SAME AS 1405482 /ALONG HOWARD-MONTGOMERY COUNTY BORDER
- 1406481 ROCKY GORGE RESERVOIR 24ST 640CISSEL FARM-PG BDR /AN ABUNDANCE OF WILDLIFE, DECIDUOUS TREES, BUSHES & WILDLIFE ARE TO BE FOUND HERE
- 1405481 ROCKY GORGE RESERVOIR 24ST 1280SAME AS 1406481 /WARBLERS, MUSKRATS, BATS, SWALLOWS, SQUIRRELS, & HAWKS ARE FOUND HERE

KENT COUNTY

- 1506714 ST PAULS POND 13PR 102S-FAIRLEE 2.2MI /ST, NC, & CBF CONSIDER THIS POND WORTHY OF PRESERVATION-STOCKED WITH GAME FISH
- 1504712 CYPRESS BRANCH 19PR 102WSW-CHESTERTOWN 2MI/LOCATED IN THE CHESTER RIVER WATERSHED, SI, NC, CBF RECOMMEND THIS AREA FOR PRESERVATION
- 1507712 CYPRESS BRANCH 19PR 544SAME AS 1504712 /VARIETY OF VEGETATION SPECIES-IN JEOPARDY OF FUTURE DESTRUCTION
- 1506713 SANDY BAY TALL TER SCARP 48PR 665SW-FAIRLEE 2MI /ONLY REMNANT OF SEA COAST THAT RAN THROUGH KENT CN SI RECM THE PRESERVATION OF THIS SCARP
- 1505716 SWAN POINT-TAVERN CREEK 17PR 820SSW-TOLCHESTER 5MI /SI, NC, CBF RECM PRESERVATION; WIDE VARIETY OF MARSH GRASSES & ANIMALS-OSPREY, SWANS, GEISE, ETC.
- 1503711 HOWELL POINT 19PR 960W-BETTERTON, 2MI /ST, NC, CBF RECM PRESERVATION; SWAMP EXCELLENT FOR ANADROMOUS FISH, STRIPED BASS, SHAD, OTTER, ETC.
- 1506415 DAM SITE 57PR 1280W-TOLCHESTER 2.5M/BETW THE BAY AND FAIRLEE CREEK IS ONE OF THE BIGGEST BIRD BANDING AREAS IN MD
- 1504719 MORGAN CREEK 16PR 390NE-CHESTERTOWN 2.2M/SI LISTS AS PRIME WETLAND AREA INC ANADROMOUS FISH, WOOD DUCKS, ETC; NUMEROUS WILDLIFE AROUND
- 1502719 MORGAN CREEK 16PR 1529SAME AS 1504719 /SWAMP FOR FST & MARSH GRASSES OF THE GENUS TYPHA ARE PRESENT RAIL & OTTER ARE ALSO THERE
- 1501221 ESTA RANCH 32PR 20N-MILLINGTON-5.3MI /A WOODED & SEMI-BOG, NATURAL RELIEF AREA FOR WILDLIFE & WEARY TRAVELERS
- 1501730 MASSEY & GOLTS PONDS 12PR 5KENT CN E-RT299 /EASTERN TIGER SALAMANDER, A RARE SPECIES, INHABITS THESE PONDS; ARE IMPARATIVE FOR SURVIVAL
- 1506106 REMINGTON FARMS 60PR 3300WSW-CHESTERTOWN 6 MI/SITE OF NUMEROUS PLANT & ANIMAL EXPERIMENTATION, OAK-HICKORY FOREST, FRESH MARSHES, 18 PONDS

Kent County con't

- 1505106 REMINGTON FARMS 60PR 3400SAME AS 1506106
 1501108 SHOREWOOD ESTATE 68PR 240NF-GALFNA 2MI /LOCATED ON SHORES
 OF THE SASSAFRAS RI, 10 ACRES-GARDEN, 75 ACRES-OAK-GUM WOODLAND & 15'-FIELDS
 1501104 MILLINGTON POND 10PR 69NF-MILLINGTON .8MI /ZONE OF FEW PONDS
 IN MD, SURROUNDED BY OAK-GUM SWAMP, CRAPPIE, BASS & BLUEGILL GAMEFISH WITHIN
 1505105 NAPLEY GREEN/RINGGOLD PT 65PR 750SW-CHESTERTOWN 12MI/FEEDING AREA FOR
 MIGRATORY WATERFOWL, PSP CANADIAN GEESE, EAGLE NEST LOCATED IN FRESH MARSH
 1505102 EASTERN NECK ISLAND 60PU 2' 50S-ROCK HALL 7 MI /US DEPT-INTERIOR
 CONTROLS THIS MAJOR REFUGE FOR MIGRATORY WATERFOWL, MANY SALT MARSHES
 1506103 LANGFORD TAL TER SCARP 39PR 192SS-FAIRLEE 2.5MI /AN EXAMPLE OF THE
 PLEISTOCENE AGE; CLEAR EXAMPLES OF THE CLIFFS FORMATION ARE VISIBLE
 1507103 LANGFORD TAL TER SCARP 39PR 64SAME AS 1506103 /MADE OF LAYERS OF
 CLAY, PEAT, SAND, & GRAVEL; THE CLIFF SHOWS EVIDENCE OF ITS SEA FORMATION
 1504210 STILLPOND PREHIS IND VIL 50PR 3SW-BETTERTON /ARCHE SITE WHERE
 THE PRINCIPAL OCC WAS IN LATE PREHIST TIMES AD 1300-1600 ARTIFACTS FOUND
 1507181 CHESTER RIVER ESTUARY 15PR 3400SSW-CHESTERTOWN 6MI/SIG ESTUARY W/ MIN
 -IMAL MARSHLAND, BORDERED BY FARMLAND-CORN & GRAIN, FEEDING GROUND-WATERFOWL
 1501220 MILLINGTON WOODS 32PR 150NW-MILLINGTON-2MI /A NATURAL EASTERN
 SHORE LOBLOLLY PINE FORREST WITH HOLLY TREES & BERRY BUSHES-SCENIC BEAUTY

MONTGOMERY COUNTY

- 1608778 BOWIE MILL OVERLOOK 38PR 1N-RT115-1.25MI /ON BOWIE MILL RD;
 A PANORAMA OF OPEN ROLLING MEADOWS MIXED WITH COLORFUL FARM PATCHWORK
 1608779 HAVILAND'S MILL VISTA 38PR 1N-BRINKLOW-1M, ON RD EXCELLENT VIEW OF
 A RUGGED STREAM VALLEY & PATUXENT RIVER LANDSCAPE TO THE NW
 1608423 HAVILAND MILL COMUNITY 48PR 104NF-BRINKLOW, E-RT650/SCENIC 10 FT GORGE
 W/ STEEP ROCK CLIFFS W/ NEARBY HISTORIC DWELLINGS & RUINS-HAVILAND'S MILL
 1601177 BUSSARD FARM 38PR 1SW-MT ZION 1.5MI /ON MOUNTCASTER RD, A
 DELIGHTFUL VIEW IN ALL DIRECTIONS, INC OPEN LAND, FARM PATCHWORK & PARKS
 161045 ROCKWOOD GIRL SCOUT CAMPSTOP 43S-JCT RT189 MCARTHUR/EASTERN DECIDUOUS
 CLIMAX FOREST WITH SEVERAL SMALL STREAMS/VARIETY OF FLORA & FAUNA
 1610408 ADVENTURE 56ST 30SW-ROCKVILLE 4.75MI/A RICH NATURAL ENV
 VIRONMENT FOR A DIVERSITY OF WILDLIFE FORMS; EDUCATIONAL CENTER PROPOSED
 1603410 TURE FARM 56PR 600W-MCKEE-BESHER HOLE/S-RIVER RD HOME-
 MANY GRASSLAND BIRDS & ANIMALS; MANY TIDEWATER BIRDS ARE COMMONLY FOUND
 1610404 CARTER ROCK 54FE 8W-BETHESDA 4.5MI /AT MCARTHUR BLVD
 GEORGE WASHINGTON PKWY-A RIVERCH FLOODPLAIN FOREST ALONG THE POTOMAC RT
 1601213 BLUNT ROAD WOODS 32PR 100N-RT420N-BLUNT RD /AN OAK-HICKORY
 FOREST; UNUSUAL DEAD CHESTNUTS NEVER CUT/A POTENTIAL LANDMARK BY DEPT-INT
 1608214 HOYLES MILL WOODS 32PR 20N-LITTLE SENECA CK /ON HOYLES MILL RD;
 A REGION-SERPENTINE SOILS SUPPORTING SOME PRAIRIE VEGETATION, RECM LANDMK
 1608215 QUINCE ORCHARD WOODS 32ST 10NF-JCT RTS 28 & 124/OE SERPENTINE SOIL
 FOREST-VA PINE, WHITE OAK, SPANISH OAK, ET. AL. DEPT-INT RECM AS A LANDMK
 1608718 HAWKINS RI STATE PARK 32ST 250N-BROOKEVILLE 2MI /S-RT420, DEPT-INT
 RECM LANDMK-N-PARK AN OAK STAND TO THE S WHITE, BLACK OAKS & TULIP
 1601434 HOGGER TRACT 53PR 320SW-MT ZION E-RT124 /ROLLING RIDGE LAND,
 FARM PASTURE; HEDGERONS & WOODLANDS, MANY ANIMALS, UPLAND FOREST PLANT COVER
 1601435 GREAT SENECA VALLEY 5 PR 465NF-GOSHEN /E-GREAT SENECA CK
 W-GOSHEN SCHOOL RD-MOST SCENIC-MONT ON VARIETY OF COVER-BOTTOMLAND, FOREST
 1611436 DICKERSON VIADUCT 53PR 150SE-DICKERSON /E-880 HWY, S-MOJOC-
 ACK RD /A DESIGNATED CONSERVATION AREA/A STONE VIADUCT ADJS SCENIC BEAUTY
 1601437 ROSEY TRACT 53PR 189, 5S-RT110/4-E-POT MC RT/LOCATED ON THE
 RIDGE ABOVE POTOMAC-EXCELLENT VISTAS OF MTS, RICH UPLAND FOREST & SPRINGS
 1608276 INDIAN SPRING OVERLOOK 48PR 1ATWOOD RD, NEAR 1827E-INDIAN SPRING
 COUNTRY CLUB /VISTA-NR BRANCH STREAM VALLEY
 1608275 BENTONVILLE OVERLOOK 38PR 1W-RT124, E-BELLE COLEZAT 500FT ELEVATION
 A VIEW OF STREAM & BOTTOMLAND TO THE NW
 1607013 C & O CANAL 51PU ALONG POTOMAC RI /FROM WASHINGTON DC
 TO CUMBERLAND TILL 1924 TRANSPORTED COAL, FLOUR, GRAIN & LUMBER/LENGTH 185MI
 1610403 C & O CANAL 51PU SAME AS 1607013 /A GATEWAY TO THE
 WEST & COMMERCE, IT IS NOW DRY, REFLECT A RHINO/S/ALMOST ENTIRELY PHASE
 1608003 C & O CANAL 51PU SAME AS 1607013 /NAVIGATION BEGAN
 AS DISTIONS WERE COMPLETED-GEORGETOWN-SENECA, 1831, TO HARRIS FERR Y, 1831

Montgomery County con't

1603003 C & O CANAL 51PU SAME AS 160703 /BY 1839 THE CANAL
 WAS EXTENDED TO HANCOCK & FINALLY TO CUMBERLAND IN 1850

1608780 TRIDELPHIA RESERVOIR 24ST ROXBURY-HAVILAND ML/MD OUTDOOR RECREA-
 TION & OPEN SPACE PLAN II RECM CONSERVING LAND FOR NATURE-WILDLIFE INTERP

1605081 ROCKY GORGE 24ST /

1608081 ROCKY GORGE 24ST SAME AS 1605081 /

1601430 GRIFFIN W M A 56PR 530NE-LAYTONSVILLE /NETWORK OF FARMS,
 FIELDS, WOODS SHELTER MANY FAUNAL VARIETIES, URBAN DEVELOPMENT IS A THREAT

1610116 MARYLAND GOLD MINE 48PR 5SW-BRICKYARD RD /ONE-SEVERAL GOLD
 MINES IN MONTGOMERY CN-A SCENIC HIKE EXISTS SURROUNDING THE MINE

1610112 MARYLAND GOLD MINE #2 48PR 5W-RT189 /LOCATED ROCKWOOD
 GIRL SCOUT CAMP, OPENED IN 1867 IN GREAT FALLS AREA, EFFECTIVE TILL 1938

1607102 CAPUELIN RUN BIRD SANC 56PR 7S-KENSINGTON 2.5MI /HABITAT INCLUDES
 STREAM & WATERFALL-WOODED W/ OAKS, BLUE BEECH & SPICE BUSH, 70 SPECIES-BIRDS

1602217 SYCAMORE BIRDS 56PR CABIN BRANCH-RI RD /N-SENECA CREEK
 EXHIBITS HEAVY GROWTH-DESIRABLE AQUATIC VEGETATION, FEED AREA FOR WATERFOWL

1606217 SYCAMORE BIRDS 56PR SAME AS 1602217 /NUMEROUS BIRD
 SPECIES ARE FOUND HERE-RESIDENTIAL DEVELOPMENT IS ENCROACHING

1610103 GREAT FALLS 48FE 1150SSW-ROCKVILLE BMI /ALONG THE POTOMAC
 ARE 3MI OF RAPIDS & WATERFALLS, MUSEUM & C&O CANAL SHOW HIST OF THE AREA

1603231 SELDOM PREHIST IND VIL 50PR 3S-POOLESVILLE /UNIQUE SITE WHERE
 FRAGMENTS-STEATITE TEMPERED POTTERY, EARLIEST KIND-POTTERY FOUND IN MD

1610101 REAR ISLAND 66FE 125SSW-ROCKVILLE 8 MI /AT GREAT FALLS IN
 POTOMAC RIVER; OUTSTANDING CRYSTALLINE ROCK GEOLOGY STUDY AREA

1603233 WALKER PREHIST VIL SITE 50PR 5S-POOLESVILLE /OF EXTREME IMPORT-
 ANCE SHOWING POSSIBLE EFFECTS ON MD INDIANS OF EUROPEAN SETTLEMENT

1603726 MCKEE-BESHERS WOLF AREA 56ST 955W-SENECA 5MI /DEPT-INT CONSIDERS
 THIS A AS POSSIBILITY FOR NLC FOR BIRD WATCHING; AN IDEAL NESTING LOCATION

1603232 WINSLOW PREHIST IND SITE 50PR 3SE-POOLESVILLE /ONE-OF THE BEST PRE-
 SERVED LATE PREHIST (AD 1000-1300), VILLAGE IN THE MIDDLE POTOMAC VALLEY

1601775 ROCKY RD OVERLOOK 38PR 1E-RT124 1MI, ROCKY R/SENIC SENECA
 STREAM VALLEY, & ROLLING RIDGES CAN BE SEEN TO THE N OF THIS SPOT

1601776 HAWLING OVERLOOK 38PR 1E-LAYTONSVILLE, 2MI /ON RT420 SITE PRO-
 VIDES A VISTA-ROLLING FARMLAND, HAWLINGS RIVER VALLEY TO THE N

1612773 DAMASCUS BLUEFS 38PR 1E-JCT-RT124, DAMASCUS/FARM PATCHWORK &
 WOODLAND SCENES-SENECA VALLEY MOST VISIBL FROM 800FT HIGH LOCATION

1612774 MOUNTAIN VIEW OVERLOOK 38PR 1JCT-RT123, MT VIEW P/AT PURDUM FROM AN
 ALTITUDE-700FT A VIEW-DISTANT MTS, SENIC ROLLING LANDSCAPE, ALL DIRECTIONS

1612771 CEDAR HEIGHTS 38PR 1N-CEDAR GROVE 1MT /ON RT27, OVERLOOK-
 700FT, SUGARLOAF, CATOCTIN MTS TO THE W/ONE-HIGHEST OVERLOOKS IN MONT COUNTY

1612772 KINGS ACRES OVERLOOK 38PR 1N-CEDAR GROVE 2YT /ON RT27, ROLLING
 TERRAIN WITH BDR-FORESTED MTS AS SEEN FROM THIS 764FT HIGH VANTAGE PT

1609679 EMORY OVERLOOK 38PR 10N RT124, JCT RT115 /SPOT PROVIDES A
 GOOD VIEW OF OPEN FARM PATCHWORK WHICH COMMONLY OCCURS TO THE NORTHWEST

1612770 KINGS VALLEY OVERLOOK 38PR 10N RT27, S-CEDAR GROVE, 3MI N-DAVIS MILL
 RD, ELEV 637FT E, KINGS VALLEY, W CATOCTIN, SUGARLOAF, MTS, AN UNEQUALED VIEW

1602677 TENMILE CREEK OVERLOOK 38PR 10N RT95 /.75MI E-THOMPSONS
 CORNER, ELV. 620; SOUTHWARD VIEW OF TENMILE CREEK STREAM VALLEY IS OUTSTNDG

1602678 PRESCOT OVERLOOK 38PU 1S-RT123, .3MI /ON PRESCOTT RD, 600
 FT ELV., PANORAMA PLEASING INCLUDING LITTLE BENNETT PARK

1605421 NORTHWEST BRANCH CLIFFS 55PU 3IN NW BRANCH PARK /SE-RT29, TER WITH
 VARIES FROM 200-400; WITH SQUIRREL, DEER, WOODCHUCK, QUAIL & BIRDS, STREAM V

160842 CAMP BENNETT QUARRY 48PR 32.4N-BRIGHTON RD /BETW. BROCKVILLE
 RD & NEW HAMPSHIRE AVE, GEOLOGICALLY SIG QUARRY, MANY HISTORIC DWELLINGS

1612439 BENNETT WILDLIFE AREA 5-PR 61W-FRIENDSHIP, 1.5MI /AT HEADWATERS OF
 BENNETT CK; A SIG WILDLIFE HABITAT, NOTABLE VARIETIES-FLORA & FAUNA, UNspoiled

160442 ONEDWOOD NATURAL AREA 56PR 650N-ROCKVILLE, 2MI /W-PARK A WASTELAND
 OF TRASH DUMPED BY MONT CN THREATENS MANY BIRD VARIETIES THAT HABITAT ARE

1603480 IRVIN PROPERTY 38PR 1ADJ-POOLESVILLE FLEM/ON RT107, AT AN
 ELV OF 415FT A VIEW OF PATCHWORK FARMLAND INTERSPERSED WITH FORESTS

1603475 JONESVILLE OVERLOOK 38PR 1RT28, AT CATTAIL RD /AN ELV-480FT VIEW
 OF SENECA VALLEY IMPRESSIVE FROM EAST NORTHEAST & SOUTH

1611478 DAWSONVILLE OVERLOOK 38PU 1N-DAWSONVILLE, 1.5MI/ON RT121, ABOVE A
 TRIBUTARY OF SENECA CK, A VISTA-DAWSONVILLE REGIONAL PARK & SENEC VALLEY

Montgomery County con't

1603473	CHRIS WELI FARM FT ELV, PANORAMA-POTOMAC VALLEY LOOKING WEST IS EXCELLENT	38PR	1NW-MARTINSBURG	/OFF WASCHE RD, 400
1603476	WILLARD PROPERTY HORSEPEN BRANCH VALLEY PROVIDES A BEAUTIFUL VISTA TO THE EAST	38PR	1ON WILLARD RD	/N-RIVER RD, 1MI
1603477	KIPLINGER OVERLOOK ELV 360FT; VIEW OF SENECA VALLEY	38PR	1NW-SENECA, 1MI	/OFF MONTEVIDEO RD
1605440	BURTONSVILLE SANCTUARY RD LOCATION & VEGETATION EXCELLENT CONSERVATION AREA	57PR	80NW-BURTONSVILLE	/W-RT29/196, F-KRIHM
1603470	BALLS BLUFF OVERLOOKS THE POTOMAC VALLEY & CATOCTIN MOUNTAINS TO THE WEST	38PR	1W-MARTINSBURG, 1MI	/ON RT107/40 FT ELV
1603472	CHERRINGTON OVERLOOK WARM WATER FISHING IS EXCELLENT WITH VIEW OF POTOMAC RIVER, 340FT ELV	38	1S-CHERRINGTON, 1MI	/ON MARTINSBURG RD;
1606438	HARMAN HABITAT AREA PARK; N-RT112 WOODLAND SIG AS WILDLIFE HABITAT, RIDGE & V TERRAIN BEAUTIFUL	56PR	100W-BERRYVILLE RD	/E-SENECA STATE
1608272	NORTHWEST OVERLOOK NORTHWEST BRANCH WINDING THROUGH FERTILE VALLEY BOTTOMLANDS	38	1E-NORWOOD, .75MI	/ELV 425FT VIEW OF
1605273	POOLE RD VISTA AND WOOD PATCHWORK CREATE A MOST ENJOYABLE VISTA	38PR	1S-EDNOR, .5MI	RT650/ROLLING OPEN FIELD
1608270	MINK HOLLOW VISTA VIEW OF RUGGED GEOLOGY OF THE PATUXENT STREAM VALLEY	38PR	1ON MINK HOLLOW RD	/W-ASHTON RD, 1.2MI
1608271	NORBECK OVERLOOK INCLUDING SUGARLOAF MOUNTAIN	38PR	1JCT RT28 & RT115	/EXTENSIVE VIEW
1606774	WESTFALL OVERLOOK 42 FT ELEV; VIEW OF LITTLE SENECA CREEK VALLEY	38	1W-OLD GERMANTOWN 2M/ON HOYLES MILL RD	
1602675	FARCHILD OVERLOOK LITTLE SENECA STREAM VALLEY	38PR	1NEAR RT118	/VIEW TO NW OF
1602676	OLD BALTIMORE OVERLOOK BALTO RD TENMILE CK, CABIN BRANCH, LITTLE SENECA REGIONAL PARK VISABLE	38PR	1S-CLARKSBURG, 3MI	/JCT-RT121 & OLD
1606772	BLOCKHOUSE POINT CANAL, ADJ TO DIERSSEN WILDFOWL SANCT; EXCELLENT VIEW OF POTOMAC RIVER VALLEY	38PU	1S-RIVER RD, 1MI	/FOUND ALONG C&D
1606673	BERRYVILLE OVERLOOK DOUBLE OVERLOOK OF SENECA STREAM VALLEY, W/ HOOKERS BRANCH VALLEY, E	38PR	1S-RT28, .75MI	/ON BERRYVILLE RD;
1611670	COMUS OVERLOOK A SPECTACULAR VIEW OF SUGARLOAF MOUNTAIN TO THE WEST	38PR	1N-COMUS, .3MI	RT109/FROM A 60 FT FLEV
1611671	MONOCACY OVERLOOK 360 DEGREE VIEW-HEADWATERS-LITTLE MONOCACY RIVER & SUGARLOAF MOUNTAIN	38PR	1S-COMUS, .3MI	RT109/AT 614FT FLEV A
1605425	GILMORE MICA MINE BEAUTIFUL NATURAL STREAM VALLEY, HERYL, GARNETS, TOURMALINE MINED HERE	48PU	5 WITHIN NW BRANCH PARK	/LOCATED 1/2 MI A
1611479	SUGARLOAF OVERLOOK MT, FAVORITE OF MONTGOMERY COUNTY TRAVELERS	38PR	1W-COMAS, 1MI	ON RT45/VIEW OF SUGARLOAF
1608427	ROCKY GORGE CLIFFS REATION, GEOLOGIC PRESERVE, SERVES AS A FLYWAY FOR MIGRATORY BIRDS	48PU	34NE-MINK HOLLOW RD	/W-ASHTON RD, A REC-
1608424	ELICOT GOLD MINE PARK; ELEVATIONS 30-40 FT, MEADOWS & THE RUGGED HAWKINS RIVER VALLEY	48PR	145N-GOLD MINE RD	/A-RT650, GEOLOGICAL
1605429	EDNOR SOAP STONE QUARRY PATUXENT RIVER FLD PLAIN; A FLYWAY FOR SEVERAL VARIETIES OF WATERFOWL	48PU	112E-EDNOR, 2MI	/SITE IS ADJ TO THE
1605471	RAINT BRANCH PARK WILDERNES-LIKE BOT OMLAND, A BOTANICAL & WILDLIFE HAVEN	48PU	2SE-RT29, COLUMBIA RD	/HIGED GEOLOGY &
1604474	WINSLOW TRACT AS WINCHESTER FARM; CROP, PASTURE LAND, GAME BIRDS, RED TAILED HAWK, & GRAY FOX	68PR	120S-RT115, E-RT28	/SINCE 1774 KNOWN
1605428	MICA MINE MICA MINE OF 1800'S; HOR, ROCKY GORGE RESERVOIR REGION OF SCENIC BEAUTY	48PU	111W-ROCKY RIDGE RESV	/HISTORICALLY SIG

PRINCE GEORGE'S COUNTY

1705018	WETLAND, BRANCH MARSH UNIQUE WATERFOWL HAVE BEEN FOUND IN THIS WETLANDS LOCALITY	01PR	205N WHP FR MARLBORO	/THROWN STATION R;
1712619	POTOMAC GEOLOGIC AREA IS A MEMBER OF THE POTOMAC SCHOOL, PALEOGENE PERIOD	48	20S-WHEELER RD, N-RT40	/GEOLOGIC FORMATION
1707616	POINT HERO BRANCH WETLANDS LOCATION FOR BIG GAME AS WELL AS FOR UNIQUE WATERFOWL	01PR	245ALONG PATUXENT RI	/S-MT HERO BRANCH
1707617	DISTRICT BRANCH DISTRICT WITH EXCELLENT WILDLIFE AS WELL AS RARE WATERFOWL	01PR	256ALONG PATUXENT RI	/A UNIQUE WETLANDS
1705103	ACCOKE Y CREEK IND VIL ARCHAEOLOGICAL SITE, ST STUDIES SHOW WIL-DOG TIME PRE-CHRISTIAN ERA EXISTING	50PR	206WY-FARMINGTON LOGGA	

Prince George's County con't

1706704 SUITLAND BOG 08PR 20E-WASHINGTON, 3MI /S-RT4, NE-SUITLAND RD; NC, SI, & CHF CONSIDER A WORTHY-PRESERVATION-EX-MAGNOLIA SPHAGNUM MOSS

1701782 PATUXENT WLDLIFE RES CTR 55DI 2600NW-BOWIE-2MI /REFLECTING TO WILD-LIFE MANAGEMENT & CONSERVATION A IS CONTROLLED MIX OF VEGETATIVE TYPES

1701101 BELTSVILLE BOG 08DA 1N-COLLEGE PARK-3MI /LOCATED ON GROUNDS OF NATIONAL AGRICULTURAL RES CTR; SPHAGNUM MOSS, MAGNOLIA, BOG VEGETATION

1701102 MUIRKIRK BOG 08DA 1S-LAUREL, 3MI; E-RT1 /A SEMI-SWAMP AREA; PRESENT VEGETATION MOSTLY WOODS & VINES

1705217 HUNTERS MILL CREEK 59PR 134.4E-POTOMAC RI, 3MI /MOUTH-HUNTERS MILL CK IS A SHALLOW WATER FEEDING AREA USED BY DIVING DUCKS AT MIGRATION TIMES

1717225 EASTERN HARVEST MOUSE 62PR 3E-RT212, S-RT495 /REITHIODONTOMYS HUMILIS VIRGINIANUS-PREFERS NON-FORESTED, CULTIVATED FIELDS WITH GRAIN CROP

1704210 BROWN PREHIST IND VIL 50PR 25SE-UPPER MARLBORO /AN EXTENSIVE SITE WITH GREAT ARCHEOLOGICAL POTENTIAL

1705781 MATTAWOMAN NATURAL AREA 55PR 3852ALONG PG-CHR CN BDR/LARGEST CONCENTRATION-NESTING WD DUCK IN MD; OTTER, MINK, OSPREY, BEAVER; SI, NC CONSIDER A IMP

1721224 PIGMY SHREW 62PR 1E-COLLEGE PARK, 1.5MI/NTICORSOREX HOYI WINEMANA PREBLE HAS BEEN TAKEN IN MD ONLY AT BERYN, HABITATS UNKNOWN

1705222 RED HEADED WOODPECKER 62PR 7RT373, W-MIDDLETON RD/MELANERPES ERYTHROCEPHALUS FOUND IN RIDGE, VALLEY AREA-PIEDMONT, WESTERN, EASTERN SHORE

1707712 BFLTS WOODS 27CH 30N-UPPER MARLBORO, 6MI/DEPT-INT GAVE A HIGH PRIORITY AS A POTENTIAL NATIONAL LANDMARK-COASTAL PLAIN HARDWOOD FOREST

1717427 MAGRAUDER PARK 55L 12W, NW BRANCH, S, 40 AVE/A SMALL STREAM, QUAIL, RABBIT, RACCOON, MUSKRAT, OPOSSUM, W/ OLD BEECH, OAK, DOGWOOD, MAPLE TREES

1705230 PISCATAWAY CREEK 16PR 1597E-POTOMAC TI TO RT5/A HABITAT FOR TYPHA SP, MINK, OTTER, WOOD DUCK, ANADROMOUS FISH & HERRING; IMP TO SI & NC

1712231 BROAD CREEK MARSHES 16PR 300N SHORE-BROAD CK /TYPHA SP, SCIRPUS SP COMMON TO AREA, THIS AREA CONTAINED WITHIN POTOMAC RIVER WATERSHED

1710601 ROCKY GORGE 48PR 5N-LAUREL, 7MI; W-RT95/AN EXCELLENT EXPOSURE-SYKESVILLE FORMATION-PRECAMBRIAN AGE

1714683 BROCK BRIDGE WETLANDS 01PU 102PTX RI AT PG-AA BDR/CONTAINS A VARIETY OF UNIQUE WLDLIFE, CURRENTLY THREATENED BY PROPOSED DEVELOPMENT

1701603 IRON PITS 50PR 10E-RT1, S-CONTEE RD /OF CRETACEOUS AGE; FOUND IN PATAPSCO ARUNDEL GEOLOGIC FORMATION; DINOSAUR REMAINS DISCOVERED

1714604 DUCKETSVILLE WETLANDS 01PR 243.2N-RT564, MILLMEADE R/AN IMP WETLANDS AREA WHICH INCLUDES WOOD DUCK AMONG ITS MANY WLDLIFE SPECIES

1714605 HIGH BRIDGE GEOLOGIC FRM 48PR E-RT197, S-HORSEPEN /AN AREA CONTAINING MONMOUTH FORMATION

1714606 BONIE GEOLOGIC SECTION 48PR 50N RACETRACK RD /ALONG DEFENSE HWY 1.5MI W-PRIEST BRIDGE TO BONIE RACE TRACK, EX-MONMOUTH FORMATION IN PG CN

1714607 MEYERS STATION WETLAND A01PU 121.6PG-AA BDR IN-RT450/MOST UNUSUAL WETLAND CONTAINING CACTUS, RARE BIRD LIFE (PILEATED WOODPECKER)

1707608 PRIEST BDG GEOLOGIC SECT 48PR 10E-RT3 S-RT450 /LOCATED ALONG RD .6MI S-JCT DEFENSE & CRAIN HWY NEAR PRIEST BDG, A MONMOUTH FORMATION

1707609 PTX RI PRK GEOLOGIC SECT 48PR 20E-RT3, N-RT50, 301 /W-A -PG CN BDR, AN EX-MONMOUTH FORMATION BOUNDED BY STREAMS CROSSING CRAIN HWY

1707610 COLLINGTN WETLANDS AREA 01PR 30E-CH, W-COLLINGTON RD/A UNIQUE WD DUCK NESTING A NOTED FOR EXCELLENT DIVERSITY OF WLDLIFE

1707611 LOTTSFORD WETLANDS AREA 01PR 110N-RT50, W-RT556 /AREA W/ EXCELLENT WLDLIFE INCLUDING RARE WOOD DUCKS

1707612 MILL BRANCH SWAMP 01PR 205W-PTX RI-ML BRANCH /WETLANDS AROUND WITH UNIQUE WLDLIFE AS CACTUS, PILEATED WOODPECKER; MNCPP RECM PRESERVATION

1707613 HARDESTY GEOLOGIC AREA 48PR 750N W SHORE-PTX RI /S-CENTRAL AVE, E-QUEEN ANNE RD, SITE-PALEOGENE GEOLOGIC OUTCROPPING

1707614 WATKINS 50PR 20CTRL, ENTERPRISE RDS/ONE-SEVERAL AREAS WITHIN PRINCE GEORGE'S COUNTY IN WHICH FOSSILS HAVE BEEN FOUND

1713631 RITCHIE 50PR 20SW-RT495, CTRL AVE /A FOSSIL RICH AREA WITHIN METROPOLITAN WASHINGTON DISTRICT

1713615 MIL WOOD 50PR 76.8E-CAPITAL HGTS 1MI /AN EXTENSIVE FOSSIL RICH AREA WITHIN METROPOLITAN WASHINGTON DISTRICT

1705622 THRIFT SCENIC AREA 52PR 1683E-PISCATAWAY RD /SERIES OF ESTATES WITH WOODED HILL, VALLEYS EXTENDING PISCATAWAY CK N TO TIPPETT RD

1712623 EAST BANK-POTOMAC 48PR 50FROM RI BEND-PISC-PISC C/EXPOSURES OF COASTAL PLAIN ROCKS; UNSTABLE ROCK STRUCTURE MAKES DEVELOPMENT UNSUITABLE

1705623 EAST BANK-POTOMAC 48PR SAME AS 1712623

Prince George's County con't

- 1705624 BRYAN POINT 55PR 211S-PISC CK .75MI /PRIMARYLY WOODED FARMLAND REPLETE WITH SCENIC BEAUTY, WETLANDS PROVIDE WILDLIFE HABITAT
- 1703689 MT CALVERT 55PR 9.6ALONG CHR BR 5MI /W-PTX RI WIDE VARIETY-NATURAL FEATURES, KINGRAIL, BALD EAGLE, TEAL, BLACK DUCK INHABIT AREA
- 1704620 MERKEL ESTATE 10PR 237E-ST THOMAS CH RD /PONDS ATTRACT MANY CANADIAN GEESE ANNUALLY; FOUND ALONG WESTERN SHORE OF PATUXENT RIVER
- 1704621 NOTTINGHAM 55PU 70PTX RI, N-NOTTINGHAM/BALD EAGLE, KINGRAIL DUCK, TEAL, MUSKRAT & A VARIETY-WDLE; CEDARS CAN ALSO BE FOUND THERE
- 1705625 ROBERT SMITH ESTATE 35FE179.2S BANK-PISC CK-PO PTAT CONFLUENCE OF PISCATAWAY CREEK & POTOMAC RIVER; FLOODED BLUEF PROVIDES SCENIC OVERLOOK
- 1705626 PISCATAWAY PARK 55FE217.6S SHORE-PISC CK /RESEARCH IS BEING CONDUCTED CONCERNING POTOMAC RIVER POLLUTION HERE; MT VERNON CAN BE SEEN
- 1704627 FULL MILL MARSH 59PU 256PTX RI, FULL ML BR /EXCELLENT WILDLIFE SUCH AS MINK, RINGNECK PHEASANT ARE FOUND WITHIN THESE EXTENSIVE WETLANDS
- 1708628 CEDARDAVEN 59PU 70ALONG PATUXENT RIVR/S-KENNEDY RUN, N-TRUMAN PT, ON W BANK; MINK & RINGNECK PHEASANT FOUND HERE
- 1708629 SUMMERSVILLE CREEK MARSH 59PU 384PATUX RI, NE-AQUASCO/MINK, RINGNECK PHEASANT ARE FOUND HERE
- 1708630 PATUXENT RIVER PARK 59PU 40W/I PTX RI PARK /MINK & RINGNECK PHEASANT FOUND HERE

QUEEN ANNE'S COUNTY

- 1807103 UNICORN LAKE 10ST 50N-SUDBERSVILLE, 4MI 7E-RT313 SURROUNDED BY FARMLAND; CONTAINS PERCH, PIKE, BASS, BLUEGILS & CRAPPIE
- 1801706 ANCOVER BR, FOREST PRES 21PR 3456N-QA CN, RT300-KENT/TX CHESTER RIVER WATERSHED, STAND OF HARDWOODS; SIGN. CRE CONSIDER A PRIME WETLANDS AREA
- 1805105 EYE MILLS POND 10ST 50TH EYE MILLS /HISTORIC POND WITH COLONIAL MIL HAS EXCELLENT PUBLIC FISHING FOR BASS & BLUEGILS
- 1802319 SOUTHEAST CREEK 6PR 500W-CH HIL, 2MI /SIGN. CRE DESIGNATED AS PRIME WETLANDS, SPECIES-TYPHA; DIVING DUCKS CAN BE FOUND
- 1805104 EYE ISLAND 6PR 270S SOUTHERN QA COUNTY /WALF-THE AREA IS UNDER CULTIVATION, EYE HALL, FORMER GREAT ESTATE-ARCHEOLOGICAL INTEREST
- 1802320 HAMLETTON CREEK 14PR 607SE-KINGS TOWN 1MI /SCENIC WETLANDS; 7 SPECIES-SCIRPUS FILL THE FRESHWATER MARSH, SI CITED IT IMP WETLAND
- 1801077 BIG WOODS CONSERVATION 72PR 742SE-SUDBERSVILLE, 1MI 2A CLASSICAL EX OF DELMARVA LEGATION; 180522 FROM CONSERVATION ZONING
- 1807221 SUDBERSVILLE NATURAL AREA 27ST 230N-SUDBERSVILLE, 2MI 2RICH IN REPRESENTATIVE PLANT AND SHORE VEGETATION; BIRCH WOOD AREA IS A STATE CONSERVATION AREA
- 1804712 KENT POINT 5PR 204S KENT ISLAND /SI, IC, CRE CONSIDER IMP TO THE PRESERVATION OF THE BAY ECOSYSTEM; EXCELLENT AREA FOR BIRD STUDY
- 1804713 LONG MARSH & ROCKY ISLAND PR 403SE-KENT ISLAND /E-MATTAPY BOTH SITES ARE IMP NESTING AREA IN E BAY REGION FOR MIGRATORY WATERFOWL
- 1804701 KENT MARSHES 17PR 403N-GRASONVILLE, 2.5MI 2E-CHESTER 2.5MI EXCELLENT HABITAT FOR WATERFOWL, UNEQUALLED SCENIC BEAUTY, ENDANGERED BY 90%
- 1804701 CHESTER WYER EST BR 15PR 3400SW-CHESTER TOWN 6MI 2A VALUABLE FEEDING GROUNDS FOR MIGRATORY WATERFOWL; PRIMARYLY AGRICULTURAL SHORELINE; EAGLE NEST SITE - LIKE AREAS REMAINING IN MD COASTAL PLAIN OCCURRED IN PREHISTORIC TIME
- 1804714 WAREHOUSE CREEK 17PR 7480X CK ON E - RTH, 1/2A LONG TO FLKING PENINSULA IS STATE-WAYS, CK, COVES & LAGOONS; SI FROM PRESERVATION
- 1804715 KENT ISL CONSERVATION 17PR 204ALONG COX BECK /MOR 502 200 100 100 THIS AREA IS GRANTED CONSERVATION ZONING; WELL SUITED TO WATERFOWL STUDY
- 1804716 LONG MARSH & ROCKY ISLAND 17PR 403SE-GRASONVILLE, 1MI 2E, IC, CRE SI, CRE PRESERVATION OF BEACH BECAUSE OF HIGH TIDAL MARSH VEGETATION
- 1804717 EYE RIVER 17PR 5100S-CHESTER, 7.1MI /SI, IC, CRE CONSIDER THIS AREA PRIME WETLAND; SI, CRE, NOT ER, STRIPED CR, MUSKOGON, B, FISH
- 1804718 KENT POINT 5PR 425W-EYE RI, W-E BAY /WAT WFL, BIRCH, LOCAL SI WITH LEANSE, SLAZER, R, 196 2-CIVIL WAR, WDELANDS WZ MARY HARBORIAL LOCALITY
- 1804719 EYE RIVER 17PR 5100SE-EYE RI /SI, IC, CRE BEACH CR
- 1804715 WAREHOUSE CREEK 17PR 7480X CK ON E - RTH, 1/2A LONG TO FLKING PENINSULA IS STATE-WAYS, CK, COVES & LAGOONS; SI FROM PRESERVATION
- 1804715 KENT ISL CONSERVATION 17PR 204ALONG COX BECK /MOR 502 200 100 100 THIS AREA IS GRANTED CONSERVATION ZONING; WELL SUITED TO WATERFOWL STUDY

ST. MARY'S COUNTY

- 1905325 SPRING CREEK 18PR 92NE-LAUREL GROVE, 3M/SI, NC, CRF RECM PRE
SERVATION MINK, OTTER, OYSTERS, CLAMS, WOOD DUCKS, BALD EAGLE, MANY MARSH PLANTS
- 1905326 KILLPECK CK-TRENT HALL CK 18PR 270S-GOLDEN BEACH /SI, NC, CRF STRONGLY
SUPPORT PRESERVATION, HIGH TIDAL, FRESHWATER MARSH VEGETATION
- 1901319 POINT LOOK IN 29PR 60ALONG CHESAPEAKE BAY/MIDWAY BETW PT NO
PT, PT LOOKOUT, MAJOR SPECIES-UPLAND MATURE HRDWS, SI RECM PRESERVATION
- 1907416 ST CATHERINE ISLAND 66PR 75W-COLTON /S-WHITE NECK POINT
HAS ONLY COLONY OF NESTING COMMON EGRETS, BLACK CROWNED NIGHT HERONS, ET. AL
- 1902701 CHERYFIELD POINT 17PR 210SW-ST MARYS CITY 4M/AT ST GEORGE CK
SI, NC, CRF RECM PRESERVATION; HEAVILY TIMBERED (OAK-PINE) HIGH TIDAL MARSH
- 1905102 COOL SPRINGS 03PR 10AT CHARLOTTE HALL /IN 1698 BY ACT-THE
ASSEMBLY FIVE SPRINGS WERE SET ASIDE AS A HEALTH RESORT & SANITARIUM
- 1901703 CORNFIELD PT GEOL SECT 48PR 120NW-PT LOOKOUT 5MI /SI RECM PRESERVA-
TION, RARE EXPOSURE A PLEISTOCENE AGE CLAY RICH IN FOSSILS, MOLLUSCAN SHELLS
- 1901704 DRAYDEN GEOLOGIC SECTION 48PR 10SW-ST MARYS CITY 2M/SI, NC, CRF RECM PRE-
SERVATION; CLAY IS FOSSIL GASTROPODS (SNAILS) ARE ABUNDANT-MIOCENE AGE
- 1907424 CANOE NECK POINT 55PR 1658C ST CLEMENT BAY /SECOND GROWTH
DECIDUOUS TREES ONLY NEST IN COLONY-GREAT BLUE HERONS ON POTOMAC RIVER
- 1902714 ST MARY'S RIVER 55PR 422SW-LEXINGTON PK 4MI/ARCHAEOLOGICAL,
SCENIC, NATURAL SIG; SP-TYPHA, MINK, NESTING WOOD DUCKS DNR SEEDS OYSTER BEDS
- 1908714 ST MARY'S RIVER 55PR 320SW-LEXINGTON PK 4MI/DNR SEEDS & MAIN-
TAINS EXTENSIVE OYSTER BEDS ANNUALLY, EXCAVATIONS-COLONIAL GOVERNORS HOME
- 1903322 MEDLEY CREEK 16PR 130S-LEONARDTOWN, 4MI /SP-SCIRPUS, TYPHA
OYSTER, RAR, CLAM, OSPREY; ST RECM PRESERVATION FOR BAY ECOLOGICAL REASONS
- 1904105 MADDOX TAL TER SCARP 40PR 600WNW-LEONARDTOWN 9MI/ZONE-A FEW INLAND
CLIFF-LIKE AREAS REMAINING IN MD COASTAL PLAIN CAUSED DURING PLEISTOCENE
- 1901706 POINT LOOKOUT 55SP 640SE-SCOTLAND 4MI /ATTRACTIVE HERE
INCLUDE-COAST GUARD STATION W/ LIGHTHOUSE C 1830, STATE PARK, FORT CEMETERY
- 1908707 POPLAR HILL CREEK 29PR 1085SE-LEONARDTOWN 6MT /MATURE STANDS-PINE
, MIXED HARDWOODS; PTF, SI, NC, CRF, DEPT-INT RECM PRESERVATION
- 1903707 POPLAR HILL CREEK 29PR 762SE-LEONARDTOWN 6MT /ALL IMPORTANT ECO-
LOGICAL AREA
- 1903108 REDGATE TAL TER SCARP 48PR 400SE-LEONARDTOWN 4.5M/PLEISTOCENE AGE
OCEAN CAUSED CLIFFS; CLAY, PEAT, SAND, GRAVEL SECTIONS ARE EXPOSED
- 1907109 ST CLEMENTS ISLAND 66ST 64SW-LEONARDTOWN, 8MT /UTILIZED PRIMARILY
AS A WDLF MANAGEMENT A, FIRST PERMANENT COLONIAL SETTLEMENT-MD, HIST SIG
- 1901310 SAINT MARYS CITY 50PR 200S-LEXINGTON PARK, 6M/ON SAINT MARYS RI
OUTSTANDING ARCHEOLOGICAL AREA; SITE OF 1634 TOWN, FIRST STATE CAPITAL OF MD
- 1906171 SOT ERLY 68QP 45NE-LEONARDTOWN, 8.2M/MANOR HOUSE-1727
- 1906171 SOT ERLY 68QP 45NE-LEONARDTOWN, 8.2M/MANOR HOUSE-1727
COMMANDS A BEAUTIFUL VIEW OF THE PATUXENT RIVER

SOMERSET COUNTY

- 2014409 LITTLE DEAL ISLAND 56PR 320AT TANGIER SOUND /TIDAL MARSH A NEST
AREA FOR HERONS-A RARE SPECIES IN CHESAPEAKE BAY REGION
- 2004482 DIVIDING CK WATERSHED 55PR 2240N-COKESBURY RD /THREATENED BY COM-
MERCIAL DEVELOPMENT; EXTREMELY IMPORTANT AS WDLF AREA; PRESERVATION NEEDED
- 2006102 FAIRMOUNT BASIN 48PR 650W-UPPER FAIRMOUNT /WFL PRESERVED BEW
-NAHT-A SHALLOW OVAL BASIN-SALT MARSH; BRUSH; DEV OCCURRED LATE IN GEOL HIST
- 2013210 BENSON NATURAL AREA 55ST 16W-BENSON RD, F-RT13 /A GOOD EXAMPLE OF
DELMARVA FOREST TYPES; OCCUPIES TRACT BETWEEN THE HIGHWAY & THE RAILROAD
- 2003281 POCOYAKE RIVER SWAMP 46SP 1240SW-MD, DELAWARE RDR /US DEPT-INT, ST CRF
INTERESTED IN THE PRESERVATION-A, WILDLIFE & SWAMP FLORA ARE ABUNDANT
- 2004281 POCOYAKE RIVER SWAMP 46SP 410SW-MD, DELAWARE RDR /ONE-OF THE MOST EXTEN-
-SIVE SOUTHERN SWAMPS AT THE N EXTREME-ITS NATURAL OCCURRENCE IN US
- 2004101 DUBLIN SWAMP BASIN 48SP 2000SE-PRINCESS ANNE, 4M/A LARGE SHALLOW
OPEN DEPRESSION IMP AS CATCHMENT FOR RAINFALL, RECHARGE OF AQUIFERS
- 2010283 SMITH ISLAND 66H 8537W-CRISFIELD 10MI /NEARLY HALF OF THE
ISLAND IS A NATIONAL WILDLIFE REFUGE; A FEEDING GROUNDS FOR MIGRATORY BIRDS
- 2010316 SOUTH MARSH ISLAND 66PR 3072N-SMITH ISLAND, /SI, NC, CRF RECM PRO-
-TECTION; ANADROMOUS FISH, STRIPED BASS, CRAB, CLAM, OYSTER, CLAPPER, ATL OSPREY

Somerset County con't

2014104 DEAL ISLAND WMA ET.AL. 17ST 2304W COAST-SOMERSET CN/RORDERING TANGIER
WINTER FEEDING GROUND FOR WATERFOWL,SALT MARSHES ARE EXTREMELY IMPORTANT

2009104 DEAL ISLAND WMA ET.AL. 17ST 3776SAME AS 2014104 /PART OF A COMPLEX
OF COASTAL MARSHES,REGION ACTS AS AREA RECHARGE A FOR AQUIFERS

2011104 DEAL ISLAND WMA ET.AL. 17ST 5760SAME AS 2014104 /SALT MARSHES ARE
AN EXTREMELY IMP COMPONENT IN CHESAPEAKE BAY ECOSYSTEM

2002104 DEAL ISLAND WMA ET.AL. 17ST 3060SAME AS 2014104 /W/I SALT MARSHES
ARE PRODUCED MICRO-ORGANISMS UPON WHICH FINFISH,SHELLFISH,CRABS DEPEND

2012104 CEDAR ISLAND WMA ET.AL. 17ST 5824SAME AS 2014104

2007104 CEDAR ISLAND WMA ET.AL. 17ST 1285SAME AS 2014104

2006104 FAIRMOUNT WMA ET.AL. 17ST10176SAME AS 2014104

2007104 JAMES ISLAND ET.AL. 17ST 2368SAME AS 2014104

2008104 JAMES ISLAND ET.AL 17ST 1805SAME AS 2014104

2003706N POCOMOKE SOUND WETLANDS17PR 2195E-PARSONVILLE 3MI /SI RECM PRESERVA-
TION OTTER,MINK,STRIPED BASS,HERRING,SHAD,CRABS,CLAMS,OYSTERS ET.AL. /ZI A

2008706N POCOMOKE SOUND WETLANDS17PR 1310 SAME AS 2003706 /W/I POCOMOKE RIVER
WATERSHED;LANGFORD,RICHARDSON MARSHS,MARUMSCO CK FORM THIS UNIQUE HABITAT

2003707 ANHEMSEX AREA 16PR 535SW-WESTOVER,3MI /AT HEADWATERS-ANHE-
-MESSEX RI IMP AS AQUIFER RECHARGE AREA,SPAWNING GROUND FOR AQUATIC LIFE

2006707 ANHEMSEX AREA 16PR 1605SAME AS 2003707

2013105 WESTOVER SPRING 03ST 1NE-WESTOVER 1MI. /ONLY MAJOR SPRING
IN SOMERSET CN,LARGEST ON EASTERN SHORE S-SALISBURY

2001103 MANOKIN RIVER BANKS 55PR 1200W-KING'S CK-2MI /BANKS-MANOKIN RI
FROM MAIN ST IN PRINCESS ANNE SW TO TOP POINT;HISTORIC,ECOLOGICAL INTEREST

TALBOT COUNTY

212820 THE HALF WAY LYRE TREE 30PR 10N RT329 /REF W EASTON;SALIT
MICHAELS ANCIENT LONOLLY PINE,PECULIAR LYRE SHAPE

2101102 EASTERN TALBOT TER SCARP48PR 400N-EASTON,3MI /LAYERS-CLAY,DEAL, &
GRAVEL ARE EXPOSED AT THIS SHODEN 40FT RISE IN ELEVATION

2101010 MILES RIVER SHORELINE 54PR 2374MILES RIVE BANK /UNspoiled AREA
WHICH CONTAINS MANY STREAMS,PONDS HISTORIC,MOROSP2 RECM PRESERVATION

2101711 KINGS CK KINGSTON LAND 616PR 819EASTON,TURKEY CK RD/TYPHA SPECIES,
SWAMP FOREST CHAMAECYPARIS THYOIDES,OTTER,HERRING,ET.AL. ARE FOUND HERE

2104711 KINGS CK-KINGSTON LAND 616PR 896SAME AS 210711 /WHITE SHAD,HICKORY
SHAD,STRIPED BASS,ANDROMONIS FISH HABITAT HERE

2101013 SITE OF MONSTRATH FOREST 60ST 250SE-EASTON 3MI /STATE OWNED FOREST
MANAGEMENT AREA;MOROSP2 RECM PROTECTION;EXCELLENT FOR NATURE STUDY,HIKING

2101415 WARNER WILDFLOWER POINT 60PR 8.5IN EASTON,ON RT565 /NO DR AND W/ SPRING
-FEED STREAM SUPPLY FOR WOODED HILLSIDE;VARIETY OF PLANTS,76 SP-WILDFLOWERS

2101717 CHOXTANK RI (BRUCEVILLE) 54PR 540ALONG CHOXTANK RI /FROM KATE'S PT RI
N TO CLARKS SQUARE RD-OUTSTANDING WOLF HABITAT;SI,HC,CBE,RECM PRESERVATION

2104210 OXFORD PREHIST IND SITE 50PR 2SW-EASTON /SITE COULD YIELD
UNUSUAL INFORMATION ABOUT PREHISTORIC INDIANS-EASTERN SHORE

2101782 MILES CREEK 16PR 200ALONG W SHORE-CHK R/EROM WINDYHILL RI
TO N DOVER RD,THIS A WAS GIVEN HIGHEST PRIORITY RATING BY SI

2103782 MILES CREEK 16PR 1017SAME AS 2101782 /EAGLES,DELMARVA
FOX SQUIREL MUST HERE,OSPREY,OTTER,CRAB,STRIPED BASS,AMALBOMOUS FISH

2105116 FOX CREEK POINT 16PR 321E-BRUCEVILLE 1.5MI /SCARP IS,STRIPED
BASS,AMALBOMOUS FISH,OSPREY,DELMARVA FOX SQUIP,FLY,SI,HC,CBE,RECM KEPT

2105115 BLACKWATER POINT 54PR S-TILGMAN, 3MI /MARSHY GRASS FIELD
PROVIDE AN IDEAL SOURCE FOR MIGRATING BIRDS,ENTERING WATER FOR FISHING

2105181 LUCKY CREEK 54PR 1100AL-CARDON CREEK /EXTENSIVE FRESH-
WATER MARSH,INTERMEDIATELY 400FEET W/TYPHA SP,OT PR,OSPREY,WOOD DUCK ET. AL.

2102105 TRED AVON ESTUARY 54PR 181NCONTIGUOUS TO OXFORDAL CHOXTANK RIVE
LINED BY FAMOUS HOUSES,THE TOWN-OXFORD SPREADS ALONG THE E BANK

2103105 TRED AVON ESTUARY 54PR 1107SAME AS 2102105 /THRE MILES LONG
ONE MILE AT ITS MOUTH,THE ONE GREAT SEAPORT OF OXFORD LOCATED HERE

2101106 WYE HOUSE & PLANTATION 60PR 402N-CORBRVILLE, 3MI /BUILT IN 1789,THIS
SUPERB MAJOR HOUSE WAS BUILT TO REPLACE ANOTHER,DESTROYED BY FIRE,OF 1611

2102705 HEMPLETON PLANT 60PR 645W-ST MICHAELS, 3MI/150 ACRES-FEEL WAS
COVER SPECIAL FLATS IMP FOR DUCKS,BIRDS,WOOD,ROCK ET. AL. FORM,3MI

2104104 MILL ON WINE SAUCERY 50PR 150S E-WYE MILES 2MI /200+ENDS HAVEN
FOR BIRD POPULATION,POAK-TIME FORESTS, MANY SPRINGS,THE RD ON WYE BRIDGE

WASHINGTON COUNTY

- 2208257 KING QUARRY CAVE 48PR 5W-LOCUST, .5MI /CAVE W/ SIX SMALL PASSAGES LEADING FROM THE MAIN ROOM WITH HELICTITES, RIMSTONE POOLS ETC
- 2219258 SNIVELY'S CAVES 48PR 5E-EAKLES MILLS, .5MI/THREE MAIN CAVES IN 1964, '69 EXCAVATIONS UNCOVERED INDIAN ARTIFACTS E.G.-BONES, BEADS
- 2219259 WHEELER RD CREVICE 48PR 5N-KEEDYSVILLE /A FISSURE LOCATED ON E FLANK OF A TOMSTOWN DOLOMITE RIDGE WALLS, CEILING SUBJECT TO COLLAPSE
- 2218260 HOLMES CAVE 48PR 5E-HAGERSTOWN-2.5MI /ENTRANCE IS IN RECKMANTOWN LIMESTONE; TRENDS NE 20FT AS CRAWLWAY, DROPS 4FT INTO SMALL ROOM
- 2210261 ANTIETAM CREEK CAVES 48PR 5WSW-FUNKSTOWN, 1.7MI/IN THE W BANK-RECKMANTOWN LIMESTONE AT ANTIETAM CK ARE 3 SMALL CAVES
- 2210262 ANTIETAM CREEK CAVES 48PR 5WSW-FUNKSTOWN 1.7MI/CAVE NO. 7 FORMED BY INT OF 2 JOINTS AT RIGHT ANGLES; ENTRANCE DROPS 8FT INTO NARROW ROOM
- 2212263 ANTIETAM CREEK CAVES 48PR 5NW ROXBURY /CAVE NO. 2 IS 20FT ABOVE THE WEST BANK OF ANTIETAM CREEK; CEILING OF CAVE IS REDDISH SILTSTONE
- 2206264 BOONSBORO SINKS 48PR 5NNW-BOONSBORO 1.7MI/IN 1968 THERE WERE OBSERVED 7 SINKHOLES AFTER THE DRAINING-A POND; CAVERNOUS NETWORK
- 2216265 BOWMAN CAVE 48PR 5E-BEAVER CK-.7MI /MAIN COMPONENTS OF THE CAVE ARE STICKY CLAY & RED & ORANGE FLOWSTONE DECORATIONS
- 2210266 COOL HOLLOW WELL 48PR 5 /IN ELBROOK LIMESTONE AT BASE-35FT MAN-MADE WELL W/ DEFINITE SOLUTIONAL POCKETS ON CEILING
- 2216267 DOGHOUSE CAVE 48PR 5 /SCATTERED WHITE SODA STRAW STALACTITES OCCUR ON FLAT CEILING HORIZONTAL ORIENTATION RED
- 2212268 GROVE CAVE 48PR 5W-BURTNER, 1MI /FLOROK LIMESTONE IS ABUNDANTLY FOUND HERE; 25FT ABOVE ANTIETAM CK; 4 STREAMS ON SAME HILLSIDE
- 2216269 HOUT CAVE 48PR 5E-FUNKSTOWN 1.9MI /SODA STRAW STALACTITES CAN BE FOUND IN THIS ELBROOK LIMESTONE CREVICE FLOOR-CAVE DEEP WATER
- 2210246 MCMAHONS MILL CAVE 48PR 5AT C & O CANAL /IN WOODS ABOVE CLIFFS AT POTOMAC RIVER LIE MANY DEEP SINKHOLES & 2 CAVES
- 2201247 ANTIETAM CAVE 48PR 5E-ANTIETAM /DEVELOPED IN TOMSTOWN DOLOMITE; LOCAL INTERESTS INSIST CAVE CONNECTS TO QUARRY 2MI TO THE N
- 2219251 FLOCKS FISURE 48PR 5S-KEEDYSVILLE .8MI /THIS FISSURE OPENED BY HUR ICANE HAZEL, AFTER 1965 IT WAS FILLED W/ TRASH BY AUSTIN FLOCK
- 2219252 KEEDYSVILLE CAVES 48PR 5W-EAKLES MILLS /IN THE BROKEN LINE STONE PLATEAU WHICH ALSO CONTAINS SNIVELY'S CAVES ARE 6 SMALL CAVES
- 2208255 COLUMN CAVE 48PR 5E-TREGO, .8MI /AT BASE-SMALL TONS-TOWN DOLOMITE QUARRY, ABUNDANCE-COLUMNS THROUGHOUT ITS LENGTH
- 2208256 KEEDY CAVE 48PR 5E-MT. BRIAR, .9MI /E-HOGMAN CAVE ENTRANCE PARTIALLY COVERED BY 2 LARGE TREE STUMPS, HAS SMALL ROOM LOW CEILING
- 2201253 MARKER CAVES 48PR 5ENE-ANTIETAM, 1MI /OF ARCHEOLOGICAL SIGN INDIAN HOME FOSSILS, CHARCOAL POTTERY SHERDS ETC INDICATE IND BURIAL GR
- 2219254 RED HILL CAVE 48PR 5NNE-PORTERSTOWN, 1MI/BASICALLY A SOLUTION CAVE IN TOMSTOWN DOLOMITE; REFERRED TO LOCALLY AS AN IRON MINE
- 2218224 WINDERS CAVES 48PR 10NNE-MT AETHA, 1MI /DEVELOPED IN TOMSTOWN DOLOMITE ON E FLANKED WOODEN RIDGE SW-JUSTOWN; CONGLOMERATE CEILING
- 2205255 ROUND TOP MINES 48PR 40CR0 CANAL, ROUND TOP /ABANDONED LIMESTONE MINES, SMALL CAVES ALONG RY CUTS, CR0 CANAL AT ROUND TOP, 8 MAIN CAVES
- 2205256 ROUND TOP SUMMIT CAVE 48PR 5E-ORCHARD RD /THICK BEDDED, KNOWN BY BLACK LIMESTONE-KEYSER FORMATION LARGE CAVE, WELL DEVELOPED CAVE CORAL
- 2205257 ROUND TOP NO 2 CAVE 48PR 5SW-HANCOCK, 3.2MI /PASSAGE TRENDS NE FOR 60FT, 1-5FT IN HEIGHT; A FLOOR OF LOOSE ROCK; NO FORMATIONS PRESENT
- 2205258 HEPBURN CAVE 48PR 5N-HANCOCK, 1MI /FORMED IN TOMOLO-CLAY LIMESTONE NEAR STRATA-WILLS CK SHALE, CAVE SHOWS NO SPELEOTHEM GROWTH
- 2207259 BUSHEYS CAVERN 48PR 15NW-SMITHBURG, 1.7MI/BUSHEYS CAVE IS OLDEST KNOWN CAVE IN MD; FORMED IN BLACK DOLOMITE; SALTPETER MINED TIL 194
- 2223260 SCHEITROMPH CAVE 48PR 5E-WILSON 2MI /CAVE CONSISTS-3 LEVELS; CHAMBERSBURG LIMESTONE & MARTINSBURG SHALE PREDOMINATE IN REGION
- 2213261 WILSON CAVE 48PR 5E-WILSON /DEVELOPED IN CHAMBERSBURG LIMESTONE, 2 ROOMS, AT N END-SMALLER ROOM THERE IS A VERY DEEP BE
- 2213262 FAIRVIEW CAVES 48PR 5NNE-WILSON /LARGEST CAVE DEVELOPED IN CHAMBERSBURG LIMESTONE; 10FT HIGH, 5FT WIDE
- 2219253 CRYSTAL GROTTOES 48PR 5WSW-BOONSBORO, .5MI /ONE-LARGEST CAVES IN STATE; ONLY COMMERCIAL CAVE IN MD SINCE 1922, ABUNDANCE-CAVE FORMATIONS
- 2213264 EBY CAVE 48PR 5SE-CHARLTON 1.2MI /THREE FT WIDE HOLE IN THE CORNER-A MEADOW, MOST-CAVE BLOCKED BY CLAY FILL

Washington County cont

- 2220235 DAM NO.4 CAVE 48PR 55S-DOWNSVILLE,4MI /100FT ABOVE C&O CANAL FLOOR COVERED BY SHALLOW SLOW FLOWING STREAM
- 2201236 SNYDERS LANDING CAVES 48PR 10W-SHARPSBURG,2MI /TWO CAVES & SOME ROCK SHELTERS OCCUR IN CLIFFS ALONG THE POTOMAC RIVER NE-SHARPSBURG
- 2215237 ANKENEY CAVE 48PR 55SW-BIG SPRING,2MI /IN A ROCKY ESCARPMENT ON W SIDE-'THE NECK' HAS 2 ROOMS,SOME SPELEOTHEMS
- 2215238 NECK CAVE 48PR 5S-FOUR LOCKS,2MI /CAVE-TECTONIC ORIGIN REPRESENTING THE PARTING BETWEEN 2 BEDS,NO SOLUTIONAL FEATURES
- 2213239 PINESBURG CAVE 48PR 55W-PINESBURG /NEAR TOP-CLIFF ALONG C&O CANAL;POWDERY STALACTITES FLOWSTONE DECORATE,DRY CLAY FLOOR
- 2204240 TWO LOCKS CAVES 48PR 5SE-BIG SPRING /SEVERAL SMALL CAVES & SOLUTION HOLES DEVELOPED IN THE BLUFFS ALONG C&O CANAL S-TWO LOCKS
- 2211241 DARGAN QUARRY CAVES 48PR 5S-DARGAN,1MI /REPORTED TO BE AN OLD MANGANESE MINE;WITHIN MINE ARE 2 SMALL NATURAL CAVE PASSAGES
- 2220242 ARTZ CAVE 48PR 5SW-DOWNSVILLE,2MI /FLOWSTONE & OTHER SPELEOTHEMS TOTAL-150FT-PASSAGE WAS FORMED IN BECKMANTOWN LIMESTONE
- 2220243 CAVE-IN-THE-FIELD 48PR 5WSW-DOWNSVILLE 1MI /DEVELOPED IN STONE RIVER LIMESTONE CAVE IS HYDROLOGICALLY RELATED TO MCMAHONS MILL CAVE
- 2213244 DELLINGERS CAVE 48PR 5S-PINESBURG,1MI /FLOWSTONE COVERS BROKEN LIMESTONE COVERING FLOOR-CAVE,DRY,FEW FORMATIONS ARE LEFT INTACT
- 2220245 HOWELL CAVES 48PR 5S-CEDAR GROVE /LARGE ROOM 1/2 MAN CLAY PITS,SPELEOTHEMS;SEVERAL OPENINGS,SOLUTIONAL POCKETS IN LIMESTONE BANK
- 220618 SOUTH MT BATTLEFIELD 48PR 40SE-ROONSHORO,2.5MI /BATTLE,WHICH WAS A SOUTHERN VICTORY,TOOK PLACE ON SEPTEMBER 14,1862
- 220510 WADSWORTH GEOLOGIC SECT 48PR 40SW-HANCOCK,8MI /EXPOSURE-DEVONIAN FOSSIL-BEARING FORMATIONS;HEDLERSBURG LIMESTONE,JEFFERISS SHALE
- 2205089 SIDELING HILL WILDLIFE 456ST 1837WASHT-ALLEGANY BOR /IN PART OUTSTANDING CANDIDATE FOR WILDLANDS DESIGNATION;EXTENSIVE HABITAT FOR VARYING SPECIES
- 2205211 DAM NO.6 MINE 48PR 5SE-PEARRE 1MI /FOUND IN ORISKANY SANDSTONE,FOSSIL BRACHIOPODS CAN BE SEEN ON WALLS IN THE NATURAL SECTION
- 221423 SHOCKEYS CAVE 48PR 5E-PEN MAR .1MI /CAVE NOT LARGER THAN AN A SINGLE ROOM;FOUND IN WERTON QUARTZITE
- 2214223 JUSTON CAVE 48PR 5SW-PONDVILLE 1MI /ZONE OF WASH ON LAP-GER CAVES;OVER 600 FT.OF LOW STREAM PASSAGE,STEEPLY SLOPING
- 2214271 PINESBURG LIMESTONE 48PR 369EM. C&O CANAL,NEPT 68/SCENIC& ECOLOGIC -AL VALUE,LIMESTONE OF SOME COMMERCIAL VALUE;RICH VARIETY OF FLORA & FAUNA
- 2215209 WELLS CAVE 48PR 5NE-PECTONVILLE,.7MI /CLAY PREDOMINATES AT CREST OF ANTICLINE,MAZE OF INTERACTING PASSAGES,ONLY 1-20 M OF ANY SIZE
- 2204210 HOGWAW CAVE 48PR 5 E-MT.BRIAR-.5MI. /INTERESTING & INTERICATE CAVE,WATER ABUNDANT;ENTRANCE ON SE FACE OF SINK-INVERTERTRATES FOUND
- 2215207 LIGHTING CREEK CAVE 48PR 5 W-IND.SPRINGS 2MI /SIX OPENINGS IN UPPER BED LIMESTONE,NARROW FISHURE CRAWLWAYS FROM CLIFF FACE HOLE OVER 20FT
- 2202020 NATURAL WELL 48PR 5 E-WILLIAMSPORT-3MI /FORMED IN STONES RIVER LIMESTONE/SERVES AS A WELL FOR ADJACENT FARMHOUSE
- 2201205 CANNON CAVE 48PR 5W-MILLERS SAWML 1MI /CAVE QUARRIED EARLY 1800'S,SOME OF ITS LIMESTONE USED IN WASHINGTON MONUMENT CONSTRUCTION
- 2215206 DARK CAVE 48PR 5NE-PECTONVILLE 1.6MI /OPENING BLOCKS ALL CRAWLWAYS THAT LE RUN CK FLOWS ALONGSIDE AND FORMS A DEEP HOLE AT THE END
- 2214204 RINE HILL CAVES 48PR 5E-ROXBURY-.3 MI /IN A MEADOW FLOOR IN FEATHERS STATIONS,EXPLORED 1920,SEALED 1930,TWO CAVES DEPTHS OF 15 & 70 FT
- 2214205 ROBERTSON CAVE 48PR 5W-BAGTOWN-.6MI /ENTRANCE FORMERLY A WADSWORTH CREEK,STEEPLY SLOPING SHAFT,TRIANGULAR 10 BY 4 FT SQUARE OPENING
- 2214201 MT. VERNON CAVE 48PR 5SE OF MT. ARTHA /DISCOVERED IN 1932-RECENTLY OPENED 1952, QUANTITATIVELY FOR DENSITY & DIVERSITY OF COMMUNITY
- 2214200 MT. VERNON CREEK CAVE 48PR 5NE-BEAVER CK-.7MI /WHITE,MADE-UP OF WATER IN FLOW ALONG 25FT. LENGTH TOWARD LIMESTONE QUARRY ON ROUTE 66
- 2201101 MIDDLE TAYLOR CREEK 48PR 786-RO-BELBORO-7 MI /HISTORIC SITE OF CIVIL WAR BATTLE,PAINTERED TODAY IN A NATIONAL HISTORIC BATTLEFIELD PARK
- 2214102 FLYING CREEK SPRING 48PR 5E-HAGERSTONE-6MI /LARGE SPRING IN WASHINGTON COUNTY,BIG RANGE VERY HIGH ONE OF STATE'S MOST FORMIDABLE FALLS
- 2214103 CONCHO CREEK WELLS 48PR 1295S-HAGERSTONE 6.5MI /WELL HEAD IN THE MIDDLE OF POTOMAC TRIBUTARY 4.7MI LONG,CRAVING MUCH DEEPER THAN HOWELL
- 2214104 CONCHO CREEK WELLS 48PR 1295S-HAGERSTONE 6.5MI /WELL AS DEEP AS 10' & INTERESTING ALSO BECAUSE OF REMINDED FOR AGRICULTURE
- 2202104 CONCHO CREEK WELLS 48PR 1295S-HAGERSTONE 6.5MI /WELL AS DEEP AS 8'

Washington County con't

- 2211106 HARPERS FERRY GEOL STATN48FE 20HA-FE PK, CON. P0&SHE/UNUSUAL GEOLOGIC EXPOSURE OF CAMBRIAN & WEVERTON QUARTZITE, SANDSTONE & SHALE FORMATIONS
- 2205107 ROUNDTOP GEOLOGIC STATN 48PR 20SW-HANCOCK 3.5 MI /EXCELLENT EXPOSURE OF SILURIAN FOSSIL-BEARING FORMATIONS, REACHES 600 FT ABOVE POTOMAC RIVER
- 2214104 DEVILS RACECOURSE 48PR 1NNE-SMITHSBURG-3.5M/UNIQUE GEOLOGIC EXPOSURE OF BOULDERS OF WEVERTON QUARTZITE
- 2211105 ELK RIDGE 55H 2560SE-ANTIETAM CEM, 3.5/VERY SCENIC PLATEAU, IMPORTANT FOR BOTANICAL STUDY, MANY NOTED BOTANISTS HAVE VISITED
- 2208105 ELK RIDGE 55H 2265SE-ANTIETAM CEM, 3.5/SAME AS 2211105 & VARIOUS SPECIES ENDEMIC TO REGION ARE LOCALLY ABUNDANT HERE
- 2211081 WEVERTON CLIFFS 69PR 50WNW BRUNSWICK 30MI /SOUTHERN POINT OF SOUTH MOUNTAIN CHAIN OF MD.
- 2208082 APPALACHIAN TRAIL 55PR ON WASH-FRED. CN BDR/PART OF LONGEST FOOT PATH IN WORLD, EXCELLENT RECREATIONAL VALUE TO OUTDOORSMAN
- 2206082 APPALACHIAN TRAIL 55PR SAME AS 2208082 /SAME AS 2208082
- 2216082 APPALACHIAN TRAIL 55PR SAME AS 2208082 /SAME AS 2208082
- 2207082 APPALACHIAN TRAIL 55PR SAME AS 2208082 /SAME AS 2208082
- 2214082 APPALACHIAN TRAIL 55PR SAME AS 2208082 /SAME AS 2208082
- 2204006 INDIAN SPR-FAIRVIEW MT 56ST 11653.5NNW CRSP 2 N PV /WDLF & TIMBER MANAGEMENT PRACTICED AT IND SP WDLF A, CN GRANTED CONSERV ZONING TO FAIRVIEW MT
- 2215006 INDIAN SPR-FAIRVIEW MT 56ST 2914SAME AS 2215006 /SAME AS 2215006
- 2215211 FORT FREDERICK 50ST 25SE-HANCOCK 11 MI /BUILT IN 1756; WALLS STILL STAND, HAS RESTORED WELL & OTHER POINTS DUE TO CIVIL CONSERV. CORP
- 2214472 QUIRAUK MOUNTAIN 48FE 5NE-EDGMT-2, S-PA1.7 /VERY SCENIC HIGH ALTITUDE SITE, ROCKY TOP INTERESTS GEOLOGISTS, ARMY TRANSM. TOWER ON MT TOP
- 2214405 CASCADE TIMBERS 55PR 100N W MD RR -CASCADE/INTERESTING REGION INCLUDES MT VIEWS, APPAL-TRAIL, WATERFALLS, UMBRELLA TREES FOUND-ACIDIC SOILS
- 2205402 ROUND TOP MOUNTAIN 48PR 600SW HANCOCK-4 MI /GEOLOGIST DELIGHT MANY CAVES & MINERAL DEPOSITS; LOVELY VIEW, IMP FOSSIL DEPOSIT & HAB WDLF
- 2205403 MILLSTONE INDIAN GROUNDS 50PR 10E OF HANCOCK /ZONE OF SEVERAL POT. IND. SITES, CAMPSITES & GRAVES FOUND, PROVIDING CLUES TO A EARLY INHABITANT
- 2213613 CONOCOCHIEGUE BLUFFS 55ST 18S-I-70, W WLNUT PTRD/EXTREMELY IMP. STRIP ON EAST BANK, OUTSTANDING VIEW, UNIQUE ECOSYSTEM FOR PLANTS
- 2216401 BLACK ROCK 55PR 5W-WOLFSVILLE-2 MI /ZONE OF BEST PANORAMIC VIEWS ON APP. TRAIL; VERY SCENIC, THREATENED BY ENCRDCHING DEVELOPMENT
- 2211611 YARROWSBURG OVERLOOK 38ST 400RT. 340, WVRTN-YWB.RD/PANA. VIEW C&O CANAL AND THE POTOMAC RIVER
- 2215612 STONE QUARRY OVERLOOK 55ST 20N-I-70, W-COVE RD /GOOD VIEW TO THE WEST; EXCELLENT VIEW OF FAIRVIEW MT. INCL. KNOLLS, VALES, MEADOWS & SCENIC POND
- 2201248 ANTIETAM QUARRY CAVE 48PR 5 N-DARGAN-2 MI /N WALL. TOMSTOWN DOLOMITE QUARRY; 2 FT. DIAM., 30 FT ABOVE FLOOR; 6 FT CRAWLWAY
- 2219249 CRYSTAL GROTTOS QUARRY 48PR 5W-BOONSBORO-1.5MI /ADJACENT TO LIMESTONE QUARRY OF SAME NAME, 2 CAVES, CLAY PREDOMINATE IN THESE NARROW FISSURES
- 2219250 DRAIN DITCH CAVE 48PR 5RT. 34 AT KEEDYSVILLE/1 FT SLIT THRU FRACTURED ROCK; SLOPING CRAWLWAY; LOCATED IN TOMSTON DOLOMITE; LOW ROOM

WICOMICO COUNTY

- 2302320 SEASIDE ALDER 63PR 640SW OF SALISBURY /VERY RARE PLANT FOUND HERE; SI REGARDS AS HABITAT WORTHY OF PRESERVATION
- 2316320 SEASIDE ALDER 63PR 64 SAME AS 2302320 /SAME AS 2302320
- 2307320 SEASIDE ALDER 63PR 128 SAME AS 2302320 /SAME AS 2302320
- 2314089 POCOMOKE RIVER & SWAMP 46PS S & SW-MD-DEL. BORS./EXTENSIVE SOUTHERN SWAMP, SCENIC & DEEP RIVER, RARE PLANTS; SI & DEPT-INT-RECOMMEND HIGHLY
- 2306089 POCOMOKE RIVER & SWAMP 46PS SAME AS 2314089 /SAME AS 2314089
- 2302381 NUTTERS NECK 16PR 1700SW-MARDELLA SPR-7.5/FRESHWTR STREAM, RECOGNIZED BY SI SURVEY AS PRIME WETLDS, MARSH GRASS-PREDOMINATELY TYPHA; WDLF
- 2309401 BELL FARM 17PR 630SW-SALISBURY-3 MI /PINE & HARDWOOD FOREST; WATERFOWL NEST, FEED, NURSERY AREA; MARSH THREATENED BY SALISBURY GROWTH
- 2308017 JOHNSON WOLF REFUGE 56ST 140SE-SALISBURY-7 MI /WOODED WOLF CONSERV. V.A. SE WICOM. CN, LORLOLLY FOREST REFUGE FOR NUMEROUS BIRDS & MAMMALS
- 2306018 ADKINS POND & RUN 10PR 15SE-PITTSVILLE-15MI /PART OF POCOMOKE DRAINAGE BASIN; A CYPRESS SWAMP NEARBY
- 2308015 AIRPORT CONSERVATION A 55PR 200W-WICOM AIRPORT 5M /CENTERED AROUND A CREEK; SCENIC; POTENTIAL FOR RECREATIONAL DEVELOPMENT

Wicomico County con't

2308016 SLAB RDG & TONYTANK CK 16PR 528S-SALISBURY-2.5MI /SCENIC CKS;POTENTI
AL RECREATIONAL AREAS;IF NOT PRESERVED,WILL BE ENGULFED IN URBAN EXPANSION

2308013 WALSTON CONSERVATION A 16PR 32W-SALISBURY-4MI /SCENIC;POTENTIAL A
FOR HIKING,NATURE STUDY,PICNICKING,FISHING;LOBLOLLY & VA.PINES,LWLND HRWD

2305013 WALSTON CONSERVATION A 16PR 522 SAME AS 2308013 / SAME AS 2308013

2304014 WICOMICO STATE FOREST 32ST 1250SSW-PITTSVILLE-3MI / LOBLOLLY PINE,RED
& WHITE OAK;ADVISE CONTINUE CONSERVATION & LIMITED RECREATIONAL USAGE

2301782 UPPER NANTICOKE RIVER 17PR 4600W-HEBRON-8 MI /IMMENSE TIDAL MARS
HES;SIGNIFICANT OSPREY,OTTER,WHITE SAND,HICKORY SHAD;HIGHLY RECOM. BY SI

2311012 CON'ELLY ML CK CONSERV A16PR 380N-SALISBURY-5MI /NUMEROUS FRESHWATR
MARSHES;EXCELLENT HABITAT FOR FRESHWATER FISH & NUMEROUS MARSH ANIMALS

2313106 SCHUMAKER POND 10PU 30SE-SALISBURY-2.3MI /ONE OF FEW REMAINI
NG PONDS IN STATE;SURROUNDED BY LOBLOLLY &VA.PINES;INHABITED BY PIKE,BASS

2305106 SCHUMAKER POND 10PU 30 SAME AS 2313106 /SAME AS 2313106

2312707 STUMP POINT 17PR 832SW-QUANTICO-12MI /IMP. WDLF A.,MIG.
WATERFOWL ABUNDANT,NESTING AREA FOR LOGGERHEAD TURTLE,RECM.BY SI & CRF

2308104 PARKER POND 10PR 27ESE-SALISBURY-3.2MI/W/IN SCENIC FOREST
PIKE,BLUEGILL,CRAPPIE,BASS;ONE OF STATES FEW REMAINING PONDS

2304104 PARKER POND 10PR 27SAME AS 2308104 /SAME AS 2308104

2305105 PITTSVILLE BASIN 06PR 1000NE-SALISBURY,6MI /A LOW SHALLOW
BASIN FORMED BY OCEANIC DEPOSITION,CATCHMEN AREA,RECHARGE AREA FOR AQUIFER

2305102 LEONARD MILL POND 10PP 40NNE SALISBURY,4.7MI/BASS,BLUEGILL,PIKE
CRAPPIE;SCENIC OAK-GUM,PINE FOREST;HAS AN AVERAGE DEPTH OF 3FT

2301103 MOCKINGBIRD POND 10PR 15E-MARDELLA SPRINGS /HAS AN AVERAGE
DEPTH-2.5FT;BASS,BLUEGILL INHABIT;OAK-GUM,PINE FOREST;ONE-FEW MAJOR PONDS

2305105 ANCIENT RIVER CHANNEL BWPP 224N-SALISBURY,3.5MI /RIVER CHAN EL HAS
A SIGNIFICANT FOSSIL DEPOSIT,ABILITY TO STORE PERCOLATING RAIN WATER

230910 ANCIENT RIVER CHAN EL 69PP 140SAME AS 2305100 /SAME AS 230510

231110 ANCIENT RIVER CHANNEL 69PP 155SAME AS 2305100 /SAME AS 2305100

2301101 BARREN POND 10PR 30E-MARDELA SPRINGS /SURROUNDED BY GUM,
& PINE;ABUNDANT GAMEFISH INCLUDING BASS & BLUEGILLS

WORCESTER COUNTY

2407725 POCOMOKE STATE FOREST 55ST 8472FEW ACRES NW WORCST/SWAMP FORESTS,OPEN
MEADOWS,TRIBUTARIES,E SHORE PINE FORESTS;SI,NC,CRF GIVE WETLAND HIGH VALUE

2408725 POCOMOKE STATE FOREST 55ST 2050SAME AS 2407725 /RICH NATURAL AREAS
FORM HABITAT LOCATIONS FOR A VARIETY-PLANT & ANIMAL LIFE

2407725 POCOMOKE STATE FOREST 55ST 2624SAME AS 2407725 /VALUABLE TO AQUA-
TIC ECOLOGY;ONE PORTION HAS BEEN DESIGNATED AS A WILDLANDS CANDIDATE

2408000 A BIG MILL POND 10PR 192SW-STOCKTON,5MI /SCENIC VALUE UN-
EQUALED;ONE-FEW FRESHWATER LAKES IN MD,RICH IN AQUATIC LIFE;CYPRESS TREES

2410226 OCEAN CITY NATURAL AREA 55ST 140OCEAN CITY BRIDGE /N SIDE-ACCESS TO
UPPER OCEAN CITY BRIDGE GRASSES,MARSHLAND,FEED AREA FOR WILDLIFE

2403721 BIG CYPRESS SWAMP 55PR 218NW WORCESTER CN /MOROSP2 RECM PRO-
TECTIVE ZONING;RELIABLE,ACCESSIBLE PLACE TO FIND SWAINSON'S WARBLER

2410105 SINEPUXENT,CHINCOTEAGUE 17PR 2094AT SINEPUXENT BAY /MARSHES BORDERING
THE SINEPUXENT AND CHINCOTEAGUE BAYS,MD ONLY COASTAL WETLANDS

2403105 SINEPUXENT,CHINCOTEAGUE 17PR 1260SAME AS 2410105 /CLEAN WATER,PRODUC
TIVE MARSH,UNIQUE HAY OCKS LUSH STANDS-PINE,HOLLY,SWEATHAY,SANDY BEACHES

240105 SINEPUXENT,CHINCOTEAGUE 17PR 1568SAME AS 2410105 /RESTING,BREEDING
PLACE FOR MANY SP-WATERFOWL,OSPREY AND BALD EAGLE,ABUNDANCE-SONGBIRDS

2402105 SINEPUXENT,CHINCOTEAGUE 17PR 2579SAME AS 2410105 /WATER CONTAINS A
GREAT VARIETY-FINE FISH & COMMERCIAL,RECREATIONAL FISHING CLAMING,CRAWLING

2408105 SINEPUXENT,CHINCOTEAGUE 17PR 345SAME AS 2410105 /SALT MARSHES VAL-
UABLE BREEDING,NURSING GROUNDS FOR FISH;FOOD FOR BIRDS,MAMMALS

2408203 HILLS ISLAND 60PR 710N-MD,VA BDR 2MI /ISLAND CONTAINS
EXTENSIVE SALT MARSHES;OSPREY,HERON,BLACK DUCKS,MALLARDS,FISH,CLAMS,ETC.

2402437 ROBINS MARSH 64PR 405-HANDYS HAMMOCK,6M/LAUGHING GULLS &
FORESTERS TERN ARE FOUND HERE THE LARGEST COLONY ON EASTERN SHORE

2402227 CASTLE HILL NATURAL AREA 55ST 29.8E-RT113,SW RT12 /MIXTURE-FOUNTAIN
MEADOW,A SCENIC BREAK IN HWY,NESTING,FEEDING PLACE-ANIMALS & BIRDS

2403228 HASTINGS TRACT 55ST 121E-RT50,W & E-RT113/40 VERT-
AREAS,NATURE FOREST,SCENIC RESERVE,HABITAT LOCATION,AND BUFFER ZONE

Worcester County con't

- 2410101 ASSATEAGUE ISLAND 66 J 9310SW AT CO OC TO VA /GEN-UNDEV., RICH FOR WDLF; SUPERB REACHES, DUNES, FST, WTLD; RARE WDLF; FLWY FOR MIGRATORY BIRDS
- 2407102 NASSAWANGO CREEK FURNACE50QP 13.5 SW SNOW HILL /REMAINS OF FURNACE OPERATED 1832-1847; SURROUNDED TODAY BY LOBLOLLY PINE FOREST
- 2408103 OAK & SASSAFRAS HAMMOCKS55ST 10002 MI E-STOCKTON /OUTSTANDING HABITAT; SALT MARSHES & PONDS; 2MI FRONTAGE ON CHINCOTEAGUE BAY
- 2408007 GEORGE ISLAND LANDING 55PR 486SE-STOCKTON 2.5MI /SCENIC, UNUSUALLY RICH IN PLANT & ANIMAL LIFE; MOROSP2 RECM. PURCHASE BY STATE
- 2408008 ERNEST A VAUGHN WMA 60ST 640SE-GIRDLETREE 1.5MI/EXCELLENT HABITAT FOR WDLF FEED AR FOR MIG WTFWL, ONLY PROTECTED AR ON W SHR CHINCOTEAGUE BAY
- 2410443 ISLE OF WIGHT 66PR 900ND OFST. MRT. NK. W OC/UNIQUE W/FST WTLD WTFWL FEED NEST., MOST DESIRABLE BUFFER BETW HGH DEN. DEV-OCEAN P/WEST OC
- 2402316 ALNUS MARITIMA 63PR 5POC. RI. WSHD W SN. HL/VERY RARE PLANT WHICH IS FOUND ONLY IN DELAWARE, MARYLAND, & OAKLAHOMA IS FOUND HERE
- 2410440 SINEPUT BAY & CHNL ISL 66PR 100SCAT. IN SINPXT BAY /ISLANDS ARE NEST. SITES FOR COMMON TERM, LEAST TERN, GULL BILLED TERN, SANDWICH TERN, ROYAL TERN
- 2403442 NEWPORT FRMS & JENK. PND 56PR 320 N NEWP BY, 2 S GRM/LGR. FRM & ARTIFICIAL POND ATTRACTS EXCELLENT WATERFOWL, HAWKS, DOVES, OWLS, ETC. ARE FOUND HERE
- 2410317 SCHWALBREA AMERICANA 63PR 5IN W OCEAN CITY /VERY RARE AND ENDANGERED PLANT ACCORDING TO SMITHSONIAN INSTITUTION SURVEY
- 2402219 NAS CK PREH IND VIL SITE 1PR 3 NW OF SNOW HILL / SITE INC. BURIALS DATING BACK TO TIME OF CHRIST; VARIOUS ANCIENT ARTIFACTS
- 2402231 COMMON TEAL 62PR 5COASTAL A. WORCST CN/RARE WINTER VISITOR IN COASTAL PART OF COUNTY
- 2410439 ISL. OFF ASSAT. WEST COAST 66PR 100CHIN BY W CO. ASSAT /VALUABLE WILDLIFE HABITAT; BEST & ONLY KNOWN NEST AR. IN STATE FOR LAUGHING GULLS, SKIMMERS, ETC
- 2401785 HICKORY PT CYPRESS SWAMP 19PR 3270E RK. POC. R1.2 SW UV/CYPRSS TREES, CROSS VINES, EXCEL' ENT AREA TO STUDY BUTTERFLIES, HERPETOLOGICAL SPECIES & BIRDS
- 2422784 POCOMOKE RIVER SWAMP 46PS 5350S-SW OF MD -DEL. BDR/VALUABLE NATURAL-ASSET IN MD; SCENIC RIVER IS DEEPEST RIVER FOR ITS WIDTH IN THE WORLD
- 2405784 POCOMOKE RIVER SWAMP 46PS 512SAME AS 2402784 /SAME AS 2402784 & ONE OF MOST EXTENSIVE SWAMPS THIS FAR NORTH IN THE US
- 2403784 POCOMOKE RIVER SWAMP 46PS 2170SAME AS 2402784 /SAME AS 2402784 MAGNIFICENT STANDS OF BALD CYPRESS, WHITE CEDAR, SWEETBAY ASH & OTHERS
- 2404784 POCOMOKE RIVER SWAMP 46PS 1640SAME AS 2402784 /SAME AS 2402784 & RARE PLANTS SUCH AS DWARF TRILLIUM, SHOWY LADY SLIPPER; CROSS VINE FOUND
- 2408784 POCOMOKE RIVER SWAMP 46PS 1290SAME AS 2402784 /SAME AS 2402784 PORTION OF RIVER UNDER CONSIDERATION AS MD WILDLAND
- 2407784 POCOMOKE RIVER SWAMP 46PS 3257SAME AS 2402784 /SAME AS 2402784 GIVEN A HIGH PRIORITY AS POTENTIAL NATURAL LANDMARK BY DEPT-INTERIOR
- 2417784 POCOMOKE RIVER SWAMP 46PS 450SAME AS 2402784 /SAME AS 2402784 SMITHSONIAN INSTITUTION DESIGNATED AREA AS IMP IN CHESAPEAKE BAY REGION!
- 2410438 ISL BELOW SOUTH POINT 66PR 2E-HANDYS HAMMOCK 3M/WELL ISOLATED FROM DEVELOPMENT; ENDANGERED BY EROSION; LARGEST HERON COLONY IN US

APPENDIX C

PROPOSED WILDLANDS

<u>County</u>	<u>Wildland Proposed in</u>	<u>Reference Numbers</u>		<u>Acreage</u>
		<u>DNR</u>	<u>DSP</u>	
Allegany	Green Ridge State Forest	47-1	901-184	750
	Rocky Gap State Park	31	902	1,500
	Warriors Mountain	89-2	903	600
	Warriors Mountain	89-1	904	900
	Dans Mountain Wildlife Management Area	62	905-703	7,900
	Sideling Hill Wildlife Management Area	84-2	900-184 (Allegany) 900-089 (Washington)	600
Baltimore	Gunpowder State Park	18-1	900-085	675
	Gunpowder State Park	18-3	901	500
Caroline	Tuckahoe State Park	40-2	900 (Caroline) 900 (Queen Anne's)	550
Dorchester	Taylor's Island Wildlife Management Area	88	900-007	934
Frederick	Cunningham Falls State Park	7-1	900-702	1,200
	Cunningham Falls State Park	7-2	901-702	2,200
	Cunningham Falls State Park	7-3	902-702	700
Garrett	Potomac State Forest	50-3	900	500
	Potomac State Forest	50-1	901-008	575
	Savage River State Forest	51-18	902-008	2,000
	Savage River State Forest	51-19	903-008	900
	Savage River State Forest	51-17	904-008	1,690
	Savage River State Forest	51-16	905-008	1,200
	Savage River State Forest	51-14	906-008	800
	Savage River State Forest	51-24	907-008	1,600
	Savage River State Forest	51-22	908-008	1,200
	Savage River State Forest	51-11	909-008	1,200
	Savage River State Forest	51-07	910-008	700
	Savage River State Forest	51-27	911-008	950
	Savage River State Forest	51-26	912-008	850
	Savage River State Forest	51-12	913-008	850
Savage River State Forest	51-13	914-008	750	
Savage River State Forest	51-25	915-008	700	
Howard	Catuxent State Park	28-1	900 (Howard) 900 (Montgomery)	1,000

Appendix C con't

<u>County</u>	<u>Wildland Proposed in</u>	<u>Reference Numbers</u>		
		<u>DNR</u>	<u>DSP</u>	<u>Acreage</u>
Somerset	Janes Island State Park	20-1	900-104	1,792
	Janes Island State Park	20-2	901-104	2,496
	Pocomoke Sound Wildlife Management Area	83	902	922
	Cedar Island Wildlife Management Area	60	903	2,880
Worcester	Pocomoke State Forest	49-7	900-725	581
	Pocomoke State Forest	49-2	901-784	500
	Pocomoke State Forest	49-6	902-784	500
	Pocomoke State Forest	49-9	903-784	500
	Pocomoke River Wildlife Management Area	82	904-784	505

* Source: Department of Natural Resources. Potential Wildlands in Maryland.
December 1973

SECTION II

Natural Areas of the
Chesapeake Bay Region

ECOLOGICAL PRIORITIES


Center for Natural Areas
Ecology Program
Smithsonian Institution

NATURAL AREAS OF THE CHESAPEAKE BAY REGION :
Ecological Priorities

A Report By

Center for Natural Areas
Ecology Program
Smithsonian Institution

May 1974



Dale W. Jenkins, Ph. D.
Principal Investigator

ACKNOWLEDGEMENTS

This report would not have been possible without the generous financial aid and substantive guidance provided by three organizations: The Nature Conservancy, the Chesapeake Bay Foundation, and the Irving Kingsford Charitable Trust. We are most indebted to them for their kind support.

We would also like to thank Smithsonian staff who are not part of the Ecology Program but who nevertheless applied their valuable time and services to this effort, especially the energetic volunteers who came to us through the Smithsonian Associates volunteer program.

We are grateful to all those in the scientific community and other professions who have given their time and specialized competence to the study of natural history in the Bay region. We hope that they are all credited properly in the pages that follow.

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These maps are on file at The Nature Conservancy, the Chesapeake Bay Foundation, and the Center for Natural Areas. Copies may be obtained from the Center by calling (202) 381-6568.

1. INTRODUCTION

Chesapeake Bay and its watershed comprise one of the most productive estuarine areas of the world. It is not altogether coincidental that the Chesapeake Bay region also supports one of the nation's fastest-growing populations. The result is that the land, especially along the coast, is sprouting residential, commercial and recreational developments at an accelerating pace.

In a region that historically has been heavily lumbered and extensively tilled, the present encroachments severely threaten what few undisturbed natural areas still remain -- bogs, mature forests, tidal wetlands, swamps, marshes and other areas of importance to plant life, wildlife, fisheries and man. It is a familiar litany in most parts of the United States.

Recently private groups and public institutions and governments have recognized the urgency of preserving natural areas of various kinds. A number of states have endeavored to inventory the natural lands within their borders as a necessary first step in enacting protective measures. For example, New Jersey is preparing detailed maps of its coastal wetlands to form the basis of stringent new laws regulating development. Among notable statewide inventories of natural areas are those of Wisconsin, Georgia, Illinois, Michigan and the New England states. About 30 states have some natural areas program underway.

Chesapeake Bay has not lacked such surveillance. A "Catalog of Natural Areas in Maryland" was prepared by the Maryland State Planning Department in 1968 and is presently (1973-74) being revised. This includes historical, geological and ecological areas for the entire state. Another report, "Integrity of Chesapeake Bay," done for Maryland, describes the Bay's problems and some goals for it in relation to water supply, pollution, population, recreation, transportation and industry.

A "Maryland Outdoor Recreation and Open Space Plan" was developed to provide recreation opportunities and guidelines for conserving and preserving depletable natural resources. A few natural areas of high scenic or scientific value were earmarked for limited recreation use and for the preservation of unusual plant and animal species and extraordinary habitats.

In Virginia, a report called "Critical Environmental Areas" identifies, in a preliminary way, areas of natural, scenic or historic value which contribute to economic, esthetic or cultural well-being of individuals and society. Both Maryland and Virginia have published reports that propose rivers for official Scenic River designation and stress unique scenic, fish and wildlife, and other recreation values that warrant preservation and enhancement.

These and other studies that touch on Chesapeake Bay recommend the preservation of areas primarily to meet the greatly increasing demands for outdoor recreation. They, therefore, tend to treat biotic communities only in a general way. They consider ecological preservation and

values only as a requirement for maintaining the areas in a healthy and esthetically pleasing condition. Clearly, there are many legitimate uses and values of natural areas, from camping to insect observation and from boat-landings to bird sanctuaries, but some areas need to be set aside in their natural condition and left alone. If we are to preserve the Bay's tremendous ability to produce fish, shellfish, waterfowl and other important life; to break down human sewage wastes; and to carry out its many other functions, then we also have to preserve a significant number of breeding grounds, freshwater and salt-water marshes, and other areas of ecological significance. In short, in order to maintain the valuable natural yields of the Bay, we need to assure the maintenance of the Bay's natural integrity.

Not all of the Bay can be preserved, however. Growth of industrial and residential areas will continue, as will the expansion of recreational uses of the land and water. Faced with the reality that only limited preservation is possible, the ecologists' responsibility became apparent: to point out areas which should receive the highest priority in preservation efforts. Thus, as thoroughly surveyed as the Bay had been, there remained an urgent need to determine its *ecologically most important* plants, animals, biotic communities and natural areas. It is urgent that such areas be evaluated and priorities set for procurement and preservation.

Recognizing this need, The Nature Conservancy and the Chesapeake Bay Foundation established a grant of \$15,000 for an ecological survey of the Bay region. In July, 1972, the Ecology Program in the

Smithsonian Institution's Office of Environmental Sciences provided matching funds and established the Smithsonian Center for Natural Areas to undertake the task.

Objectives

Briefly stated, the task was this: on the basis of a new survey, to recommend for procurement those natural areas which Smithsonian personnel judged to be of highest priority for preservation action. This in turn called for the creation of a survey concept including an evaluation system -- a concept that could function within rather narrow limits of time (two years) and expenditure, and therefore make use of already available information. Also, the system for organizing the data and ranking the areas had to be flexible, to allow for additional details as they accumulated and for changes in the landscape as they occurred. Development rarely pauses for surveys of this kind: on several occasions in the course of the study, a prime natural area would be taken out of contention by development, and we would have to erase it from our maps. Finally, the new survey concept, it was hoped, would not only provide the data necessary for decision-making in the Chesapeake Bay region but also would serve as a model for similarly motivated surveys in other regions.

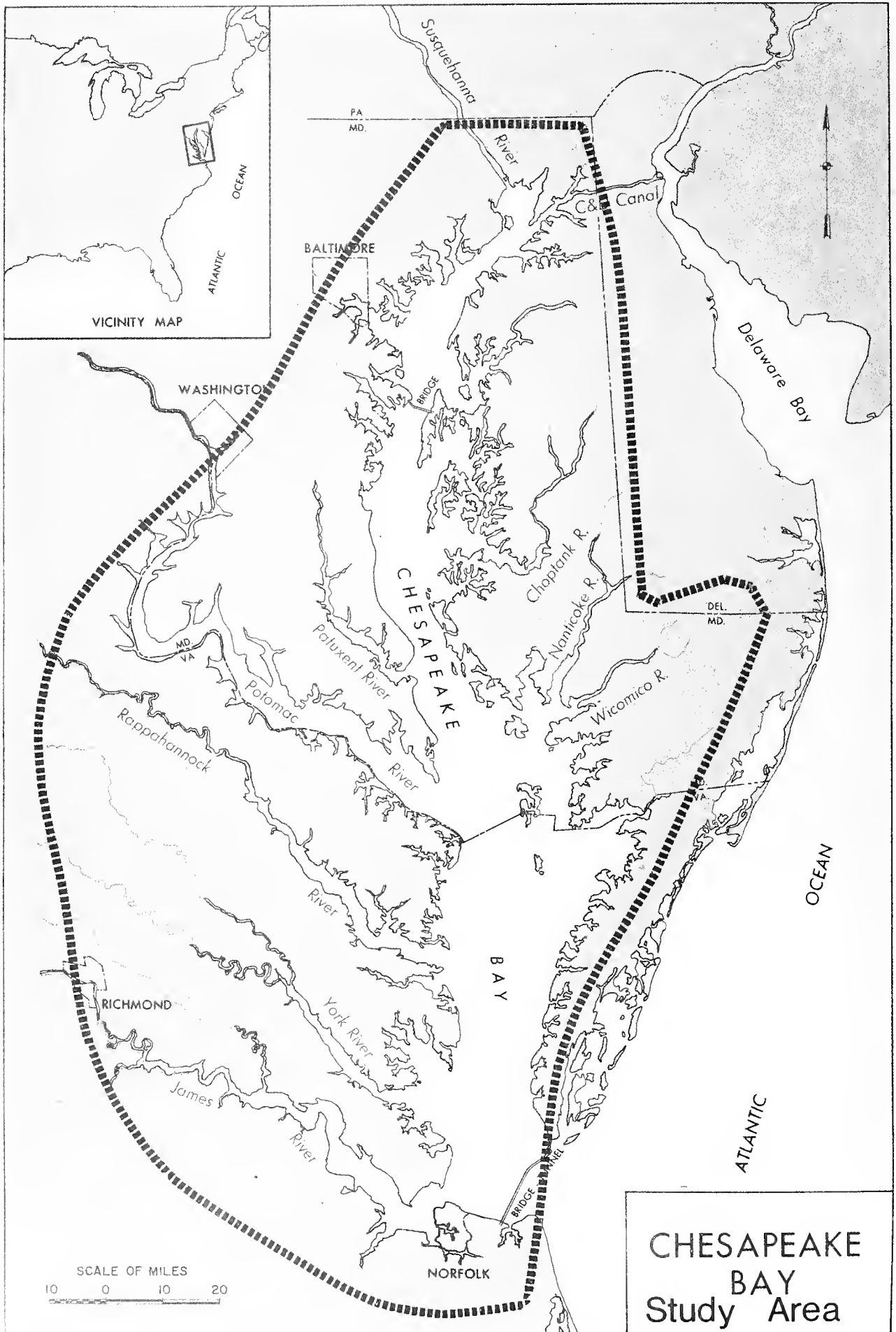
Survey Concept

The survey concept includes four fairly distinct phases. (1) It was first necessary to determine and map all of the areas in the

region which are presently protected from uncontrolled development and those which are properly preserved and managed as natural areas. (2) The second phase involved determining and mapping the locations of ecologically important and significant flora, fauna, biotic communities and ecosystems. This was done on the basis of a full literature search and of existing field studies and recommendations from available sources as well as preliminary field checks of the information thus received. (3) Selected ecological criteria were assigned numerical ratings and, by the use of overlay maps and a computerized data storage and retrieval system, all the locations noted from phase 2 were given a numerical rank. Thus, locations with the highest ecological value could be determined and proposed as the primary targets for procurement and other protective measures.

A final and crucial phase (4) was not within the scope of the contract for this study: it remains to conduct extensive field checks and feasibility studies of the proposed areas. The purpose of such fieldwork is threefold: to determine if the ecological information used in this study was accurate and up-to-date; to determine how vulnerable the proposed sites are to development and other intrusion; and to determine such matters as ownership, availability, cost of acquisition and the requirements for proper management after procurement.

NOTE: This survey should not be considered final or complete. Some prime natural areas may have been inadvertently missed which should have been included. The Center for Natural Areas welcomes any and all additional ecological information to improve its knowledge of the Bay region.



VICINITY MAP

WASHINGTON

BALTIMORE

CHESAPEAKE BAY

RICHMOND

NORFOLK

CHESAPEAKE BAY Study Area

SCALE OF MILES
10 0 10 20

Scope of Survey

In this survey, the first three phases were accomplished including preliminary field checks on about 70 out of 232 areas, or 30 percent of the areas studied. The survey covers some 12,600 square miles (see map on page). The region includes the Chesapeake Bay drainage basin between the Pennsylvania and North Carolina state boundaries. It is bordered on the west approximately by the fall line, i.e., the line separating the coastal plain from the Piedmont area extending from Baltimore through Washington to Richmond. On the east, the boundaries include the Chesapeake Bay estuarine drainages (though not those draining to the Atlantic). Most of Delaware is excluded. While the study area includes the land adjacent to the tidal reach of the major rivers, it does not include the extensive drainage areas of the upper Potomac or Susquehanna Rivers.

Of the 12,600 square miles covered in the survey, 941 square miles were found to be in the category of 'already protected.' Some 534 square miles, in 232 separate sites, were identified as natural areas with potential need for protective action -- that is, about 4.2 percent of the total study area. Of these 232 sites, 64 have been placed in a high-priority category so that roughly 2 percent of the Bay region area is recommended for procurement or other preservation action.

Sources of Information

One of the results of this survey is an awareness on our part of the considerable amount of ecological and biological information already

available concerning the region. Our efforts have shown that in areas similarly endowed with published data, this kind of survey can be an effective means of making a rapid and inexpensive evaluation of natural areas. There are, of course, gaps in the available information -- and some of them are pointed out in the pages that follow -- but the region is blessed with much data and many individuals and organizations with considerable knowledge.

In the course of the survey, the Center for Natural Areas received invaluable data from the groups and organizations listed in Table 1.

Table 1. AGENCIES AND ORGANIZATIONS CONTACTED IN THE SURVEY

PRIVATE

American Fisheries Society
American Shore and Beach Preservation Society
Audubon Naturalist Society of the Central Atlantic States, Inc.
Audubon Society of Southern Maryland
Canoe Cruisers Association
Central Atlantic Environment Service
Chesapeake Bay Foundation
Citizens Committee on the Chesapeake Bay
Conservation Council of Virginia
Conservation Foundation, The
Federated Garden Clubs of Virginia
Garden Club of Virginia, The
Izaak Walton League (local chapters)
Junior League (local chapters)
Kent Conservation, Inc.
League of Women Voters (state chapters)
Maryland Environmental Trust
Maryland Wetlands Committee
Maryland Wildlands Committee
National Campers and Hikers Association
National Wildlife Federation (state chapters)

Nature Conservancy, The
Northern Virginia Conservation Council
Philadelphia Academy of Natural Sciences
Potomac River Association of St. Mary's County
Sierra Club (local chapters)
Talbot County Historical Society
Virginia Society of Ornithology
Wilderness Society, The
Wye Institute

MARYLAND

Maryland State Department of Natural Resources
Department of Chesapeake Bay Affairs
Departments of Forests and Parks
Fish and Wildlife Administration
Maryland Natural Resources Institute
Chesapeake Biological Lab (Solomon's Island),
University of Maryland
Maryland State Department of Planning

VIRGINIA

Commission of Game and Inland Fisheries
Commission of Outdoor Recreation
Virginia Institute of Marine Science
Virginia State Department of Conservation and Economic Development

FEDERAL

Department of Commerce
National Marine Fisheries Service, NOAA
Department of Defense
Air Force
Army (Baltimore District, Corps of Engineers)
Navy
Department of the Interior
U.S. Fish and Wildlife Service
U.S. Geological Survey (and CARETS program)
National Park Service
Smithsonian Institution
Chesapeake Bay Center for Environmental Studies

UNIVERSITIES

American University
Georgetown University
Johns Hopkins University
Old Dominion University
University of Maryland

Several organizations, such as the Audubon Naturalist Society of the Central Atlantic States, the Chesapeake Bay Foundation, the Maryland Ornithology Society and the Virginia Society of Ornithology, assisted the project staff on a voluntary basis by soliciting information and recommendations from their members who are directly familiar with the Chesapeake Bay area. Volunteers assisted in contacting other private groups, local officials, and individuals to obtain more detailed information on specific areas.

Staff

The staff of the survey all worked part-time; the total combined effort amounted to about three man-years. The survey staff and consultants were: Dale W. Jenkins, Ph.D., Director of the Ecology Program and principal investigator. Special consultants: Anne LaBastille, Ph.D., wildlife ecologist; Richard W. Wagner, Ph.D., Ecologist; Clyde Reed, Ph.D., Botanist; Edward F. Rivinus, M.A., Ornithologist.

Mr. Stephen L. Keiley, MBA, Director of the Center for Natural Areas. Fonda R. Hivick, M.A., Botanist, Russell Kologiski, B.S., Botanist, and Gary S. Waggoner, M.A., Ecologist, were involved in data gathering and evaluation. Interpretation and cartography were completed by Luis Calvo, Cartographer; David Kunhardt, B.A., Administrative Assistant; Bryan Thompson, MLA, Landscape Architecture; David Vreeland, B.S., Geographer, and J. Copperidge Wilson, B.S., Zoologist. Secretarial and clerical: Fay Davis, Willa Afshar, Karan Shaffer, Mary Kadziel.

II. PRESENTLY PROTECTED AND PRESERVED LANDS

About 941 square miles or over one-half million acres (just over 240,000 hectares) of land is presently protected in the Chesapeake Bay region by virtue of being owned either privately or by the federal or state governments. These lands may be subject to a variety of human activities from landing airplanes to lumbering, fishing, hunting or intense recreational uses. So, while they are not subject to unplanned, market-dominated real estate development, they are also not necessarily preserved in any true sense. In our opinion, these lands should be analyzed in greater depth and ranked according to the ecological criteria set forth in this report. Those found of prime value should then be so designated and action should be taken to change their management status to assure their protection in perpetuity. Such an analysis was not within the scope of this survey, on the grounds that these lands are, at the very least, protected from development and thus not as threatened as the others that formed the bulk of the survey.

A number of areas within the region are preserved, in the sense that damaging use or development is largely ruled out. These include seven National Wildlife Refuges plus seventeen other areas, some of them state parks or refuges and others being privately owned (and listed in published reports as natural areas, research natural areas or natural landmarks).

None of these protected or preserved areas were actively investigated by us. They were, however, depicted on a 1:250,000 scale map with appropriate coding to show different categories of ownership and

management. This information is summarized in Table 2 and explained in the text which follows. It is interesting to note that already protected and preserved land in the region amounts to 7.5% of the entire study area. For a detailed listing of all these areas, consult Appendix E.

TABLE 2. PRESENTLY PROTECTED AREAS OF CHESAPEAKE BAY

<u>Ownership</u>	<u>Number of Sites</u>	<u>Acres</u>	<u>Hectares</u> ¹
FEDERAL			
Military	43	266,000	107,500
National Wildlife Refuges ²	8	32,400	13,100
Other	20	56,200	22,700
STATE			
Forests	5	20,750	8,380
Parks	36	56,760	22,930
Wildlife Management Areas ³	30	78,700	31,800
Other	26	80,600	32,570
PRIVATE OR QUASI-PUBLIC	8	10,770	4,350
	Total	602,200	243,300

¹The hectare is a unit of area in the metric system. One hectare equals 10,000 square meters or 2.471 acres. There are approximately 258 hectares per square mile.

²Includes some land not in the N.W.R. system but administered by the U. S. Department of Interior's Bureau of Sport Fisheries and Wildlife.

³Includes some land not in the W.M.A. systems but held with identical management practices. Also includes Virginia Natural Areas.

Protected Federal Lands

Military Lands. The Department of Defense has more public protected land in the Bay region than other Federal agencies. Topographic maps show that much military land is undeveloped forests, marshlands, and shorelines. Nine of the forty-three reservations and installations listed below contain or are directly adjacent to what we later determined to be valuable natural areas:

Name	Location	Hectares
Aberdeen Proving Grounds (Army)	Harford Co., Md.	13,445
Fort George G. Meade (Army)	Anne Arundel Co., Md.	5,252
Navy Propellant Plant	Charles Co., Md.	889
Cedar Neck Naval Research Lab	Charles, Md.	566
Fort Belvoir (Army)	Fairfax, Va.	2,707
Dahlgren Weapons Lab (Navy)	King George, Va.	1,495
Fort Eustis Military Reservation	Newport News City, Va.	2,304
Plum Tree Island Bombing Range	York, Va.	1,212
U. S. Navy Transmitter Station	Nansemond Co., Va.	323
		28,193

Four reservations enclose more than two-thirds of the total military acreage in the Bay region with a diversity of land-use potential:

Name	Location	Hectares
Aberdeen Proving Grounds (Army)	Harford Co., Md.	13,445
Fort George G. Meade (Army)	Anne Arundel Co., Md.	5,252
Quantico Marine Corps Schools	Prince William & Stafford Co's., Va.	25,048
A. P. Hill Military Reservation	Caroline	28,967
		72,712

Public hunting and fishing is allowed in parts of some areas, such as Quantico and A. P. Hill reservations. The Department of Defense has created directives for the use of land and the services have shown an increasing sensitivity to ecological concerns (as evidenced by the Air Force effort to set ecologically sound management practices at their bases).

National Wildlife Refuges and Bureau of Sport Fisheries and Wildlife Land. Seven National Wildlife Refuges (N.W.R.) are in somewhat remote and naturally well-protected locations in the Bay. An eighth area was designated by both the Society of American Foresters and the Federal Committee on Research Natural Areas as a valuable natural area: the Patuxent Wildlife Research Center. These refuges constitute some of the better protected natural areas in the Bay.

Name	Location	Hectares
Susquehanna N.W.R.	Harford Co., Md.	1.5 land 4,050 water
Eastern Neck N.W.R.	Kent Co., Md.	923
Blackwater N.W.R.	Dorchester Co., Md.	4,531
Martin N.W.R.	Somerset Co., Md.	1,786
Patuxent Wildlife Research Center	Anne Arundel & Prince George's Co., Md.	287
Mason Neck N.W.R.	Fairfax Co., Va.	580
Presquile N.W.R.	Chesterfield	536
Fisherman's Island N.W.R.	Northampton Co., Va.	404
		<hr/> 13,100

Other Federally-Owned and Administered Open Space. This class of land includes National Parks, a National Forest, and various other Federal areas. The parks range from the 3,810-hectare Colonial National

Historical Park of James City, Virginia, to the 35.5-hectare Theodore Roosevelt Island Memorial Park in the Potomac River at Washington, D. C. The fifteen parks have a total of approximately 9,211 hectares. Three of the parks, Theodore Roosevelt Island, the George Washington Memorial Parkway, and Colonial National Historical Park, contain marshland that is considered valuable natural land. Their prime function, however, is for tourists who seek historical and recreational establishments; conservation regulations are limited.

The Prince William Forest Park in Prince William County, Virginia is the only National Forest in the region. It covers 7,353 hectares and has moderate recreational use.

Other federal lands include the U. S. Department of Agriculture Research Station in Prince George's County which has over 3,878 hectares of land; and the Pamunkey Indian Reservation in King William County, Virginia which includes valuable wetlands and wildlife in its 404 hectares.

Protected State and Local Lands

State Forests. Five state forests in the Bay region in Maryland total approximately 8,400 hectares. The largest is the new and still growing Pocomoke State Forest in Worcester County. It has 5,600 hectares of land along and near the Pocomoke River. The state has designated the Pocomoke a Scenic River, and will expand forests and local parks along its banks. These state forests enjoy good protection with some restrictions on their use, but their numbers are few and none has been

established near the Bay in Virginia. The proper officials in each state should be contacted to ascertain state plans for further use and development of the forest systems.

State, local and regional parks. The park system in each state administers various historical, recreational and natural lands of several types. This category probably contains the widest variety of land uses. Only in the last five or six years has there been an official recognition of the need to preserve certain sites as Natural Areas rather than as recreation sites or camping grounds. Of the 20,000 hectares of parkland in 36 parks, we recommend that approximately 3,500 hectares within the following seven parks should be maintained in their natural state. More details of the sites recommended are shown on marked topographic maps in the Center for Natural Areas.

Name	Location	Hectares
Susquehanna State Park	Harford Co., Md.	646
Severn Run Natural Envir. Area	Anne Arundel Co., Md.	640
Wye Oak State Park	Talbot Co., Md.	9
Patuxent River State Park	Prince George's Co., Md.	1,212
Shad Landing State Park	Worcester Co., Md.	220
Chippokes Plantation State Park	Surry Co., Va.	404
Seashore State Park	Virginia Beach Co., Va.	1,050
		<hr/> 4,181

Wildlife Management Areas. The State of Maryland has 20,000 hectares of Bay region land in its Wildlife Management System. The Commonwealth of Virginia, in both its Wildlife Management- and Natural Areas Systems, has 3,393 hectares in the Bay region. These systems include some lands not owned by the states but administered by them

under easement agreements. Public hunting is allowed in regulated seasons. In this category are some of the very large prime wetlands of the Eastern Shore of the Bay (some 14,000 hectares on the shore of four counties). These areas are more isolated and less used than the majority of the parks: most if not all of them can be considered valuable potential natural areas.

Other State, Regional and Local Lands. About 13,770 hectares of land and water have been categorized as undeveloped land. The greater part of this area, 10,630 hectares, consists of state and city reservoirs. Among the remainder are four tracts containing interesting natural areas:

Name	Location	Hectares
Crownsville State Hospital	Anne Arundel Co., Md.	384
Eastern State Hospital Reservation	James City Co., Va.	202
Salt Ponds and Northend Point Natural Preserve	Hampton City, Va.	303
Elko Tract	Henrico Co., Va.	808
		<hr/> 1,697

Private and Quasi-Public Properties. Privately protected lands, conservation easements, and holdings by small conservation-minded groups are not all compiled here. The Chesapeake Bay lands of the Nature Conservancy and the Smithsonian Institution are plotted on map 1. The Nature Conservancy's lands are well protected natural areas. Two properties which might be considered as preserves because of their prime natural value are:

Name	Location	Hectares
Camp Rodney Scout Reservation	Cecil Co., Md.	414
Belt Woods (The Episcopal Church)	Prince George's Co., Md.	16
		<hr/> 430

Belt Woods has been nominated by the Center to receive Registered Natural Landmark status from the National Park Service because of its unique stand of mature hardwoods and large bird population.

Preserved Natural Areas

The designation of preserved natural areas is difficult when dealing with state-owned lands since there are different types of preservation and protection. State and federal forests preserve flora and fauna but are subject to cutting, management and "multiple use." State and federal parks have much human use and are subject to management and partial development for recreation. The status of state and Federal wildlife management areas and refuges also varies inasmuch as they preserve wildlife and flora but are subject to changing management policies.

There are 17 sites which may be considered as designated natural areas, but this list should be considered as very tentative since some of the areas may not qualify as fully preserved natural areas.

The Nature Conservancy sites, the Natural Landmark areas, and the Smithsonian Institution areas can be considered as preserved natural areas. The State of Virginia has designated three natural areas-- Charles C. Steirly Natural Area, Parkers Marsh Natural Area, and Seashore Natural Area and these are fully preserved. The latter is also a state park with some tourist facilities and use.

TABLE 3. PRESERVED NATURAL AREAS

	<u>Size of Area</u> (Hectares)	<u>Owner</u>	<u>Type of Area</u>	<u>Preservation</u>
Hellen Creek Hemlock Preserve, Md.	36	Nature Conserv.	Hemlock Outlier	Good
Alexander Berger Memorial Sanctuary, Va.	346	"	Diverse Veg. & Wildlife	Good
Hambleton Island	11	"	Virgin Cedar & Pine	Good
Battle Creek Cypress Swamp, Md.	40	"	Cypress Outlier	Good; Landmark
Charles C. Steirly Natural Area, Va.	8	State of Virginia	Cypress & Tupelo	Good
Long Green Creek Valley and Sweathouse Branch, Md.	101	State of Md. Park	Forests and Rivers	Good
Belt Woods, Md.	16	Episcopal Church	Virgin Mature Forest	Proposed Landmark
Parkers Marsh Natural Area, Va.	307	State of Virginia	Tidal Marsh	Good
Patuxent River Wildlife Research Center, Md.	286	BSFW	Forests and Wildlife	Good; SAF Area
Seashore Natural Area, Va.	606	Va. State Park	Dunes and Forests	Good; Landmark
Mill Creek Bird Sanctuary, Md.	62	Quasi-Public	Oak-Pine Forest	Good
Hock Tract, Md.	6	Md. State Road Com.	Virgin Forest	Good
Corcoran Tract (Part of Sandy Point State Park), Md.	56	Md. State Forest & Pk	Virgin Oak & Pine	Good
Smithsonian Chesapeake Bay Center for Environmental Studies, Md.	808	Smithsonian Institution	Forests & Marshes	Good
LeCompte Bryant Fox Squirrel Refuge, Md.	137	Md. Dept. Game & Fish	Hardwood & Softwood	Good
Pocomoke River Swamp, Md. (over 7,000 ha.)	202	Quasi-Public & State	Cypress & Cedar Swamp	Partly Preserved
Poplar Island, Jefferson and Coaches Islands, Md.	50	Smithsonian Institution	Forest & Marshes	Good
Total	3,078			

III. DEFINING THE NATURAL AREAS

To a slum-dweller a natural area could be a quarter-acre park; to an accomplished hiker, the term might not be served by anything less than a 1,000 square-mile primeval wilderness. As varied as the definitions of 'natural area' are the uses to which humans put such areas. For the purposes of this survey, a rather stringent definition was assumed, for the task was to identify natural areas with demonstrable, intrinsic ecological value.

Under such stringent definition, as we were well aware, many valuable features of the landscape are omitted from consideration. No definition of an ecosystem can escape the fact that an ecosystem is not a self-contained unit with definable limits. Plant life, for example, depends on a host of features--geological, climatic and so forth. And geologists may well find their most valued areas given short shrift in this survey. Archeologists and historians, as well as recreation planners, certainly will.

The definition of a natural area to be judged in this survey is: an area of land or water where natural ecosystem processes operate relatively undisturbed and where natural biological communities, their interactions, structures and functions can be studied. This is somewhat more restrictive a definition than that used by the "Catalog of Natural Areas in Maryland" published by that state's planning department. It is more precise, though not necessarily more to the point, than another definition of natural areas: "That which is His, not ours."

Altogether, using the ecological criteria outlined in this section, the survey identified 232 sites to be considered natural areas--a total potential land area of 138,319 hectares, or 4.2% of the entire study area.

The major types of natural areas of the Bay region are as follows:

a. Primeval Area. Areas which preserve examples of significant species of plants and animals. These wilderness areas should remain natural and unchanged by direct human influences, except in cases of successional communities which may require management to maintain them. They may have limited monitoring as remote "primitive" or "benchmark" areas.

b. Gene Pool Preserve. Special preserves for rare and endangered species of plants and animals requiring complete protection and, often, surrounding buffer zones.

c. Research Natural Area. Ecological research areas where natural processes are allowed to predominate and which are preserved primarily for research. Human use and collection is limited and non-destructive. They can also be used as "benchmark," "baseline," or "check" areas for monitoring environmental change.

d. Manipulative Research Area. Areas where research may modify an area to understand its function and permit better ecological prediction and management.

e. Educational Natural Area. Areas used to teach students and the public, and which may be used for minor research projects. Some development of human facilities and trails or access routes are usually needed.

The management of such natural areas would, as implied above, vary with the type, use and value of the area in question. The uses and values are several, and include:

Esthetic enjoyment. There is ultimately an esthetic value that urges the preservation of the best examples of the various types of plant and animal communities. Beyond that, one can say without being didactic that preserving such examples can only improve the national conscience and thus help prevent the mindless destruction of this part of our national heritage for future generations.

Baseline and long-term monitoring of environmental quality. Natural areas allow collection of essential baseline monitoring data to study trends and changes in populations, levels of pollutants and the effects of man's disturbance.

Study of the structure and function of natural ecosystems. Rational decisions on development and management of our environment depend on theoretical understanding of the natural environment. Integrated systems analysis and development of ecological models require detailed studies of natural areas to develop a predictive ecological capability.

Preservation of germ plasm reservoirs, gene pools, and endangered species. Natural areas preserve the genetic stock of organisms needed by man for new or improved strains of economic and survival value to society in agriculture, horticulture, silviculture, mariculture, medicine and other areas. Rapid

development and change of the world requires use of new strains of species with different adaptations. Threatened endangered species and natural communities once lost are gone forevermore.

Educational and training value. Natural areas are outdoor laboratories for complex research investigation as well as living museums where students and the public can observe nature first-hand. In some natural areas, manipulation of the environment is studied to show the impact of man's technology.

Contribution to environmental quality. Natural areas may act as ecological buffers to modulate the environment, helping in flood control, aquifer recharge and breeding areas for hunting, sport, and commercially important organisms. Natural areas maintain an environment which supports diversity and variety of individual choices.

When faced with the urgent need to make choices, one must choose with a combination of whatever scientific information and experiential judgment is available and thus decide what are the salient features to emphasize: The word 'value' has been used often in this report and it will be used many times again. The values of the Center for Natural Areas are, at the very least, implicit in what follows.

There is an enormous amount of accumulated information about the Chesapeake Bay Region--in scientific and popular literature, from unpublished sources such as knowledgeable biologists and conservationists, and from the biological collections of various

museums. It is altogether likely that some of this information is outdated, given the rapid rate of habitat modification taking place in the region, and ideally all this information should be rechecked, especially in the case of data about wetlands, coastal areas and islands.

At the same time, from the standpoint of making an ecological survey, there are great gaps in our knowledge. It is not always known, for example, what the correlation is between plant communities of various sorts and the niches of some animals, especially migratory ones. Nor is it always known what the tolerances of various plants and animals are to various changes in environmental quality. Faced with such gaps, the Center for Natural Areas was forced to rely on several traditional sets of parameters in classifying and ranking the natural areas of this vast region.

Important Biotic Communities

No natural ecosystem, even a simplified version such as a plant community, is discreet. All are bounded by gradients (ecotones) where the species characteristic of one habitat are gradually replaced by those of another. At its upper edge a salt marsh merges into a freshwater marsh which in turn passes without break into the forest on its edge. Only men make maps with lines on them, but such map lines—and categories—are necessary. The Chesapeake Bay region is rich in the categories of biotic

communities and, as distinctive communities, each type takes on an ecological value based on abundance, diversity, productivity, and other factors described later.

What follows is a brief taxonomy of the region's key ecosystems. The typical plants present in each ecosystem are mentioned, along with associated animals. Appendix B gives a more complete description of each ecosystem type, with more varieties of plants and animals, including the scientific nomenclature.

Salt Marsh or Brackish Tidal Marsh. This type of biotic community is flooded periodically, the period depending on the elevation of the marsh. The classic low marsh, flooded twice daily, is characterized by the ecologically important salt-marsh cordgrass, which serves as a base for many complex foodchains. The frequency of low marsh increases from north south in the Bay, particularly on the eastern shore. The flushing action of the tides is essential to the low marsh community, bringing in both fishes and nutrients and flushing out wastes. Tidal creeks meander through the salt marsh, rich in silt and organic debris from inland runoff, which provide additional nutrient supply.

High salt marsh is flooded only irregularly, and is composed of associations of grasses, rushes and sedges such as salt grass, saltmeadow cordgrass, black needlerush, glasswort, etc. Typical animals of both low and high salt marshes include: horseshoe, fiddler and marsh crabs; several species of snails, mussels and snakes; mallard, pintail and black ducks; sparrows, hawks and

herons; opossum, shrews, voles, rats, raccoons, and many other animals.

Freshwater Marsh. While freshwater marshes are more abundant toward the head of the Bay where the water is virtually fresh, they are also found upstream in almost every tributary stream in the Bay. A great diversity of plants is distributed in these marshes in response to variations in depth of water and salinity. The most important representative species include three-square, cattail, wild rice, common reed, and arrowhead. Also often occurring are varieties of rushes, sedges, and alder.

Corresponding with the high diversity of plant life, there is also a high diversity of animal life, including: salamanders, toads, many varieties of frogs, turtles, and snakes; herons, mallards, bald eagles, hawks and osprey; moles, beaver, muskrat and fox.

Bogs. Rather limited in size and distribution, bogs differ significantly from swamps and marshes. Bogs are so acid that biomass accumulates in their basins in the form of peat rather than decomposing and being recycled in the system as is more often the case in marshes and swamps. Bogs have a cushion-like surface layer of vegetation dominated by mosses. Also found is buckbean, cotton grass, numerous sedges, cranberry, and bog rosemary. A variety of unusual plants are found in bogs, including pitcher plant, baldderworts, orchids, sundews, and highbush blueberry. It is not unusual to find certain pine, maple and gum trees in and around bogs. The animal species of

bogs would generally be those of the surrounding ecosystems, such as quail, turkey, woodcock and warbler. One rare species found here would be the bog turtle.

Ponds. Both fresh- and saltwater ponds occur in the region. Salt ponds contain many of the species found in shallow marine habitats, but ditch grass is most characteristic. Freshwater ponds have a wide range of species: submerged aquatics such as tape grass, water milfoil, and bladderwort, and emergent species including arrowhead and pickerel weed.

Cypress-Gum Swamp Forest. The distribution of the Cypress-Gum Swamp Forest reaches its northern limits in the Chesapeake Bay region, where some of the species typical of the Bottomland Hardwood Forest give way in deeper water to the dominance of the baldcypress and the water tupelo. Typical animals include such birds as the double crested cormorant, the common egret, black crowned night heron, red shouldered hawk, barred owl, and pileated woodpecker. Such mammals as the gray fox, raccoon, mink, river otter, and even the black bear, bobcat and white-tailed deer also appear.

Bottomland Hardwood Forest. This community type is one of the most diverse terrestrial plant communities in the Atlantic Coastal Plain. It occupies the floodplains of the major rivers, and is often flooded in winter and spring with either lower water levels or no standing water in summer and fall. The vegetation is mostly trees with some shrubs and vines. The hardwoods in swamp

forests are black gum, red maple, tupelo, swamp poplar, various oaks, sweet gum, and sweet bay. The more mature bottomland forests may have beech, oaks and elms. In the smaller floodplains of the northern sections of the Bay, the dominant species are: beech, river birch, sycamore, box elder, and silver maple.

Animal species are also quite abundant in bottomland forests, due to the presence of a large supply of foods. Typical animals include: salamanders, toads, frogs, turtles, snakes, ducks, hawk, turkey, woodcock, woodpeckers, warblers, and cardinals. The list of mammals occurring here is much the same as those of the cypress-gum swamp forest, and should also include the opossum, eastern cottontail, squirrels, and beaver.

Pine Flatwoods. Loblolly and pitch pine dominate the coastal flatwoods, with loblolly pine particularly important in Virginia and pitch pine dominant in Maryland. The pine flatwoods are generally rather open with an incomplete canopy, and often have a diverse shrub and herb zone. These forests may be successional, and thus will eventually be naturally replaced by an upland hardwood forest. Some frequently found animals are the pine woods tree frog, fence lizard, cornsnake, hawks, quail, several woodpecker varieties, the pine warbler, pine woods sparrow, meadowlark, towhee, and pine mouse.

Upland Hardwood Forest. This is the climax forest of the upland parts of the region, and is dominated by various species of oak. Other mixed hardwoods including blackgum, hickories,

beechn, sweetgum, magnolia and dogwood, are found in the uplands. Animals of the upland hardwood forest range from several species of salamander, skink and snake to the long-tailed weasel and the striped skunk. Birds typically found include hawks, owls, and woodpeckers, the ruby throated hummingbird, flycatchers, crows, jays, warblers, and vireos. Mammals commonly occurring are shrews, voles, mice, chipmunks, squirrels, raccoon, and deer.

Old Field Community. This is a very common community type which develops on abandoned lands, particularly agricultural lands. Many species of grasses, wildflowers, weeds, vines and briars are among the first to invade old fields. Next to arrive are plants like broomsedge, which can completely dominate the community within a few years. Not long after, sweetgum and pines begin to grow, and the old field can progress into a pine forest or eventually a hardwood forest. Common animal species found during the early stages of old field succession are savanna-, grasshopper- and field sparrows, and snakes and hawks which feed on the shrews, moles, voles, and mice which are so prevalent.

Dune Communities, Maritime Shrub Thickets, and Maritime Forests occur in the Chesapeake Bay region, but mostly on the Atlantic side of the DelMarVa peninsula and they are therefore not included in this study.

Rare and Endangered Animals

Many of our plant and animal species are being destroyed by man's developmental activities, by overgrazing, fire, introduced exotic species and diseases, and particularly destruction of habitats. Some of these species are of national significance, some are important as gene pools for food and fiber producers, as pharmaceuticals, or are of unknown potential use to humans. For many species, preservation of critical habitats as natural areas is sufficient to preserve the species from extinction. Other species require special laws to prevent hunting, picking or collecting.

At present, the species of endangered vertebrate animals are fairly well known. The enormous numbers of invertebrate animal species are less known and many have not even been described to science and have completely unknown status. (Certain species of endangered molluscs, butterflies, and a few other groups of invertebrates are presently fairly well known.) Most preservation efforts for endangered animal species are limited to the relatively small number of the larger and more obvious and interesting species. People tend to identify with vertebrates more than with invertebrates; they even choose them as symbols.

In the Chesapeake Bay region there are at least four species of vertebrate animals that are rare or endangered. This includes the southern bald eagle, the DelMarVa fox squirrel, the Maryland darter and the bog turtle. They are discussed below along with the osprey which is rapidly declining, but not yet in the endangered category.

The southern bald eagle (Haliaeetus leucocephalus leucocephalus) was once very abundant in the Chesapeake Bay region. In 1936 there were over 250 active nests throughout the Delaware, Virginia and Maryland areas. Today, around 90 nests, not all active in any given year, can be found in the same area. Not only have the number of nesting eagles declined but there has been a shift from the upper parts of rivers and the northern part of the Bay to the estuarine segments of the rivers and the southern bay. Despite pesticide-induced shell thinning (recorded for a number of birds of prey including fish predators such as the cormorant and brown pelican), the major cause of eagle mortality continues to be shooting, pollution of feeding areas, and loss of habitat to various forms of development). Even though the eagle population has declined by at least 60% in the last 10 years, the Chesapeake Bay region is the most productive area north of Florida for southern subspecies of bald eagle. The prognosis is not good, however, since the reproductive rate, 5-35%, is considerably below that necessary for a stable population.

The DelMarVa fox squirrel, also known as the Bryant fox squirrel (Sciurus niger cinereus), is a subspecies of the more widespread eastern fox squirrel. Never very abundant or widespread in its range, the DelMarVa fox squirrel is confined today to four eastern shore counties in Maryland: Kent, Queen Anne, Talbot, and Dorchester. The population apparently lies somewhere between 500 and 1500 individuals. Although protected in Maryland since 1971, this species is easily confused with the more abundant eastern gray squirrel Sciurus

carolinensis and many are probably killed during the hunting season. Continued reduction of habitat by real estate developments and cutting of the old-aged, mixed pine-hardwood stands which are the prime habitat, have doubtless contributed to population decline as well.

The Maryland darter (Etheostoma sellare) is a small and rather nondescript fish found in only two streams, Deer Creek and the east branch of Swan Creek, both tributaries of the Susquehanna in Harford County, Maryland. While the population size is unknown, it is assumed because of the very limited habitat to be rather small. Since the species appears to be endemic at the periphery of the range of its closest relatives, it has not been abundant for rather a long time.

The bog turtle (Clemmys muhlenbergi) as its name suggests, is limited to wetland areas in the northeast and the southern Appalachians. Because of its rather secretive behavior its numbers are difficult to determine. Its decline can be inferred both from the destruction of its rather limited habitat and the high value placed on it by pet shops because of its scarcity. It has been protected in Maryland, the only state in the Bay region where it occurs, since 1972.

The osprey (Pandion haliaetus) is not an endangered species, but populations are declining in many places along the east coast -- an example of a rare, declining, or depleted species. Annual production to guarantee replacement for a stable population has been estimated at between 0.95 and 1.30 young fledged per breeding female. In only a few parts of the Bay is this figure reached every year. Despite

the decline, the Bay region has the highest concentration of nesting osprey in the United States -- roughly estimated at 1400 pairs in 1972 and 1100 in 1973. Reasons for the decline, where observed, seem similar to those responsible for the southern bald eagle decline.

The abundance and distribution of most invertebrate animal species is in general poorly known except for certain pests or commercially important species. The Washington, D. C. area has been the site of extensive biological study so that many type localities exist where species have been described. For many species, this is the only known information as the species may never have been collected again. It is important to determine the rarity or endangered status of these species with specialized field studies.

Two species of rare and endangered crustacea are known from the Chesapeake Bay region:

Hay's Spring scud (Stygonectes hayi) is a blind white crustacean known only from a single spring in Washington, D. C. and threatened by urbanization and groundwater pollution. Once widespread, it is now greatly restricted in habitat and has been extensively looked for in recent years.

The Tidewater scud (Stygonectes indentatus), a unique interstitial crustacean, is limited to several groundwater seeps in Nansemond County, Virginia, and is threatened by groundwater pollution throughout its range and by suburban sprawl. It is a primitive member of the genus and is believed to live in the ancestral habitat that once was

characteristic of the genus. It has been sought but not found elsewhere in the tidewater area.

Rare and Endangered Plants

The rare and endangered plants of the Chesapeake Bay region had never been compiled before this survey and no list existed. Plant distribution and abundance is much less known (except for certain trees) than for vertebrate animals. Many plant records are from old records in herbaria, often with vague locality data, and the plant species may no longer exist.

Major disruption of habitats due to agriculture, lumbering, and introduction of exotic weeds has resulted in enormous changes, driving many species close to extinction.

An extensive survey of the literature, consulting with specialists, and examination of herbaria (U. S. National Museum of Natural History, Harvard Gray Herbarium, Clyde Reed Herbarium) resulted in a preliminary list of 23 species of plants which are reported to be rare and endemic. Of these, about 15 species may be considered endangered. The total population of the local and endemic seaside alder (Alnus maritima) occurs in only four counties in the Bay area, but it is not endangered or threatened.

Much more field work and collecting is necessary to validate the exact present status of each species of rare and restricted plant. Extensive field work is required to prove whether or not certain plant species have become extinct.

Range Phenomena

Plant and animal species usually have distinct areas where the major populations occur. But at the edges of the range there may be outliers or disjunct populations which may have developed taxonomic or other differences if they have been isolated for some time. They may include both new endemic or old relict populations of scientific importance and often need protection. At the edges of ranges, species may be rare and require protection.

Because of its position halfway up the Atlantic Coastal Plain, the Bay region includes many edges of ranges or outlying disjunct populations.

Northern Limit. Many species with an essentially southern distribution extend into the Bay region; e.g., longleaf pine (Pinus palustris) and water tupelo (Nyssa aquatica).

Northern Outlier. Some southern species have disjunct populations, often just a few individuals, well north of the contiguous populations: e.g., bald cypress (Taxodium distichum), water hickory (Carya aquatica), overcup oak (Quercus lyrata), and live oak (Quercus virginiana).

Southern Limit. Essentially northern species whose southernmost distribution extends into the Bay region: e.g., black ash (Fraxinus nigra).

Southern Outlier. Populations in the Bay region that are disjunct from the southern continuous populations to the north: e.g., balsam poplar (Populus balsamifera).

Eastern Outlier. Species whose distribution is primarily midwestern extend eastward as disjunct outliers: e.g. chinkapin oak (Quercus muehlenbergii), shumard oak (Quercus shumardi), and bur oak (Quercus macrocarpa).

Coastal Plain Outlier. Upland species characteristic of the Appalachians are occasionally found in small colonies deep in the coastal plain over a hundred miles from the nearest upland population; e.g., white pine (Pinus strobus), hemlock (Tsuga canadensis), and rhododendron (Rhododendron maximum).

Regardless of their nature, these populations are of far greater importance than as mere geographical curiosities. Any organisms living on the edge of its range is operating at the limit of its adaptation to its environment as well, and it may be particularly sensitive to environmental stresses with which it can cope in the center of the range. If we are to understand the ecological amplitude of any species, it must be studied under extreme conditions as well as optimal ones. For this reason, a few acres of scraggly hemlocks on the eastern shore may be worth a hundred acres on the Blue Ridge. These range phenomena have been located as precisely

as records allow, and they enter importantly into the natural area selection process.

Various species are restricted or endemic to the region and are of particular ecological significance. Most of these endemic species are rare and endangered. Some endemic species such as seaside alder (Alnus maritima) are restricted and local, but not yet in the category of endangered or threatened. If these species are locally exterminated, it will result in the worldwide loss of the species.

Seasonal Concentration of Animals

While endangered, rare, and uncommon species are critically important and figure strongly in the selection of desirable natural areas, the most striking feature of Bay wildlife is the seasonal concentration of various species. There are three major groups: overwintering species, seasonal breeders, and migratory stopovers.

Overwintering Species. Many Bay area residents, hunters or not, eagerly look forward to the October arrival of noisy skeins of geese and ducks followed later by whistling swans. By April, the old-squaw, canvasback, mergansers, Canada geese, and swans have returned to their northern breeding places, but their economic and ecologic impact is considerable. Unlike the endangered species which tend to stay put, overwintering species frequently move about on their overwintering grounds and have even adapted new habits as old food supplies disappear and new ones appear.

The swan, Cygnus columbianus, which as recently as a few years ago fed offshore in shallow water while the less wary geese flew inland to feed on stubble fields, have now begun to emulate the habits of geese and can be seen in flocks of several hundred on fields far from open water. This may be due in part to a decrease in the supply of food offshore resulting from increased turbidity and pollution. Nevertheless, it is difficult to anticipate in which bay or river the overwintering species will concentrate from year to year.

Setting aside natural areas to accommodate overwintering species is not practical unless the areas are specifically managed for waterfowl, and such management may then interfere with other uses or values of a given area. Even so, unusual concentrations of overwintering waterfowl have been noted and considered as a criterion for natural areas selection.

Seasonal Breeders. Various species of animals concentrate in certain areas to reproduce. This is particularly true of many migratory species of birds and fish and for some mammals and amphibia. Birds nesting in certain areas, e.g., heronries and sea bird nesting sites, may result in very high seasonal populations. Spawning fish, especially anadromous species, concentrate in selected areas during reproduction periods. In Chesapeake Bay, striped bass (Morone saxatilis), herring (Alosa aestivalis), hickory shad (Alosa mediocris), white shad and American shad (Alosa sapidissima) ascend freshwater streams to breed, many in

large enough quantities to be of commercial value. The striped bass is of course a highly regarded sport fish as well. The importance of small tributary streams as breeding areas and their attendant marshes as nurseries for the subsequent fry has been considered in assessing natural area value.

Wood duck nesting concentrations have been noted (in the study's computer print-out) where information was available. This species, considered endangered 30-40 years ago, has made an astonishing come-back. The wood duck (Aix sponsa) declined as the old trees which had proper nesting cavities were logged off and younger trees cut before reaching proper size. Artificial nesting sites have helped the wood duck to become relatively common again. Since the male is one of the most beautifully marked birds in North America, nesting data was included in the natural areas evaluations.

Heronries are present in the Bay region, mostly of the great blue heron (Ardea herodias) but other types of heronries are found too -- green heron (Butorides virescens), black-crowned night heron (Nycticorax nycticorax), and American egret (Casmerodius albus). At the present about 30 active heronries have been plotted on Map 2, although others probably exist.

Migratory stopovers. Certain areas such as peninsulas and islands are utilized by shorebirds, birds of prey, and passerines passing north or south during migrations. The birds pause to feed and rest for a few days before resuming their migratory flights.

Whenever possible, such areas were located and considered in selecting natural areas.

Commercial Game and Unusual Animal Populations

It is important to provide protected areas for wild game, fish, and shellfish where the populations are protected from over-exploitation. These areas should include breeding areas where populations can build up in sufficient numbers to supply the populations required for commercial or sport hunting and fishing. Game refuges and wildlife management areas are examples of this concept. However, a wider distribution of more areas with different habitats will insure larger and more widespread populations than the relatively few larger wildlife refuges. This is particularly important for certain non-game species.

These protected natural areas are necessary for preservation of many fur bearing animals of interest such as otter, beaver, mink, bobcat, bear, fox and other animals which most humans are happy to occasionally observe in the wild and to know that they still exist. These animals plus deer are rarely seen by the average person.

The high point of many vacationers is to have observed some of these animals in the wild. Preservation of natural areas assures more abundant populations of these animals. A natural area next to a park or recreation area enhances the park greatly.

Clam and oyster beds are quite intimately related to both the bay or estuary where they are located and the nearby marshes which provide the production which the shellfish, in part, harvest. Shellfish are sessile as adults and are quite sensitive to siltation. Some species such as oysters (Crassostrea virginica) lack the siphon that permits clams to be buried by silt. Clams are also dependent on detritus from marshes for food, especially in the younger stages. Adult crabs (Callinectes sapidus) may feed in turn on smaller detritus feeders. Although crabs are quite mobile and migrate during the winter into deeper water near the mouth of the Bay, their attraction to certain areas in the summer reflects the high productivity of those areas. These places should be identified wherever possible as well as oyster bars and clam beds.

Paleontological Features

Fossils, mostly of Miocene age (25,000,000 years before present), are abundant in many exposed Bay front areas: Calvert Cliffs is probably the best known example. The nature of the material (snail shells, shark teeth, whale bones) and its age give glimpses into the past continuum of environments leading to the present. More than any other geological feature, fossils bring home to the general public the meaning of geological time. Fossil sites were given consideration in this survey, but they generally included few ecologically valuable features and received low ratings.

Strictly geological features and archeological sites were not included in this study. In any expansion or subsequent refinement, they should ideally be included.

Well-Documented Sites

An area that has been the subject of continuing scientific research, is of great value for it is possible to use the background of data to help predict the future and to deepen our understanding of the local environment. Such areas were given high consideration in the selection of natural areas.

Plummers Island in the Potomac River above Washington, D. C. is the site of many biological surveys and censuses and is the type locality site for many species of plants and animals. Areas of this type with many years of records and numerous publications should be preserved with a high priority.

Exceptional Individuals or Associations

Records are often kept for the largest individual of a species, such as the Wye Oak, located in the eastern shore area of Maryland, which is the largest white oak known. While of limited scientific value, these largest and oldest individuals are of interest to the public.

The presence of a virgin (or late successional) stand of almost any species of tree is of interest in the eastern United States and should be preserved with a high priority.

Associations of species rarely found together are also of interest, such as northern mountain species occurring together with southern lowland species. This often indicates relict conditions such as hemlock and rhododendron isolates and northern species left in sphagnum bogs adjacent to southern communities of plants.

Size of Area

The bigger an area, the greater its diversity of ecosystems, communities and species is likely to be. In smaller isolated areas the larger predators which act as regulators are usually missing and may require intervention by man to prevent too large populations of primary herbivores.

The minimum size required for a natural area has been discussed almost endlessly and to halt repetitive debate certain arbitrary sizes have been set. The prime function of size as a criteria lies in the viability of the ecosystem to be protected. This varies greatly depending on the ecosystem. A tenth acre bog may be quite defensible with some protecting buffer zone. A small area of mountain top or a small island can be preserved and maintained with relative ease. In addition, a half acre plot of rare tall-grass prairie in a cemetery or along a railroad should be preserved as a natural area.

On the other hand, pine flatland may require over 1,000 acres to provide examples of the usual species expected in such an area. There is no rule for determining the minimum size of an

area to be protected, but 'the larger the better' is the usual rule as long as the natural area contains ecologically important and significant biota and functions.

Some natural areas may require a buffer area to prevent contamination, silting, or protection from other human interferences. Buffer zones may themselves be true natural areas or areas with conservation easements to prevent destruction or exploitation, hunting and/or fishing, or otherwise to assure the protected area's viability.

IV. RANKING THE AREAS

On Methods

For this survey ecological and other data for the region were compiled from all available sources including scientific publications, popular literature, and from individuals and organizations. A questionnaire entitled "Chesapeake Bay Natural Areas Survey" was sent to several individuals to ascertain its effectiveness but it was found that direct contacts and other sources were more effective: the questionnaire was not extensively used. A questionnaire on rare and endangered species, however, was very productive.

The data for the region and each proposed site were entered onto maps and a data retrieval system was set up to handle non-graphic data. Eventually these data were organized in the format of the National Registry of Natural Areas and entered into its computer file. In the early part of the survey, time limitations and the need for portability of the information suggested a simpler, interim solution. Data cards (Burroughs Y-0 Unisort) conducive to a punch-hole sorting technique were typed for each natural area. The system can handle 22 blocks of ten bits each or 220 items per card. Desired information can be located in the master key describing the block information, a rod run through the proper hole, and the cards punched for that hole fall loose and deliver the data. The major advantages of the system are the portability of the entire deck, the elimination of alphabetization and cross

indexing, and the ability, with a modest amount of hand sorting, to group and regroup the data in any desired way. The information from the data cards was used to develop the computer registry.

A geographic inventory approach was developed so that each element of data would be mapped at a common scale on a standard base map of the entire Chesapeake Bay study area. Since there was no existing map of the entire region sufficiently detailed to portray area information such as wetlands or other important natural areas, a base map was made using a mosaic of the seven 1:250,000 scale U. S. Geological Survey topographic maps of the area.

Data were mapped on transparent overlays to allow for manipulation and analysis, and on topographic map base sheets that could be inexpensively reproduced as solid prints. Several reproducible mylar base sheets were prepared, each containing a photographic copy of the map mosaic and displaying the standard information such as cities and towns, roads, topography, and water features.

Because of the need for more detailed mapping of specific sites and natural phenomena, it was necessary to prepare a set of 1:24,000 scale (7 1/2 minute) USGS topographic quadrangle maps covering the study area represented on the 1:250,000 scale maps. A complete set of 281 topographic maps was assembled and keyed to the larger study area map by numerical index.

The 1:250,000 maps and overlay techniques visually showed the ecologically important and significant features of the area, and areas required for their preservation.

The Numerical Ranking System

To set priorities among 232 diverse areas calls for a numerical ranking system whereby one can weight selected criteria that delineate ecological and, in some instances, social values. Some criteria require not only detailed knowledge of the sites in question but also a broad knowledge of the range and rarity of plant and animal species.

In other words, numerical values were assigned each criterion based on ecological judgment. Modifications were made in the course of the project and testing and further improvements of the system are needed. The weighting system gives greater importance to plant communities or types that are not in the National System of Research Natural Areas, those for which there are already many examples. Also, the factors of diversity, quality, lack of past and present disturbance, protectability, and other factors have been given appropriate weighting.

Subjective evaluation could be added to take into account species with human emotional or national significance. The condor, whooping crane or bald eagle have higher importance for preservation than a subspecies of sedge which can be identified by only a few specialists.

Several other ecological ranking systems have tried to take into account the factors of man-induced pressures on the land and relative isolation from development. Indeed, one of the original rankings used in this study gave added weight to threatened areas. This seems to make sense for any setting of priorities as far as timing is concerned. But as far as true ecological value is the measure, isolation from threatened destruction should receive greater numerical value. If both of these factors are included in one system, they tend to cancel each other out. For these reasons we have excluded the factors of threat and isolation. In the implementation of preservation actions, however, the ecologically important areas that are threatened most should of course be worked on first.

Selection of Proposed Natural Areas. In making the quantitative evaluation of each site considered as a natural area, all of the data in the file for each site were put into a standardized format for natural areas. This is the system jointly developed for the Natural Area Registry by The Nature Conservancy and the Smithsonian Center for Natural Areas. It is compatible with the system used by the U. S. Committee on Conservation of Ecosystems of the International Biological Program. The data for the considered sites for the Chesapeake Bay are shown in the complete print-outs. They also contain the present rating for each site (also shown in the lists in this report). The ratings are not permanent and can be updated with the addition of further ecological information.

Some areas, of course, have extensive information, perhaps including records of species no longer present, and other areas have very little data but are still of great value. Therefore, the system is designed to be highly flexible with regular updating and change of ratings possible. For this reason, no data on sites with low ratings are destroyed since data may accumulate to increase the ratings. Also, areas with high ratings may be lowered with loss or destruction of ecological features.

Several versions of the ranking system were tried out in this survey. One of the early systems used gave equal weighting to each of the criteria but it was only partially successful in establishing what the project staff judged to be valid priorities. With the acquisition of more detailed data from each area a reevaluation was required and the present evaluation system was used. [SEE TABLE 4]

A separate but related procedure in the rating process was the use of mapping techniques. When all of the ecologically significant data on plants, animals, unique communities and habitats, wetlands and other features have been mapped and printed on transparent overlays, the data are then visually available. A base map of the areas presently protected, transparent ecological data overlays, and an overlay of the proposed natural area sites permit visual evaluation of the value of each proposed site and shows the need for additional specific natural area sites to protect concentrations of important fauna, flora, and ecosystems. Overlays

show the ranges of certain species, help in specifying critical sites for preservation, and are of great value in evaluating how effective the list of existing and proposed sites are in preserving the ecological features. Those sites with many valuable ecological features can then become the target of high priority field studies, as a prelude to procurement.

There were 232 areas considered, and rated, using the criteria and numerical weighting system in Table 4 and overlay maps 3 and 4. The highest rating was 24 and the lowest was 1. There were 57 areas with a rating of over 10. These have been selected for highest priority proposed primary natural areas. The rest are recommended for secondary consideration except for 7 areas recommended for special consideration. These include areas with 10 or less points but are essential to provide examples of outlier hemlock, bogs, or other special categories. Thus there are 64 areas which should be given primary consideration for procurement. This system gives a premium to diversity and the greater the variety of natural features and biota, the higher priority is the area. However, ecological judgment is required in making the final recommendations based on the number of ecosystem types represented and any special categories that must be considered. Since the data have been computerized, it is possible for a procurement agency to selectively determine priorities using selected categories. For example, if it is desired to select the areas with virgin or mature hardwoods, or

areas containing eagle nests, these can now be selected readily.

The 64 natural areas of prime ecological importance are listed below in Table 5 in order of numerical ranking. These and the remaining 168 areas are indexed by state and county on Page and by alphabetical order on Page , for ease in cross-referencing. The remaining areas under consideration which appear in Table 6 all received lower rankings using this particular system. They should not, however, be neglected because they could easily score much higher with different weightings or with the inclusion of other factors in the rating system.

The 64 prime natural areas represent roughly 28% of the original 232 areas considered and ranked. In area, the sixty-four sites include about 236 square miles. Thus we are recommending procurement or other preservation action for roughly 2% of the land in the Chesapeake Bay region study area. The Center for Natural Areas is already evaluating some of these areas as part of the Atlantic Coastal Plain Natural Landmark Survey, under contract with the National Park Service, Department of the Interior.

NOTE: This survey should not be considered final or complete. Some prime natural areas may have been inadvertently missed which should have been included. The Center for Natural Areas welcomes any and all additional ecological information to improve its knowledge of the Bay region.

TABLE 4. CRITERIA AND QUANTITATIVE VALUES
FOR SELECTION OF NATURAL AREAS

1. Ecosystem Types	<u>Points</u>
Diversity of ecosystem types	1 (each)
Little or no past and present disturbance	2
High diversity of species	2
Type not represented in National Research Natural Area System	4
2. Endangered, or Threatened Biota and Gene Pool Species	
Endangered and threatened plant or animal species	4 (each sp.)
Rare, declining, or depleted species	2 (each sp.)
3. Range Phenomena	
Outliers, disjuncts, or relict species	1
Limits of range—N, S, E, W	1
Restricted and endemic species	1
4. Seasonal Concentrations of Animals	
Seasonal breeders - nesting, spawning	1
Overwintering concentrations	1
Migratory concentrations	1
5. Commercial, Game, or Unusual Animal Populations	
Ungulates, game birds, fur bearers	1
Fish, clams, oysters, crabs	1
6. Paleontological, Geological and Archeological Features	
Bones and artifacts, deposits of fossils, peat, lignite, sediments, structural and geomorphological features	1 (each feature)
7. Sites of well documented scientific research or discovery and records over period of years	1
8. Oldest, largest, or otherwise exceptional individuals or associations	1 (each)
9. Size of area	
<u>Acres</u>	<u>Hectares</u>
Under 100 acres	Under 45
100 - 1,000	45 - 457
1,000 - 5,000	457 - 2,270
over 5,000	over 2,270
	1
	2
	3
	4

Example of the Rating System in Use. Below is an illustration of the rating system as applied to Zekiah Swamp, the first-ranked area. The natural features of the site are listed or summarized on the left. On the right are the numerical values which apply to those features, according to the scheme in Table 4 on the previous page.

<u>Data</u>	<u>Points Awarded</u>
Zekiah Swamp	
Maryland	
Charles County	
5,385 hectares in size	4
Private ownership	
Hardwood swamp forest	1
Good stands of <u>Ilex opaca</u> , <u>Quercus palustris</u> , and <u>Liquidambar styraciflua</u> . Mature Timber.	
High diversity of plant species.	2
<u>Populus heterophylla</u> , southern outlier	1
Beaver, mink (commercial species)	1
Osprey (depleted), heronry (seasonal breeders)	3
Wilson's snipe and wood duck (overwintering)	1
Concentration of migrating birds	1
Southern Bald Eagle nest (endangered)	4
Rare animals: red bellied woodpecker, Maryland Diamondback Terrapin, <u>Allocapania</u> Zekiah Stonefly	4
One of the largest of Maryland's remaining undisturbed swamps	2
	<hr/>
Rating Total	24

V. MASTER LIST OF NATURAL AREAS

The following eighty-six color pages consist of a computer print-out of key information on all 232 areas considered in this survey, listed in order of ecological importance. There is of course no hard-and-fast necessity for the particular placement of each area in the list, especially for the areas which received equal numerical ratings. Therefore the reader should view this list with a certain fluidity, remembering that the ranks may change with improvement in data or insight. The list is separated on page 73, with primary areas recommended for preservation above and secondary areas recommended for consideration below. Note that some areas in the secondary section deserve special attention and should therefore be considered for preservation with the primary group. These seven areas are:

Helen Creek Hemlock Preserve; Calvert Co., Maryland; p73
Chisel Run Bog; James City Co., Virginia; p74
King Creek - Kingston Landing; Talbot Co., Maryland; p76
Blinkhorn Creek; Dorchester Co., Maryland; pp87 & 88
Round Bay Bog; Anne Arundel Co., Maryland; p91
Andover Branch; Queen Anne Co., Maryland; p101
Hemlock Stand on Mill Creek; Caroline Co., Maryland; p102

When searching for areas with high priority, consult the first part of the master list. When searching for areas within a particular county, consult the Index on page 119. Areas themselves can be found in the Alphabetical Index on page 130. To find the map location of an area, consult the U.S. Geological Survey 7.5 minute series topographic maps named under "Quadrangle" in the master list.

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000674 010 01 NAME OF AREA: ZEKIAH SWAMP
 020 01 STATE: MARYLAND
 021 01 COUNTY: CHARLES
 030 01 QUADRANGLE: 10F 11E 10E HUGHESVILLE, MD; POPES CREEK, MD; LA PLATA, MD
 040 01 SIZE OF AREA: 05385.3 HA
 060 01 OWNER I: PRIVATE
 151 01 AQUATIC TYPES: SWAMP FOREST, HARDWOODS, BEAVER, MINK, OSPREY,
 170 01 BIOTIC COMPONENTS: OVERWINTERING WILSON'S SNIFE AND WOOD DUCK, HERONRY,
 02 GOOD STANDS OF ILEX OPACA, QUERCUS PALUSTRIS AND
 03 LIQUIDAMBAR STYRACIFLUA, VIRGIN TIMBER, MANY BIRD
 04 AND PLANT SPECIES, SORA RAIL CONCENTRATION OF
 05 MIGRATING BIRDS, MARYLAND DIAMONDBACK TERRAPIN,
 06 POPULUS HETEROPHYLLA, DISJUNCT POPULATION, SOUTHERN
 07 OUTLIER, POTAMOGETON PULCHER.
 08 IN POTOMAC RIVER WATERSHED. ONE OF THE LARGEST
 180 01 DESCRIPTION OF AREA: NATURAL SWAMPS REMAINING IN MARYLAND
 02 RARE AND ENDANGERED ANIMALS: EAGLE NEST; RED BELLIED WOOD PECKER; ALLOCAPANIA
 191 01 ZEKIAH STONEFLY;
 200 01 CONTENTS IN MANUAL FILE: SOILS MAP; GENERAL INFORMATION;
 02 PUBLICATION
 301 01 AUTHOR: TAYLOR, JOHN W
 303 01 TITLE: THE WICOMICO RIVER
 304 01 JOURNAL: VOLUME: PAGES: ATLANTIC NAT. 9(3):133-138
 400 01 AREA INCL. BUFFER ZONE: 07320.5 HA
 410 01 ECOLOGICAL RATING: 24

00000608 010 01 NAME OF AREA: DRAGON RUN
 020 01 STATE: VIRGINIA
 021 01 COUNTY: KING AND QUEEN; MIDDLESEX; GLOUCESTER; ESSEX
 030 01 QUADRANGLE: 17G 18H 18G CHURCH VIEW, VA; SALUDA, VA; SHACKLEFORDS, VA
 040 01 SIZE OF AREA: 02735.1 HA
 060 01 OWNER I: PRIVATE
 170 01 BIOTIC COMPONENTS: SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM,
 02 CHAMAECYPARIS THYOIDES AND PINUS SP. OSPREY, BEAVER
 03 MINK, TURKEY AND OTTER, ANADROMOUS FISH, OVERWINTERING
 04 CANADA GEESE, HERONRY, TILLANDSIA USNEOIDES REACHES
 05 NORTHERN LIMIT AT THIS LOCATION.
 180 01 DESCRIPTION OF AREA: FOSSIL SHELLS. ST. MARY'S FORMATION. TIMBER OPERATIONS.
 02 AREA STUDIED BY VIRGINIA OUTDOOR PLAN AS A SCENIC RIVER.
 03 PRIME WETLAND.
 191 01 RARE AND ENDANGERED ANIMALS: EAGLE
 200 01 CONTENTS IN MANUAL FILE: TOPOGRAPHIC MAP
 410 01 ECOLOGICAL RATING: 22

00000610 010 01 NAME OF AREA: POCOMOKE RIVER SWAMP
 020 01 STATE: MARYLAND
 021 01 COUNTY: WORCESTER; WICOMICO; SOMERSET

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000605	030	01	QUADRANGLE: 13R 130 14Q	PUBLIC LANDING, MD; SNOW HILL, MD; GIRDLTREE, MD;
		02	SIZE OF AREA:	POCOMOKE CITY, MD; KINGSTON, MD
	040	01	OWNER I:	05841.8 HA
	060	01	AQUATIC TYPES:	PRIVATE
	151	01	BIOTIC COMPONENTS:	SWAMP
	170	01		SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM, PINUS SP.,
		02		CHAMAECYPARIS THYOIDES, MAGNOLIA SP., ILEX AND TILLANDSIA
		03		USNEOIDES, SWAINSONS WARBLER, SHELLFISH, ANADROMOUS FISH,
		04		WOOD DUCK BREEDING, DEER, TWO EAGLE NESTS,
	180	01	DESCRIPTION OF AREA:	INCREASING RESIDENTIAL AND OTHER DEVELOPMENT OF SHORELINE,
		02		DANGER OF WATER POLLUTION, PRIME WETLANDS.
	190	01	RARE AND ENDANGERED PLANTS:	ALNUS MARITIMA
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NESTS
	410	01	ECOLOGICAL RATING:	22
00000601	010	01	NAME OF AREA:	CHICKAHOMINY, LOWER - PROVIDENCE FORGE
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	CHARLES CITY; JAMES CITY; NEW KENT VA
	030	01	QUADRANGLE: 20E 19E 19D	BRANDON, VA; WALKERS, VA; PROVIDENCE, FORGE VA
	040	01	SIZE OF AREA:	02189.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, TAXODIUM DISTICHUM,
		02		OSPREY, ANADROMOUS FISH, HERONRY.
	180	01	DESCRIPTION OF AREA:	BROAD EXTENSIVE FINE MARSHES AND TAXODIUM DISTICHUM
		02		STANDS FLANKED IN PLACES BY CLIFFS UP TO 33 M HIGH,
		03		IN JAMES RIVER WATERSHED, SOME OF BEST MARSHES IN
		04		VIRGINIA, PRIME WETLAND.
	190	01	RARE AND ENDANGERED PLANTS:	BACOPA STRAGULA; BACOPA SIMULANS
	410	01	ECOLOGICAL RATING:	19
00000603	010	01	NAME OF AREA:	CHICKAHOMINY, MIDDLE
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NEW KENT; CHARLES CITY; HENRICO
	030	01	QUADRANGLE: 18C 19C 19D	QUINTON, VA; ROXBURY, VA; PROVIDENCE, FORGE
		02		VA; SEVEN PINES, VA
	040	01	SIZE OF AREA:	03955.0 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	RIVER
	170	01	BIOTIC COMPONENTS:	ANADROMOUS FISH, HERRING, SWAMP FOREST, HARDWOODS AND
		02		TAXODIUM DISTICHUM.
	180	01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED, PRIME WETLAND,
	190	01	RARE AND ENDANGERED PLANTS:	JUNCUS CAESARIENSIS, HELONIAS BULLATA,
	191	01	RARE AND ENDANGERED ANIMALS:	OSPREY
	410	01	ECOLOGICAL RATING:	18
00000607	010	01	NAME OF AREA:	MATTAPONI RIVER, LOWER
	020	01	STATE:	VIRGINIA

SERIAL CATEG LINE CAT-DEFINITION

DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000607	021	01	COUNTY:	KING AND QUEEN: KING WILLIAM
	030	01	QUADRANGLE: 18F 17F 17E 17D 16D	WEST POINT, VA; TRUHART, VA; KING AND QUEEN COURT
		02	SIZE OF AREA:	HOUSE, VA; KING WILLIAM, VA; AYLETT, VA
	040	01	OWNER I:	01903.0 HA
	060	01	AQUATIC TYPES:	PRIVATE
	151	01	BIOTIC COMPONENTS:	MARSH, FRESHWATER; RIVER; MARSH, TIDAL
	170	01		MAJOR MARSHES FOR ANADROMOUS FISH, STRIPED BASS,
		02		HERRING. HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES
		03		PRESENT.
	180	01	DESCRIPTION OF AREA:	IN MATTAPONI AND YORK RIVERS WATERSHED. SOME OF THE
		02		FINEST MARSHES IN TIDEWATER VIRGINIA.
	190	01	RARE AND ENDANGERED PLANTS:	BACOPA STRAGULA; CASSIA FASCICULATA VAR. MACROSPERMA
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	05223.7 HA
	410	01	ECOLOGICAL RATING:	18
00000609	010	01	NAME OF AREA:	PATUXENT RIVER
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CALVERT; PRINCE GEORGES; ANNE ARUNDEL
	030	01	QUADRANGLE: 8G 8G 10G	LOWER MARLBORO, MD; BRISTOL, MD; BENEDICT, MD
	040	01	SIZE OF AREA:	04597.5 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	EAGLE, OTTER, MINK, KING RAIL, HERONRY, WOOD DUCK,
		02		TEAL. ANADROMOUS FISH, SHAD, HERRING, STRIPED BASS.
		03		PLANT SPECIES INCLUDE TYPHA SP., ORONTIUM AQUATICUM,
		04		PONTEFERIA SP., HIBISCUS PALUSTRIS AND SPARTINA SP.
		05		SORA RAIL CONCENTRATED IN FULL MIGRATION.
	180	01	DESCRIPTION OF AREA:	PRIME WETLAND.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	17
00000665	010	01	NAME OF AREA:	CEDARS, THE - CHURCH CREEK - RINGGOLD POINT
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	KENT
	030	01	QUADRANGLE: 6K	LANGFORD CREEK, MD
	040	01	SIZE OF AREA:	00395.9 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL; MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH AND FRESHWATER MARSH VEGETATION WITH TYPHA SP.
		02		UPLAND MATURE HARDWOODS. OSPREY, OTTER, WOOD DUCK, CRAB AND
		03		OYSTERS. ANADROMOUS FISH, STRIPED BASS, WHISTLING SWAN,
		04		WINTERING.
	180	01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	17
00000686	010	01	NAME OF AREA:	MILES CREEK
	020	01	STATE:	MARYLAND

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SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000686	01	01	COUNTY:	TALBOT
	01	01	QUADRANGLE: 9M 9L	PRESTON, MD; TRAPPE, MD
	01	01	SIZE OF AREA:	00492.9 HA
	01	01	OWNER I:	PRIVATE
	01	01	AQUATIC TYPES:	MARSH, FRESHWATER
	01	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. DELMARVA FOX SQUIRREL, OSPREY, OTTER, EAGLE, ANADROMOUS FISH, STRIPED BASS CRAB
	02	02		
	03	03		
	180	01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED,
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST; DELMARVA FOX SQUIRREL
	400	01	AREA INCL. BUFFER ZONE:	01834.2 HA
	410	01	ECOLOGICAL RATING:	17
00000605	010	01	NAME OF AREA:	BLACKWATER RIVER
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	ISLE OF WIGHT; SOUTHAMPTON; SURRY
	030	01	QUADRANGLE: 25F 24E 24F 23F	FRANKLIN, VA; SEDLEY, VA; ZUNI, VA; RAYNOR, VA; RUNNYMEDE, VA; DENDRON, VA
	02	02		
	040	01	SIZE OF AREA:	03514.8 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM, WIDE VARIETY OF FISH SPECIES.
	02	02		
	180	01	DESCRIPTION OF AREA:	SCENIC RIVER.
	190	01	RARE AND ENDANGERED PLANTS:	LECHEA MARITIMA. PYXIDANTHERA BARBULATA.
	410	01	ECOLOGICAL RATING:	16
00000620	010	01	NAME OF AREA:	POROPOTANK MARSH - PURTAN MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	GLOUCESTER; KING AND QUEEN
	030	01	QUADRANGLE: 19G	GRESSITT, VA
	035	01	COORDINATES:	37 26 -- N 076 41 -- W
	040	01	SIZE OF AREA:	02468.4 HA
	060	01	OWNER I:	LINDSEY, JOHN M.
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH JUNCUS ROEMERIANUS, OSPREY, OYSTERS, ANADROMOUS FISH, EAGLE.
	02	02	DESCRIPTION OF AREA:	IN YORK RIVER WATERSHED. PRESENT USE IS PRIMARILY HUNTING PRESERVE FOR DUCKS, SHORE AND MARSH BIRDS, PRIME WETLAND.
	180	01		EAGLE NEST
	02	02		05239.9 HA
	03	03		15
00000645	010	01	NAME OF AREA:	LILLY POINT MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NEW KENT
	030	01	QUADRANGLE: 18D 18E	TUNSTALL, VA; NEW KENT, VA
	040	01	SIZE OF AREA:	00517.1 HA

DATA

CAT-DEFINITION

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000645	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, SWAMP FOREST, HARDWOODS, ANADROMOUS FISH, IN PANUNKEY AND YORK RIVERS WATERSHEDS.
	180	02	DESCRIPTION OF AREA:	CASSIA FASCICULATA VAR. MACROSPERMA
	190	01	RARE AND ENDANGERED PLANTS:	EAGLE NEST
	191	01	RARE AND ENDANGERED ANIMALS:	01567.5 HA
	400	01	AREA INCL. BUFFER ZONE:	15
	410	01	ECOLOGICAL RATING:	
00000681	010	01	NAME OF AREA:	NANJEMOY CREEK - WARDS RUN
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 11C 11D	NANJEMOY, MD; MATHIAS POINT, MD
	040	01	SIZE OF AREA:	01010.0 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. MINK, OTTER, OSPREY, WOOD DUCK, LARGE MOUTH BASS, ANADROMOUS FISH, HERONRY.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	03232.0 HA
	410	01	ECOLOGICAL RATING:	15
00000615	010	01	NAME OF AREA:	CHOTANK CREEK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING GEORGE
	030	01	QUADRANGLE: 12D 12C	DAHLGREN, VA; KING GEORGE, VA
	040	01	SIZE OF AREA:	00735.3 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER; POND
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, UPLAND MATURE HARDWOODS, BEAVER, ANADROMOUS FISH, TWO PAIRS OF EAGLES, NESTING, DUCKS, GEESE, IN POTOMAC RIVER WATERSHED.
	180	02	DESCRIPTION OF AREA:	BALD EAGLE NESTS
	191	01	RARE AND ENDANGERED ANIMALS:	GENERAL INFORMATION; WATER QUALITY INFORMATION
	200	01	CONTENTS IN MANUAL FILE:	02626.0 HA
	400	01	AREA INCL. BUFFER ZONE:	14
	410	01	ECOLOGICAL RATING:	
00000627	010	01	NAME OF AREA:	POWHATAN CREEK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	JAMES CITY
	030	01	QUADRANGLE: 21F	SURRY, VA
	040	01	SIZE OF AREA:	00404.0 HA
	060	01	OWNER I:	PRIVATE
	065	01	OWNER II:	FEDERAL, AGENCY
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000627	170 01	BIOTIC COMPONENTS:	TIDAL FRESHWATER MARSH VEGETATION, ANADROMOUS FISH, HERRING, SARRACENIA PURPUREA, SYMLOCARPUS FOETIDUS AND CALTHA PALUSTRIS. IMPORTANT TREES INCLUDE QUERCUS BICOLOR, PINUS TAEDA, LIRIODENDRON TULIPIFERA, QUERCUS ALBA, ACER RUBRUM, CARPINUS CAROLINIANA, LIQUIDAMBAR STRYACIFLUA, ILEX OPACA AND MAGNOLIA VIRGINIANA.
	180 01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED. FOREST IS BEING SELECTIVELY CUT.
	190 01	RARE AND ENDANGERED PLANTS:	TRILLIUM PUSILLUM, ISOTRIA MEDEOLOIDES.
	400 01	AREA INCL. BUFFER ZONE:	00727.2 HA
	410 01	ECOLOGICAL RATING:	14
05000636	010 01	NAME OF AREA:	HOLLIS MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	WESTMORELAND
	030 01	QUADRANGLE: 13F 13G	STRAITFORD HALL, VA; ST. CLEMENTS ISL., VA
	040 01	SIZE OF AREA:	00088.9 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. OSPREY, HERONS, EGRETS, CHAMAECYPARIS THYOIDES. BREEDING OF CLAPPER RAIL. ABOUT 20 OSPREY NESTS.
	03 03	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. AT NORTHWEST END OF NOMINI BAY. NARROW SANDY BEACH ALONG NORTHERN SHORE. SHORT SAND SPIT AT EACH END OF ISLAND. PRIME WETLANDS. SEE ALSO RECORD 00000700, CURRIOMAN BAY.
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	200 01	CONTENTS IN MANUAL FILE:	PUBLICATION
	301 01	AUTHOR:	ABBOTT, JACKSON M.
	302 01	TITLE:	1955
	303 01	JOURNAL:VOLUME:PAGES:	THE HOLLIS MARSH ISLAND HERONRY
	304 01	ECOLOGICAL RATING:	ATLANTIC NAT. 12(2):171-74
	410 01		14
00000661	010 01	NAME OF AREA:	FRESH POND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 61	GIBSON ISLAND, MD
	040 01	SIZE OF AREA:	00052.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND; BOG
	170 01	BIOTIC COMPONENTS:	UPLAND FOREST, QUERCUS - CARYA. ANIMAL SPECIES PRESENT MAY POSSIBLY INCLUDE A RARE SPECIES OF DRAGONFLY, CARPENTER FROG, ANDERSON'S TREEFROG AND BOGG LEMMING. SPHAGNUM BOG, DROSER A SP., SARRACENIA SP., AND VACCINIUM SP. (CRANBERRY). OSPREY.
	02 02	DESCRIPTION OF AREA:	CONSIDERED AN EXCELLENT SITE. ALSO KNOWN AS ANGEL'S BOG. BOG IS ADJACENT TO POND. BEING ENCRACED BY
	180 01		
	02 02		
	03 03		
	04 04		
	05 05		
	01 02		

SERIAL CATEG LINE CAT-DEFINITION

DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000661	150	03	CONTENTS IN MANUAL FILE:	SURURBAN DEVELOPMENT.
	200	01	ECOLOGICAL RATING:	SPECIES LIST, PLANT
	410	01		14
00000794	010	01	NAME OF AREA:	REED CREEK - GORDON POINT - WRIGHT NECK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	DUEEN ANNE
	030	01	QUADRANGLE:	LANGFORD CREEK, MD
	040	01	SIZE OF AREA:	00416.1 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
		02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. EAGLE.
		03		ANADROMOUS FISH, STRIPED BASS. ABUNDANT SHELLFISH,
		04		CRABS, CLAMS, SUNFISH. PERCH. HERONRY. WHISTLING
		05		SWAN. HARDWOOD FOREST.
	180	01	DESCRIPTION OF AREA:	REED CREEK IS SHORT TRIBUTARY OF CHESTER RIVER.
		02		A FEW LARGE FORMS ON THE INTERIOR SHORE. SEMI-
		03		SECLUDED. RECOMMENDED FOR PRESERVATION BY
		04		CHESAPEAKE BAY FOUNDATION. PRIME WETLAND.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	01058.5 HA
	410	01	ECOLOGICAL RATING:	14
00000602	010	01	NAME OF AREA:	CHICKAHOMINY, UPPER
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	HANOVER; NEW KENT
	030	01	QUADRANGLE:	SEVEN PINES, VA; RICHMOND, VA; YELLOW PINES, VA
	040	01	SIZE OF AREA:	.02755.3 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	RIVER
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. A
		02		RARE INTRODUCED SPECIES, ANEILEMA KEISAK, OCCURS.
		03		BROAD EXTENSIVE FINE MARSHES. EAGLES, NESTING.
		04		IN JAMES RIVER WATERSHED. SCENIC RIVER. BOTTOMLAND
		05		FOREST NOT IMPRESSIVE. LOCATED NEAR INTERSTATE 95.
		06		WOODED SWAMPS ALONG UNPOLLUTED CHICKAHOMINY RIVER. AREA
	180	01	DESCRIPTION OF AREA:	15 NARROW DRAINAGE CHANNEL FOR EXTENSIVE SWAMPY REGION
		02		SUBJECT TO DEVELOPMENT PRESSURE FROM NORTHEAST SUBURBS
		03		OF RICHMOND.
		04		EAGLE NEST
	191	01	RARE AND ENDANGERED ANIMALS:	
	410	01	ECOLOGICAL RATING:	13
00000635	010	01	NAME OF AREA:	UPPER CHIPPOKES CREEK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	PRINCE GEORGE; SURRY
	030	01	QUADRANGLE:	SAVEDGE, VA
	040	01	SIZE OF AREA:	00703.0 HA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000635	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION. OSPREY. ANADROMOUS FISH, STRIPED BASS, HERRING. NEAR MATURE TAXODIUM DISTICHUM STAND. NEAR VIRGIN STATE OF RAVINE HARDWOODS.
	02 02		
	03 03		
	04 04		
	180 01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED. MIOCENE FOSSILS. PRIME WETLANDS.
	02 02		
	400 01	AREA INCL. BUFFER ZONE:	02258.4 HA
	410 01	ECOLOGICAL RATING:	13
00000700	010 01	NAME OF AREA:	CURRIOMAN BAY
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	WESTMORELAND
	030 01	QUADRANGLE:	STRATFORD HALL, VA
	040 01	SIZE OF AREA:	02222.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. UPLAND HARDWOODS. OSPREY.
	02 02		
	180 01	DESCRIPTION OF AREA:	IN POTOMAC WATERSHED. PRIME WETLANDS.
	02 02		
	191 01	RARE AND ENDANGERED ANIMALS:	SEE ALSO RECORD 00000636, HOLLIS MARSH.
	410 01	ECOLOGICAL RATING:	EAGLE NEST 13
00000777	010 01	NAME OF AREA:	CEDAR POINT NECK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CHARLES
	030 01	QUADRANGLE:	MATHIAS POINT, MD
	040 01	SIZE OF AREA:	02020.0 HA
	060 01	OWNER I:	PRIVATE
	065 01	OWNER II:	FEDERAL, MILITARY
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. SWAMP FOREST, HARDWOODS. OTTER. MINK. GRABS. ANADROMOUS FISH.
	02 02		
	03 03		
	04 04		
	180 01	DESCRIPTION OF AREA:	NO PRESERVATION IN EFFECT ON PRIVATELY OWNED SECTION. APPROXIMATELY ONE HALF OF THE AREA COMPRISES THE BLOSSOM POINT PROVING GROUNDS. LOCATED ON NANJEMOY CREEK.
	02 02		
	03 03		
	04 04		
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	410 01	ECOLOGICAL RATING:	13
00000779	010 01	NAME OF AREA:	LLOYD CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CHARLES

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000779	030 01	QUADRANGLE: 12E	COLONIAL BEACH NORTH, MD
	040 01	SIZE OF AREA:	00016.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA CYNOSUROIDES, EAGLE, OTTER, MINK, OVERWINTERING SWAN, CRABS AND OYSTERS. ANADROMOUS FISH, STRIPED BASS, OSPREY.
	02 03		EAGLE NEST
	04		13
	151 01	RARE AND ENDANGERED ANIMALS:	
	410 01	ECOLOGICAL RATING:	
00000831	010 01	NAME OF AREA:	PASSMORE CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	JAMES CITY
	030 01	QUADRANGLE: 21F 21G	SURRY, VA; HOG ISLAND, VA
	040 01	SIZE OF AREA:	00242.4 HA
	060 01	OWNER I:	COLONIAL NATIONAL HISTORICAL PARK
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. SWAMP FOREST. HARDWOODS AND TAXODIUM DISTICHUM. THREE HERONRIES. OSPREY NEARBY. ANADROMOUS FISH.
	410 01	ECOLOGICAL RATING:	13
00000614	010 01	NAME OF AREA:	BLUFF POINT MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NORTHUMBERLAND
	030 01	QUADRANGLE: 17J	FLEETS BAY, VA
	040 01	SIZE OF AREA:	00117.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL; POND, ESTUARINE
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. UPLAND MATURE HARDWOODS. OSPREY. OYSTERS. HERONRY, SHORE BIRDS AND WATERFOWL.
	02 03		PRIME WETLAND.
	180 01	DESCRIPTION OF AREA:	00723.2 HA
	400 01	AREA INCL. BUFFER ZONE:	12
	410 01	ECOLOGICAL RATING:	
00000621	010 01	NAME OF AREA:	YARMOUTH ISLANDS - SIMPSON - WRIGHT
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	JAMES CITY
	030 01	QUADRANGLE: 20F	NORGE, VA
	040 01	SIZE OF AREA:	01151.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION. SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM, OSPREY, HERONRY, ANADROMOUS FISH.
	02 03		IN CHICKAHOMINY RIVER WATERSHED. THE LITTLE CREEK AREA HAS BEEN PURCHASED BY CITY OF NEWPORT NEWS IN
	180 01	DESCRIPTION OF AREA:	
	02 02		

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000621	180 03		ANTICIPATION OF MAKING A RESERVOIR IN THIS PART OF THE
	04		WATERSHED. PRIME WETLAND.
	400 01	AREA INCL. BUFFER ZONE:	C2977.5 HA
	410 01	ECOLOGICAL RATING:	12
00000622	010 01	NAME OF AREA:	SMOOT TRACT
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING GEORGE
	030 01	QUADRANGLE: 12C	KING GEORGE, VA
	035 01	COORDINATES:	38 20 -- N 077 10 -- W
	040 01	SIZE OF AREA:	00169.7 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS, OLD GROWTH EXCELLENT FOREST WITH LIRIODENDRON TULIPIFERA AND QUERCUS SPP. DOMINANT SHORE BIRDS, WATERFOWL, EAGLE. HEAVY DEER POPULATION, IN POTOMAC RIVER WATERSHED. LONG FRONTAGE OF BEACH AND MARSHLAND ALONG ONE SIDE OF TRACT.
	180 01	DESCRIPTION OF AREA:	EAGLE NEST
	191 01	RARE AND ENDANGERED ANIMALS:	12
	410 01	ECOLOGICAL RATING:	
00000632	010 01	NAME OF AREA:	GORDON ISLAND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	JAMES CITY
	030 01	QUADRANGLE: 20E 20F	BRANDON, VA; NORGE, VA
	040 01	SIZE OF AREA:	00864.4 HA
	060 01	OWNER I:	POWHATAN HUNT CLUB
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. ZIZANIA SP., PELTANDRA SP. AND NUPHAR SP. OSPREY, IN CHICKAHOMINY AND JAMES RIVERS WATERSHEDS. PRIME WETLANDS.
	180 01	DESCRIPTION OF AREA:	
	400 01	AREA INCL. BUFFER ZONE:	02060.4 HA
	410 01	ECOLOGICAL RATING:	12
00000634	010 01	NAME OF AREA:	TERRAPIN POINT
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NEW KENT; JAMES CITY
	030 01	QUADRANGLE: 19F	TOANO, VA
	040 01	SIZE OF AREA:	00565.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, OSPREY, OYSTERS, ANADROMOUS FISH, IN YORK RIVER WATERSHED.
	180 01	DESCRIPTION OF AREA:	
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400 01	AREA INCL. BUFFER ZONE:	01971.5 HA

SERIAL CATEG LINE CAT-DEFINITION DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000634	410	01	ECOLOGICAL RATING:	12
00000657	010	01	NAME OF AREA:	CHICONE CREEK - BIG CREEK MARSH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	DORCHESTER
	030	01	QUADRANGLE:	MARDFLLA SPRINGS, MD; RHODESDALE, MD
	040	01	SIZE OF AREA:	00725.3 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. SWAMP FOREST, PINUS SPP. AND CHAMAECYPARIS THYOIDES. OTTER, NUTRIA AND TERRAPIN, CRAB. ANADROMOUS FISH, STRIPED BASS. IN NANTICOKE RIVER WATERSHED. PRIME WETLAND.
	160	03	DESCRIPTION OF AREA:	
	190	01	RARE AND ENDANGERED PLANTS:	
	191	01	RARE AND ENDANGERED ANIMALS:	
	410	01	ECOLOGICAL RATING:	12
00000660	010	01	NAME OF AREA:	BACON RIDGE BRANCH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE:	SOUTH RIVER, MD; ROUND BAY, MD; DDENTON, MD
	040	01	SIZE OF AREA:	00286.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. SWAMP FOREST, HARDWOOD, CLAMS AND CRABS. WOOD DUCK. YELLOW PERCH RUNS.
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	12
00000666	010	01	NAME OF AREA:	KILLPECK CREEK - TRENT HALL CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ST. MARY'S
	030	01	QUADRANGLE:	MECHANICSVILLE, MD
	040	01	SIZE OF AREA:	00109.1 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL; MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH AND FRESHWATER MARSH VEGETATION WITH TYPHA SP. MINK, OTTER, OYSTER, CLAMS, OVERWINTERING SWAN AND WOOD DUCK.
	180	01	DESCRIPTION OF AREA:	
	191	01	RARE AND ENDANGERED ANIMALS:	
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	12
00000689	010	01	NAME OF AREA:	PERRY BRANCH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	040	01	SIZE OF AREA:	00076.8 HA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000689	01	OWNER I:	PRIVATE
	01	AQUATIC TYPES:	MARSH, TIDAL
	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA CYNOSUROIDES. MINK, OTTER, OSPREY. ANADROMOUS FISH, STRIPED BASS. CRAB. IN POTOMAC RIVER WATERSHED.
	02	DESCRIPTION OF AREA:	EAGLE NEST
	01	RARE AND ENDANGERED ANIMALS:	12
	01	ECOLOGICAL RATING:	
	410		
00000713	01	NAME OF AREA:	WEYANCKE POINT
	01	STATE:	VIRGINIA
	01	COUNTY:	CHARLES CITY
	01	QUADRANGLE:	CHARLES CITY, VA
	01	SIZE OF AREA:	00129.3 HA
	01	OWNER I:	PRIVATE
	01	AQUATIC TYPES:	MARSH, FRESHWATER
	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. ANADROMOUS FISH, CASSIA FASCICULATA VAR. MACROSPERMA FOUND NEAR AREA.
	02		IN JAMES RIVER WATERSHED. PRIME WETLANDS.
	03		CASSIA FASCICULATA VAR. MACROSPERMA
	180	DESCRIPTION OF AREA:	00161.6 HA
	190	RARE AND ENDANGERED PLANTS:	12
	400	AREA INCL. BUFFER ZONE:	
410	ECOLOGICAL RATING:		
00000720	01	NAME OF AREA:	GARNETTS CREEK MARSH
	01	STATE:	VIRGINIA
	01	COUNTY:	KING AND QUEEN
	01	QUADRANGLE:	KING AND QUEEN COURTHOUSE, VA
	01	SIZE OF AREA:	00250.5 HA
	01	OWNER I:	PRIVATE
	01	AQUATIC TYPES:	MARSH, FRESHWATER
	01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. ANADROMOUS FISH, STRIPED BASS AND HERRING.
	02		IN YORK RIVER WATERSHED.
	180	DESCRIPTION OF AREA:	BACOPA STRAGULATA
	190	RARE AND ENDANGERED PLANTS:	CASSIA FASCICULATA VAR. MACROSPERMA
	400	AREA INCL. BUFFER ZONE:	01547.3 HA
	410	ECOLOGICAL RATING:	12
00000746	01	NAME OF AREA:	MARYLAND NECK
	01	STATE:	MARYLAND
	01	COUNTY:	CHARLES
	01	QUADRANGLE:	KING GEORGE, MD; WIDEWATER MD; NANJEMOY, MD; INDIAN HEAD, MD; QUANTICO, MD
	01	SIZE OF AREA:	01018.3 HA
	01	OWNER I:	PRIVATE
	01	AQUATIC TYPES:	MARSH
	01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. EAGLE, OSPREY. 93 PERCENT OF AREA IS WOODED. ANADROMOUS FISH.
	02		IN POTOMAC RIVER WATERSHED. FOREST HAS BEEN LOGGED IN
	180	DESCRIPTION OF AREA:	

DATE: 10/19/73

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000746 180 02 01 NAME OF AREA: PAST. CONSISTS OF TWO REGIONS. THE FIRST, 3434 HA, LIES
03 01 STATE: BETWEEN THE POTOMAC RIVER AND STATE ROUTE 224, HAS HIGH
04 01 COUNTY: TIMBERED BLUFFS, SHALLOW COVES, AND MARSH. THE OTHER
05 01 QUADRANGLE: 11G REGION IS ENCLOSED BY STATE ROUTES 6 AND 224 SOUTH OF THE
06 01 SIZE OF AREA: TOWN OF NANJEMOY CONSISTS OF LARGE, FLAT, HEAVILY WOODDED
07 01 OWNER I: INLAND TRACTS. TOPOGRAPHY LEVEL TO ROLLING.

191 01 RARE AND ENDANGERED ANIMALS: EAGLE NEST
200 01 CONTENTS IN MANUAL FILE: MAP; GENERAL INFORMATION
410 01 ECOLOGICAL RATING: 12

00000772 010 01 NAME OF AREA: SPRING CREEK
020 01 STATE: MARYLAND
021 01 COUNTY: ST. MARY'S
030 01 QUADRANGLE: 11G MECHANICSVILLE, MD
040 01 SIZE OF AREA: 00040.4 HA
050 01 OWNER I: PRIVATE
151 01 AQUATIC TYPES: MARSH, TIDAL; MARSH, FRESHWATER
170 01 BIOTIC COMPONENTS: HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
02 01 FRESHWATER MARSH WITH TYPHA SP. MINK, OTTER,
03 01 OVERWINTERING SWANS, NESTING WOOD DUCKS, OYSTERS AND
04 01 CLAMS.
05 01 EAGLE NEST

191 01 RARE AND ENDANGERED ANIMALS: EAGLE NEST
400 01 AREA INCL. BUFFER ZONE: 00064.6 HA
410 01 ECOLOGICAL RATING: 12

00000778 010 01 NAME OF AREA: FRAZIER NECK
020 01 STATE: MARYLAND
021 01 COUNTY: CAROLINE
030 01 QUADRANGLE: 9L 9M TRAPPE, MD; PRESTON, MD
040 01 SIZE OF AREA: 00258.6 HA
060 01 OWNER I: PRIVATE
151 01 AQUATIC TYPES: MARSH, FRESHWATER
170 01 BIOTIC COMPONENTS: FRESHWATER MARSH WITH SCIRPUS SPP. OSPREY, OTTER,
CRAB. ANADROMOUS FISH, STRIPED BASS, WHITE SHAD
AND HICKORY SHAD.
02 01 IN CHOPTANK RIVER WATERSHED. PRIME WETLANDS.
03 01 DESCRIPTION OF AREA: DELMARVA FOX SQUIRREL
180 01 RARE AND ENDANGERED ANIMALS: 00440.4 HA
191 01 AREA INCL. BUFFER ZONE: 12
400 01 ECOLOGICAL RATING: 12

00000783 010 01 NAME OF AREA: BOW KNEE POINT
020 01 STATE: MARYLAND
021 01 COUNTY: TALBOT
030 01 QUADRANGLE: 9M PRESTON, MD
040 01 SIZE OF AREA: 00129.3 HA
060 01 OWNER I: PRIVATE
151 01 AQUATIC TYPES: MARSH, FRESHWATER; BOG

DATE: 10/19/73

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000783	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. SPHAGNUM SPP.
	02		DEPOSIT. ANADROMOUS FISH, STRIPED BASS. DELMARVA
	03		FOX SQUIRREL. OSPREY.
	180 01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED. PRIME WETLAND.
00000784	191 01	RARE AND ENDANGERED ANIMALS:	DELMARVA FOX SQUIRREL
	410 01	ECOLOGICAL RATING:	12
	010 01	NAME OF AREA:	CHOPTANK RIVER - LYFORD LANDING
	020 01	STATE:	MARYLAND
021 01	COUNTY:	CAROLINE	
030 01	QUADRANGLE:	HOBBS, MD	
040 01	SIZE OF AREA:	00327.2 HA	
060 01	OWNER I:	PRIVATE	
00000785	170 01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, PINUS SPP. OSPREY, OTTER,
	02		NESTING WOOD DUCKS. ANADROMOUS FISH, STRIPED BASS,
	03		HERRING, WHITE SHAD, HICKORY SHAD.
	180 01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED
00000789	410 01	ECOLOGICAL RATING:	12
	010 01	NAME OF AREA:	LLOYD LANDING
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	TALBOT
030 01	QUADRANGLE:	TRAPPE, MD; PRESTON, MD	
040 01	SIZE OF AREA:	00323.2 HA	
060 01	OWNER I:	PRIVATE	
00000795	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. OTTER, OSPREY AND CRABS.
	180 01	DESCRIPTION OF AREA:	ANADROMOUS FISH, STRIPED BASS.
	191 01	RARE AND ENDANGERED ANIMALS:	IN CHOPTANK RIVER WATERSHED. PRIME WETLANDS.
00000795	410 01	ECOLOGICAL RATING:	12
	010 01	NAME OF AREA:	WYE EAST RIVER
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	QUEEN ANNE; TALBOT
030 01	QUADRANGLE:	WYE MILLS, MD	
040 01	SIZE OF AREA:	00133.3 HA	
060 01	OWNER I:	PRIVATE	
00000806	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
	191 01	RARE AND ENDANGERED ANIMALS:	PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS,
	400 01	AREA INCL. BUFFER ZONE:	OTTER. CRABS. ANADROMOUS FISH, STRIPED BASS. WYE
00000806	410 01	ECOLOGICAL RATING:	OAK.
	010 01	NAME OF AREA:	DELMARVA FOX SQUIRREL
	02		00606.0 HA
	03		12
04			POPLAR HILL CREEK

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000806	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ST. MARY'S
	030 01	QUADRANGLE: 13H	PINEY POINT, MD
	040 01	SIZE OF AREA:	00303.0 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. BEAUTIFUL STAND OF PINUS SP
	02		AND MIXED HARDWOODS. OSPREY.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. ALONG SHORE POTOMAC
	02		RIVER ESTUARY. NO IMMINENT PRESERVATION PROBLEMS.
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400 01	AREA INCL. BUFFER ZONE:	00694.9 HA
	410 01	ECOLOGICAL RATING:	12
00000613	010 01	NAME OF AREA:	SUNKEN MEADOW
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	SURRY
	030 01	QUADRANGLE: 21E	CLAREMONT, VA
	040 01	SIZE OF AREA:	00444.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. TAXODIUM DISTICHUM PRESENT IN PC
	180 02		IN JAMES RIVER WATERSHED.
	190 01	RARE AND ENDANGERED PLANTS:	EUPATORIUM SALTUENSE
	410 01	ECOLOGICAL RATING:	11
00000618	010 01	NAME OF AREA:	ACCAKEEK CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	STAFFORD
	030 01	QUADRANGLE: 12B 11B 11A	PASSAPATANZY, VA; WIDEWATER, VA; STAFFORD, VA
	040 01	SIZE OF AREA:	00327.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	NELUMBO SP. (LOTUS LILY) MARSH. SPARTINA
	02		CYNOSUROIDES. NORTHERN LIMIT OF ZIZANIOPSIS MILIACEA.
	03		ANADROMOUS FISH, HERRING. ERIANTHUS RAVENNAE, A RARE
	04		INTRODUCED SPECIES FROM SOUTHERN EUROPE. OCCURS.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400 01	AREA INCL. BUFFER ZONE:	01309.0 HA
	410 01	ECOLOGICAL RATING:	11
00000639	010 01	NAME OF AREA:	PARSONS ISLAND - OLD NECK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	CHARLES CITY
	030 01	QUADRANGLE: 20E	BRANDON, VA
	040 01	SIZE OF AREA:	00541.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000639	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION. SWAMP FOREST,
		02		HARDWOODS, TAXODIUM DISTICHUM, OSPREY,
		03		ANADROMOUS FISH,
	180	01	DESCRIPTION OF AREA:	IN CHICKAHOMINY AND JAMES RIVERS WATERSHEDS,
		02		PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00888.8 HA
	410	01	ECOLOGICAL RATING:	11
00000640	010	01	NAME OF AREA:	WEST ISLAND
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NEW KENT
	030	01	QUADRANGLE: 18E	NEW KENT, VA
	040	01	SIZE OF AREA:	00476.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, SWAMP FOREST, HARDWOODS,
		02		EAGLE NEST ACROSS FROM MARSH, NORTH OF SOUTHERN
		03		RAILROAD TRACK.
	180	01	DESCRIPTION OF AREA:	IN PAMUNKEY AND YORK RIVERS WATERSHEDS. PRIME WETLANDS.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	11
00000670	010	01	NAME OF AREA:	GREEN BRIER SWAMP
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	DORCHESTER
	030	01	QUADRANGLE: 11L	BLACKWATER R., MD
	040	01	SIZE OF AREA:	01858.0 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	SWAMP
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM, OTTER,
		02		TURKEY AND DELMARVA FOX SQUIRREL.
	180	01	DESCRIPTION OF AREA:	AREA IS BEING DRAINED AND CLEARED.
	191	01	RARE AND ENDANGERED ANIMALS:	DELMARVA FOX SQUIRREL
	410	01	ECOLOGICAL RATING:	11
00000672	010	01	NAME OF AREA:	MATTAWOMAN CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 10C 10D	INDIAN HEAD, MD; PORT TOBACCO, MD
	040	01	SIZE OF AREA:	01559.4 HA
	060	01	OWNER I:	STATE
	065	01	OWNER II:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, QUERCUS - CARVA, OTTER,
		02		MINK, OSPREY, BEAVER, NELUMBO SP, LARGEST
		03		CONCENTRATION OF NESTING WOOD DUCK IN MARYLAND.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. PART OF AREA IN MYRTLE
		02		GROVE WILDLIFE MANAGEMENT AREA AND GENERAL
		03		SMALLWOOD STATE PARK

SERIAL CATEG LINE CAT-DEFINITION

DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000672	200	01	CONTENTS IN MANUAL FILE:	GENERAL INFORMATION
	300	01	AREA INCL. BUFFER ZONE:	03947.1 HA
	410	01	ECOLOGICAL RATING:	11
00000687	010	01	NAME OF AREA:	TUCKAHOE CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CAROLINE; TALBOT
	030	01	QUADRANGLE: 8M 7M	FOWLING CREEK, MD; RIDGELY, MD
	040	01	SIZE OF AREA:	00989.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. OTTER, OSPREY, WOOD DUCK, ANADROMOUS FISH, STRIPED BASS SPAWNING, WHITE SHAD, HICKORY SHAD, HERRING. PINUS TAEDA, PINUS VIRGINIANA, QUERCUS SPP. IN CHOPTANK RIVER WATERSHED. WOODED PORTIONS INTERSPERSED WITH DEEP FRESH MARSHES. BEAUTIFUL SHORELINE FOR 12 MILES ON BOTH SIDES OF TUCKAHOE CREEK. PRIME WETLAND.
	180	01	DESCRIPTION OF AREA:	11
	02	02		
	03	04		
	04	01	ECOLOGICAL RATING:	11
00000710	010	01	NAME OF AREA:	BROAD CREEK MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	RICHMOND; ESSEX
	030	01	QUADRANGLE: 15E 14E	MOUNT LANDING, VA; CHAMPLAIN, VA
	040	01	SIZE OF AREA:	00206.0 HA
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OSPREY, ANADROMOUS FISH, HERRING AND STRIPED BASS. IN RAPPAHANNOCK RIVER WATERSHED. PRIME WETLANDS.
	180	01	DESCRIPTION OF AREA:	EAGLE NEST
	191	01	RARE AND ENDANGERED ANIMALS:	01212.0 HA
	400	01	AREA INCL. BUFFER ZONE:	11
	410	01	ECOLOGICAL RATING:	
00000719	010	01	NAME OF AREA:	DRAKES MARSH - OTTERBURN MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	WESTMORELAND; ESSEX
	030	01	QUADRANGLE: 14D 14E	LORETTO, VA; CHAMPLAIN, VA
	040	01	SIZE OF AREA:	00488.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL; RIVER
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. EAGLE NEST LOCATED ON SOUTH BANK OF RAPPAHANNOCK RIVER AT EDGE OF COLEMAN CREEK. ANADROMOUS FISH. IN RAPPAHANNOCK RIVER WATERSHED. PRIME WETLANDS.
	180	01	DESCRIPTION OF AREA:	EAGLE NEST
	191	01	RARE AND ENDANGERED ANIMALS:	

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000719	400 410	01 AREA INCL. BUFFER ZONE; 01 ECOLOGICAL RATING:	00654.5 HA 11
00000735	010 020 021 030 040 060 151 170	01 NAME OF AREA; 01 STATE; 01 COUNTY; 01 QUADRANGLE: 7K 01 SIZE OF AREA; 01 OWNER I; 01 AQUATIC TYPES; 01 BIOTIC COMPONENTS;	WYE RIVER MARYLAND QUEEN ANNE QUEENSTOWN, MD 00141.4 HA PRIVATE MARSH, TIDAL HIGH TIDAL MARSH. GEESE, ANADROMOUS FISH, STRIPED BASS, CRAB, OTTER. PRIME WETLANDS. EAGLE NEST 11
00000780	010 020 021 030 040 060 170	01 NAME OF AREA; 01 STATE; 01 COUNTY; 01 QUADRANGLE: 10N 01 SIZE OF AREA; 01 OWNER I; 01 BIOTIC COMPONENTS;	LOWER MARSHYOPE CREEK MARYLAND DORCHESTER RHODESDALE, MD 00828.2 HA PRIVATE SWAMP FOREST, CHAMAECYPARIS THYOIDES AND PINUS SP. OTTER, NESTING WOOD DUCKS, ANADROMOUS FISH, STRIPED BASS, HERRING, WHITE SHAD AND HICKORY SHAD. ALNUS MARITIMA 11
00000784	010 020 021 030 040 060 065 151 170	01 NAME OF AREA; 01 STATE; 01 COUNTY; 01 QUADRANGLE: 10C 01 SIZE OF AREA; 01 OWNER I; 01 OWNER II; 01 AQUATIC TYPES; 01 BIOTIC COMPONENTS;	CHICAMUXEN CREEK MARYLAND CHARLES INDIAN HEAD, MD 00270.7 HA FEDERAL, MILITARY PRIVATE MARSH, FRESHWATER FRESHWATER MARSH WITH TYPHA SP. AND SCIRPUS SPP. MINK, OTTER, EAGLE, CRABS. ANADROMOUS FISH. IN POTOMAC RIVER WATERSHED EAGLE NEST 00444.4 HA 11
00000785	010 020 021 030 040	01 NAME OF AREA; 01 STATE; 01 COUNTY; 01 QUADRANGLE: 9M 01 SIZE OF AREA;	CHOPTANK RIVER (BRUCEVILLE) MARYLAND TALBOT PRESTON, MD 00218.2 HA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000755	060 01 151 01 170 01 02 03 180 01 02 03 04 200 01 410 01	OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: CONTENTS IN MANUAL FILE: ECOLOGICAL RATING:	PRIVATE MARSH, FRESHWATER; RIVER FRESHWATER MARSH WITH TYPHA SP. TERRAPIN, CRAB AND OYSTER. ANADROMOUS FISH, STRIPED BASS, SHAD. CATFISH, PERCH AND BULLHEADS SPAWNING AREA. OSPREY. IN CHOPTANK RIVER WATERSHED. NO PRESERVATION IN EFFECT. NO IMMINENT PROBLEMS. OUTSTANDING WILDLIFE HABITAT OF TYPE RAPIDLY DISAPPEARING IN MARYLAND. PRIME WETLAND. WATER QUALITY INFORMATION 11
00000311	010 01 020 01 021 01 030 01 035 01 060 01 170 01 180 01 02 03 200 01 400 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 111 121 COORDINATES: OWNER I: BIOTIC COMPONENTS: DESCRIPTION OF AREA: CONTENTS IN MANUAL FILE: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	HELLEN CREEK HEMLOCK PRESERVE MARYLAND CALVERT COVE POINT, MD; SOLOMONS ISLAND, MD, 7.5 38 22 -- N 076 27 -- W NATURE CONSERVANCY, THE SWAMP FOREST OF TSUGA CANADENSIS, KALMIA LATIFOLIA, FAGUS GRANDIFOLIA, QUERCUS SPP. AND PINUS SPP. INTERMINGLED. VIRGINIANA DOMINANT ON AREA FORMERLY CULTIVATED. OTTER, CRAB AND TERRAPIN PRESENT. STAND OF TSUGA CANADENSIS NEAR EDGE OF TIDAL MARSH MARSH. MOST SOUTHERN KNOWN STAND OF HEMLOCK ALONG COAST. MOST SOUTHERN KNOWN GROWTH OF TSUGA CANADENSIS ALONG COAST. SPECIES LIST, PLANT 00331.3 HA 10 NOTE: SHOULD CONTINUE TO RECEIVE SPECIAL CONSIDERATION
00000612	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01 180 01 191 01 400 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 12A 12B SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: RARE AND ENDANGERED ANIMALS: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	POTOMAC CREEK VIRGINIA STAFFORD FREDERICKSBURG, VA; PASSAPATANZY, VA 00537.3 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH VEGETATION. EAGLE. HERONRY. ANADROMOUS FISH, HERRING. IN POTOMAC RIVER WATERSHED. EAGLE 02149.2 HA 10
00000616	010 01 020 01 021 01 030 01 040 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 20E SIZE OF AREA:	MORRIS CREEK MARSH VIRGINIA CHARLES CITY BRANDON, VA 00452.5 HA

CHESAPEAKE BAY SURVEY REPORT
MASTER LIST

DATE: 10/19/73

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000616	060 01 151 01 170 01 02	OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS:	PRIVATE MARSH, FRESHWATER FRESHWATER MARSH VEGETATION. SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM. OSPREY, ANADROMOUS FISH, HERRING, IN CHICKAHOMINY AND JAMES RIVERS WATERSHEDS. 02076.7 HA 10
00000626	010 01 020 01 021 01 030 01 040 01 060 01 065 01 151 01 190 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 20F SIZE OF AREA: OWNER I: OWNER II: AQUATIC TYPES: RARE AND ENDANGERED PLANTS: ECOLOGICAL RATING:	CHISEL RUN BOG VIRGINIA JAMES CITY NORGE, VA 00040.4 HA EASTERN VIRGINIA STATE HOSPITAL PRIVATE BOG JUNCUS CAESARIENSIS. ISOTRIA MEDEOLOIDES 10 NOTE: BOG SHOULD RECEIVE SPECIAL CONSIDERATION
00000629	010 01 020 01 021 01 030 01 040 01 151 01 170 01 02	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 13E SIZE OF AREA: AQUATIC TYPES: BIOTIC COMPONENTS:	BRIDGES CREEK MARSH VIRGINIA WESTMORELAND COLONIAL BEACH 50.0 VA 00097.0 HA MARSH, TIDAL HIGH TIDAL MARSH VEGETATION. OYSTERS. ANADROMOUS FISH. IN POTOMAC RIVER WATERSHED.
00000637	180 01 191 01 400 01 410 01 010 01 020 01 021 01 030 01 040 01 060 01 170 01 02 03	DESCRIPTION OF AREA: RARE AND ENDANGERED ANIMALS: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING: NAME OF AREA: STATE: COUNTY: QUADRANGLE: 13D SIZE OF AREA: OWNER I: BIOTIC COMPONENTS:	MARSH POINT - GREEN BAY - HORSE HEAD POINT VIRGINIA ESSEX ROLLINS FORK, VA 1333.2 HA PRIVATE SWAMP FOREST. HARDWOODS AND TAXODIUM DISTICHUM. EAGLE NEST ACROSS RAPPAHANNOCK RIVER FROM MARSH, NORTH OF OWL HOLLOW. IN RAPPAHANNOCK RIVER WATERSHED. PRIME WETLANDS.
00000643	180 01 191 01 400 01 410 01 010 01 020 01	DESCRIPTION OF AREA: RARE AND ENDANGERED ANIMALS: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING: NAME OF AREA: STATE:	COUSIAC MARSH VIRGINIA

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000643	021	01	COUNTY:	NEW KENT
	030	01	QUADRANGLE: 18E	NEW KENT, VA
	040	01	SIZE OF AREA:	00444.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION, SWAMP FOREST, HARDWOODS, EAGLE NEST, IN PAMUNKEY AND YORK RIVERS WATERSHEDS.
	180	01	DESCRIPTION OF AREA:	
	191	01	RARE AND ENDANGERED ANIMALS:	
	400	01	AREA INCL. BUFFER ZONE:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	00808.8 HA 10
00000644	010	01	NAME OF AREA:	ELTHAM MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING WILLIAM
	030	01	QUADRANGLE: 18F	WEST POINT, VA
	040	01	SIZE OF AREA:	00492.9 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, OSPREY, IN PAMUNKEY AND YORK RIVERS WATERSHEDS.
	180	01	DESCRIPTION OF AREA:	
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	00646.4 HA
	410	01	ECOLOGICAL RATING:	10
00000652	010	01	NAME OF AREA:	HILL MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NEW KENT
	030	01	QUADRANGLE: 18E 18F	NEW KENT, VA; WEST POINT, VA
	040	01	SIZE OF AREA:	00545.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, OSPREY, EAGLE NEST, IN PAMUNKEY AND YORK RIVERS WATERSHEDS.
	180	01	DESCRIPTION OF AREA:	
	191	01	RARE AND ENDANGERED ANIMALS:	
	400	01	AREA INCL. BUFFER ZONE:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	00658.5 HA 10
00000653	010	01	NAME OF AREA:	LEE MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING WILLIAM
	030	01	QUADRANGLE: 18F	WEST POINT, VA
	040	01	SIZE OF AREA:	00634.3 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, ANADROMOUS FISH, IN PAMUNKEY AND YORK RIVERS WATERSHEDS. PRIME WETLANDS.
	180	01	DESCRIPTION OF AREA:	

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000653	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	00929.2 HA
	410	01	ECOLOGICAL RATING:	10
00000673	010	01	NAME OF AREA:	SWAN POINT NECK - WISE MARSH - NEALE SOUND - WEIR CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE:	COLONIAL BEACH NORTH
	040	01	SIZE OF AREA:	00602.0 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES. OTTER, MINK, OSPREY, CRAB AND OYSTER. ANADROMOUS FISH, STRIPED BASS. OVERWINTERING SWAN.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	410	01	ECOLOGICAL RATING:	10
00000677	010	01	NAME OF AREA:	WAREHOUSE CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	QUEEN ANNE
	030	01	QUADRANGLE:	KENT ISLAND, MD
	040	01	SIZE OF AREA:	00315.1 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH PHRAGMITES SP. OSPREY, OTTER. ANADROMOUS FISH, STRIPED BASS. RICH IN BIRD LIFE. ABUNDANT SHELLFISH. WINTERING WHISTLING SWAN.
	180	01	DESCRIPTION OF AREA:	LONG, LOW LYING PENINSULA WITH NUMEROUS BAYS, CREEKS, COVES AND LAGOONS. AREA IS OF KEY IMPORTANCE TO BIRD MIGRATION PATTERNS.
	410	01	ECOLOGICAL RATING:	10
00000679	010	01	NAME OF AREA:	HOWELL POINT
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	KENT
	030	01	QUADRANGLE:	BETTERTON, MD
	040	01	SIZE OF AREA:	00222.2 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	SWAMP FOREST. HARDWOODS. OTTER, OSPREY, WOOD DUCK, ANADROMOUS FISH, SHAD, HERRING, STRIPED BASS.
	170	01	BIOTIC COMPONENTS:	PRIME WETLAND.
	180	01	DESCRIPTION OF AREA:	00711.0 HA
	400	01	AREA INCL. BUFFER ZONE:	10
	410	01	ECOLOGICAL RATING:	10
00000685	010	01	NAME OF AREA:	KINGS CREEK - KINGSTON LANDING
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	TALBOT

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000685	030 01	QUADRANGLE: 8M	FOWLING CREEK, MD
	040 01	SIZE OF AREA:	00767.6 HA
	050 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER; SWAMP
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. SWAMP FOREST. CHAMAECYPARIS THYOIDES, OTTER, ANADROMOUS FISH, STRIPED BASS, WHITE SHAD, HICKORY SHAD, HERRING, IN CHOPTANK RIVER WATERSHED. PRIME WETLAND.
	02 03		10 NOTE: AREA SHOULD RECEIVE SPECIAL CONSIDERATION
	180 01	DESCRIPTION OF AREA:	
	410 01	ECOLOGICAL RATING:	
00000691	010 01	NAME OF AREA:	REWASTICO CREEK - ROUND ISLAND - FERRY POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	WICONICO
	030 01	QUADRANGLE: 11N	MARDELLA SPRINGS, MD
	040 01	SIZE OF AREA:	01923.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. OSPREY, OTTER, ANADROMOUS FISH, STRIPED BASS, WHITE SHAD, HICKORY SHAD, ALEWIFE. IN NANTICOKE RIVER WATERSHED. PRIME WETLANDS.
	02 03		10
	180 01	DESCRIPTION OF AREA:	
	410 01	ECOLOGICAL RATING:	
00000695	010 01	NAME OF AREA:	BARKERS CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	TALBOT
	030 01	QUADRANGLE: 9L 9M	TRAPPE, MD; PRESTON, MD
	040 01	SIZE OF AREA:	00153.5 HA
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. DELMARVA FOX SQUIRREL, OSPREY. ANADROMOUS FISH, STRIPED BASS SPawning, IN CHOPTANK WATERSHED.
	02 03		10
	180 01	DESCRIPTION OF AREA:	
	191 01	RARE AND ENDANGERED ANIMALS:	
	410 01	ECOLOGICAL RATING:	
00000703	010 01	NAME OF AREA:	BELL SWAMP - OWEN POND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NORTHUMBERLAND
	030 01	QUADRANGLE: 16J	REEDVILLE, VA
	040 01	SIZE OF AREA:	00347.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, OSPREY.
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	410 01	ECOLOGICAL RATING:	10
00000707	010 01	NAME OF AREA:	LITTLE CARTER CREEK MARSH
	020 01	STATE:	VIRGINIA

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SERIAL CATEG LINE CAT-DEFINITION DATA

00000707	021	01	COUNTY:	RICHMOND
	030	01	QUADRANGLE: 15F	TAPPAHANNOCK, VA
	040	01	SIZE OF AREA:	00892.8 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, SPARTINA CYNOSUROIDES, ANADROMOUS FISH, HERRING AND STRIPED BASS.
	180	02	DESCRIPTION OF AREA:	IN RAPPAHANNOCK WATERSHED, PRIME WETLANDS.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	02424.0 HA
	410	01	ECOLOGICAL RATING:	10
00000711	010	01	NAME OF AREA:	PERSIMMON POINT
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING GEORGE
	030	01	QUADRANGLE: 12D 11D	DAHLGREN, VA; MATHIAS POINT, VA
	040	01	SIZE OF AREA:	00210.1 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	UPLAND PINE SUCCESSIONAL COMMUNITY, UPLAND MATURE HARDWOODS, EAGLE, OVERWINTERING SWANS AND CANVASBACK DUCKS, PINUS PALUSTRIS.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	00630.2 HA
	410	01	ECOLOGICAL RATING:	10
00000717	010	01	NAME OF AREA:	CLEVE MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING GEORGE
	030	01	QUADRANGLE: 13C 13B	PORT ROYAL, VA; RAPPAHANNOCK ACADEMY, VA
	040	01	SIZE OF AREA:	00391.9 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER RIVER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES, EAGLE NESTS ACROSS RIVER FROM MARSH, ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN RAPPAHANNOCK RIVER WATERSHED, PRIME WETLANDS.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	00412.1 HA
	410	01	ECOLOGICAL RATING:	10
00000773	010	01	NAME OF AREA:	SWAN POINT - TAVERN CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	KENT
	030	01	QUADRANGLE: 5J	SWAN POINT, MD
	040	01	SIZE OF AREA:	00242.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS, OTTER OSPREY AND NESTING WOOD DUCKS, ANADROMOUS FISH.

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000773	170 01 180 01 410 01	DESCRIPTION OF AREA: ECOLOGICAL RATING:	STRIPED BASS. CRABS. OYSTERS. PRIME WETLAND. 10
00000776	010 01 020 01 021 01 030 01 040 01 050 01 151 01 170 01 180 01 191 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 131 SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: RARE AND ENDANGERED ANIMALS: ECOLOGICAL RATING:	ST. MARY'S RIVER MARYLAND ST. MARY'S ST. MARY'S CITY, MD 00125.2 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH WITH TYPHA SP. MINK. NESTING WOOD DUCKS. ARCHAEOLOGICAL EXCAVATION OF RUINS OF 17TH CENTURY HOME OF CHARLES CALVERT, COLONIAL GOVERNOR OF MARYLAND. EAGLE NEST 10
00000781	010 01 020 01 021 01 030 01 040 01 050 01 151 01 170 01 180 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 6K SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: ECOLOGICAL RATING:	NICHOLS POINT MARYLAND KENT LANGFORD CREEK, MD 00064.6 HA PRIVATE MARSH, TIDAL HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OTTER, OSPREY, CRABS, OYSTER. NESTING WOOD DUCKS. OVERWINTERING WHISTLING SWAN. IN CHESTER RIVER WATERSHED. PRIME WETLANDS. 10
00000828	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01 180 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 9E SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: ECOLOGICAL RATING:	MATTANOMAN CREEK, UPPER MARYLAND CHARLES; PRINCE GEORGES PISCATAWAY 00686.8 HA PRIVATE SWAMP SWAMP FOREST, HARDWOODS. OTTER, MINK, OSPREY, BEAVER AND WOOD DUCK. ANADROMOUS FISH. HERONRY. 10
00000829	010 01 020 01 021 01 030 01 040 01 060 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 10B SIZE OF AREA: OWNER I:	CHOPAWAMSIK CREEK VIRGINIA PRINCE WILLIAM; STAFFORD QUANTICO, VA 01442.3 HA FEDERAL

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000829	01 151	AQUATIC TYPES:	MARSH, FRESHWATER
	01 170	BIOTIC COMPONENTS:	FRESHWATER MARSH, ANADROMOUS FISH, HERONRY.
	01 410	ECOLOGICAL RATING:	10
00000619	01 010	NAME OF AREA:	GRAYS CREEK MARSH
	01 020	STATE:	VIRGINIA
	01 021	COUNTY:	SURRY
	01 030	QUADRANGLE:	21F
	01 035	COORDINATES:	37 10 -- N 076 47 32 W
	01 040	SIZE OF AREA:	00456.5 HA
	01 060	OWNER I:	PRIVATE
	01 151	AQUATIC TYPES:	MARSH, TIDAL
	01 170	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM, ANADROMOUS FISH, HERRING, TYPHA SP., PELTANDRA SP., SPARTINA SP., PONTERERIA SP. AND KALMIA SP.
		DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED
	01 180	AREA INCL. BUFFER ZONE:	02211.8 HA
	01 400	ECOLOGICAL RATING:	09
00000656	01 010	NAME OF AREA:	CHAPTICO RUN
	01 020	STATE:	MARYLAND
	01 021	COUNTY:	ST. MARY'S
	01 030	QUADRANGLE:	12F
	01 040	SIZE OF AREA:	00218.2 HA
	01 060	OWNER I:	PRIVATE
	01 151	AQUATIC TYPES:	MARSH, TIDAL; MARSH, FRESHWATER
	01 170	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES, FRESHWATER MARSH WITH TYPHA SP., OSPREY, BEAVER, OTTER, MINK AND TERRAPIN PRESENT, CRABS, ANADROMOUS FISH, SHAO, HERRING, WOOD DUCK.
		DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	01 180	AREA INCL. BUFFER ZONE:	00404.0 HA
	01 400	ECOLOGICAL RATING:	09
00000668	01 010	NAME OF AREA:	COVE POINT
	01 020	STATE:	MARYLAND
	01 021	COUNTY:	CALVERT
	01 030	QUADRANGLE:	111
	01 040	SIZE OF AREA:	00084.8 HA
	01 060	OWNER I:	PRIVATE
	01 151	AQUATIC TYPES:	MARSH, TIDAL
	01 170	BIOTIC COMPONENTS:	TIDAL MARSH WITH PHRAGMITES, OTTER, NORTHERNMOST POINT OF DISTRIBUTION FOR NARROWMOUTH FROG.
		RARE AND ENDANGERED ANIMALS:	
	01 191	AREA INCL. BUFFER ZONE:	EAGLE NEST
	01 400	ECOLOGICAL RATING:	00214.1 HA
	01 410	ECOLOGICAL RATING:	09

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000669	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 7H	SOUTH RIVER, MD
	040 01	SIZE OF AREA:	00121.1 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. MATURE FAGUS GRANDIFOLIA WOODS. WOOD DUCK. CRABS AND CLAMS. OSPREY.
	180 01	DESCRIPTION OF AREA:	IN SOUTH RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	03212.1 HA
	410 01	ECOLOGICAL RATING:	09
00000675	010 01	NAME OF AREA:	FISHING CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE: 8J	CLAIBORNE, MD
	040 01	SIZE OF AREA:	00355.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. SPARTINA CYNOSUROIDES. OTTER,
	191 01	RARE AND ENDANGERED ANIMALS:	EAGLE, WOOD DUCK.
	400 01	AREA INCL. BUFFER ZONE:	EAGLE NEST
	410 01	ECOLOGICAL RATING:	01414.0 HA 09
00000676	010 01	NAME OF AREA:	DEEP LANDING
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE: 10G	BENEDICT, MD
	040 01	SIZE OF AREA:	00060.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH, WITH TYPHA SP. MINK, OTTER, WILSON SNIPE, WOOD DUCK, CANVASBACK, GREAT BLUE HERON NESTING. ANADROMOUS FISH, HERRING, SHAD, CRAB.
	180 01	DESCRIPTION OF AREA:	IN PATUXENT WATERSHED. PRIME WETLAND.
	410 01	ECOLOGICAL RATING:	09
00000682	010 01	NAME OF AREA:	SOUTH MARSH ISLAND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	SOMERSET
	030 01	QUADRANGLE: 14L 13L	KEDGES STRAITS, MD; BLOODSWORTH ISL., MD
	040 01	SIZE OF AREA:	01224.1 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. CLAPPER RAIL, TERRAPIN, OSPREY. ANADROMOUS FISH, STRIPED BASS, CRAB, CLAM, OYSTER.
	180 01	DESCRIPTION OF AREA:	PRIME WETLANDS.

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SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000682	400	01	AREA INCL. BUFFER ZONE:	01939.2 HA
	410	01	ECOLOGICAL RATING:	09
00000683	010	01	NAME OF AREA:	BURGESS CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 11D	MATHIAS POINT, MD
	040	01	SIZE OF AREA:	00319.2 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. MINK, OTTER, ANADROMOUS FISH, HERRING, CRAB.
	180	01	DESCRIPTION OF AREA:	
	191	01	RARE AND ENDANGERED ANIMALS:	
	400	01	AREA INCL. BUFFER ZONE:	EAGLE NEST
	410	01	ECOLOGICAL RATING:	01090.8 HA 09
00000701	010	01	NAME OF AREA:	DOGUE CREEK, UPPER
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	FAIRFAX
	030	01	QUADRANGLE: 9C 8C 8D	BELVOIR, VA; ANNANDALE, VA; ALEXANDRIA, VA; MT.
	040	01	SIZE OF AREA:	VERNON, VA 00779.7 HA
	060	01	OWNER I:	PRIVATE
	065	01	OWNER II:	FEDERAL, MILITARY
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS. UPLAND MATURE HARDWOODS. UPLAND PINE, SUCCESSIONAL. ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	
	410	01	ECOLOGICAL RATING:	IN POTOMAC WATERSHED. 09
00000724	010	01	NAME OF AREA:	HERRING CREEK MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	CHARLES CITY
	030	01	QUADRANGLE: 20C	WESTOVER, VA
	040	01	SIZE OF AREA:	00375.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	ANADROMOUS FISH, HERRING. FRESHWATER MARSH SPECIES.
	180	01	DESCRIPTION OF AREA:	
	190	01	RARE AND ENDANGERED PLANTS:	IN JAMES RIVER WATERSHED. PRIME WETLANDS. CASSIA FASCICULATA VAR. MACROSPERMA
	410	01	ECOLOGICAL RATING:	09
00000770	010	01	NAME OF AREA:	CHESTNUT POINT
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE: 8M	CEAL, MD
	040	01	SIZE OF AREA:	00197.6 HA
	060	01	OWNER I:	PRIVATE

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000770	065 01 151 01 170 01 02 02 03 03 04 04 180 01 410 01	OWNER II; AQUATIC TYPES; BIOTIC COMPONENTS; DESCRIPTION OF AREA; ECOLOGICAL RATING;	FEDERAL, AGENCY MARSH, TIDAL HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OTTER, MINK, OSPREY, ANADROMOUS FISH, ALEWIVES, CRABS, CLAMS AND OYSTERS. OVERWINTERING SWAN, SANDY POINT. 09
00000771	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01 160 01 02 02 03 03 04 04 05 05 410 01	NAME OF AREA; STATE; COUNTY; QUADRANGLE: 11M 12M SIZE OF AREA; OWNER II; AQUATIC TYPES; BIOTIC COMPONENTS; DESCRIPTION OF AREA; ECOLOGICAL RATING;	SAVANNAH LAKE MARYLAND DORCHESTER CHICAMAQUICO, MD; NANTICOKE, MD 00537.3 HA PRIVATE POND; MARSH, FRESHWATER TERRAPIN, OTTER, NUTRIA, OYSTER, CRAB. ANADROMOUS FISH, STRIPED BASS. ABUNDANT BASS, BLUEGILL AND CATFISH. TWIGRUSH, DOMINANT SPECIES, AT SOUTHERN LIMIT. VALISNERIA AMERICANA. IN NANTICOKE RIVER WATERSHED. MAXIMUM DEPTH OF POND IS 2.3 M, AVERAGE DEPTH IS 1 M. ONE OF FEW REMAINING MAJOR PONDS IN MARYLAND. SURROUNDED BY FRESHWATER MARSH. AREA IS CONTROLLED-BY A GUN CLUB WHICH SEEMS TO BE GAME MANAGEMENT ORIENTED. PRIME WETLAND. 09
00000791	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01 010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01	NAME OF AREA; STATE; COUNTY; QUADRANGLE: 4L 5L SIZE OF AREA; OWNER II; AQUATIC TYPES; BIOTIC COMPONENTS; DESCRIPTION OF AREA; AREA INCL. BUFFER ZONE; ECOLOGICAL RATING;	MORGAN CREEK MARYLAND KENT BETTERTON, MD; CHESTERTOWN, MD 00440.4 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH WITH TYPHA SP. SWAMP FOREST, HARDWOODS. OTTER. NESTING WOOD DUCKS. ANADROMOUS FISH. IN CHESTER RIVER WATERSHED. PRIME WETLANDS. 01923.0 HA 09
00000830	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01	NAME OF AREA; STATE; COUNTY; QUADRANGLE: 12D SIZE OF AREA; OWNER II; AQUATIC TYPES;	GAMBO CREEK MARSH VIRGINIA KING GEORGE DAHLGREN, VA@ 00117.2 HA U.S. NAVAL RESERVOIR MARSH, TIDAL
0170	01	BIOTIC COMPONENTS	HIGH TIDAL MARSH ANADROMOUS FISH OYSTERS EAGLE ABOUT

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000830	170 02	ECOLOGICAL RATING:	ONE AND ONE HALF MILES AWAY.
	410 01		09
00000606	010 01	NAME OF AREA:	MATTAPONI RIVER, UPPER
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING WILLIAM; KING AND QUEEN
	030 01	QUADRANGLE: 16D	AYLETT, VA; YORK, VA
	040 01	SIZE OF AREA:	02496.7 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, TAXODIUM DISTICHUM, ANADROMOUS FISH, STRIPED BASS, HERRING, IN YORK RIVER WATERSHED.
	180 01	DESCRIPTION OF AREA:	
	410 01	ECOLOGICAL RATING:	08
00000633	010 01	NAME OF AREA:	PISCATAWAY CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ESSEX
	030 01	QUADRANGLE: 15E 15F 16F 16E	MOUNT LANDING, VA; TAPPANNOCK, VA; DUNNSVILLE, VA;
	040 01	SIZE OF AREA:	MILLERS TAVERN, VA 00900.9 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, OSPREY, ANADROMOUS FISH, HERRING, STRIPED BASS.
	180 01	DESCRIPTION OF AREA:	IN RAPPANNOCK RIVER WATERSHED.. PRIME WETLAND.
	400 01	AREA INCL. BUFFER ZONE:	02710.8 HA
	410 01	ECOLOGICAL RATING:	08
00000641	010 01	NAME OF AREA:	BIG MARSH - TOBASCO ISLAND - SAVAGE ISLAND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE: 16N	CHESCONESSEX, VA
	040 01	SIZE OF AREA:	03094.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION.
	180 01	DESCRIPTION OF AREA:	PRIME WETLANDS.
	410 01	ECOLOGICAL RATING:	08
00000658	010 01	NAME OF AREA:	DEEP COVE CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 8H	DEALE, MD
	040 01	SIZE OF AREA:	00141.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES. OTTER, MINK, TERRAPIN OSPREY CRAB CLAM & OYSTERS ANADROMOUS FISH
	410 01	ECOLOGICAL RATING:	02

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000658	170 03		STRIPED BASS.
	410 01	ECOLOGICAL RATING:	08
00000659	010 01	NAME OF AREA:	PRINCIPIO CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CECIL
	030 01	QUADRANGLE: 2L	HAVRE DE GRACE,
	040 01	SIZE OF AREA:	00080.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP., TYPHA SP., ALNUS SP., SALIX SP., AND ROSA SP. OTTER. CRAB. WOOD DUCK, GESE, AND SWAN, OVERWINTERING. ANADROMOUS FISH, SHAD. OF HISTORIC INTEREST IS THE IRON WORKS, ESTABLISHED 1715, OPERATED UNTIL 1910. VANDALISM IS A PROBLEM IN THE AREA.
	180 01	DESCRIPTION OF AREA:	00222.2 HA
	02 02		08
	03 03	AREA INCL. BUFFER ZONE:	
	400 01	ECOLOGICAL RATING:	
	410 01		
00000662	010 01	NAME OF AREA:	HOOD POINT - PINEY POINT - MARSHY CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	QUEEN ANNE
	030 01	QUADRANGLE: 7K	QUEENSTOWN, MD
	040 01	SIZE OF AREA:	00250.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. OTTER, TERRAPIN, OSPREY, CRABS AND OYSTERS. ANADROMOUS FISH, STRIPED BASS.
	410 02	ECOLOGICAL RATING:	08
	410 01		
00000663	010 01	NAME OF AREA:	KENT POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	QUEEN ANNE
	030 01	QUADRANGLE: 8J	CLAIBORNE, MD
	040 01	SIZE OF AREA:	00072.7 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	170 01	BIOTIC COMPONENTS:	OSPREY, CRABS, PUDDLE DUCK CONCENTRATION. ANADROMOUS FISH, STRIPED BASS.
	410 02	ECOLOGICAL RATING:	08
	410 01		
00000667	010 01	NAME OF AREA:	CABIN JOHN CREEK MARSHES
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CECIL
	030 01	QUADRANGLE: 3M	EARLEVILLE, MD
	040 01	SIZE OF AREA:	00290.9 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000667	170 01 02 03 01 01 01	BIOTIC COMPONENTS: DESCRIPTION OF AREA: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	FRESHWATER MARSH WITH SCIRPUS SPP. OTTER. OVERWINTERING SWAN, HERONRY WITH ABOUT 150 NESTS. CRAB. ANADROMOUS FISH. IN ELK RIVER WATERSHED. 00214.1 HA 08
00000680	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 150 15N SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS:	LANGFORD MARSH - RICHARDSON MARSH - MARUMSLO CREEK MARYLAND SOMERSET SAXIS, MD; CRISFIELD, MD 01478.6 HA PRIVATE MARSH, TIDAL HIGH TIDAL MARSH. OTTER, MINK, ANADROMOUS FISH, STRIPED BASS, HERRING, WHITE SHAD. CRAB, CLAMS AND OYSTER. IN POCOMOKE RIVER WATERSHED. PRIME WETLAND 08
00000684	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 02 03 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 12K SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: ECOLOGICAL RATING:	HELL HOOK MARSH - WORLDS END CREEK MARYLAND DORCHESTER HONGA, MD 01607.9 HA PRIVATE MARSH, TIDAL HIGH TIDAL MARSH. TERRAPIN, OTTER, TURKEY, BLUE CRABS, CLAMS, OYSTERS, RUPPIA OCCIDENTALIS AND EEL GRASS. SUPERB MARSH, UNSPOILED. IMPORTANT COMMERCIAL SHELLFISH AREA. PRIME WETLAND. 02052.3 HA 08
00000688	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 02 03 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: 12N 11N SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: DESCRIPTION OF AREA: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	NUTTERS NECK MARYLAND WICOMICO WETIPQUIN, MD; MARDELLA SPRINGS, MD 00674.7 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH WITH TYPHA SP. OTTER, ANADROMOUS FISH, STRIPED BASS, WHITE SHAD, HICKORY SHAD, ALEWIFE, CRAB. IN NANTICOKE RIVER WATERSHED. PRIME WETLAND. 08
00000699	010 01	NAME OF AREA	PICCOWAXEN CREEK

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000699	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 12E	COLONIAL BEACH NORTH, MD
	040	01	SIZE OF AREA:	00097.0 HA
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES, MINK,
		02		OTTER, ANADROMOUS FISH, STRIPED BASS, OSPREY,
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	410	01	ECOLOGICAL RATING:	08
00000706	010	01	NAME OF AREA:	CATLETT ISLANDS
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	GLOUCESTER
	030	01	QUADRANGLE: 20H	CLAY BANK, VA
	040	01	SIZE OF AREA:	00258.6 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, PINUS TAEDA, JUNIPERUS
		02		VIRGINIANA, HIGH TIDAL MARSH WITH SPARTINA
		03		ALTERNIFLORA AND JUNCUS ROEMERIANUS, OSPREY, OYSTERS.
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	08
00000726	010	01	NAME OF AREA:	LILLEYS NECK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	MATHEWS
	030	01	QUADRANGLE: 19J	MATHEWS, VA
	040	01	SIZE OF AREA:	00105.0 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS, UPLAND PINES, SUCCESSIONAL.
		02		OSPREY.
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	08
00000732	010	01	NAME OF AREA:	SKELETON CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CAROLINE
	030	01	QUADRANGLE: 9M	PRESTON, MD
	040	01	SIZE OF AREA:	00161.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP, OSPREY, OTTER,
		02		ANADROMOUS FISH, STRIPED BASS, WHITE SHAD, HICKORY
		03		SHAD, HERRING,
	180	01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED. PRIME WETLAND.
	410	01	ECOLOGICAL RATING:	08

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000742	020	01	STATE:	MARYLAND
	021	01	COUNTY:	DORCHESTER
	030	01	QUADRANGLE:	PRESTON, MD
	040	01	SIZE OF AREA:	00242.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL; SWAMP
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, SWAMP FOREST, TAXODIUM DISTICHUM, OSPREY,
	180	01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED, PRIME WETLAND.
	410	01	ECOLOGICAL RATING:	08 NOTE: AREA SHOULD RECEIVE SPECIAL CONSIDERATION
00000753	010	01	NAME OF AREA:	BRANT MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	STAFFORD
	030	01	QUADRANGLE: 11B	WIDEWATER, VA
	040	01	SIZE OF AREA:	00064.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES, ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	400	01	AREA INCL. BUFFER ZONE:	00153.5 HA
	410	01	ECOLOGICAL RATING:	08
00000768	010	01	NAME OF AREA:	WARREN TRACT
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	SURRY
	030	01	QUADRANGLE:	BACONS CASTLE, VA
	040	01	SIZE OF AREA:	00125.2 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS, PINUS TAEDA, PINUS VIRGINIANA,
		02		FAGUS GRANDIFOLIA, LIRIODENDRON TULIPIFERA, QUERCUS SPP.,
		03		ULMUS SP., CARYA GLABRA AND PLATANUS OCCIDENTALIS.
		04		UNDERSTORY IS MOSTLY BEECH REPRODUCTION.
	180	01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED, FOREST HAS NOT BEEN DISTURBED
	410	02	ECOLOGICAL RATING:	FOR DECADES.
		01		08
00000787	010	01	NAME OF AREA:	DOLLY BOARMANS CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 12E	COLONIAL BEACH NORTH, MD
	040	01	SIZE OF AREA:	00084.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, PLANT SPECIES INCLUDE SPARTINA
		02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
		03		MINK, OTTER, OSPREY, CRABS, ANADROMOUS FISH, STRIPED
		04		BASS.

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000787	410	01	ECOLOGICAL RATING:	08
00000797	010	01	NAME OF AREA:	HARNESS CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE: 7H	SOUTH RIVER, MD
	040	01	SIZE OF AREA:	00036.4 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE FOREST
	180	01	DESCRIPTION OF AREA:	IN SOUTH RIVER WATERSHED. ADJACENT LAND IS DENSE RESIDENTIAL AND 12 HA OF FARM LAND. IRREGULAR SHORELINE WITH BAYS AND INLETS. SMALL BEACH. MOSTLY WETLANDS.
	191	01	RARE AND ENDANGERED ANIMALS:	EAGLE NEST
	200	01	CONTENTS IN MANUAL FILE:	ACCESS INFORMATION
	410	01	ECOLOGICAL RATING:	08
00000617	010	01	NAME OF AREA:	GOODWIN ISLANDS
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	YORK
	030	01	QUADRANGLE: 211	POQUOSON WEST, VA
	040	01	SIZE OF AREA:	00169.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. MANY SPECIES OF SHORE BIRDS. OSPREY. HARD SHELL CLAMS.
	180	01	DESCRIPTION OF AREA:	IN YORK RIVER WATERSHED. SALT MARSH ISLAND. ABANDONED FOR PAST 40 YEARS. PREVIOUSLY SITE OF MENHADEN REDUCTION PLANT.
	410	01	ECOLOGICAL RATING:	07
00000624	010	01	NAME OF AREA:	POHICK - ACCOTINK CREEKS, UPPER, LOWER
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	FAIRFAX
	030	01	QUADRANGLE: 8C 9C	ANNANDALE, VA; BELVOIR, VA
	040	01	SIZE OF AREA:	00808.0 HA
	060	01	OWNER I:	PRIVATE
	065	01	OWNER II:	FEDERAL, MILITARY
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. UPLAND PINE FOREST, SUCCESSIONAL. ANADROMOUS FISH, HERRING.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	410	01	ECOLOGICAL RATING:	07
00000630	010	01	NAME OF AREA:	CAT POINT CREEK MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	RICHMOND
	030	01	QUADRANGLE: 15F	TAPPANNOCK, VA
	040	01	SIZE OF AREA:	00686.8 HA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000630	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES, PANICUM VIRGATUM, HIBISCUS SP. AND TYPHA SP. OSPREY, ANADROMOUS FISH, STRIPED BASS AND HERRING. IN RAPPAHANNOCK RIVER WATERSHED.
		02		02706.8 HA
		03		07
	180	01	DESCRIPTION OF AREA:	
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	
00000631	010	01	NAME OF AREA:	CROUCHE'S CREEK - TIMBER NECK CREEK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	SURRY
	030	01	QUADRANGLE:	21F
	035	01	COORDINATES:	
	040	01	SIZE OF AREA:	37 10 -- N 076 47 32 W
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA CYNOSUROIDES, HIBISCUS SP. AND TYPHA ANGUSTIFOLIA, SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. ANADROMOUS FISH, HERRING. IN JAMES RIVER WATERSHED
		02		01454.4 HA
		03		07
00000638	180	01	DESCRIPTION OF AREA:	
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	
	010	01	NAME OF AREA:	NORTH LANDING RIVER SWAMP - POCATY CREEK SWAMP
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	CHESAPEAKE; VIRGINIA BEACH
	030	01	QUADRANGLE:	25L
	040	01	SIZE OF AREA:	PLEASANT RIDGE, VA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. LARGELY SOUTHERN FLORA AND FAUNA.
	410	01	ECOLOGICAL RATING:	04516.7 HA
		02		07
00000654	010	01	NAME OF AREA:	GUINEA MARSHES
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	GLOUCESTER
	030	01	QUADRANGLE:	20I 20G
	040	01	SIZE OF AREA:	ACHILLES, VA; NEW POINT COMFORT, VA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA PATENS, JUNCUS ROEMERIANUS. OCCASIONAL ISLANDS OF PINUS TAEDA. OSPREY. SUPERB MARSHES.
		02		00595.9 HA
		02		07
00000690	010	01	NAME OF AREA:	POINT NO POINT - PENKNIFE POINT - REDFIN CREEK
	020	01	STATE:	MARYLAND

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000690	021 01	COUNTY:	DORCHESTER
	030 01	QUADRANGLE: 11N	MARDELLA SPRINGS, MD
	040 01	SIZE OF AREA	0444.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, OTTER, NUTRIA, TERRAPIN, ANADROMOUS FISH, STRIPED BASS,
	02	DESCRIPTION OF AREA:	IN NANTICOKE RIVER WATERSHED, PRIMARILY WETLANDS
	180 01	ECOLOGICAL RATING:	WILDLIFE HABITAT. PRIME WETLAND
	02		07
00000692	010 01	NAME OF AREA:	ROUND BAY BOG
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 6H	ROUND BAY, MD
	040 01	SIZE OF AREA:	00056.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	BOG
	170 01	BIOTIC COMPONENTS:	VACCINIUM SP., CRANBERRY, - SPHAGNUM SP. BOG WITH ILEX SP. AND MAGNOLIA SP. WIDE VARIETY OF BIRDLIFE,
	02	DESCRIPTION OF AREA:	IN SEVERN RIVER WATERSHED WITHIN 25 MILES OF BALTIMORE, MARYLAND AND OF WASHINGTON, D.C. NO IMMINENT PRESERVATION PROBLEMS.
	180 01	ECOLOGICAL RATING:	00299.0 HA
	02		07
	400 01	AREA INCL. BUFFER ZONE:	NOTE: BOG SHOULD RECEIVE SPECIAL CONSIDERATION
	410 01	ECOLOGICAL RATING:	07
00000693	010 01	NAME OF AREA:	HUNTING CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CAROLINE† DORCHESTER
	030 01	QUADRANGLE: 9M	PRESTON, MD
	040 01	SIZE OF AREA:	00307.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. OSPREY, HAWKS, WOOD DUCKS
	02	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED.
	180 01	ECOLOGICAL RATING:	07
	410 01	ECOLOGICAL RATING:	07
00000697	010 01	NAME OF AREA:	FRAZER'S LAKE
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CECIL
	030 01	QUADRANGLE: 3M	EARLEVILLE, MD
	040 01	SIZE OF AREA:	00064.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. OTTER, ANADROMOUS FISH.
	180 01	DESCRIPTION OF AREA:	IN ELK RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	00735.1 HA

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DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000697	410	01	ECOLOGICAL RATING:	07
00000722	010	01	NAME OF AREA:	HACK CREEK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NORTHUMBERLAND
	030	01	QUADRANGLE: 15J	BURGESS, VA
	040	01	SIZE OF AREA:	00642.4 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOOD. UPLAND PINES, SUCCESSIONAL ANADROMOUS FISH. PINUS SPP. - QUERCUS SPP. IN POTOMAC RIVER WATERSHED. AGRICULTURE IS PRINCIPAL LAND USE.
	180	01	DESCRIPTION OF AREA:	
	02			07
	410	01	ECOLOGICAL RATING:	
00000725	010	01	NAME OF AREA:	HOSKINS CREEK MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	ESSEX
	030	01	QUADRANGLE: 15E 15F	MOUNT LANDING, VA; TAPPAHANNOCK, VA
	040	01	SIZE OF AREA:	00367.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. SPARTINA CYNOSUROIDES. ANADROMOUS FISH, STRIPED BASS AND HERRING. OSPREY. IN TAPPAHANNOCK RIVER WATERSHED. PRIME WETLANDS.
	180	01	DESCRIPTION OF AREA:	
	400	01	AREA INCL. BUFFER ZONE:	01717.0 HA
	410	01	ECOLOGICAL RATING:	07
00000743	010	01	NAME OF AREA:	CHERRYFIELD POINT
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ST. MARY'S
	030	01	QUADRANGLE: 13I	ST. MARY'S CITY, MD
	040	01	SIZE OF AREA:	00084.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. UPLAND MATURE HARDWOODS. OSPREY. QUERCUS SPP. - PINUS SPP. SALT MEADOWS. IN POTOMAC RIVER WATERSHED. BOUNDED BY ST. MARY'S RIVER AND ST. GEORGE'S CREEK. NO IMMINENT PROBLEMS. DESCRIBED AS A "UNIQUE ECOLOGICAL AREA" IN THE REPORT OF THE POTOMAC TASK FORCE, U. S. DEPT. OF INTERIOR.
	180	01	DESCRIPTION OF AREA:	
	02			07
	410	01	CONTENTS IN MANUAL FILE:	
	010	01	NAME OF AREA:	MARSH ISLAND
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 10C	INDIAN HEAD, MD
	040	01	SIZE OF AREA:	00012.1 HA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
0000075	050	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH, SCIRPUS SPP. MINK, OSPREY, CRAB, ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED
	410	01	ECOLOGICAL RATING:	07
00000751	010	01	NAME OF AREA:	WHITE MARSH - SKINKERS NECK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	CAROLINE
	030	01	QUADRANGLE: 13C	PORT ROYAL, VA
	040	01	SIZE OF AREA:	00161.6 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM. ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN RAPPAHANNOCK RIVER WATERSHED.
	400	01	AREA INCL. BUFFER ZONE:	00210.1 HA
	410	01	ECOLOGICAL RATING:	07
00000752	010	01	NAME OF AREA:	BIG MARSH POINT
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	JAMES CITY
	030	01	QUADRANGLE: 20E	BRANDON, VA
	040	01	SIZE OF AREA:	00080.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. OSPREY, ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN CHICKAHOMINY AND JAMES RIVERS WATERSHEDS. PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00092.9 HA
	410	01	ECOLOGICAL RATING:	07
00000758	010	01	NAME OF AREA:	KENNON MARSH
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	PRINCE GEORGE
	030	01	QUADRANGLE: 20D 20E	CHARLES CITY, VA; BRANDON, VA
	040	01	SIZE OF AREA:	00266.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH COMMUNITY. OSPREY, ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED. PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00303.0 HA
	410	01	ECOLOGICAL RATING:	07
00000767	010	01	NAME OF AREA:	TANGIER ISLAND
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	ACCOMACK
	030	01	QUADRANGLE: 16M	TANGIER ISLAND, VA

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000767	040 01	SIZE OF AREA:	00270.7 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OYSTERS, CRABS, OSPREY. HARDWOOD FOREST.
	02 03		07
	410 01	ECOLOGICAL RATING:	
00000775	010 01	NAME OF AREA:	BREWER POND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE:	ROUND BAY, MD
	040 01	SIZE OF AREA:	00408.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE HARDWOODS. OVERWINTERING SWAN. LOCATED ON SOUTH BANK OF SEVERN RIVER JUST UPSTREAM FROM SHERWOOD FOREST RESIDENTIAL DEVELOPMENT.
	180 01	DESCRIPTION OF AREA:	SHORELINE OF POND, IRREGULAR, SMALL WETLAND AREAS. NARROW BEACH.
	02 03		07
	400 01	AREA INCL. BUFFER ZONE:	00137.4 HA
	410 01	ECOLOGICAL RATING:	
00000782	010 01	NAME OF AREA:	POPE CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CHARLES
	030 01	QUADRANGLE:	POPE CREEK, MD
	040 01	SIZE OF AREA:	00097.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. SPARTINA CYNOSUROIDES. OTTER, OSPREY, MUSKRAT AND CRABS. ANADROMOUS FISH, STRIPED BASS. ABANDONED RAILROAD ALONG NORTHERN EDGE MAKES GOOD ACCESS. IN POTOMAC RIVER WATERSHED. LOCATED NEAR
	180 01	DESCRIPTION OF AREA:	POPE CREEK GEOLOGIC SECTION.
	02 03		07
	400 01	AREA INCL. BUFFER ZONE:	00533.3 HA
	410 01	ECOLOGICAL RATING:	
00000788	010 01	NAME OF AREA:	KITT POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE:	BROOMES ISLAND, MD
	040 01	SIZE OF AREA:	00040.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OSPREY, MINK OTTER CANVASBACK DUCKS & CRABS

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SERIAL	CAT	LINE	DEFINITION	DATA
00000788	180	01	DESCRIPTION OF AREA:	IN PATUXENT RIVER WATERSHED.
	400	01	AREA INCL. BUFFER ZONE:	00137.4 HA
	410	01	ECOLOGICAL RATING:	07
00000790	010	01	NAME OF AREA:	LONG COVE
	021	01	COUNTY:	CALVERT
	030	01	QUADRANGLE:11H	BROOMES ISLAND, MD
	040	01	SIZE OF AREA:	00088.9 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OTTER, OSPREY AND CRABS.
	03	02		
	180	01	DESCRIPTION OF AREA:	IN PATUXENT RIVER WATERSHED.
	400	01	AREA INCL. BUFFER ZONE:	00456.5 HA
	410	01	ECOLOGICAL RATING:	07
00000792	010	01	NAME OF AREA:	POND CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CECIL
	030	01	QUADRANGLE:3M 3L	EARLEVILLE, MD; SPESUTIE, MD
	040	01	SIZE OF AREA:	00379.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. OTTER, CLAMS AND OVERWINTERING GEESE. ANADROMOUS FISH.
	180	02	DESCRIPTION OF AREA:	IN ELK RIVER WATERSHED.
	400	01	AREA INCL. BUFFER ZONE:	00820.1 HA
	410	01	ECOLOGICAL RATING:	07
00000793	010	01	NAME OF AREA:	PISCATAWAY CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	PRINCE GEORGES
	030	01	QUADRANGLE:9E 9D	PISCATAWAY, MD; MT. VERNON, VA
	040	01	SIZE OF AREA:	00646.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. MINK, OTTER AND WOOD DUCK. ANADROMOUS FISH, HERRING.
	180	02	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	410	01	ECOLOGICAL RATING:	07
00000826	010	01	NAME OF AREA:	MUDDY CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE:17H 8H	SOUTH RIVER, MD; DEALE, MD
	040	01	SIZE OF AREA:	00222.2 HA
	060	01	OWNER I:	SMITHSONIAN INSTITUTION

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SERIAL CATEG LINE CAT-DEFINITION DATA

00000826	151	01	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, ANADROMOUS FISH, OTTER, MINK, ALEWIVES, CRAB, CLAMS, OYSTER.
	410	01	01	ECOLOGICAL RATING:	07
00000832	010	01	01	NAME OF AREA:	CHIPPOKES CREEK MARSH, LOWER
	020	01	01	STATE:	VIRGINIA
	021	01	01	COUNTY:	SURRY
	030	01	01	QUADRANGLE: 21G 22G	HOG ISLAND, VA; BACONS CASTLE, VA
	040	01	01	SIZE OF AREA:	00242.4 HA
	060	01	01	OWNER I:	STATE OF VIRGINIA PARKS COMMISSION
	065	01	01	OWNER II:	PRIVATE
	151	01	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH, ANADROMOUS FISH.
	190	01	01	RARE AND ENDANGERED PLANTS:	EUPATORIUM SALTUENSE
	410	01	01	ECOLOGICAL RATING:	07
00000611	010	01	01	NAME OF AREA:	COLLEGE CREEK MARSH
	020	01	01	STATE:	VIRGINIA
	021	01	01	COUNTY:	JAMES CITY
	030	01	01	QUADRANGLE: 21G 20G	HOG ISLAND, VA; WILLIAMSBURG, VA
	040	01	01	SIZE OF AREA:	00521.2 HA
	060	01	01	OWNER I:	PRIVATE
	065	01	01	OWNER II:	FEDERAL, AGENCY
	151	01	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION, HERONRY, ANADROMOUS FISH, HERRING RUN.
	180	01	01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED, HEAVY DISTURBANCE.
	400	01	01	AREA INCL. BUFFER ZONE:	02109.9 HA
	410	01	01	ECOLOGICAL RATING:	06
00000623	010	01	01	NAME OF AREA:	NEABSCO CREEK MARSH
	020	01	01	STATE:	VIRGINIA
	021	01	01	COUNTY:	PRINCE WILLIAM
	030	01	01	QUADRANGLE: 10B 10C	QUANTICO, VA; INDIAN HEAD, VA
	040	01	01	SIZE OF AREA:	00339.4 HA
	060	01	01	OWNER I:	PRIVATE
	065	01	01	OWNER II:	MARSH, FRESHWATER
	151	01	01	AQUATIC TYPES:	ANADROMOUS FISH, DOMINANT PLANT SPECIES ARE ZIZANIA
	170	01	01	BIOTIC COMPONENTS:	SP., TYPHA SP., PONTERERIA SP. AND POLYGONUM SP.
	180	01	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED, THE DISTRICT OF COLUMBIA WISHES TO FILL AREA WITH REFUSE AND BUILD A SEWAGE PLANT AND MARINA.
	200	01	01	CONTENTS IN MANUAL FILE:	LOCATION MAP
	400	01	01	AREA INCL. BUFFER ZONE:	01171.6 HA
	410	01	01	ECOLOGICAL RATING:	06
00000628	010	01	01	NAME OF AREA:	QUANTICO CREEK

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000628	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	PRINCE WILLIAM
	040 01	SIZE OF AREA:	00464.6 HA
	050 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH VEGETATION. ANADROMOUS FISH, HERRING.
	02	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	180 01	AREA INCL. BUFFER ZONE:	01373.6 HA
	400 01	ECOLOGICAL RATING:	06
	410 01	ECOLOGICAL RATING:	06
00000647	010 01	NAME OF AREA:	HYSLOP MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE: 18M 17M	JAMESVILLE, VA; NANDUA CREEK, VA
	040 01	SIZE OF AREA:	00416.1 HA
	050 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. OSPREY.
	180 01	DESCRIPTION OF AREA:	PRIME WETLAND.
	400 01	ECOLOGICAL RATING:	06
	410 01	ECOLOGICAL RATING:	06
00000650	010 01	NAME OF AREA:	WINTER HARBOR MARSH - GARDEN CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	MATHEWS
	030 01	QUADRANGLE: 19J 20J	MATHEWS, VA; NEW POINT COMFORT, VA.
	040 01	SIZE OF AREA:	00545.4 HA
	050 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. OSPREY.
	400 01	AREA INCL. BUFFER ZONE:	00597.9 HA
	410 01	ECOLOGICAL RATING:	06
00000651	010 01	NAME OF AREA:	COHOKE MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING WILLIAM
	030 01	QUADRANGLE: 18E	NEW KENT, VA
	040 01	SIZE OF AREA:	00331.3 HA
	050 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS. ANADROMOUS FISH.
	180 01	DESCRIPTION OF AREA:	PRIME WETLAND.
	400 01	AREA INCL. BUFFER ZONE:	00420.2 HA
	410 01	ECOLOGICAL RATING:	06
00000664	010 01	NAME OF AREA:	RED POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CFCEIL

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SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000664	040	01	SIZE OF AREA:	00109.1 HA
	060	01	OWNER I:	PRIVATE - BOY SCOUTS
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, ANADROMOUS FISH, HERRING, SHAD, STRIPED BASS, CRABS.
	400	01	AREA INCL. BUFFER ZONE:	00428.2 HA
	410	01	ECOLOGICAL RATING:	06
00000671	010	01	NAME OF AREA:	ELK RIVER
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CECIL
	030	01	QUADRANGLE: 2N	ELKTON, MD
	040	01	SIZE OF AREA:	00460.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. AND TYPHA SP. ANADROMOUS FISH, SHAD, CRABS.
	180	01	DESCRIPTION OF AREA:	IN ELK RIVER WATERSHED
	400	01	AREA INCL. BUFFER ZONE:	00832.2 HA
	410	01	ECOLOGICAL RATING:	06
00000676	010	01	NAME OF AREA:	HARBOR COVE-LOWES POINT
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CALVERT
	030	01	QUADRANGLE: 9H	NORTH BEACH, MD
	040	01	SIZE OF AREA:	00068.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. OSPREY, ANADROMOUS FISH, STRIPED BASS
	410	01	ECOLOGICAL RATING:	06
00000696	010	01	NAME OF AREA:	CYPRESS BRANCH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	KENT
	030	01	QUADRANGLE: 4N	MILLINGTON, MD
	040	01	SIZE OF AREA:	00328.5 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	SWAMP
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, TAXODIUM DISTICHUM, CHAMAECYPARIS THYOIDES, WOOD DUCK.
	180	01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED
	400	01	AREA INCL. BUFFER ZONE:	01644.3 HA
	410	01	ECOLOGICAL RATING:	06
00000698	010	01	NAME OF AREA:	MEDLEY CREEK
	020	01	STATE:	MARYLAND
	030	01	QUADRANGLE: 13G	ST. CLEMENTS, MD
	040	01	SIZE OF AREA:	00052.5 HA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000698	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. AND TYPHA SP.
	02		OYSTER, CLAM, CRAB, OSPREY.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED.
	410 01	ECOLOGICAL RATING:	06
00000704	010 01	NAME OF AREA:	WARWICK RIVER
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NEWPORT NEWS
	030 01	QUADRANGLE: 22 21H 22H	MULBERRY ISLAND, VA; YORKTOWN, VA
	040 01	SIZE OF AREA:	00686.8 HA
	040 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
	02		ALTERNIFLORA AND SPARTINA CYNOSURCIDES. OYSTERS.
	180 01	DESCRIPTION OF AREA:	JAMES RIVER WATERSHED. AREA BEING ENCRONCHED BY
	02		DEVELOPMENTS.
	410 01	ECOLOGICAL RATING:	06
00000705	010 01	NAME OF AREA:	BROOKS CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING WILLIAM
	030 01	QUADRANGLE: 17E	KING AND QUEEN COURTHOUSE, VA
	040 01	SIZE OF AREA:	00404.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST. ANADROMOUS FISH, HERRING AND STRIPED
	02		BASS.
	180 01	DESCRIPTION OF AREA:	IN YORK RIVER WATERSHED. PRIME WETLANDS.
	400 01	AREA INCL. BUFFER ZONE:	02383.6 HA
	410 01	ECOLOGICAL RATING:	06
00000709	010 01	NAME OF AREA:	AQUIA CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	STAFFORD
	030 01	QUADRANGLE: 11A 11B	STAFFORD, VA; WIDewater, VA
	040 01	SIZE OF AREA:	00355.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	ANADROMOUS FISH, HERRING. NELUMBO SP. (LOTUS LILY)
	02		MARSH.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. UPPER END OF AQUIA
	02		CREEK. EXCELLENT MARSH AND WETLANDS AREA. NOW BEING
	03		DEVELOPED.
	400 01	AREA INCL. BUFFER ZONE:	02007.9 HA
	410 01	ECOLOGICAL RATING:	06

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00000718	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	HENRICO
	030	01	QUADRANGLE:	HOPEWELL, VA
	040	01	SIZE OF AREA:	00560.0 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS AND TAXODIUM DISTICHUM,
	180	01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED. NEAR MEADOWVIEW REGIONAL
		02		PARK GRAVEL DREDGING OPERATIONS IN AREA. PRIME
		03		WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00626.2 HA
	410	01	ECOLOGICAL RATING:	06
00000723	010	01	NAME OF AREA:	HALL TRACT
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NORTHUMBERLAND
	030	01	QUADRANGLE:	FLEETS BAY, VA
	035	01	COORDINATES:	37 41 -- N 076 18 30 W
	040	01	SIZE OF AREA:	00262.6 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL; POND
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS,
		02		DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OYSTER BEDS.
		03		GREAT BLUE HERONS, EGRETS.
	180	01	DESCRIPTION OF AREA:	INCLUDES SOME FARMLAND AND TIMBER LAND. AREA IS
	410	01	ECOLOGICAL RATING:	RELATIVELY INACCESSIBLE.
00000731	010	01	NAME OF AREA:	SCOTCHMAN CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CECIL
	030	01	QUADRANGLE:	EARLEVILLE, MD
	040	01	SIZE OF AREA:	00187.8 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. OTTER, SWAN,
		02		ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN ELK RIVER WATERSHED. PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00597.9 HA
	410	01	ECOLOGICAL RATING:	06
00000734	010	01	NAME OF AREA:	THORN GUT MARSH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE:	WIDEWATER, MD; NANJEMOY, MD
	040	01	SIZE OF AREA:	00072.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. MINK, OTTER, OYSTER,

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000734	170 02	DESCRIPTION OF AREA:	CRAB.
	180 01	ECOLOGICAL RATING:	IN POTOMAC RIVER WATERSHED
	410 01		06
00000740	010 01	NAME OF AREA:	ANDOVER BRANCH
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	QUEEN ANNE
	030 01	QUADRANGLE: 5N	SUDLERSVILLE, MD
	040 01	SIZE OF AREA:	00141.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	SWAMP
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS, CHAMAECYPARIS THYROIDES, WOOD DUCK,
	02		
	180 01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED
	410 01	ECOLOGICAL RATING:	06 NOTE: AREA SHOULD RECEIVE SPECIAL CONSIDERATION
00000741	010 01	NAME OF AREA:	BERRY RUN - BELL CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CAROLINE
	030 01	QUADRANGLE: 8M	FOWLING CREEK, MD
	040 01	SIZE OF AREA:	00121.2 HA
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 02	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. AND SCIRPUS SPP. OTTER, ANADROMOUS FISH, STRIPED BASS, WHITE SHAD, HICKORY SHAD, HERRING,
	03		IN CHOPIANK RIVER WATERSHED. PRIME WETLAND.
	180 01	DESCRIPTION OF AREA:	
	410 01	ECOLOGICAL RATING:	06
00000757	010 01	NAME OF AREA:	DAMERON MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NORTHUMBERLAND
	030 01	QUADRANGLE: 16J	REEDVILLE, VA
	040 01	SIZE OF AREA:	00088.9 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OSPREY. PRIME WETLANDS.
	U2		
	180 01	DESCRIPTION OF AREA:	
	400 01	AREA INCL. BUFFER ZONE:	00097.0 HA
	410 01	ECOLOGICAL RATING:	06
00000762	010 01	NAME OF AREA:	PAYNES ISLAND MARSHES
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ESSEX
	030 01	QUADRANGLE: 14E	CHAMPLAIN, VA
	040 01	SIZE OF AREA:	00670.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL

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00000762	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
		02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
		03		ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	
	400	01	AREA INCL. BUFFER ZONE:	IN RAPPAHANNOCK RIVER WATERSHED. PRIME WETLAND.
	410	01	ECOLOGICAL RATING:	00795.9 HA
				06
00000763	010	01	NAME OF AREA:	RIGBY ISLAND
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	MATHEWS
	030	01	QUADRANGLE:19J	MATHEWS, VA
	040	01	SIZE OF AREA:	00048.5 HA
	060	01	OWNER 1:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
		02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OSPREY.
	180	01	DESCRIPTION OF AREA:	SANDY BEACH.
	410	01	ECOLOGICAL RATING:	06
00000769	010	01	NAME OF AREA:	LYONS CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE:18H	DEAL, MD
	040	01	SIZE OF AREA:	00307.0 HA
	060	01	OWNER 1:	PRIVATE
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS. NESTING WOOD DUCKS. MINK.
		02		HAWKS.
	180	01	DESCRIPTION OF AREA:	IN PATUXENT RIVER WATERSHED.
	400	01	AREA INCL. BUFFER ZONE:	
	410	01	ECOLOGICAL RATING:	01082.7 HA
				06
00000805	010	01	NAME OF AREA:	NEWTOWN NECK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ST. MARY'S
	030	01	QUADRANGLE:13G 12G	ST. CLEMENTS ISLAND, MD; LEONARDTOWN, MD
	040	01	SIZE OF AREA:	00331.3 HA
	170	01	BIOTIC COMPONENTS:	UPLAND MATURE FOREST. OSPREY.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. SIGNIFICANT FOR ITS HISTORICAL,
		02		NATURAL AND RECREATIONAL VALUES. 80.8 HA PLANNED FOR A GOLF
		03		COURSE. REST OF AREA WILL PROBABLY BE DEVELOPED RESIDENTIALLY.
	410	01	ECOLOGICAL RATING:	06
00000812	010	01	NAME OF AREA:	HEMLOCK STAND ON MILL CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CAROLINE
	030	01	QUADRANGLE:8N	HOBBS, MD
	040	01	SIZE OF AREA:	00016.2 HA
	060	01	OWNER 1:	PRIVATE

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000812	151 01	AQUATIC TYPES:	SWAMP
	170 01	BIOTIC COMPONENTS:	SWAMP FOREST HARDWOODS. TSUGA CANADENSIS.
	02		OCCURRING OUTSIDE ITS COASTAL PLAIN RANGE.
	180 01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED
	410 01	ECOLOGICAL RATING:	06 NOTE: AREA SHOULD RECEIVE SPECIAL CONSIDERATION
00000824	010 01	NAME OF AREA:	PEARCE CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CECIL
	030 01	QUADRANGLE:J3M	EARLEVILLE, MD
	040 01	SIZE OF AREA:	01770.5 HA
	060 01	OWNER I:	CORP OF ENGINEERS
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. GEESE. ANADROMOUS FISH.
	410 01	ECOLOGICAL RATING:	06
00000604	010 01	NAME OF AREA:	MULBERRY ISLAND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NEWPORT NEWS CITY
	030 01	QUADRANGLE:22H	MULBERRY ISLAND, VA
	040 01	SIZE OF AREA:	00404.0 HA
	060 01	OWNER I:	FEDERAL
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. UPLAND PINE, SUCCESSIONAL. OYSTERS.
	410 01	ECOLOGICAL RATING:	05
00000642	010 01	NAME OF AREA:	BYRDS MARSH - PARKSLEY MARSHES
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE:160	PARKSLEY, VA
	040 01	SIZE OF AREA:	05615.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION.
	410 01	ECOLOGICAL RATING:	05
00000646	010 01	NAME OF AREA:	SWEET HALL MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING WILLIAM
	030 01	QUADRANGLE:18E	NEW KENT, VA
	040 01	SIZE OF AREA:	00444.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. OTTER. ANADROMOUS FISH.
	180 01	DESCRIPTION OF AREA:	IN PAMUNKEY AND YORK RIVERS WATERSHEDS.
	400 01	AREA INCL. BUFFER ZONE:	00537.3 HA
	410 01	ECOLOGICAL RATING:	05
00000649	010 01	NAME OF AREA:	PAGAN RIVER MARSH

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000649	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ISLE OF WIGHT
	030 01	QUADRANGLE: 22H 23H	MULBERRY ISLAND, VA; BENNS CHURCH, VA
	040 01	SIZE OF AREA:	00315.1 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH SPARTINA ALTERNIFLORA, SPARTINA CYNOSUROIDES, IVA SP. AND BACCHARIS SP.
	02		IN JAMES RIVER WATERSHED
	180 01	DESCRIPTION OF AREA:	00614.1 HA
	400 01	AREA INCL. BUFFER ZONE:	05
	410 01	ECOLOGICAL RATING:	
00000655	010 01	NAME OF AREA:	LAWNES CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ISLE OF WIGHT; SURRY
	030 01	QUADRANGLE: 22G 21G	BACONS CASTLE, VA; HOG ISLAND, VA
	040 01	SIZE OF AREA:	00438.3 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH VEGETATION. PRIME WETLAND.
	180 01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	01706.9 HA
	410 01	ECOLOGICAL RATING:	05
00000694	010 01	NAME OF AREA:	PARKER CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE: 10H	PRINCE FREDERICK, MD
	040 01	SIZE OF AREA:	00218.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER; STREAM
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. OTHER. TOBACCO FIELDS INTERMINGLED
	180 01	DESCRIPTION OF AREA:	SPARSELY DEVELOPED AREA. TOPOGRAPHY IS SHARPLY ROLLING.
	02		IN THE WOODLAND.
	03		HIGH BANKS ALONG CREEK.
	400 01	AREA INCL. BUFFER ZONE:	01636.2 HA
	410 01	ECOLOGICAL RATING:	05
00000712	010 01	NAME OF AREA:	UPPER MACHODOC CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING GOERGE
	030 01	QUADRANGLE: 12D	DAHLGREN, VA
	040 01	SIZE OF AREA:	00278.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. SPARTINA CYNOSUROIDES. ANADROMOUS FISH. OYSTERS.
	02		01805.9 HA
	400 01	AREA INCL. BUFFER ZONE:	

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000712	410 01	ECOLOGICAL RATING:	05
00000716	010 01	NAME OF AREA:	BLACKWALNUT RIDGE - COW ISLAND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	YORK
	030 01	QUADRANGLE: 21J 22J	POOUSON EAST, VA; HAMPTON, VA
	040 01	SIZE OF AREA:	00686.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. HARD SHELL CLAMS.
	02 03		05
	01 01	ECOLOGICAL RATING:	
00000721	010 01	NAME OF AREA:	GLEASON MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	KING AND QUEEN
	030 01	QUADRANGLE: 17E 17F	KING AND QUEEN COURTHOUSE, VA; TRUHART, VA
	040 01	SIZE OF AREA:	00400.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. SWAMP FOREST. ANADROMOUS FISH.
	02 02		00953.4 HA
	01 01	AREA INCL. BUFFER ZONE:	
	01 01	ECOLOGICAL RATING:	05
00000727	010 01	NAME OF AREA:	MOSQUITO ISLAND
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	LANCASTER
	030 01	QUADRANGLE: 18J	DELTAVILLE, VA
	040 01	SIZE OF AREA:	00040.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OYSTERS. FIVE OSPREY NESTS.
	02 03		05
	01 01	ECOLOGICAL RATING:	
00000729	010 01	NAME OF AREA:	POWELL CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	PRINCE GEORGE
	030 01	QUADRANGLE: 20C	WESTOVER, VA
	040 01	SIZE OF AREA:	00383.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. ANADROMOUS FISH, STRIPED BASS AND HERRING.
	02 01	DESCRIPTION OF AREA:	PRIME WETLANDS.

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000729	400 01 410 01	AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	01575.6 HA 05
00000730	010 01 020 01 021 01 030 01 040 01 060 01 151 01 170 01 400 01 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: SIZE OF AREA: OWNER I: AQUATIC TYPES: BIOTIC COMPONENTS: AREA INCL. BUFFER ZONE: ECOLOGICAL RATING:	RAGGED ISLAND - BALLARDO MARSH VIRGINIA ISLE OF WIGHT BENNS CHURCH, VA; NEWPORT NEWS SOUTH, VA 00973.0 HA PRIVATE MARSH, TIDAL HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OYSTERS. 01268.6 HA 05
00000738	010 01 020 01 021 01 030 01 040 01 060 01 170 01 180 01 02 02 03 03 04 03 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: SIZE OF AREA: OWNER I: BIOTIC COMPONENTS: DESCRIPTION OF AREA: ECOLOGICAL RATING:	MAYO POINT MARYLAND ANNE ARUNDEL SOUTH RIVER, MD 00040.4 HA PRIVATE UPLAND MATURE HARDWOODS. SALT MEADOWS. OVERWINTERING SWAN. ON SOUTH RIVER. EAST SHORE HAS SOME BLUFF AND VIRTUALLY NO BEACH, EROSION IS HIGH. NORTH SHORE HAS NARROW BEACH. MOSTLY UNDEVELOPED FOREST AND WETLANDS. SURROUNDING AREA IS URBANIZED. NOT ACCESSIBLE BY ROAD. 05
00000739	010 01 020 01 021 01 030 01 040 01 060 01 170 01 180 01 02 02 03 03 04 03 410 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: SIZE OF AREA: OWNER I: BIOTIC COMPONENTS: DESCRIPTION OF AREA: ECOLOGICAL RATING:	POPLAR POINT MARYLAND ANNE ARUNDEL SOUTH RIVER, MD 00052.5 HA PRIVATE UPLAND MATURE FOREST. OVERWINTERING SWAN. IN SOUTH RIVER WATERSHED UNDEVELOPED FOREST LAND. NARROW SAND BEACH ALONG CHURCH CREEK. ADJACENT LAND IS MOSTLY AGRICULTURAL. 05
00000744	010 01 020 01 021 01 030 01 040 01 060 01 151 01	NAME OF AREA: STATE: COUNTY: QUADRANGLE: SIZE OF AREA: OWNER I: AQUATIC TYPES:	HIGGINS POND MARYLAND DORCHESTER EAST NEW MARKET, MD 00068.7 HA PRIVATE POND; MARSH. FRESHWATER

SERIAL CATEG LINE CAT-DEFINITION DATA

00000744	170	01	BIOTIC COMPONENTS:	ABUNDANT CRAPPIE, BLUEGILLS, BASS AND CATFISH.
	180	01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED. ONE OF THE LARGEST PONDS
		02		IN MARYLAND, IS FOR SALE. AVERAGE DEPTH OF POND IS 1 M
		03		MAXIMUM DEPTH IS 6 M. POND IS SURROUNDED BY SHALLOW
		04		MARSH. NO PERMANENT PRESERVATION IN EFFECT.
	410	01	ECOLOGICAL RATING:	05
00000747	010	01	NAME OF AREA:	SOUTHEAST CREEK - BROWNS BRANCH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	QUEEN ANNES
	030	01	QUADRANGLE: 5L 5M	CHESTERTOWN, MD; CHURCH HILL, MD
	040	01	SIZE OF AREA:	00238.4 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. DIVING DUCKS.
	180	01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED. PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00824.2 HA
	410	01	ECOLOGICAL RATING:	05
00000749	010	01	NAME OF AREA:	DUNDEE CREEK
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	BALTIMORE
	030	01	QUADRANGLE: 4J	GUNPOWDER NECK, MD
	040	01	SIZE OF AREA:	00109.1 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. MARSH GRASS AND
		02		LIQUIDAMBAR STYRACIFLUA. HARDWOODS.
		02		SHORE SLOPE IS GENTLE AND EROSION IS LOW. WATER
		03		CLARITY IS GOOD. BACKLAND TOPOGRAPHY, FLAT. STATE
		04		PARK ON NORTH END. SHORE IS NARROW WETLANDS BACKED
		04		BY UPLAND HARDWOODS. PRIME WETLANDS.
	410	01	ECOLOGICAL RATING:	05
00000756	010	01	NAME OF AREA:	CORBINS NECK - MOSS NECK
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	KING GEORGE; CAROLINE
	030	01	QUADRANGLE: 13B	RAPPAHANNOCK ACADEMY, VA
	040	01	SIZE OF AREA:	00371.7 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, FRESHWATER
	170	01	BIOTIC COMPONENTS:	FRESHWATER MARSH COMMUNITY. ANADROMOUS FISH.
	180	01	DESCRIPTION OF AREA:	IN RAPPAHANNOCK RIVER WATERSHED. PRIME WETLANDS.
	400	01	AREA INCL. BUFFER ZONE:	00365.6 HA
	410	01	ECOLOGICAL RATING:	05
00000759	010	01	NAME OF AREA:	NOMINI CLIFFS
	020	01	STATE:	VIRGINIA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000759	021 01	COUNTY:	WESTMORELAND
	030 01	QUADRANGLE: 13F	STRAITFORD HALL, VA
	040 01	SIZE OF AREA:	00149.5 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	OSPREY
	180 01	DESCRIPTION OF AREA:	HIGH CLIFFS OVERLOOKING POTOMAC RIVER, IN POTOMAC RIVER WATERSHED. IMPRESSIVE LANDMARK.
	02		05
	410 01	ECOLOGICAL RATING:	
00000760	010 01	NAME OF AREA:	NORTH POINT MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	LANCASTER
	030 01	QUADRANGLE: 17J	FLEETS BAY, VA
	040 01	SIZE OF AREA:	00113.1 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OSPREY.
	02		05
	410 01	ECOLOGICAL RATING:	
00000796	010 01	NAME OF AREA:	CEDAR POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 7H	SOUTH RIVER, MD
	040 01	SIZE OF AREA:	00040.4 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	UPLAND MATURE FOREST. OSPREY. SOUTH RIVER BETWEEN LOCATED ON SOUTH SHORE OF THE SOUTH RIVER BETWEEN GLEBE BAY AND BREWER CREEK. MOSTLY UNDEVELOPED. PENINSULA. ADJACENT LAND IS DENSE RESIDENTIAL ZONE. SHORELINE IS IRREGULAR WITH SEVERAL COVES AND INLETS
	180 01	DESCRIPTION OF AREA:	
	02		05
	03		
	04		
	05		
	410 01	ECOLOGICAL RATING:	
00000817	010 01	NAME OF AREA:	STUMP POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	WICOMICO
	030 01	QUADRANGLE: 13M	DEAL ISLAND, MD
	040 01	SIZE OF AREA:	00266.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH AT MOUTH OF WICOMICO RIVER. EXCELLENT HABITAT FOR MIGRATORY WATERFOWL. IN WICOMICO RIVER WATERSHED. NO IMMINENT PRESERVATION PROBLEMS. PRIME WETLANDS.
	02		05
	180 01	DESCRIPTION OF AREA:	
	02		
	01		
	410 01	ECOLOGICAL RATING:	
00000823	010 01	NAME OF AREA:	GUNPOWDER FALLS, LOWER

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000823	020 01	STATE:	MARYLAND
	021 01	COUNTY:	HARFORD; BALTIMORE
	030 01	QUADRANGLE: 31 3J	WHITE MARSH, MD; EDGEWOOD, MD
	040 01	SIZE OF AREA:	00606.0 HA
	050 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	TIDAL MARSH. PRIME WETLANDS.
	410 01	ECOLOGICAL RATING:	05
00000625	010 01	NAME OF AREA:	POWELLS CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	PRINCE WILLIAM
	030 01	QUADRANGLE: 10B	QUANTICO, VA
	040 01	SIZE OF AREA:	00272.0 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	ANADROMOUS FISH, HERRING.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED
	400 01	AREA INCL. BUFFER ZONE:	01676.6 HA
	410 01	ECOLOGICAL RATING:	04
00000648	010 01	NAME OF AREA:	MOUNT LANDING CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ESSEX
	030 01	QUADRANGLE: 15E	MOUNT LANDING, VA
	040 01	SIZE OF AREA:	00363.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH WITH A FINE STAND OF SPARTINA
	02 03	DESCRIPTION OF AREA:	CYNOSUROIDES. ANADROMOUS FISH, HERRING, STRIPED BASS.
	180 01	AREA INCL. BUFFER ZONE:	IN RAPPAHANNOCK RIVER WATERSHED
	400 01	ECOLOGICAL RATING:	01090.8 HA
	410 01	ECOLOGICAL RATING:	04
00000702	010 01	NAME OF AREA:	LONG CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	HAMPTON
	030 01	QUADRANGLE: 22J	HAMPTON, VA
	040 01	SIZE OF AREA:	00432.3 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HARD SHELL CLAMS
	180 01	DESCRIPTION OF AREA:	SANDY BEACH
	410 01	ECOLOGICAL RATING:	04
00000708	010 01	NAME OF AREA:	HOFFLER CREEK MARSH
	020 01	STATE:	VIRGINIA

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SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000708	021 01	COUNTY:	NANSEMOND; PORTSMOUTH
	030 01	QUADRANGLE: 23I	NEWPORT NEWS SOUTH, VA
	040 01	SIZE OF AREA:	00072.7 HA
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS. OYSTERS.
	180 01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	00343.4 HA
	410 01	ECOLOGICAL RATING:	04
00000715	010 01	NAME OF AREA:	NANSEMOND RIVER
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	NANSEMOND
	030 01	QUADRANGLE: 24H	CHUCKATUCK, VA.
	040 01	SIZE OF AREA:	01337.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	TIDAL MARSH, HIGH. SPARTINA CYNOSUROIDES.
	400 01	AREA INCL. BUFFER ZONE:	02735.1 HA
	410 01	ECOLOGICAL RATING:	04
00000737	010 01	NAME OF AREA:	GIBSON ISLAND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 6I	GIBSON ISLAND, MD
	040 01	SIZE OF AREA:	00048.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. WHISTLING SWAN.
	180 01	DESCRIPTION OF AREA:	SHORELINE, HIGHLY IRREGULAR WITH WETLANDS ALONG EDGE. 75 PERCENT OF ISLAND IS RAPIDLY BEING DEVELOPED RESIDENTIALLY.
	400 01	AREA INCL. BUFFER ZONE:	00687.0 HA
	410 01	ECOLOGICAL RATING:	04
00000750	010 01	NAME OF AREA:	WARDS CREEK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	PRINCE GEORGE
	030 01	QUADRANGLE: 20D 21D	CHARLES CITY, VA SAVEDGE, VA
	040 01	SIZE OF AREA:	00323.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH SPECIES. ANADROMOUS FISH, STRIPED BASS AND HERRING.
	180 01	DESCRIPTION OF AREA:	IN JAMES RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	01567.5 HA
	410 01	ECOLOGICAL RATING:	04

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000754	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	GLOUCESTER
	030 01	QUADRANGLE: 201	ACHILLES, VA
	040 01	SIZE OF AREA:	00134.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL; POND
	170 01	BIOTIC COMPONENTS:	SALT MARSH COMMUNITY
	180 01	DESCRIPTION OF AREA:	ON SEVERN RIVER
	400 01	AREA INCL. BUFFER ZONE:	00166.4 HA
	410 01	ECOLOGICAL RATING:	04
00000761	010 01	NAME OF AREA:	PITTS CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE: 150 15P	SAXIS, VA; HALLWOOD, VA
	040 01	SIZE OF AREA:	00464.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
	02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
	410 01	ECOLOGICAL RATING:	04
00000764	010 01	NAME OF AREA:	WEST POINT - FINNEYS ISLAND - PARKERS ISLAND -
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE: 17N	PUNGOTEAGUE, VA
	040 01	SIZE OF AREA:	00282.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA
	02		PATENS, DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
	180 01	DESCRIPTION OF AREA:	PRIME WETLANDS.
	400 01	AREA INCL. BUFFER ZONE:	00424.2 HA
	410 01	ECOLOGICAL RATING:	04
00000774	010 01	NAME OF AREA:	BEARDS CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 7H	SOUTH RIVER, MD
	040 01	SIZE OF AREA:	00149.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP. CRABS, CLAMS.
	180 01	DESCRIPTION OF AREA:	IN SOUTH RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	00593.9 HA
	410 01	ECOLOGICAL RATING:	04
00000798	010 01	NAME OF AREA:	CALVERT CLIFFS

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00000798	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE: 111	COVE POINT, MD
	040 01	SIZE OF AREA:	00101.0 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	STEEP BANKS UP TO 23 M
	180 01	DESCRIPTION OF AREA:	FOSSILS. GEOLOGICAL FORMATIONS.
	410 01	ECOLOGICAL RATING:	04
00000799	010 01	NAME OF AREA:	CORNFIELD POINT GEOLOGIC SECTION
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ST. MARY'S
	030 01	QUADRANGLE: 14J	PT. LOOKOUT, MD
	040 01	SIZE OF AREA:	00048.5 HA
	060 01	OWNER I:	PRIVATE
	180 01	DESCRIPTION OF AREA:	FOSSILS. BLUFFS ALONG POTOMAC RIVER. EXPOSURE OF PLEISTOCENE AGE CLAY. MARINE MOLLUSCAN SHELLS.
	410 01	ECOLOGICAL RATING:	04
00000801	010 01	NAME OF AREA:	GARRETT ISLAND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CECIL
	030 01	QUADRANGLE: 2L	HAVRE DE GRACE, MD
	040 01	SIZE OF AREA:	00072.7 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	UPLAND HARDWOODS. ANADROMOUS FISH.
	410 01	ECOLOGICAL RATING:	04
00000803	010 01	NAME OF AREA:	JACK BAY
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CALVERT
	030 01	QUADRANGLE: 11L	BROOKES ISLAND, MD
	040 01	SIZE OF AREA:	00044.4 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. CRAB.
	180 01	DESCRIPTION OF AREA:	IN PATUXENT RIVER WATERSHED.
	410 01	ECOLOGICAL RATING:	04
00000807	010 01	NAME OF AREA:	ST. PAUL'S POND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ROCK HALL, MD
	030 01	QUADRANGLE: 5K	00020.2 HA
	040 01	SIZE OF AREA:	PRIVATE
	060 01	OWNER I:	POND
	151 01	AQUATIC TYPES:	WOODLAND. ABUNDANT BASS AND BLUEGILL.
	170 01	BIOTIC COMPONENTS:	
	180 01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED ADJACENT TO HISTORIC

SERIAL CATEG LINE CAT-DEFINITION

DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000807	180	02	NAME OF AREA:	ST. PAUL'S CHURCH, COMPLETED IN 1713. MAXIMUM DEPTH OF POND IS 3'. AVERAGE DEPTH 1 M. ONE OF FEW REMAINING MAJOR PONDS IN MARYLAND. NO IMMINENT PRESERVATION PROBLEMS. 04
		03	STATE:	
		04	COUNTY:	
		05	QUADRANGLE: 5I	
		01	SIZE OF AREA:	
	410	01	ECOLOGICAL RATING:	
		06	OWNER I:	
		151	AQUATIC TYPES:	
		170	BIOTIC COMPONENTS:	
		180	DESCRIPTION OF AREA:	
	410	01	ECOLOGICAL RATING:	
00000809	010	01	NAME OF AREA:	BLACK MARSH
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	BALTIMORE
	030	01	QUADRANGLE: 5I	SPARROWS POINT, MD
	040	01	SIZE OF AREA:	00290.9 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	MARSH, TIDAL
	170	01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH
	180	01	DESCRIPTION OF AREA:	PRIME WETLAND
	410	01	ECOLOGICAL RATING:	04
00000815	010	01	NAME OF AREA:	ROBERT ISLAND - SPENCER ISLAND
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	HARFORD
	030	01	QUADRANGLE: 2K	ABERDEEN, MD
	040	01	SIZE OF AREA:	00092.9 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	SWAMP
	170	01	BIOTIC COMPONENTS:	SWAMP FOREST, HARDWOODS.
	410	01	ECOLOGICAL RATING:	04
00000816	010	01	NAME OF AREA:	SANDY BOTTOM TALBOT TERRACE SCARP
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	KENT
	030	01	QUADRANGLE: 5K	ROCK HALL, MD
	040	01	SIZE OF AREA:	00084.8 HA
	060	01	OWNER I:	PRIVATE
	180	01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED. ONE OF FEW INLAND CLIFF - LIKE AREAS REMAINING IN MARYLAND COASTAL PLAIN. CARVED BY ADVANCES AND RETREATS OF OCEAN DURING PLEISTOCENE AGE. SUDDEN 12 M ELEVATION INCREASE WITH SECTIONS OF CLAY, PEAT, SAND AND GRAVEL EXHIBITED. NO IMMINENT PRESERVATION PROBLEMS. 04
	410	01	ECOLOGICAL RATING:	
00000819	010	01	NAME OF AREA:	POINT LOOK-IN
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ST. MARY'S
	030	01	QUADRANGLE: 14J	POINT LOOKOUT, MD
	040	01	SIZE OF AREA:	00024.2 HA
	060	01	OWNER I:	PRIVATE

SERIAL CATEG LINE CAT-DEFINITION

DATA

SERIAL	CATEG	LINE	CAT-DEFINITION	DATA
00000819	170	02	DESCRIPTION OF AREA:	LIQUIDAMBAR STYRACIFLUA.
	180	01		ADJACENT LAND USED FOR SUMMER HOMES. BEACH, RELATIVELY STRAIGHT, UP TO 12 M WIDE. EROSION APPEARS LOW. WATER CLARITY IS POOR. WATER BOTTOM IS SANDY AND OF GENTLE CONTOUR.
		02		04
		03		04
		04		04
	410	01	ECOLOGICAL RATING:	04
00000733	010	01	NAME OF AREA:	SUITLAND BOG
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	PRINCE GEORGES
	030	01	QUADRANGLE: 8E	ANACOSTIA, MD
	040	01	SIZE OF AREA:	0008.1 HA
	060	01	OWNER I:	PRIVATE
	151	01	AQUATIC TYPES:	BOG
	170	01	BIOTIC COMPONENTS:	MAGNOLIA VIRGINIANA BOG. DROSER A FILIFORMIS.
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. SILT AND SAND HAVE WASHED INTO THE BOG. MANY OF THE TYPICAL BOG SPECIES HAVE DIED DUE TO THE SILTATION AND OTHER FACTORS OF AREA DEVELOPMENT.
		02		
		03		
		04		
	301	01	AUTHOR:	SHETLER, STANWYN G.
	303	01	TITLE:	THE SUITLAND BOG
	304	01	JOURNAL: VOLUME: PAGES:	ATLANTIC NAT. 25(2): 65-68
	410	01	ECOLOGICAL RATING:	03
00000748	010	01	NAME OF AREA:	DRAYDEN GEOLOGIC SECTION
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ST. MARY'S
	030	01	QUADRANGLE: 131	ST. MARY'S CITY, MD
	040	01	SIZE OF AREA:	00024.2 HA
	060	01	OWNER I:	PRIVATE
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. BLUFFS WITH FOSSILS ABUNDANT, REPRESENTATIVE OF THE MIOCENE AGE. BLUISH SANDY CLAY AND FINE SANDSTONES. RICH IN FOSSIL GASTROPODS. NO IMMINENT PROBLEMS. NO PRESERVATION IN EFFECT.
		02		
		03		
		04		
	410	01	ECOLOGICAL RATING:	03
00000755	010	01	NAME OF AREA:	BUTLERS BLUFF
	020	01	STATE:	VIRGINIA
	021	01	COUNTY:	NORTHAMPTON
	030	01	QUADRANGLE: 21M	TOWNSEND, VA
	040	01	SIZE OF AREA:	00052.5 HA
	060	01	OWNER I:	PRIVATE
	180	01	DESCRIPTION OF AREA:	ONLY BLUFF ON EASTERN SHORE
	400	01	AREA INCL. BUFFER ZONE:	00080.8 HA
	410	01	ECOLOGICAL RATING:	03
00000765	010	01	NAME OF AREA:	FOUR POINT MARSH
	020	01	STATE:	VIRGINIA

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000765	021 01	COUNTY:	GLOUCESTER
	030 01	QUADRANGLE: 201	ACHILLES, VA
	040 01	SIZE OF AREA:	00065.2
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	410 01	ECOLOGICAL RATING:	03
00000800	010 01	NAME OF AREA:	GARLAND LAKE
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CAROLINE
	030 01	QUADRANGLE: 17N	DENTON, MD
	040 01	SIZE OF AREA:	00028.3 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	180 01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED. PRIME WETLAND.
	410 01	ECOLOGICAL RATING:	03
00000802	010 01	NAME OF AREA:	HAMLETON CREEK
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	QUEEN ANNE
	030 01	QUADRANGLE: 5L	CHESTERTOWN, MD
	040 01	SIZE OF AREA:	00076.8 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH, SCIRPUS SPP.
	180 01	DESCRIPTION OF AREA:	IN CHESTER RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	00282.8 HA
	410 01	ECOLOGICAL RATING:	03
00000808	010 01	NAME OF AREA:	BAY FOREST DRIVE
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ST. MARY'S
	030 01	QUADRANGLE: 13J	POINT NO POINT, MD
	040 01	SIZE OF AREA:	00056.8 HA
	060 01	OWNER I:	PRIVATE
	170 01	BIOTIC COMPONENTS:	UPLAND PINE, SUCCESSIONAL
	180 01	DESCRIPTION OF AREA:	NOT AN IMPRESSIVE AREA
	410 01	ECOLOGICAL RATING:	03
00000810	010 01	NAME OF AREA:	BODKIN POINT
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	ANNE ARUNDEL
	030 01	QUADRANGLE: 61 5I	GIBSON ISLAND, MD; SPARROWS POINT, MD
	040 01	SIZE OF AREA:	00060.6 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH TYPHA SP.
	410 01	ECOLOGICAL RATING:	03

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000811	010 020 021 030 040 060 180 410	01 NAME OF AREA: 01 STATE: 01 COUNTY: 01 QUADRANGLE: 10M 01 SIZE OF AREA: 01 OWNER I: 01 DESCRIPTION OF AREA: 01 ECOLOGICAL RATING:	EAST NEW MARKET BASIN MARYLAND DORCHESTER EAST NEW MARKET, MD 00137.4 HA PRIVATE CHOPTANK RIVER WATERSHED, NATURAL RECHARGE BASIN, 03
00000813	010 020 021 030 040 060 151 170 410	01 NAME OF AREA: 01 STATE: 01 COUNTY: 01 QUADRANGLE: 5I 4J 01 SIZE OF AREA: 01 OWNER I: 01 AQUATIC TYPES: 01 BIOTIC COMPONENTS: 01 ECOLOGICAL RATING:	HART AND MILLER ISLANDS MARYLAND BALTIMORE SPARROWS POINT, MD; GUNPOWDER NECK, MD 00072.7 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH, WITH TYPHA SP. 03
00000814	010 020 021 030 040 060 151 170 410	01 NAME OF AREA: 01 STATE: 01 COUNTY: 01 QUADRANGLE: 3J 01 SIZE OF AREA: 01 OWNER I: 01 AQUATIC TYPES: 01 BIOTIC COMPONENTS: 01 ECOLOGICAL RATING:	OTTER POINT CREEK MARYLAND HARFORD EDGEWOOD, MD 00315.1 HA PRIVATE MARSH, FRESHWATER FRESHWATER MARSH, SCIRPUS SPP. 03
00000820	010 020 021 030 040 060 180	01 NAME OF AREA: 01 STATE: 01 COUNTY: 01 QUADRANGLE: 11E 01 SIZE OF AREA: 01 OWNER I: 01 DESCRIPTION OF AREA:	POPES CREEK GEOLOGIC SECTION MARYLAND CHARLES POPES CREEK 00016.1 HA PRIVATE IN POTOMAC RIVER WATERSHED. NEARLY VERTICAL BLUFF ON POTOMAC RIVER ABOUT 25 M HIGH. EXCELLENT EXPOSURE OF EOCENE, MIOCENE AND PLEISTOCENE GEOLOGIC LAYERS, CONTAINING MANY FOSSILS. WITHIN 35 MILES OF WASHINGTON D. C. NO IMMINENT PRESERVATION PROBLEMS. 03
00000827	010 020 021 040 060	01 NAME OF AREA: 01 STATE: 01 COUNTY: 01 SIZE OF AREA: 01 OWNER I:	MT. VERNON TIDAL MARSH AND FLATS VIRGINIA FAIRFAX 00161.6 HA NATIONAL CAPITAL PARKS MARSH, TIDAL
151	01	AQUATIC TYPES	

SERIAL	CATEG LINE	CAT-DEFINITION	DATA
00000827	410 01	ECOLOGICAL RATING:	03
00000714	010 01	NAME OF AREA:	BENNETT CREEK MARSH
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	MANSEMOND
	030 01	QUADRANGLE: 231 241	NEWPORT NEWS SOUTH, VA; BOWERS HILL, VA
	040 01	SIZE OF AREA:	00149.5 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	TIDAL MARSH WITH SPARTINA CYNOSUROIDES.
	180 01	DESCRIPTION OF AREA:	IN MANSEMOND RIVER WATERSHED.
	400 01	AREA INCL. BUFFER ZONE:	00218.1 HA
	410 01	ECOLOGICAL RATING:	02
00000736	010 01	NAME OF AREA:	BROAD CREEK MARSHES
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	PRINCE GEORGES
	030 01	QUADRANGLE: 90 8D	MT. VERNON, MD; ALEXANDRIA, MD
	040 01	SIZE OF AREA:	00121.1 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, FRESHWATER
	170 01	BIOTIC COMPONENTS:	FRESHWATER MARSH WITH SCIRPUS SPP. AND TYPHA SP.
	180 01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. SURROUNDED BY RESIDENTIAL DEVELOPMENTS.
	410 02	ECOLOGICAL RATING:	02
00000766	010 01	NAME OF AREA:	HACKS NECK
	020 01	STATE:	VIRGINIA
	021 01	COUNTY:	ACCOMACK
	030 01	QUADRANGLE: 17M	NANDUA CREEK, VA
	040 01	SIZE OF AREA:	0226.2 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	MARSH, TIDAL
	170 01	BIOTIC COMPONENTS:	HIGH TIDAL MARSH. PLANT SPECIES INCLUDE SPARTINA PATENS. DISTICHLIS SP. AND JUNCUS ROEMERIANUS.
	410 02	ECOLOGICAL RATING:	02
00000804	010 01	NAME OF AREA:	LINCHESTER POND
	020 01	STATE:	MARYLAND
	021 01	COUNTY:	CAROLINE
	030 01	QUADRANGLE: 9M	PRESTON, MD
	040 01	SIZE OF AREA:	00032.3 HA
	060 01	OWNER I:	PRIVATE
	151 01	AQUATIC TYPES:	POND
	180 01	DESCRIPTION OF AREA:	IN CHOPTANK RIVER WATERSHED.
	410 01	ECOLOGICAL RATING:	02

SERIAL CATEG LINE CAT-DEFINITION

DATA

00000818	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 11D	NATHIAS POINT, MD
	040	01	SIZE OF AREA:	00028.3 HA
	060	01	OWNER I:	PRIVATE
	170	01	BIOTIC COMPONENTS:	UPLAND FOREST HARDWOOD
	180	01	DESCRIPTION OF AREA:	SCENIC VIEW
	410	01	ECOLOGICAL RATING:	02
00000821	010	01	NAME OF AREA:	PORT TOBACCO
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	CHARLES
	030	01	QUADRANGLE: 10D	PORT TOBACCO, MD
	040	01	SIZE OF AREA:	00032.3 HA
	060	01	OWNER I:	PRIVATE
	180	01	DESCRIPTION OF AREA:	IN POTOMAC RIVER WATERSHED. OF HISTORICAL INTEREST. LARGE MARINE AT HEAD OF EMBAYMENT. NO IMMINENT PRESERVATION PROBLEMS.
	410	01	ECOLOGICAL RATING:	01
00000822	010	01	NAME OF AREA:	WHITEHALL
	020	01	STATE:	MARYLAND
	021	01	COUNTY:	ANNE ARUNDEL
	030	01	QUADRANGLE: 6I	GIBSON ISLAND, MD
	040	01	SIZE OF AREA:	00032.3 HA
	060	01	OWNER I:	PRIVATE
	180	01	DESCRIPTION OF AREA:	HISTORICAL INTEREST, ESTATE OF HORATIO SHARPE, EARLY GOVERNOR OF MARYLAND
	410	01	ECOLOGICAL RATING:	01

SELGEM MASTER LIST TOTALS

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MARYLAND, WICOMICO	SOMERSE POCOMOKE RIVER SWAMP	13R 13Q 14Q	610	55
VIRGINIA, ACCOMACK	BIG MARSH - TOBASCO ISLAND - SAVAGE ISLAND	16N	641	84
VIRGINIA, ACCOMACK	BYRDS MARSH - PARKSLEY MARSHES	16O	642	103
VIRGINIA, ACCOMACK	BYSLDP MARSH	18M 17M	647	97
VIRGINIA, ACCOMACK	PITTS CREEK MARSH	15O 15P	761	111
VIRGINIA, ACCOMACK	WEST POINT - FINNEYS ISLAND - PARKERS ISLAND	17N	764	111
VIRGINIA, ACCOMACK	RACKS NECK	17M	766	117
VIRGINIA, ACCOMACK	TANGIER ISLAND	16M	767	93
VIRGINIA, CAROLINE	WHITE MARSH - SKINKERS NECK	13C	751	93
VIRGINIA, CHARLES CITY	MORRIS CREEK MARSH	20E	616	73
VIRGINIA, CHARLES CITY	PARSONS ISLAND - OLD NECK	20E	639	69
VIRGINIA, CHARLES CITY	WEYARAKE POINT	20D	713	66
VIRGINIA, CHARLES CITY	FERRIS CREEK MARSH	20C	724	82
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VIRGINIA, ESSEX	PISCATAWAY CREEK MARSH	15E 15F 16E 16F	633	84
VIRGINIA, ESSEX	MARSH POINT - GREEN BAY - HORSE HEAD POINT	13B	637	74
VIRGINIA, ESSEX	MOUNT LANDING CREEK MARSH	15E	648	109
VIRGINIA, ESSEX	ROSKINS CREEK MARSH	15E 15F	725	92
VIRGINIA, ESSEX	PAYNES ISLAND MARSHES	14E	762	101
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VIRGINIA, GLOUCESTER	CATLETT ISLANDS		20H	706		87	
VIRGINIA, GLOUCESTER	BUSH POINT MARSH		20I	754		110	
VIRGINIA, GLOUCESTER	FOUR POINT MARSH		20J	765		114	
VIRGINIA, GLOUCESTER; KING AND QUEEN	POROPTANK MARSH - PURTAN MARSH		19G	620		58	
VIRGINIA, HAMPTON	LONG CREEK MARSH		22G	702		109	
VIRGINIA, HENRICO	CHARLES NECK SWAMP		20B	718		99	
VIRGINIA, HENRICO; HANOVER; NEW KENT	CHICKAHOMINY, UPPER	18A	18B	17A	602	61	
VIRGINIA, ISLE OF WIGHT	PAGAN RIVER MARSH		22H	23H	649	103	
VIRGINIA, ISLE OF WIGHT	RAGGED ISLAND - BALLARD MARSH		23H	23I	730	106	
VIRGINIA, ISLE OF WIGHT; SOUTHAMPTON;	BLACKWATER RIVER	25F	24E	24F	23F	605	
VIRGINIA, ISLE OF WIGHT; SURRY	LAWNES CREEK MARSH		22G	21G	655	103	
VIRGINIA, JAMES CITY	COLLEGE CREEK MARSH		21G	20G	611	96	
VIRGINIA, JAMES CITY	YARMOJTH ISLANDS - SIMPSON - WRIGHT		20F	621		63	
VIRGINIA, JAMES CITY	CHISEL RUN BOG		20F	626		74	
VIRGINIA, JAMES CITY	POWHATAN CREEK		21F	627		59	
VIRGINIA, JAMES CITY	GORDON ISLAND		20E	20F	632	64	
VIRGINIA, JAMES CITY	BIG MARSH POINT		20E	752		93	
VIRGINIA, JAMES CITY	PASSMORE CREEK		21F	21G	831	63	
VIRGINIA, KING AND QUEEN	GARNETTS CREEK MARSH		17E	720		66	
VIRGINIA, KING AND QUEEN	GLEASON MARSH		17E	17F	721	105	
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VIRGINIA, KING GEORGE	PENNINGON POINT	11D	12D	711			78
VIRGINIA, KING GEORGE	GLEVE MARSH	13C	13B	717			78
VIRGINIA, KING GEORGE	GAMBO CREEK MARSH		12D	830			83
VIRGINIA, KING GEORGE; CAROLINE	CORBINS NECK - MOSS NECK		13B	756			107
VIRGINIA, KING GEORGE	UPPER NACHODOC CREEK		12D	712			104
VIRGINIA, KING WILLIAM	ELTHAM MARSH		18F	644			75
VIRGINIA, KING WILLIAM	SWEET HALL MARSH		18E	646			103
VIRGINIA, KING WILLIAM	COHOKE MARSH		18E	651			97
VIRGINIA, KING WILLIAM	LEE MARSH		18F	653			75
VIRGINIA, KING WILLIAM	BROOKS CREEK MARSH		17E	705			99
VIRGINIA, KING WILLIAM; KING AND QUEEN	MATTAPONI RIVER, UPPER		16D	606			84
VIRGINIA, LANCASTER	MOSQUITO ISLAND		18J	727			105
VIRGINIA, LANCASTER	NORTH POINT MARSH		17J	760			108
VIRGINIA, MATHEWS	WINTER HARBOR MARSH - GARDEN CREEK MARSH	19J	20J	650			97
VIRGINIA, MATHEWS	LILLEYS NECK		19J	726			87
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VIRGINIA, NANSEMOND	NANSEMOND RIVER		24H	715			110
VIRGINIA, NANSEMOND; PORTSMOUTH	HOFFLER CREEK MARSH		23I	708			109
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VIRGINIA, NEW KENT; JAMES CITY	TERRAPIN POINT	19F	634	64
VIRGINIA, NEWPORT NEWS	WARWICK RIVER	22H 21H	704	99
VIRGINIA, NEWFORT NEWS CITY	MULBERRY ISLAND	22H	604	103
VIRGINIA, NORTHAMPTON	BUTLERS BLUFF	21M	755	114
VIRGINIA, NORTHUMBERLAND	BLUFF POINT MARSH	17J	614	63
VIRGINIA, NORTHUMBERLAND	BELL SWAMP - OWEN POND	16J	703	77
VIRGINIA, NORTHUMBERLAND	HACK CREEK	15J	722	92
VIRGINIA, NORTHUMBERLAND	HALL TRACT	17J	723	100
VIRGINIA, NORTHUMBERLAND	CAMERON MARSH	16J	757	101
VIRGINIA, PRINCE GEORGE	POWELL CREEK	20C	729	105
VIRGINIA, PRINCE GEORGE	WARDS CREEK	20D 21D	750	110
VIRGINIA, PRINCE GEORGE	KENNON MARSH	20D 21E	758	93
VIRGINIA, PRINCE GEORGE; SURRY	UPPER CHIPPOKES CREEK	21D	635	61
VIRGINIA, PRINCE WILLIAM	NEABSCO CREEK MARSH	10B 10C	623	96
VIRGINIA, PRINCE WILLIAM	POWELLS CREEK	10B	625	109
VIRGINIA, PRINCE WILLIAM	QUANTICO CREEK	10B	628	96
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VIRGINIA, RICHMOND	CAT POINT CREEK MARSH	15F	630	89
VIRGINIA, RICHMOND	LITTLE CARTER CREEK MARSH	15F	707	77
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VIRGINIA, SURRY	SUNKEN MEADOW			21E	613		69
VIRGINIA, SURRY	GRAYS CREEK MARSH			21F	619		80
VIRGINIA, SURRY	CRUICKETS CREEK - TIMBER NECK CREEK			21F	631		90
VIRGINIA, SURRY	WARREN TRACT			22G	768		88
VIRGINIA, SURRY	CHIPPOKES CREEK MARSH, LOWER		21G	22G	832		96
VIRGINIA, WESTMORELAND	BRIDGES CREEK MARSH			13E	629		74
VIRGINIA, WESTMORELAND	HOLLIS MARSH		13F	13G	636		60
VIRGINIA, WESTMORELAND	CURRIDMAN BAY			13F	700		62
VIRGINIA, WESTMORELAND	NOMINI CLIFFS			13F	759		107
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COLLEGE CREEK MARSH	20G 21G	611	96
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CURRIOWAN BAY	13F	700	62
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GARLAND LAKE	7 N	800	115
GARNETTS CREEK MARSH	17 E	720	66
GARRETT ISLAND	2 L	801	112
GIBSON ISLAND	6 I	737	110
GLEASON MARSH	17 E	721	105
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GORDON ISLAND	20 E	632	64
GRAYS CREEK MARSH	21 F	619	80
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HOLLIS MARSH	13F 13G 636	60
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PARKER CREEK	10H	694	104
PARSONS ISLAND - OLD NECK	20E	639	69
PASSMORE CREEK	21F	21G	831
PATUXENT RIVER	9G	10G	609
PAYNES ISLAND MARSHES	14E	762	101
PEARCE CREEK	3M	824	103
PERRY BRANCH	12E	689	65
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PICCOMAXEN CREEK	12E	699	86

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POND CREEK	3L	3M	792	95
POPES CREEK		11E	782	94
POPES CREEK GEOLOGIC SECTION		11E	820	116
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POPLAR POINT		7H	739	106
POROPOTANK MARSH - PURTAN MARSH		19G	620	58
PORT TOBACCO		10D	821	118
POTOMAC CREEK	12A	12B	612	73
POWELL CREEK		20C	729	105
POWELLS CREEK		10B	625	109
POWHATAN CREEK		21F	627	59
PRINCIPIO CREEK		2L	659	85
QUANTICO CREEK		10B	628	96
RAGGED ISLAND - BALLARD MARSH	23H	23I	730	106
RED POINT		2M	664	97
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SAVANNAH LAKE	11M	771	83
SCOTCHMAN CREEK	3M	731	100
SKELETON CREEK	9M	732	87
SMOOT TRACT	12C	622	64
SOUTH FRESH ISLAND	13L	682	81
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WEST ISLAND	18E	640	70
WEST POINT - FINNEYS ISLAND - PARKERS ISLAND -	17N	764	111
WEYANOKE POINT	20D	713	66
WHITE MARSH - SKINKERS NECK	13C	751	93
WHITEHALL	6I	822	118
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WYE RIVER	7K	735	72
YARMOUTH ISLANDS - SIMPSON - WRIGHT	20F	621	63
ZEKIAH SWAMP	10F 11E 10E	674	55

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APPENDIX A

DESCRIPTION OF THE CHESAPEAKE BAY REGION

by

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DESCRIPTION OF CHESAPEAKE BAY REGION

The Chesapeake Bay area as shown on the accompanying maps including the tidewater counties of Maryland, Virginia, and Delaware covers an area of about 100 by 200 miles or about 20,000 square miles. This area is divided as follows (Jenkins, 1971):

	<u>Square Miles</u>
Maryland	6800
Virginia	6700
Delaware	2100
Chesapeake Bay and tributaries	<u>4400</u>
Total	20000

The name Chesapeake is derived from its original Indian name, and literal interpretations vary from "Great Waters" to "Mother of Waters", all refer to its immense size (Shands and Mathes, 1972), and, in fact, Chesapeake Bay is the largest estuary on the East Coast, and with its tributaries it is considered by some scientists to be the greatest estuarine system in the world. Four major rivers and 50 large tributaries drain into Chesapeake Bay from headwaters in New York, Pennsylvania, West Virginia, Delaware, Maryland, and Virginia. The shoreline (particularly the western edge) is irregularly digitated by the tidal river estuaries. The tidal shore line is about 4,600 miles in length, of which 3,400 are miles in Maryland and 1,200 miles in Virginia (Corps, 1970).

The Bay has a drainage basin of 74,000 square miles an area larger than all of New England. The Susquehanna River (largest river in the eastern U. S.) contributes 49 percent of the annual freshwater runoff of the entire Bay, and 87 percent of that north of the mouth of the Potomac. The Potomac River estuary contributes about 18 percent of the total freshwater inflow into the Bay. The annual contribution by the other western rivers are: James - 16 percent; Rappahannock - 4 percent; York - 2 percent; and others - 4 percent. The eastern rivers (Choptank, Nanticoke and Wicomico) contribute only 7 percent of the total runoff (Saila, 1973).

The mean tidal fluctuation in Chesapeake Bay is small, generally between one and two feet. Saline water intrusion is highest along the eastern side of the estuary due to the influence of the Coriolis force. Salinities range from 35 parts per thousand inside the mouth of the bay to near zero at the north end of the bay and at the heads of embayments tributary to the bay. Spring floods and the relatively dry fall

periods contribute to seasonal variations in salinity throughout the Bay.

The Chesapeake Bay study area lies entirely within the Atlantic Coastal Plain, and is underlain by a thick, wedge-shaped series of sedimentary formations which strike northeast and dip gently toward the southeast. These "soft" rocks are composed of mostly unconsolidated beds of sands, clays, marls, and gravels, which range from Lower Cretaceous to Recent in age. The base upon which these sedimentary formations rest is composed of very ancient, predominantly pre-Cambrian, crystalline rocks upon which a prolonged pre-Cretaceous erosion cycle produced a peneplained surface. Along the inner westernmost edge of the Coastal Plain, the crystalline rocks emerge from beneath the overlapping unconsolidated formations along a line of demarcation known as the "Fall Line" which marks the head of navigation on some tributaries to Chesapeake Bay, such as the Patapsco River at Baltimore, the Potomac River at Washington, and the Rappahannock River at Fredericksburg, Virginia. The Fall Line also marks a topographic change westward, from the flat or gently rolling low elevation of the Coastal Plain to the higher elevated, bolder relief of the Piedmont Plateau (Corps, 1970).

Of the 20,000 square miles of the Chesapeake Bay region, 15,600 square miles are land. Table 1 shows the distribution of this land into forests, agricultural land, pasture, urban areas, and marsh wetlands.

The forest land covers an area of slightly over 6 million acres or 9450 square miles. Forests include 68 percent of the tidewater counties of Maryland, 60 percent of Virginia and 48 percent of Delaware. The total value of the cut timber (stumpage) is about \$13 million in Maryland, \$13 million in Virginia, and \$0.5 million in Delaware.

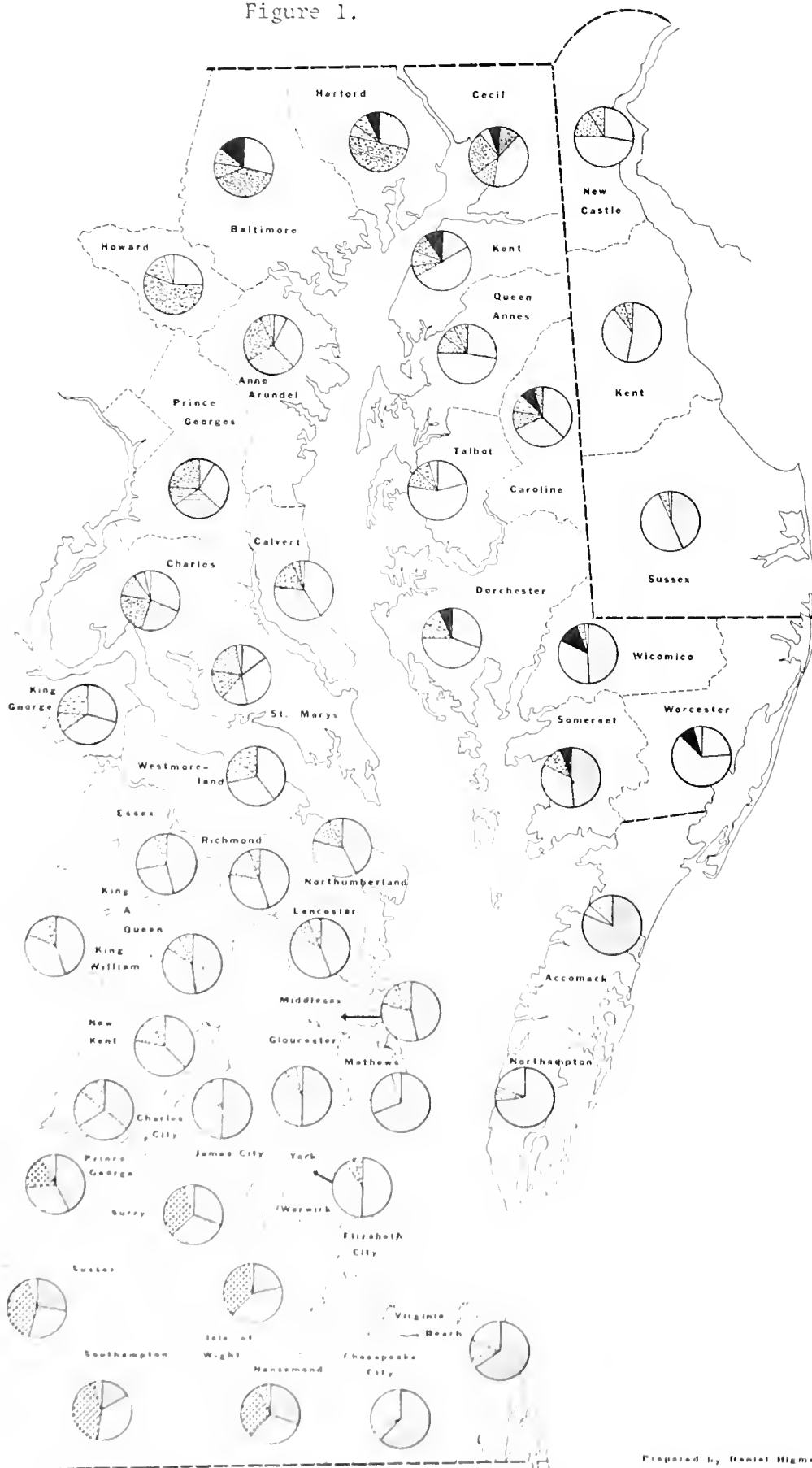
The forests of the Chesapeake Bay include the combination of oak, hickory, and pine as the major type, but, in the southern part, the combinations are oak with hickory, oak with pine, loblolly pine with shortleaf pine, and oak with gum and cypress. In many areas with better soils there are a large number of mixed mesophytic deciduous species with maple, tulip tree, beech, gum, various species of oak, flood plain species of ash, elm, maple, sycamore, birch, and many other species. The main timber trees are red and white oak, tulip tree, pine, sweetgum, and various other hardwoods.

CROP PRODUCTION ON THE COASTAL PLAIN OF DELAWARE, MARYLAND, AND VIRGINIA

Figure 1.



Date for 1969



Data from
Maryland State
Board of Agriculture
Virginia Dept. of
Agriculture & Commerce

Prepared by Daniel Hlgmen
Emihannon Institution

TABLE 1. - LAND USE IN CHESAPEAKE STUDY AREA

Use	Maryland (percent)	Virginia (percent)	Delaware (percent)
Forest	68	60	48
Agricultural Crops	23	23	32
Pasture	6	2	2.5
Urban/industrial	3	6	9
Coastal marsh	-	-	8.5

The agricultural cropland of the tidewater counties covers an area of 3670 square miles. The agricultural cropland of the Bay region in Maryland is 23 percent, in Virginia 23 percent, and in Delaware 32 percent. The value of agricultural crops and livestock of this region is an estimated \$500 million dollars.

Figure 1 shows the agricultural crops of the Chesapeake Bay region. These include mainly corn, soybeans, barley, potatoes, tobacco, peanuts, hay, and tomatoes and other vegetables. The eastern shore of Maryland is agriculturally suited for truck crops because of its sandy productive soil, sufficient water, and long growing period. The most important crops are soybeans, corn, wheat, and vegetable crops. On the western shore of Maryland the major crops are hay, corn, tobacco, wheat, and some soybeans, and vegetables. In the Virginia region, the main agricultural crops are corn, soybeans, peanuts, wheat, barley, and tobacco. In the Delaware area the main crops are corn, soybeans, hay, barley, rye, oats, and lima beans, and other vegetables.

Extensive vegetation along the Chesapeake Bay shoreline includes salt marshes and wetlands. This vegetation is estimated to be 8.5 percent of the land area in Delaware alone. Recent studies show the wetlands comprise 152,000 acres in Virginia (Wass and Wright, 1969), and 84,000 acres in Maryland (McHarg, 1972). Other sources indicate that there are perhaps as much as 500,000 acres of wetlands in the Bay area (USDI, 1970). These wetlands are of great importance to wildlife and production of aquatic life. The main vegetation is grass of various types, saltbush, cattail, and many other species of plants. Salt grass is mowed in some of the regions and is valuable for mulch and other uses (Jenkins, 1971).

The climate of the Bay region is moderate with average annual temperature varying a few degrees from the northern to the southern end of the Bay. The average annual temperature is 55°F in the north,

with an average of 190 frost-free days annually to 60°F in the south with an average of 210 frost-free days.

Normal annual total precipitation is 44 inches throughout the Bay region. Prolonged droughts are rare but short dry spells prompt the use of supplemental irrigation for the production of crops (Forest Service and Soil Conservation Service, 1972).

USES AND PRESSURES

Chesapeake Bay has provided man with food, wealth, an easy means of travel, and satisfaction for some 5,000 years. The Indians reaped a rich harvest of fish and shell fish, gathered shells for making trading wampum, and plied its seemingly endless waterways in their dugout canoes.

The imprint the Indians made was small indeed--so small that evidence of their long tenure is difficult to find. Far different have been their European successors. Great changes have been wrought. Changes are still being made. Yet amid these changes there are still many areas of the Bay that appear virtually untouched. Others look much like they must have in Colonial times. The Chesapeake estuary retains fragments of all the different eras that have occurred from the most primitive to the most modern.

Although the major uses of the Chesapeake have changed little, the techniques by which the uses are effected have undergone considerable modification. Often uses are in direct conflict with each other. However, the estuary is so vast and the uses are so varied that the Bay has accommodated most of them. In the past few decades however, it has become increasingly apparent that even this vast area is being transformed. Some of these changes are hardly evident and others have profound effects far from the locations being changed - and many are in the best interests of only a few people but at the expense of many.

The population pressure on the Bay is increasing. The Chesapeake estuary is the southern anchor of the Atlantic coastal megalopolis that sprawls from Massachusetts to Virginia. The ports of Baltimore and Hampton Roads, their satellite cities and the others that have developed around the Bay supported 11 million people in 1960 - a population expected to more than double in the next 40 years. An additional 3 1/2 million people live within a day's drive from the Bay.

Waterborne commerce has always been among the most important

uses for the Chesapeake estuary. Approximately 110 million tons move annually over the waterway and contribute, in large measure, to the economy of an 11 state area, extending into the Midwest, (U.S.D.I., 1970).

The port of Baltimore alone handles nearly 50 million tons annually and if the annual increase in freight traffic in the harbor is maintained, freight traffic tonnage will triple by the year 2000. A recent survey showed that the commercial complex making up the port of Baltimore directs \$1.56 billion a year into Maryland's economy, which represents 11.7 percent of the Maryland gross State product (McHarg, 1972).

The trend in commercial navigation is toward larger ships, which in turn require deeper channels, posing greater problems locating dredge spoil disposal areas. Modifying channel geometry may cause increases in upstream salinity, and unwise disposal of spoil can have marked effects on living marine organisms. It is estimated that the raw sewage discharged into the Bay by ships in transit is equivalent to that of a community of twenty-five thousand people, constantly.

Fishing is another important industry with Bay-wide significance. The region is one of the richest fish and wildlife habitats in the world and as such, it is a most important seafood harvesting area. More than 400 million pounds of fish and shellfish worth \$30 million were taken from Bay waters in 1966. The weight of fish landed was almost triple that of shellfish with nearly 304 million pounds of fish harvested as compared to 125 million pounds of shellfish. But the value of fish was only \$7.3 million, or less than one third of the value of the shellfish which netted \$22.2 million. Oysters alone represented \$15 million, or one half the value of the total fisheries harvest. Of the finfish the menhaden catch was the largest with 243 million pounds worth \$3.9 million.

TABLE I. COMMERCIAL FISHERY 1966

<u>Type</u>	<u>Pounds</u>	<u>Value</u>
Finfish	303.5 mil	\$7.3 mil
Oysters	20	15
Clams	8	2.1
Crabs	95	6.8

Superimposed on the heavy commercial seafood harvest is a growing recreational fishery. In 1966 it was estimated that Bay anglers caught 22 million pounds of fish and generated about \$10 million in expenditures.

Strategically positioned in the Atlantic Flyway, Chesapeake Bay is very important in the migratory bird pattern. Most of the waterfowl produced on both sides of the James and Hudson Bays all the way up to Greenland funnel into the Chesapeake marshes on their southward migration. As a wintering area for waterfowl, the Chesapeake salt marshes have few equals. More than 75 percent of the wintering population of Atlantic Flyway Canada geese occurs on or near tide water, from Kent County in Delaware to Hyde County in North Carolina. The marshes and grain fields of the Delmarva Peninsula are particularly attractive to Canada geese and to grain feeding black ducks and mallards. In the early fall, home is the Susquehanna flats for huge flocks of American widgeon. Several species of diving ducks including the canvasback, redhead, ring-necked duck, and sometimes, scaup, winter on Chesapeake Bay from the Susquehanna flats south to the confluence of Bay and ocean at the tip of the Delmarva Peninsula. About half of the 80,000 whistling swans in North America winter on the estuaries of Chesapeake Bay and Currituck Sound. Much of the breeding area in the Atlantic Flyway is still wild and remote. It can be counted on to send hundreds of thousands of new birds winging down the flyway each fall. But good wintering areas, adjacent to preferred feeding grounds, are relatively scarce, and as human populations inevitably expand, the size, number, and quality of these wintering areas will diminish accordingly. At present, Chesapeake Bay provides some of the best and most heavily used waterfowl wintering habitat remaining in the Flyway.

The Atlantic Flyway has more than 32 million acres of wetland habitat and 96 percent of it is located from Maryland south. Only 4 million acres are of moderate to high value for waterfowl, and only 2 1/2 million acres are salt-marsh, the type of high-quality waterfowl habitat found in the Chesapeake Bay. Estimates vary, but the bay area encompasses roughly one-third of a million acres of salt-marsh habitat of which about one-quarter of a million acres is of moderate to high value for waterfowl. Public owned wetlands in the Chesapeake Bay area total about 95,000 acres. Most of this habitat too, is high in quality and supports large populations of wintering birds. An additional 55,000 acres of quality marsh is owned and managed by approximately 380 private waterfowl hunting clubs. Thus, about 150,000 acres or approximately half of the salt-marsh in Chesapeake Bay is managed specifically for waterfowl and is likely to continue to be managed for this purpose in the foreseeable future.

In recent years, Chesapeake Bay has wintered approximately 550,000 ducks and 350,000 geese which provided an estimated 250,000 man-days of waterfowl hunting and 275,000 birds in the bag. Nearly 100,000 Canada geese, the king of waterfowl, are harvested on Chesapeake Bay, the queen of bays (USDI, 1970).

Erosion and siltation constitutes a significant problem for the Bay region. The earth lost from the land to the Bay has hurt the farmers who need the soil for their crops, the shippers whose vessels must navigate shoaling channels, and the fishermen whose aquatic harvest is being stifled and lost.

Evidence derived from early charts and maps, from historical documents, and from field studies and borings indicates that the rate of sedimentation in different portions of the Chesapeake Bay has varied over historic time. Prior to settlement by colonists and the initiation of land clearing and agriculture, rates of sediment contribution from land under forest cover were perhaps on the order of 100 tons/sq.mi./yr. However, with the advent of extensive clearing for agriculture, these rates rose rapidly to values of 400 to 800 tons/sq.mi./yr. As early as the latter part of the seventeenth century visitors to colonial America noted both the erosion of the fields and the muddy character of the freshets. In addition, they observed the rapid siltation taking place in a number of the early colonial harbor and river towns (State of Maryland, 1968).

The Potomac and Susquehanna Rivers transport the major sediment loads deposited within the Chesapeake Bay system. The sediment contribution of the Susquehanna is considerably moderated by the hydroelectric dams between Harrisburg, Pennsylvania, and Conowingo, Maryland, in that these reservoirs trap a significant amount of sediment moving downstream. The Susquehanna watershed is estimated to supply some 600 thousand tons per year, or approximately 23 tons per square mile. The largely unregulated Potomac River Basin, on the other hand, contributes an estimated 2.5 million tons per year to the estuarine system. This is approximately 170 tons per square mile (Corps, 1970).

The fact that each tributary entering the Chesapeake Bay deposits the bulk of its sediment load in the vicinity of its entrance to the Bay constitutes an obvious economic "fact of life" for the economy of the Bay itself. Perhaps the most striking illustration is provided by the Potomac and the Anacostia Rivers in the vicinity of the nation's capitol where channel improvement and dredging operations have been virtually continuous since 1804. Much of the land adjacent to the river including Haynes Point, the parkland along the Anacostia River, and the National Airport are all made of sediments dredged from the rivers. It is estimated that the annual cost of dredging on the Potomac is on the order of \$150,000 per year (State of Maryland, 1968).

Recently it has become evident that increasing urbanization and accompanying construction activities on the landscape may contribute immense quantities of sediment to local areas. It is estimated that of the million tons per year in the Potomac at Washington, approxi-

mately 25-30 percent is derived from construction sites in the metropolitan region. Inasmuch as population can be expected to continue to burgeon in many areas surrounding the Chesapeake Bay, construction activities can also be expected to increase. This in turn will transform the landscape and may lead to the addition of uncontrolled quantities of silt to the estuarine tributaries (State of Maryland, 1968).

Shoreline erosion also contributes to the silt load and is the single most dramatic, and most readily apparent geomorphological process occurring in the Bay. Historical data, though somewhat spotty, provides some perspective. It has been estimated that, along the 230 miles of Maryland's primary Bay shoreline, some 6,000 acres of land have been lost to the sea between 1845 and 1942. Recent rates of erosion loss are estimated to be approximately 0.17 acres/mile/year in the northern Bay area and 0.34 acres/mile/year in Maryland's southern Bay portion. To illustrate the variability of erosion loss rates estimated between 1845 and 1942, the Cecil-Somerset County shoreline losses were estimated to be 0.13 acres/mile/year, while Dorchester County losses were estimated to be of the order of 0.64 acres/mile/year. It must be emphasized that land area losses do not indicate volumes of material handled, because of the differential in land elevation of various areas of Bay frontage.

The present and anticipated future social and economic development of the Chesapeake Bay Basin, with the estimated large increase in population, emphasizes the vulnerability of the Bay's sensitive estuarine system to the future works of man. In particular, the waste discharges of man's commerce and activity have a growing impact on the Bay. These waste loads are derived from municipal, industrial and agricultural sources.

Agricultural pollutants consist primarily of silt, fertilizer, insecticides, herbicides, and animal wastes. Industrial wastes contain a wide assortment of detrimental material ranging from sand and gravel wastes and heavy metals through complex chemical compounds and mine waste. Many of the latter waste types are toxic to both aquatic biota and man. Municipal discharges contain human wastes and a huge panorama of household and industrial by-products, and often inject significant bacterial loads into the aquatic environment, infecting both finfish and shellfish, making them potentially dangerous and therefore unfit for human consumption.

Gross estimates indicate that pollution affects some 400,000 acres of finfish habitat and 42,000 acres of shellfish habitat in Chesapeake Bay. Municipal and domestic discharges cause the major pollution problem.

There are other significant threats to the Chesapeake Bay environment. These include both Inter- and Intra-basin diversions

of freshwater. The determination of the effects of upstream management of the fresh water resource on the marine environment have only recently become of concern to oceanographers and marine biologists. Current examples of this problem in Chesapeake Bay are (1) the deepening of the Chesapeake and Delaware Canal, which will increase the net amount of water flowing from the head of Chesapeake Bay into Delaware Bay from about 900 cubic feet per second to about 2100 cubic feet per second, and (2) the Baltimore Water Supply Tunnel which taps the Susquehanna River above Conowingo Dam. Fresh water diversions can alter the salinity regime of the headwaters of the Bay, affecting the spawning opportunity of many species of fish. Further study of these problems will undoubtedly reveal presently unknown ecological ramifications of the estuary's struggle to reach and maintain suitable equilibrium in the wake of the incursions of man (Corps, 1970).

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APPENDIX B

BIOTIC COMMUNITIES OF THE CHESAPEAKE BAY REGION

by

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BIOTIC COMMUNITIES OF THE CHESAPEAKE BAY¹INTRODUCTION

This report presents a summary of the characteristic biota and biotic communities of the Chesapeake Bay region, defined in terms of typical vegetation, associated animal species, and critical environmental factors. The plant species listed are the dominant or characteristic species typical of the various biotic communities. The animal species lists are more extensive and include the common and/or characteristic species associated with each biotic community.

The ecology of the Chesapeake Bay region has been influenced strongly by the presence of civilized man. But even before the colonists had set foot on the continent, Indians had made their presence known. Fire was an often used tool of the Indians for hunting purposes and clearing land.

Following colonization by white men, more intensive land clearing occurred during the eighteenth and early part of the nineteenth centuries. Lumber was needed for shelter and firewood and the settlers brought their European agricultural system with them. Virgin land was so plentiful that a shifting form of agriculture with little care for the soil became prevalent. Tobacco depleted much of the soil of its nutrients and when fields were abandoned, erosion quickly exhausted the topsoil. At the time of the Civil War, labor became scarce and much of the previously cultivated land was abandoned. These abandoned fields were invaded by loblolly pine *Pinus taeda*, pitch pine *Pinus rigida* and scrub pine *Pinus virginiana*. These species are typical pioneer tree species in old field or secondary succession.

Pine forests, although common, are not the climax vegetation but are dominant due to a history of disturbances including fire, agriculture and lumbering. Braun (1950) indicates

¹ The information for this appendix has been taken from a report by the author on the "Atlantic Coastal Plain Natural Region Survey" written for a contract with the National Park Service's Natural Landmarks Program. This report was edited by the principal investigator and author by extracting those portions relevant to the Chesapeake Bay region. This report has certain shortcomings primarily relating to the difference in scope of the two reports; the larger Atlantic Coastal Plain region versus the more circumscribed Chesapeake Bay region.

that the Chesapeake Bay region should actually be considered an Eastern Oak-Hickory Forest region due to the dominance of oaks Quercus spp. and hickories Carya spp. in the climax communities.

The following is a breakdown of the major plant community types occurring in the Chesapeake Bay region with an indication of some of the critical environmental factors (limiting factors) controlling the community. After each description of a plant community type, some of the typical animal species associated with it are listed.

Aquatic Ecosystems

The northern portion of the Atlantic Coastal Plain is characterized by drowned river valleys, the best example of which is the Chesapeake Bay. The Chesapeake Bay is a unique estuary comprised of the drowned Susquehanna River Valley and several of its tributaries. The bay is unique because of its size and isolation from the Atlantic Ocean.

Salt Marsh

The salt marsh community is here divided into two different phases, the regularly flooded phase, and the irregularly flooded phase. Salt marsh develops in the low areas where inundation by salt water is frequent enough to prevent the survival of non-salt-tolerant species. The vegetation is dominated by various grasses and sedges. Woody species occur only on the higher ridges in this community.

The regularly flooded salt marshes occur along the open ocean and in the shallow sounds behind barrier islands. They are inundated twice daily to a depth of six inches or more by the highly saline waters of normal high tides. The flushing action of the tides is essential to this salt marsh community. It brings in certain nutrients from the surrounding estuary and flushes out toxic waste materials. Tidal creeks meander through the salt marsh and are rich in silt and organic debris from inland runoff. This provides additional nutrient supply to the surrounding marshes.

The regularly flooded salt marshes are generally dominated by saltmarsh cordgrass Spartina alterniflora. Saltmeadow cordgrass Spartina patens, salt grass Distichlis spicata, black needlerush Juncus roemerianus and glasswort Salicornia spp. are usually abundant. Along the more elevated ridges of the marsh, groundsel Baccharis halimifolia, marsh elder Iva frutescens, sea oxeye Borrichia frutescens, and sea lavender Limonium spp. occur.

The variations in drainage and salinity account for rather distinct plant zonation and distribution.

Irregularly flooded salt marshes occur along the shores of bays, sounds, and rivers. They are flooded only irregularly by wind and storm tides with from a few inches to several feet of water. Tidal creeks also dissect the irregularly flooded salt marshes but are typically shorter and straighter than those of the regularly flooded salt marshes. The water in these tidal creeks generally is less rich in organic debris and silt.

The vegetation is largely dominated by black needlerush Juncus roemerianus with saltmeadow cordgrass Spartina patens, salt grass Distichlis spicata, glasswort Salicornia spp. and saltmarsh three-square Scirpus robustus occurring as common associates. On ridges of high ground, marsh elder Iva frutescens and groundsel Bacharis halimifolia are common. Switchgrass Panicum virgatum may occur over large areas adjacent to the upland along with sea lavender Limonium spp. and sea oxeye Borrichia frutescens.

Typical animals include:

Horseshoe crab Limulus polyphemus
 Fiddler crabs Uca spp.
 Marsh crab Sesarma reticulatum
 Saltmarsh snail Melampus bidentatus
 Periwinkle snail Littorina irrorata
 Ribbed mussel Volselfa demissa
 Stinkpot Sternotherus odoratus
 Diamondback terrapin Malaclemys terrapin
 Water snake Natrix sipedon
 Eastern hognose snake Heterodon platyrhinos
 Canada goose Branta canadensis
 Snow goose Chen hyperborea
 Mallard Anas platyrhynchos
 Black duck Anas rubripes
 Pintail Anas acuta
 Blue winged teal Anas discors
 American widgeon Mareca americana
 Shoveler Spatula clypeata
 Herons
 Egrets
 Marsh hawk Circus cyaneus
 Sparrow hawk Falco sparverius
 Clapper rail Rallus longirostris
 Short eared owl Asio flammeus
 Sharp tailed sparrow Ammospiza caudacuta
 Seaside sparrow Ammospiza maritima

Opossum Didelphis marsupialis
 Least Shrew Cryptotis parva
 Least cottontail Sylvilagus floridanus
 Rice rat Oryzomys palustris
 Meadow vole Microtus pennsylvanicus
 Muskrat Ondatra zibethicus
 Raccoon Procyon lotor
 Mink Mustela vison
 River otter Lutra canadensis
 White tailed deer Odocoileus virginianus

Critical environmental factors in the salt marsh include salinity, frequency of inundation, and nutrient input and flushing action of the tides.

Brackish Marsh

The brackish marsh community develops in the transition zone between freshwater and salt marshes. Brackish marshes are located along bays and coastal rivers and are irregularly inundated by high winds and storms.

Several different plant associations are characteristic of this major community type. A short form of saltmarsh cordgrass Spartina alterniflora usually dominates the well drained areas. In the more poorly drained depressions, Olney's three-square Scirpus olneyi dominates with salt grass Distichlis spicata and black needlerush Juncus roemerianus occurring more abundantly along the better drained edges of such depressions. The taller form of salt-marsh cordgrass Spartina alterniflora may be found in abundance adjacent to tidal creeks, while saltmeadow cordgrass Spartina patens dominates in well drained soils adjacent to pond and creek borders. In the more elevated and drier areas, groundsel Baccharis halimifolia and marsh elder Iva frutescens are common. Other important plants in brackish marshes include widgeongrass Ruppia maritima,atriplex Atriplex patula, sea lavender Limonium carolinianum, seashore mallow Kosteletskya virginica and glasswort Salicornia spp.

Typical animals include:

Mud crabs Xanthidae
 Blue crab Callinectes sapidus
 Saltmarsh snail Melampus bidentatus
 Periwinkle snail Littorina irrorata
 Canada goose Branta canadensis
 Mallard Anas platyrhynchos
 Black duck Anas rubripes

Pintail Anas acuta
Blue winged teal Anas discors
Green winged teal Anas carolinensis
Gadwall Anas strepera
American widgeon Mareca americana
Shoveler Spatula clypeata
Hooded merganser Lophodytes cucullatus
Osprey Pandion haliaetus
King rail Rallus elegans
Short eared owl Asio flammeus
Opossum Didelphis marsupialis
Least shrew Cryptotis parva
Eastern cottontail Sylvilagus floridanus
Rice rat Oryzomys palustris
Meadow vole Microtus pennsylvanicus
Muskrat Ondatra zibethicus
Raccoon Procyon lotor
Mink Mustela vison
River otter Lutra canadensis
White tailed deer Odocoileus virginianus

Critical environmental factors include amount of salinity, frequency of inundation, and depth of water.

Freshwater Marsh

As with the salt marsh community, the freshwater community is divided into two phases, the coastal freshwater marsh phase and the inland freshwater marsh phase. The primary source of water for these marshes is precipitation and runoff via rivers and streams and thus a totally different type of community develops.

The coastal freshwater marsh phase occurs along rivers and streams where there is little or no tidal action as well as in interdunal areas. The water is fresh or slightly brackish and ranges in depth from ground level to several feet. A great diversity of plants is distributed in these marshes in response to variation in depth of water and salinity.

In areas where water is usually fresh, plants such as cattail Typha spp., wildrice Zizania aquatica, sawgrass Cladium spp., pickerelweed Pontederia cordata, and waterlily Nymphaea odorata may form extensive stands. In the more brackish areas, species characteristic of the more saline environments occur including tall cordgrass Spartina cynosuroides and Olney's threesquare Scirpus olneyi. Other typical species of the coastal freshwater marsh are smartweeds Polygonum spp., spikerushes Eleocharis spp., sedges

Carex spp., phragmites Phragmites communis, arrowhead Sagittaria spp., bulrushes Scirpus spp., pondweeds Potamogeton spp., button-bush Cephalanthus occidentalis, jewelweeds Impatiens spp. and alders Alnus spp.

The inland freshwater marsh phase is characterized by many of the same species but forms in shallow lake basins, limestone sinks sloughs, or at the borders of open water. The soil is water-logged and may be covered by three feet or more of freshwater. Cattails, pondweeds, bulrushes, arrowheads, smartweeds, sedges and water lilies again are very important constituents of the marsh. However, in the inland marshes, grasses Poaceace, rushes Juncus spp., watermilfoils Myriophyllum spp., duckweeds Lemna spp., and spatterdock Nuphar luteum occur, often in great abundance, choking off open water areas.

Corresponding with the high diversity of plant species is a high diversity of animal species.

Typical animals include:

Spotted salamander Ambystoma maculatum
 Tiger salamander Ambystoma tigrinum
 Spotted newt Notophthalmus viridescens
 Fowler's toad Bufo woodhousei fowleri
 American toad Bufo americanus
 Tree frogs Hyla spp.
 Chorus frogs Pseudacris spp.
 Cricket frog Acris gryllus
 Leopard frog Rana pipiens
 Bull frog Rana catesbeiana
 Green frog Rana clamitans
 Snapping turtle Chelydra serpentina
 Eastern mud turtle Kinosternon subrubrum
 Stinkpot turtle Sternotherus odoratus
 Spotted turtle Clemmys guttata
 Bog turtle Clemmys muhlenbergi
 Painted turtle Chrysemys picta
 Water snake Natrix sipedon
 Eastern ribbon snake Thamnophis sauritus
 Great blue heron Ardea herodias
 Mallard Anas platyrhynchos
 Southern bald eagle Haliaeetus leucocephalus
leucocephalus
 Marsh hawk Circus cyaneus
 Osprey Pandion haliaetus
 King rail Rallus elegans
 Sora Porzana carolina

Common gallinule Gallinula chloropus
 Coot Fulica americana
 Short eared owl Asio flammeus
 Belted kingfisher Megaceryle alcyon
 Tree swallow Iridoprocne bicolor
 Long billed marsh wren Telmatodytes palustris
 Yellowthroat Geothypis trichas
 Red winged blackbird Agelaius phoeniceus
 Meadowlark Sturnella magna
 Song sparrow Melospiza melodia
 Swamp sparrow Melospiza georgiana
 Opossum Didelphis marsupialis
 Masked shrew Sorex cinereus
 Star nosed mole Condylura cristata
 Eastern cottontail Sylvilagus floridanus
 Beaver Castor canadensis
 Rice rat Oryzomys palustris
 Meadow vole Microtus pennsylvanicus
 Muskrat Ondatra zibethicus
 Red fox Vulpes fulva
 Gray fox Urocyon cinereoargenteus
 Raccoon Procyon lotor
 Mink Mustela vison
 Striped skunk Mephitis mephitis
 River otter Lutra canadensis
 White tailed deer Odocoileus virginianus

Critical environmental factors in the freshwater marsh include depth of water, salinity, rate of siltation, turbidity of the water and competition for light and space.

Bog

Bog communities are divided into two different phases, sphagnum bogs and cedar swamps. All bogs have several features in common. They generally develop in areas where drainage is restricted, all have a surface layer of cushion-like vegetation, and all have an accumulation of peat. The decidedly acid condition of bogs limits the species which can persist here.

Sphagnum bogs are more typical of the mountain region and the far north, however, particularly in the northern section of the Atlantic Coastal Plain, they occur scattered across the landscape. Very few sphagnum bogs have persisted in the Chesapeake Bay region. The vegetation is generally low to the ground with the exception of some scattered shrubs and trees. Two mosses Sphagnum and Hypnum dominate the bog by creating a covering over the entire surface. Other species scattered through the bog include buckbean Menyanthes trifoliata, cotton grass Eriophorum spp., numerous sedges Carex spp., cranberry Vaccinium macrocarpon, sweet gale Myrica gale, bog

rosemary Andromeda glaucophylla, leatherleaf Chamaedaphne calyculata and Labrador tea Ledum groenlandicum. Insectivorous plants including pitcher plants Sarracenia purpurea, sundews Drosera spp. and bladderworts Utricularia spp. also occur in this rather unique community (Smith, 1966).

Cedar swamps are bogs dominated by dense, generally even-aged stands of Atlantic Coastal Plain from New Jersey north. While sphagnum bogs are usually small, cedar swamps may be extensive as in sections of the Pocomoke River swamp. Pitch pine Pinus rigida is widely scattered while red maple Acer rubrum, black gum Nyssa sylvatica, and sweet bay Magnolia virginiana form a dense understory. Other typical shrub species include highbush blueberry Vaccinium corymbosum, fetterbush Leucothoe spp. clammy azalea Rhododendron viscosum and bayberry Myrica pennsylvanica. The herbaceous ground cover includes chain fern Woodwardia virginica, bladderworts Utricularia spp., pitcher plant Sarracenia purpurea, swamp pink Calopogon pulchellus, and partridgeberry Mitchella repens which are generally rather common.

Typical animals include:

Bull frog Rana catesbeiana
 Green frog Rana clamitans
 Carpenter frog Rana virgatipes
 Bog turtle Clemmys mühlenbergi
 Water snake Natrix sipedon
 Bobwhite quail Colinus virginianus
 Turkey Meleagris gallopava
 Woodcock Rhizophala minor
 Mourning dove Zenaidura macroura
 Eastern wood pewee Contopus virens
 Wood thrush Hylocichla mustelina
 Parula warbler Parula americana
 Hooded warbler Wilsonia citrina
 Opossum Didelphis marsupialis
 Masked shrew Sorex cinereus
 Star nosed mole Condylura cristata
 Eastern cottontail Sylvilagus floridanus
 Beaver Castor canadensis
 Red-backed vole Clethrionomys gapperi
 Meadow vole Microtus pennsylvanicus
 Muskrat Ondatra zibethicus
 Red fox Vulpes fulva
 Gray fox Urocyon cinereoargenteus

Black bear Ursus americanus
 Raccoon Procyon lotor
 Mink Mustela vison
 River otter Lutra canadensis
 White tailed deer Odocoileus virginianus

Critical environmental factors in this community include frequency and severity of fire, duration of flooding and amount of peat or elevation.

Cypress-Gum Swamp Forest

The cypress-gum swamp forest is probably the most characteristic community of the South. It reaches its northern distribution in the Chesapeake Bay region occurring in several isolated areas such as Battle Creek Cypress swamp. In deeper swamps where the land is flooded almost continuously, baldcypress Taxodium distichum and/or water tupelo Nyssa aquatica will exist without associates, although water tupelo is much less tolerant of flooding than is baldcypress (Penfound, 1952). This community represents some of the wildest country remaining in the Atlantic Coastal Plain. Several of the larger predators persist in these swamps.

Typical animals include:

Pine woods tree frog Hyla femoralis
 Green tree frog Hyla cinerea
 Bull frog Rana catesbeiana
 Snapping turtle Chelydra serpentina
 Eastern mud turtle Kinosternon subrubrum
 Stinkpot Sternotherus odoratus
 Spotted turtle Clemmys guttata
 Painted turtle Chrysemys picta
 Water snake Natrix sipedon
 Eastern hognose snake Heterodon platyrhinos
 Double crested cormorant Phalacrocorax auritus
 Common egret Casmerodius albus
 Black crowned night heron Nycticorax nycticorax
 Wood duck Aix sponsa
 Red shouldered hawk Buteo lineatus
 Woodcock Philohela minor
 Barred owl Strix varia
 Pileated woodpecker Hylatomus pileatus
 Acadian flycatcher Empidonax virescens
 Prothonotary warbler Protonotaria citrea
 Cardinal Richmondia cardinalis
 Opossum Didelphis marsupialis

Eastern cottontail Sylvilagus floridanus
Gray squirrel Sciurus carolinensis
Flying squirrel Glaucomys volans
Beaver Castor canadensis
Gray fox Urocyon cinereoargenteus
Black bear Ursus americanus
Raccoon Procyon lotor
Mink Mustela vison
River otter Lutra canadensis
Bobcat Lynx rufus
White tailed deer Odocoileus virginianus

Critical environmental factors include depth of water, duration of flooded condition, amount of peat developed, and occurrence of fire.

Land Ecosystems

Dune Community

This major community type fringes the Atlantic Ocean encompassing the frontal dune complex which extends from the ocean side base of the foredune, inland through the often closely spaced, smaller, hummocky dunes.

The community is usually dominated by perennial grasses with an occasional shrub or wind-shorn tree in protected areas. All of the species which persist here must have a certain degree of physiological salt tolerance to both salt spray and substrate salinity. They also must be able to withstand high winds and sand blasts, possess drought resistance, and be able to tolerate low levels of certain nutrients such as nitrogen. Physiologically, this is perhaps the harshest environment in the Atlantic Coastal Plain.

Due to this harsh environment, the vegetation is sparse with sea rocket Cakile spp., pigweed Amaranthus pumila and saltwort Salsola kali occurring on the beach and several grasses dominating on the dunes. American beachgrass Ammophila breviligulata, salt-meadow cordgrass Spartina patens, silver bunchgrass Panicum amarulum and running beachgrass Panicum amarum are the dominant grasses in the dune community. Herbaceous species gaining importance behind the foredune include beach pea Strophostyles helvola, sandbur Cenchrus tribuloides, seaside spurge Euphorbia polygonifolia and various broomsedges Andropogon spp.

Typical animals include:

Horseshoe crab Limulus polyphemus
Ghost crab
Coquina clam

Six lined racerunner Chemidophorus sexlineatus
Eastern hognose snake Heterodon platyrhinos
Black racer Coluber constrictor
Black rat snake Elaphe obsoleta
Sparrow hawk Falco sparverius
Plovers Charadrius spp. and Squatarola squatarola
Turnstone Arenaria interpres
Willet Catoptrophorus semipalmatus
Sanderling Crocethia alba
Gulls Larus spp.
Terns Sterna spp.
Horned lark Eremophila alpestris
Savanna sparrow Passerculus sandwichensis
Ipswich sparrow Passerculus princeps
Eastern cottontail Sylvilagus floridanus
White footed mouse Peromyscus leucopus
House mouse Mus musculus
Meadow jumping mouse Zapus hudsonius

The critical environmental factors in this community include high salinity (salt spray and substrate salinity), drought conditions (due to sandy soils, high winds, and high solar radiation), and low nutrient availability.

Maritime Shrub Thicket

This community occupies the area behind the dune community and is characterized by a dense growth of low shrubs, often tangled with numerous lianas. Usually the closed cover of the shrub thicket begins abruptly, with the shrubs massed on the ocean side of old dunes. The first shrubs are commonly prostrate and become progressively taller inland. The tops of these shrubs are closely sheared by wind-borne salt spray and form a smooth, compact surface gradually increasing in height inland.

The dominant plants in this community include common wax myrtle Myrica cerifera, groundsel Baccharis halmifolia, shining sumac Rhus copallina redcedar Juniperus virginiana and marsh elder Iva frutescens. Important vines include Virginia creeper Parthenocissus quinquefolia, poison ivy Rhus radicans, green briar Smilax spp. and wild grape Vitis spp. Bayberry Myrica pennsylvanica, as well as highbush blueberry Vaccinium corymbosum are important shrub species (Higgins et. al., 1971.)

Typical animals include:

Toads Bufo spp.
Tree frogs Hyla spp.
Six lined racerunner Cnemidophorus sexlineatus

Eastern hognose snake Heterodon platyrhinos
Black racer Coluber constrictor
Yellow shafted flicker Colaptes auratus
Mockingbird Mimus polyglottus
Prairie warbler Dendroica discolor
Red winged blackbird Agelaius phoeniceus
Boat tailed grackle Cassidix mexicanus
Meadowlark Sturnella magna
Towhee Pipilo erythrophthalmus
Opossum Didelphis marsupialis
Eastern cottontail Sylvilagus floridanus
White footed mouse Peromyscus leucopus
Meadow jumping mouse Zapus hudsonius
Gray fox Urocyon cinereoargenteus
Raccoon Procyon lotor
Mink Mustela vison

The critical environmental factors in this community are basically the same as those of the dune community, however, they are less severe due to the protection afforded by the foredune complex.

Maritime Forest

This community type develops immediately behind the maritime shrub thicket community and consists of closely spaced trees. It occurs on the mainland and/or on offshore islands and barrier beaches. Although protected to some extent by large dunes and maritime shrub thicket, it is strongly influenced by salt spray blown in from the Atlantic Ocean (Wells, 1939; Boyce, 1954).

The community is dominated by redcedar Juniperus virginiana, holly Ilex opaca, bear oak Quercus ilicifolia and pitch pine Pinus rigida. (Harshberger, 1900).

Maritime forest normally develops on old dune systems and interdunal freshwater marshes and ponds are common. The presence of this freshwater supply allows for large populations of wildlife, many species not normally associated with forest communities.

Typical animals include:

Snapping turtle Chelydra serpentina
Eastern mud turtle Kinosternon subrubrum
Spotted turtle Clemmys guttata
Ground skink Lygosoma laterale
Five lined skink Eumeces fasciatus
Water snake Natrix sipedon
Eastern hognose snake Heterodon platyrhinos

Black racer Coluber constrictor
 Black rat snake Elaphe obsoleta
 Diamondback rattlesnake Crotalus adamanteus
 Sharp shinned hawk Accipiter striatus velox
 Red shouldered hawk Buteo lineatus
 Red tailed hawk Buteo jamaicensis
 Whip poor will Caprimulgus vociferus
 Crested flycatcher Myiarchus crinitus
 Carolina wren Thryothorus ludovicianus
 White eyed vireo Vireo griseus
 Red eyed vireo Vireo olivaceus
 Parula warbler Parula americana
 Yellow throated warbler Dendroica dominica
 Pine warbler Dendroica pinus
 Cardinal Richmondia cardinalis
 Opossum Didelphis marsupialis
 Gray squirrel Sciurus carolinensis
 White footed mouse Peromyscus leucopus
 Gray fox Urocyon cinereoargenteus
 Raccoon Procyon lotor
 Mink Mustela vison
 White tailed deer Odocoileus virginianus

The critical environmental factors controlling this community are basically the same as those of the previous two communities, namely, high salinity, drought conditions, and low nutrient availability. However, this community has much less severe conditions than the previous communities discussed.

Pine Flatwoods

In the northern portion of the Atlantic Coastal Plain loblolly pine Pinus taeda, and pitch pine Pinus rigida become the dominants of the coastal flatwoods. Loblolly pine is particularly important in Virginia while pitch pine dominates in Maryland. The pine flatwoods are generally rather open with an incomplete canopy but often have a diverse shrub and herb zone.

Typical animals include:

Eastern spadefoot Scaphiopus holbrooki
 Pine woods tree frog Hyla femoralis
 Green tree frog Hyla cinerea
 Box turtle Terrapene carolina
 Fence lizard Sceloporus undulatus
 Six lined racerunner Cnemidophorus sexlineatus
 Ground skink Lygosoma laterale
 Five lined skink Eumeces fasciatus
 Cornsnake Elaphe guttata

Diamondback rattlesnake Crotalus adamanteus
 Red tailed hawk Buteo jamaicensis
 Broad winged hawk Buteo platypterus
 Bobwhite quail Colinus virginianus
 Mourning dove Zenaidura macroura
 Great horned owl Bubo virginianus
 Yellow shafted flicker Colaptes auratus
 Hairy woodpecker Dendrocopus villosus
 Downy woodpecker Dendrocopus pubescens
 Red cockaded woodpecker Dendrocopus borealis
 Brown headed nuthatch Sitta pusilla
 Eastern bluebird Sialia sialis
 Yellow throated warbler Dendroica dominica
 Pine warbler Dendroica dominica
 Pine warbler Dendroica pinus
 Prairie warbler Dendroica discolor
 Meadowlark Sturnella magna
 Towhee Pipilo erythrophthalmus
 Pine woods sparrow Aimophila aestivalis
 Opossum Didelphis marsupialis
 Eastern cottontail Sylvilagus floridanus
 Pine mouse Pitymys pinetorum
 Gray fox Urocyon cinereoargenteus
 Raccoon Procyon lotor
 Bobcat Lynx rufus
 White tailed deer Odocoileus virginianus

Critical environmental factors governing the composition of this community include frequency of fire, drainage, and lack of local relief.

Bottomland Hardwood Forest

This community type is one of the most diverse terrestrial plant communities in the Atlantic Coastal Plain and is again, best developed in the southern section of that province. It occupies the floodplains of the major rivers, and is closely associated with the cypress-gum swamp forest.

Behind a natural levee, three types of minor relief occur, low ridges, flats, and sloughs. The presence of a clay pan restricts drainage behind the levee and the flats and sloughs are flooded for varying lengths of time. Cypress-gum swamp forest occupies the sloughs and flats which remain flooded for long periods. The low ridges, however, being a few feet above the normal flood level are inundated only occasionally. Bottomland hardwood forest develops on these ridges and on the higher flats. On older floodplain terraces or second bottoms, this forest community attains its best development (Putnam et. al., 1960).

Typically the most important trees are sweetgum Liquidambar styraciflua, white oak Quercus alba, swamp chestnut oak Quercus michauxii, laurel oak Quercus laurifolia, water oak Quercus nigra, willow oak Quercus phellos, overcup oak Quercus lyrata, pin oak Quercus palustris, Nuttall oak Quercus nuttalli, water ash Fraxinus caroliniana, winged elm Ulmus alata, American elm Ulmus americana, swamp tupelo Nyssa sylvatica var. biflora, red maple Acer rubrum, loblolly pine Pinus taeda and hackberry Celtis laevigata. Early successional stages, occurring close to the river, are dominated by cottonwood Populus deltoides and heterophylla and black willow Salix nigra.

Hotchkiss and Stewart (1947) indicate that beech Fagus grandifolia dominates in the mature bottomland hardwood forests of Maryland. On the smaller floodplains, especially in the northern section of the Atlantic Coastal Plain, river birch Betula nigra, sycamore Platanus occidentalis, box elder Acer negundo and silver maple Acer saccharinum dominate the stream sides.

The floodplain soils are quite rich due to the frequent addition of alluvium. Farmers have cleared much of the best drained bottomlands for cultivation and have reaped great benefits from this land. This, must be considered as a major threat to the survival of this forest as a community type.

Animal species are also quite abundant in this community due to the presence of a large supply of foods.

Typical animals include:

Two lined salamander Eurycea bislineata
 Fowler's toad Bufo woodhousei fowleri
 Squirrel tree frog Hyla squirella
 Pine woods tree frog Hyla femoralis
 Green tree frog Hyla cinerea
 Bull frog Rana catesbeiana
 Box turtle Terrapene carolina
 Broad headed skink Eumeces laticeps
 Water snake Natrix sipedon
 Eastern hognose snake Heterodon platyrhinos
 Wood duck Aix sponsa
 Red shouldered hawk Buteo lineatus
 Bobwhite quail Colinus virginianus
 Turkey Meleagris gallopavo
 Woodcock Philohela minor
 Barred owl Strix varia

Pileated woodpecker Hylatomus pileatus
 Red headed woodpecker Melanerpes erythrocephalus
 Acadian flycatcher Empidonax virescens
 Prothonotary warbler Protonotaria citrea
 Cardinal Richmondia cardinalis
 Opossum Didelphis marsupialis
 Eastern cottontail Sylvilagus floridanus
 Gray squirrel Sciurus carolinensis
 Fox squirrel Sciurus niger
 Flying squirrel Glaucomys volans
 Beaver Castor canadensis
 Gray fox Urocyon cinereoargenteus
 Black bear Ursus americanus
 Raccoon Procyon lotor
 Mink Mustela vison
 River Otter Lutra canadensis
 Bobcat Lynx rufus
 White tailed deer Odocoileus virginianus

Critical environmental factors controlling the composition of this community include duration of flooding, elevation and drainage of soil, occurrence of fire and length of time covered with vegetation.

Upland Pine Forest

This community type is here divided into two phases, loblolly pine-shortleaf pine phase and pitch pine phase. The overall importance of this community in the uplands of the Atlantic Coastal Plain reflects the history of disturbance in this region. The community is successional in nature, being comprised of a canopy of pines Pinus spp. and an understory of hardwoods usually dominated by oaks Quercus spp.

The loblolly pine-shortleaf pine phase occupies the disturbed upland habitats and is definitely successional. It is generally associated with soils which possess more clay than the soils in the pine flatwoods which are generally quite sandy. Loblolly pine Pinus taeda in particular is the first tree species to invade abandoned lands. It may dominate the forest for more than 80 years before the climax hardwoods become dominant (Oosting, 1942). Shortleaf pine Pinus echinata, also a pioneer species, attains its best development in the drier habitats as on ridge tops. Except in the youngest stands, an understory of mixed hardwoods including white oak Quercus alba, scarlet oak Quercus coccinea, red oak Quercus rubra, black oak Quercus velutina, post oak Quercus stellata, southern red oak Quercus falcata, water oak Quercus nigra,

mockernut hickory Carya tomentosa, pignut hickory Carya glabra, black gum Nyssa sylvatica and sweetgum Liquidambar styraciflua occurs. Often the hickories appear late in succession. Scrub pine Pinus virginiana is also an important pioneer species, particularly in the northern portion of the Chesapeake Bay region.

The pitch pine phase dominates the disturbed uplands from Maryland north to Cape Cod along the Atlantic Coastal Plain. Associated with the pitch pine are blackjack oak Quercus marylandica, post oak Quercus stellata, black oak Quercus velutina and scarlet oak Quercus coccinea. The scrub oak Quercus ilicifolia is also a common associate on the drier sites. (McCormick, 1970).

Typical animals include:

Dusky salamander Desmognathus fuscus
 Red backed salamander Plethodon cinereus
 Slimy salamander Plethodon glutinosus
 Eastern spadefoot Scaphiopus holbrookii
 Fowler's toad Bufo woodhousei fowleri
 Box turtle Terrapene carolina
 Fence lizard Sceloporus undulatus
 Six lined racerunner Cnemidophorus sixlineatus
 Ground skink Lygosoma laterale
 Eastern garter snake Thamnophis sirtalis
 Eastern hognose snake Heterodon platyrhinos
 Black racer Coluber constrictor
 Eastern coachwhip Mastigophis flagellum
 Corn snake Elaphe guttata
 Black rat snake Elaphe obsoleta
 Pine snake Pituophis melanoleucus
 Copperhead Agkistrodon contortrix
 Timber rattlesnake Crotalus horridus
 Bobwhite quail Colinus virginianus
 Screech owl Otus asio
 Great horned owl Bubo virginianus
 Ruby throated hummingbird Archilochus colubris
 Eastern wood pewee Contopus virens
 Carolina chickadee Parus carolinensis
 Blue gray gnatcatcher Polioptila caerulea
 White eyed vireo Vireo griseus
 Pine warbler Dendroica pinus
 Summer tanager Piranga rubra
 Cardinal Richmondia cardinalis
 Field sparrow Spizella pusilla
 Opossum Didelphis marsupialis
 Masked shrew Sorex cinerea

Short tailed shrew Blarina brevicauda
 Common mole Scalopus aquaticus
 Eastern cottontail Sylvilagus floridanus
 Gray squirrel Sciurus carolinensis
 Fox squirrel Sciurus niger
 Red squirrel Tamiasciurus hudsonicus
 Flying squirrel Glaucomys volans
 White fotted mouse Peromyscus leucopus
 Meadow vole Microtus pennsylvanicus
 Pine vole Pitymys pinetorum
 Gray fox Urocyon cinereoargenteus
 Raccoon Procyon lotor
 Bobcat Lynx rufus
 White tailed deer Odocoileus virginianus

Critical environmental factors determining the vegetational composition in this community include frequency of disturbance, water holding capacity of the soil, and frequency of fire.

Upland Hardwood Forest

This vegetational type is considered to be the climax vegetation in the upland regions of the Atlantic Coastal Plain. In fact however, it is not particularly common on the Coastal Plain due to the frequency of disturbance there. The upland hardwood forest is dominated by various species of oak Quercus.

The xeric or dry phase of this community type occurs primarily on the dry, sand ridges of the Coastal Plain. It is dominated by scrubby oaks which persist after the timbering or death of various pines, especially shortleaf pine Pinus echinata, scrub pine Pinus virginiana, and pitch pine Pinus rigida. On the more mesic sites, southern red oak Quercus falcata often dominates. Blackjack oak Quercus marylandica, post oak Quercus stellata and scrub oak Quercus ilicifolia are the characteristic species however, pine is usually always present due to the frequency of fire and/or other disturbances.

The intermediate phase of the upland hardwood forest is the most common representative of this community type. In the northern section of the Coastal Plain, the dominant species include black oak Quercus velutina, chestnut oak Quercus prinus, white oak Quercus alba and scarlet oak Quercus coccinea with blackgum Nyssa sylvatica, post oak Quercus stellata and several hickories Carya spp. also being common.

The rich or mesic phase occurs only on the best sites, such as moist ravines. The most indicative species of this community is the beech Fagus grandifolia. Quarterman and Keever (1962) termed this community (in southern Coastal Plain) the Southern Mixed Hardwood Forest. They identify 14 species which are very important and 10 taxa which are highly restricted to this community. The 14 species include beech Fagus grandifolia, white oak Quercus alba, sweetgum Liquidambar styraciflua, laurel oak Quercus laurifolia, southern magnolia Magnolia grandiflora, water oak Quercus nigra, mockernut hickory Carya tomentosa, pignut hickory Carya glabra, loblolly pine Pinus taeda, southern red oak Quercus falcata, blackgum Nyssa sylvatica, holly Ilex opaca, dogwood Cornus florida, and farkleberry Vaccinium arboreum.

Typical animals include:

Dusky salamander Desmognathus fuscus
 Red backed salamander Plethodon cinereus
 Slimy salamander Plethodon cinereus
 Two lined salamander Eurycea bislineata
 Fowler's toad Bufo woodhousei forleri
 Box turtle Terrapene carolina
 Ground skink Lygosoma laterale
 Broad headed skink Eumeces laticeps
 Eastern garter snake Thamnophis sirtalis
 Black racer Coluber constrictor
 Black rat snake Elaphe obsoleta
 Copperhead Agkistrodon contortrix
 Red shouldered hawk Buteo lineatus
 Red tailed hawk Buteo jamaicensis
 Broad winged hawk Buteo platypterus
 Bobwhite quail Colinus virginianus
 Turkey Meleagris gallopavo
 Screech owl Otus asio
 Great horned owl Bubo virginianus
 Ruby throated hummingbird Archilochus colubris
 Yellow shafted flicker Colaptes auratus
 Pileated woodpecker Hylatomus pileatus
 Red headed woodpecker Melanerpes erythrocephalus
 Hairy woodpecker Dendrocopus villosus
 Downy woodpecker Dendrocopus pubescens
 Acadian flycatcher Empidonax virescens
 Eastern wood pewee Contopus virens
 Crested flycatcher Myiarchus crinitus
 Common crow Corvus brachyrhynchos
 Blue jay Cyanocitta cristata
 Tufted titmouse Parus bicolor
 Carolina chickadee Parus carolinensis

White breasted nuthatch Sitta carolinensis
 Carolina wren Thryothorus ludovicianus
 Wood thrush Hylocichla mustelina
 Yellow throated vireo Vireo flavifrons
 Red eyed vireo Vireo olivaceus
 Black and white warbler Mniotilta varia
 Oven bird Seiurus aurocapillus
 Hooded warbler Wilsonia citrina
 Summer tanager Piranga rubra
 Cardinal Richmondia cardinalis
 Slate colored junco Junco hyemalis
 Opossum Didelphis marsupialis
 Masked shrew Sorex cinereus
 Short tailed shrew Blarina brevicauda
 Eastern cottontail Sylvilagus floridanus
 Eastern chipmunk Tamias striatus
 Gray squirrel Sciurus carolinensis
 Fox squirrel Sciurus niger
 Flying squirrel Glaucomys volans
 White footed mouse Peromyscus leucopus
 Pine vole Pitymys pinetorum
 Gray fox Urocyon cinereoargenteus
 Raccoon Procyon lotor
 Long tailed weasel Mustela frenata
 Striped skunk Mephitis mephitis
 White tailed deer Odocoileus virginianus

Critical environmental factors controlling the character of this community include water holding capacity of the soil, frequency of disturbance, and topography.

Old Field Community

This is a community type which occurs over the entire Atlantic Coastal Plain in almost all upland situations. The old field community develops on abandoned lands, particularly agricultural lands.

The vegetational composition of these old fields is largely dependent on the amount of time since abandonment. Immediately following abandonment weeds invade the land including crabgrass Digitaria sanguinalis and horseweed Erigeron canadensis. The first year after abandonment, old fields are totally dominated by horseweed. The next few years the old field community is dominated by white aster Aster pilosus. During this time, broomsedge Andropogon virginicus appears and begins to spread until it eventually dominates the old field community. During the broomsedge stage, young pines begin to appear in the fields and eventually as they grow their crowns meet and a closed canopy develops. Once this occurs the broomsedge will become

uncommon as it cannot survive under the dense shade produced by the closed canopy. As the pines grow the community type changes to a pine flatwoods or upland pine forest community and if there is little or no further disturbance upland hardwood forest becomes the climax vegetation. This sequence of changes is occurring throughout the Atlantic Coastal Plain and is called secondary succession or old field succession.

Typical animals of the early stages include:

Fowler's toad Bufo woodhousei fowleri
 American toad Bufo americanus
 Six lined racerunner Cnemidophorus sexlineatus
 Black racer Coluber constrictor
 Black rat snake Elaphe obsoleta
 Red shouldered hawk Buteo lineatus
 Red tailed hawk Buteo jamaicensis
 Marsh hawk Circus cyaneus
 Bobwhite quail Colinus virginianus
 Mourning dove Zenaidura macroura
 White eyed vireo Vireo griseus
 Prairie warbler Dendroica discolor
 Yellowthroat Geothlypis trichas
 Yellow breasted chat Icteria virens
 Meadowlark Sturnella magna
 Cardinal Richmondia cardinalis
 Towhee Pipilo erythrophthalmus
 Savanna sparrow Passerculus sandwichensis
 Grasshopper sparrow Ammodramus savannarum
 Bachman's sparrow Aimophila aestivalis bachmanii
 Field sparrow Spizella pusilla
 Opossum Didelphis marsupialis
 Short tailed shrew Blarina brevicauda
 Least shrew Cryptotis parva
 Common mole Scalopus aquaticus
 Eastern cottontail Sylvilagus floridanus
 White footed mouse Peromyscus leucopus
 Meadow jumping mouse Zapus hudsonius
 Housemouse Mus musculus
 Meadow vole Microtus pennsylvanicus
 Long tailed weasel Mustela frenata
 Striped skunk Mephitis mephitis
 Red fox Vulpes vulpes

Critical environmental factors determining its vegetational composition include length of time left abandoned, low soil water holding capacity, low soil nutrient status and frequency of disturbance. It has been shown that allelopathy or "Chemical warfare between plants" occurs in the early stages of succession (Keever, 1950) and thus this is a critical environmental factor.

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APPENDIX C

RARE, ENDANGERED AND THREATENED VERTEBRATE SPECIES
OF THE CHESAPEAKE BAY REGION

by

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April, 1973

RARE, ENDANGERED, AND THREATENED VERTEBRATE SPECIES IN THE CHESAPEAKE BAY REGION

INTRODUCTION

This report is part of a larger series of reports dealing with the Atlantic Coastal Plain and the Maine Coast as part of a coordinated effort to identify and analyze conservation priorities and selection of natural areas and landmarks along the east coast of the United States.

The Chesapeake Bay region, being one of the most outstanding because of its natural resource values and its proximity to large metropolitan complexes, was given special attention. This project was originated by The Nature Conservancy, in conjunction with the Chesapeake Bay Foundation, and was carried out by the Smithsonian Center for Natural Areas.

This report deals with rare, endangered, and threatened vertebrate animals occurring in the Chesapeake Bay area. Geographically the area is delineated by U. S. Highway 13 on the east, the North Carolina/Virginia state line to the south, the Fall Line or Interstate 95 on the west and north. This includes the Bay and its tributaries roughly to the limit of tidal influence.

A series of base maps has been developed by the Smithsonian Center for Natural Areas showing significant ecological data along the Atlantic Coastal Plain. A special set of maps of the Chesapeake Bay region indicates detailed zoological factors and sites where rare, endangered, or threatened fish and wildlife occur. Areas harboring such species have been given high rating among the conservation priorities in selecting natural areas for preservation.

SCOPE OF REPORT

The report summarizes existing and current information on rare, endangered, and threatened species of fish, amphibians, reptiles, birds, and mammals which occur in the Chesapeake Bay region. Included are species which are recognized on the U. S. Department of Interior's federal registry of endangered animals; and also species which are apparently experiencing rapid depletion in numbers and may be threatened. The data presented cover the status, estimated numbers, present distribution, reasons for decline, ecological values, and conservation measures taken or proposed for those species listed below. This information is presented in the same format as the U. S. Department of Interior's Redbook, "Threatened Wildlife of the United States", and the International Union for Conservation of Nature and Natural Resources (I.U.C.N.), Red Data Books.

METHODOLOGY

Data were assembled by contacting competent persons known to be experts on particular species or groups of species. Contact was made by personal interview, by telephone, and by a three-page questionnaire asking for detailed information on rare, endangered, or threatened species. This material was then compiled on the following data sheets.

The significant literature was reviewed, with emphasis placed on more recent papers and books (from 1960 to 1973). Since a time lag often exists between gathering of data and its publication, the most-up-to-date information was obtained through personal communication.

CLASSIFICATION OF SPECIES

There are not many rare, endangered, or threatened species of vertebrate animals in the Chesapeake Bay region. Those that occur there are dependent in part on the presence of natural and undisturbed habitats, and also on the broader aspect of uncontaminated environmental conditions. This is particularly important to birds of prey which are dependent on a long food chain, and where they may accumulate high levels of persistent chemicals. Chesapeake Bay is especially important as a nesting area for the endangered southern subspecies of the bald eagles and for ospreys. Both species reach relatively high concentrations in this area.

CLASSIFICATION OF RARE, ENDANGERED, AND THREATENED FISH AND WILDLIFE
SPECIES IN CHESAPEAKE BAY REGION

<u>Species Name</u>	<u>Rarity Classification</u>	
	<u>USDI</u>	<u>IUCN</u>
Delmarva Fox Squirrel	Endangered	1(b)R
Southern Bald Eagle	Endangered	2(b)P*
Osprey		Threatened (Amer. Birds, 1973)
Arctic Peregrine Falcon	Endangered	
Ipswich Sparrow	Rare	2(a)P*
Bog Turtle	Rare	2(a)
Sea Turtles:		
Green	Threatened	3(a)PT
Loggerhead		3(a)PT
Leatherback		
Hawksbill		1(a)PT
Atlantic Ridley		
Maryland Darter	Endangered	2(a)S Endangered (Miller, 1972)

Key to Classification on IUCN List:

- (a) = full species
- (b) = subspecies
- * = denotes species or subspecies critically endangered
- 1 = endangered
- 2 = rare
- 3 = depleted
- T = subject to substantial export trade
- P = legally protected, at least in some parts of its range
- S = secrecy still desirable

Reference to List:

American Birds, 1973 (in press). The Blue List for 1973: (an early warning system for birds).

I.U.C.N. 1971 (Rev.) Red Data Books, vol. 1-4: (Pisces, Amphibia and Reptiles, Aves, Mammalia) Morges 1110, Switzerland.

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U.S.D.I. 1973. Threatened Wildlife of the United States. Office of Endangered Species and International Activities, Bureau Sport Fisheries and Wildlife.

DELMARVA FOX SQUIRREL Sciurus niger cinereus (Linnaeus)
 or
 Bryants Fox Squirrel Sciurus niger bryanti
 Sciurus niger neglectus (Gray)*

Order: RODENTIA
 Family: SCIURIDAE

Estimated Numbers: About 500+ are known, and may be 1000+, but no total estimates are available. In 1964, Linduska estimated the population in the low thousands.

Present Distribution: These squirrels are found only in four Maryland counties, with certainty, plus one isolated record on the county line of Caroline/Talbot County. Introductions were made in one area at Chincoteague National Wildlife Refuge, Virginia. The main range is 50 to 75 miles x 25 miles. These are plotted in the map of zoological factors of ecological importance (Map 2).

Kent County - Eastern Neck Island and Eastern Neck National Wildlife Refuge, found in grain fields and woodlands and marsh on refuge, especially along Hickory Ridge. There is an estimate of 250+ squirrels (Refuge Manager, 1972). Possibly a few still occur on land owned by Eugene DuPont near Rock Hall, but no recent records.

Queen Anne County - On Wye Island about 75 acres of loblolly pine near Wye River with an estimate of several squirrels. Possibly also at Wye Mills; possibly also near Church Hill.

Talbot County - near Trappe along Choptank River (Walsh, 1973; Flyger, 1973); at head of Miles River (duPont McConnell, 1973); possibly around Bruceville, Windy Hill and Barber areas - the latter being along the LaTrappe River and creek with no name north of Choptank River (Walsh, 1973). Possibly at Little Neck and Island Creek Neck area (Walsh, 1973).

Dorchester County - Drawbridge area (Flyger, 1973); Walsh, 1973; also suggested from Presque Isle, Vienna, Ellicott and Steele Neck (Walsh, 1973) Linkwood State Wildlife Management Area has an area of 300 acres but few squirrels were estimated (Germany, 1972).

Blackwater National Wildlife Refuge - There are 11,300 acres with about 400 to 500 acres wooded and suitable for squirrel habitat with an estimate of 150+ squirrels (Julien and Germany, 1972).

The squirrels are usually found in ratio of one to three with Gray Squirrels (the latter predominating.) In one census 142 nests were counted, but this is a poor indicator since one squirrel or pair of squirrels may make more than one nest. On a 52 acre sample plot on the Refuge, 15 Delmarva Fox Squirrels were trapped and released (8 females, 7 males). An estimated 18 squirrels for the plot was calculated. Population density based on trap-recapture census study at Blackwater N.W.R. indicates that .37 Fox Squirrels occur per acre; or one squirrel needs about four acres of habitat, depending on mast crops. (Germany and Julien, 1972). It is also suggested that squirrels occur outside the Refuge in Kentuck and Greenbriar Swamps.

L'Compte State Wildlife Refuge contains 500 acres but few squirrels. Although this is supposedly a Fox Squirrel sanctuary, the area is not being managed for their benefit.

Piney Swamp, north of Blackwater River, has also been suggested as a squirrel habitat.

Caroline County - Only one record, but as mentioned above only a few squirrels were estimated.

Somerset County - It was suggested that Big Swamp next to an existing wildlife management plot may have some squirrels (Rivinus, 1972) but no proof exists.

Chincoteague National Wildlife Refuge: Delmarva Fox Squirrels are not known to exist here in the past, although they might have been within the overall range. Squirrels were introduced in March, 1968, 14 squirrels (7 females, 7 males), but several died. Another introduction made in January, 1971, of 23 squirrels, but 5 died. There are 600 acres of marginal to fair habitat between Sow Ponds, along ridge of White Hills, to Tom's Cove. This is a total area of 2.6 x .5 miles. A young squirrel was seen in January 1972 and in the fall of 1972, (Appel, 1972), (Julien and Germany, 1972). It is estimated that 4 to 5 years may be necessary to build up a viable population; however, squirrels are not doing well and may die out completely.

Note: Good stands of mature to old loblolly pine and also pine mixed with hardwoods are preferred by squirrels. Some large timber exists in private estates on the peninsulas west of Rt. 33 near St. Michaels and Royal Oak. Inquiry did not disclose whether squirrels have ever been seen here.

Status: Classified as endangered by U. S. Department of Interior. Considered to be threatened with extinction (Flyger, 1973). May be thought of as a threatened "island form" because of restricted range on Delmarva Peninsula. The populations are decreasing fairly rapidly.

Reasons for Decline:

1. Encroachment on habitat by real estate (vacation homes, etc.) and agriculture.
2. Heavy cutting of pine and hardwood stands during 1880's and again at present. State forestry policy encourages woodlot owners to cut their mature hardwood stands and plant quick-growing loblolly pine for marketing.
3. Fires destroy habitat.
4. Indiscriminate hunting and poaching, and occasional confusion by hunters between Delmarva Fox Squirrel and Eastern Grey Squirrel Sciurus carolinensis, because they have no knowledge of different characteristics. Also, juvenile Fox Squirrels may be mistaken for Grey Squirrels.

One pair of captive squirrels is being held at Remington Farms, Chestertown, Md., for breeding purposes. Squirrels have been held for 4 years and have not yet produced young. (Galbraith, 1973).

Protective Measures Taken:

1. Establishment of Blackwater and Eastern Neck National Wildlife Refuges; plus the L'Compote State Wildlife Management Area (1970) where squirrels find sanctuary and their habitat is protected.
2. State of Maryland banned hunting Delmarva Fox Squirrels in 1971 and imposed a \$50 fine for taking them.
3. Introduction to Chincoteague N.W.R. in 1968 and 1971 to provide a breeding nucleus on federally protected lands.
4. Research is being conducted at the University of Maryland by Dr. V. Flyger and Mr. G. Taylor.

Protective Measures Proposed:

1. Stop logging mature stands of loblolly Pinus taeda and hardwoods where good squirrel habitat exists. Another incentive might be offered for leaving land in woodland condition.

2. Acquire untouched areas of Kentuck and Greenbriar Swamps adjoining the Blackwater National Wildlife Refuge which contain good squirrel habitat and possibly squirrels. Also try to investigate and acquire habitat on LaTrappe Creek and Big Swamp. An attempt should be made to acquire, (if not too late) the Wye Mills or Wye Island land since this is proposed to be developed into five-acre housing lots.

3. L'Compte State Wildlife Management Area should be managed specifically for squirrels, not for other species of game.

4. Develop further research efforts into distribution, behavior, limiting factors, and optimum habitat conditions for the species.

5. Breed in captivity if possible so as to have extra stock; release into wild to restock good habitat.

6. Public education to help people differentiate between Grey and Fox Squirrels so that they will not hunt the wrong species, nor molest them in other ways.

Ecological Significance:

1. A beautiful and unique mammal.
2. Sport hunting, wildlife photography, nature viewing.
3. Serves as prey species for several forms of predators (owls, hawks, foxes, eagles, etc.)
4. Squirrels plant seeds of mast trees and help forest reproduction.
5. The enzyme defect in the heme biosynthetic pathway is the same in the Fox Squirrel Sciurus niger as in porphyric cattle and human beings. Therefore, members of this species can provide a small animal laboratory model for studies of congenital erythropoietic porphyria (a hereditary disease of humans and cattle) associated with a similar partial deficiency of uroporphyrinogen III cosynthetase (Levin and Flyger, 1971).

References: (Personal communication)

Dr. Vagn Flyger, Institute of Natural Resources, University of Maryland, College Park, Md.

Mr. Galbraith, Asst. Mg., Remington Farms, Chestertown, Md.

Mr. Bob Germany, Asst. Mgr., Blackwater National Wildlife Refuge, Cambridge, Md.

Mr. W. Julien, Refuge Mgr., Blackwater National Wildlife Refuge, Cambridge, Md.

Mrs. Jean duPont McConnell, (estate owner near St. Michaels), %120 120 Delaware Trust Bldg., Wilmington, Del., 19801.

Refuge Manager (former). Eastern Neck National Wildlife Refuge, Rock Hall, Md.

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Gary Taylor, graduate student, Institute of Natural Resources, University of Maryland, College Park, Md.

Mr. Mike Walsh, game warden, Md. State Dept. Natural Resources, Talbot County, Md.

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SOUTHERN BALD EAGLE Haliaeetus leucocephalus leucocephalus

Order: FALCONIFORMES

Family: ACCIPITRIDAE

Estimated Numbers: The Chesapeake Bay region has had a population of about 65 pairs of eagles since the mid-1960's, following a 60 percent reduction in nesting pairs. (Abbott, 1971).

1972 - 40 breeding pairs (Natl. Audubon Soc., pers. comm. 1972).

1972 - 58 active nests; 20 young hatched; 1.3 young/successful nest; 32% hatching success of rechecked nests (Abbott, 1972).

1971 - 56 active nests; 26 young hatched; 1.2 young/successful nest; 35.7% hatching success of rechecked nests (Abbott, 1971).

1970 - 58 active nests; 22 young hatched; 1.3 young/successful nest; 32.6% hatching success of rechecked nests (Abbott, 1970).

1969 - 50 active nests; 29 young hatched; 1.5 young/successful nest; 38.8% hatching success of rechecked nests (Abbott, 1969).

1966 - 70 pairs (Natl. Audubon Soc., 1966).

1936 - 200 pairs of eagles; 250 active nests (Abbott, 1965); 1.8 young/successful nest (Sprunt, 1973).

Present Distribution:

See map 2, and reports at Smithsonian Institution with detailed locations of eagle nests (active and inactive) for Chesapeake Bay region (1970-1973), provided by Jackson Abbott. A total of 89 nest sites (not all active in one year): 4 in Delaware, 45 in Maryland; and 41 in Virginia. The region is the most productive area for Southern Bald Eagles north of Florida.

Mason's Neck National Wildlife Refuge - contains 904 acres of federal land with 4000 acres collectively protected by State and other lands on Mason Neck. The area has a year-round concentration of eagles, both winter and summer roosters, and a few nesters. Some artificial nest platforms have been installed for eagle use. There are usually 12 to 20 adult birds in the area. Recently up to 4 pairs nested; now only one pair, (Julien, 1972). No nests are on the N. W. Refuge, but one site close by on State land.

Assateague Island National Seashore - occasional sightings only (Norris, 1973).

Chincoteague National Wildlife Refuge - one or two seen each year; used to be fairly common as a wintering bird. None nesting now, (Appel, 1972).

Chincoteague National Wildlife Refuge - one or two seen each year; but they used to be fairly common as a wintering bird. None are nesting now. (Appel, 1972).

Blackwater N.W.R. - Has densest population of breeding eagles in Chesapeake Bay area. In 1972, 3 nests on Refuge lands; 1971, 7 nests on Refuge and adjacent lands, (Julien, 1972).

Status: Endangered - on U. S. Dept. of Interior federal list of endangered species. Seriously threatened and declining. A long-term trend downwards in numbers. A shift in location of nesting activities has accompanied the decline in numbers. Eagles have disappeared from upper parts of the tributaries and rivers and the upper part of the Bay. They now concentrate near river estuaries and in the lower part of the Bay. Pollutants here seem to be more diluted and dispersed due to the action of currents; therefore, the food supply is better, (Abbott, 1965, 1971).

Reasons for Decline:

1. Trauma, primarily from shooting, is one of the greatest, if not the greatest, cause of mortality among eagles, (Coon, et.al., 1970).
2. Concentrations of pesticides and their metabolites which are probably major factors causing decrease in Bald Eagle populations through egg-shell thinning from non-lethal amounts of DDE and other metabolites, or by direct mortality by lethal amounts, (see literature references on contamination).
3. Pollution of waterways (feeding areas) which limits fish (food supply) of eagles.

4. Removal of habitat and nest sites around the bay by farming, real estate development, encroachment of power transmission lines, and lumbering of tidewater forests.

5. Reproductive rate is below that considered necessary to maintain the population. A 50% fledgling rate is needed, or at least one fledged young per nest, for stable populations. In the Chesapeake Bay area, however, the fledgling rate is only 5 to 35% (Abbott, 1971). According to Sprunt (1969) and Sprunt et al. (1966), nesting success is only 15% here.

Protective Measures Taken:

1. Protection by federal law and fine of \$500 for killing an eagle. Laws to prohibit shooting.

2. Removal of bounty for eagles (which Alaska had for years).

3. Intensive investigations into pesticide and other chemical contamination of eagles and eagle eggs, their biology, distribution, behavior, etc. being carried out by Patuxent Wildlife Research Center, National Audubon Soc., State fish and game departments, etc. Investigations into artificial breeding programs.

4. Censuses are being made annually by Jackson Abbott, Fred Scott, Bureau of Sport Fisheries and Wildlife, and others to locate nest sites around Chesapeake Bay and determine activity, productivity, etc. Usually two airplane flights are made per breeding season.

5. Continued protection and acquisition of nest sites where not owned by federal or state conservation agencies to avoid destruction or disturbance to nesting eagles. In some cases, as in Maine and Florida, individual agreements are reached with private landowners to protect nest sites and birds.

6. Continued protection on federal and state refuges.

Protective Measures Proposed:

1. Acquisition of all known nest sites around Chesapeake Bay area as sanctuaries.

2. Continued research on, and control of, environmental contaminants, especially pesticides and PCB's which can effect eagle reproduction.

3. Increased public education and involvement in saving the species.

4. Continued research on eagle behavior and reproduction, plus emphasis on captive breeding programs.

5. Increased enforcement of eagle laws and increased punishment of offenders.

6. Water pollution abatement.

7. Proper safe-guards on power lines to prevent electrocution, where needed.

Ecological Significance and General Value:

1. U. S. National symbol - with all accompanying traditional, cultural, aesthetic, historical, symbolic and inspirational qualities with which this bird is imbued.

2. Important indicator species to monitor effects of pesticides and other environmental contaminants.

3. Predation and maintenance of healthy prey populations.

4. Bird-watching as a popular past-time, plus wildlife photography.

5. Political expediency to "save" the species.

6. Excellent educational tool to teach conservation attitudes to children.

References: (personal communication)

Mr. Jackson Abbott, 8501 Doter Drive, Alexandria, Va. 22308.

Mr. J. Appel, Refuge Manager, Chincoteague National Wildlife Refuge, Box 62, Chincoteague, Va. 23336.

Mr. W. Julien, Refuge Manager, Blackwater National Wildlife Refuge, Cambridge, Maryland.

National Audubon Society, Research Division, 115 Indian Mound Trail, Tavernier, Fla. 33070.

Mr. Thomas Norris, Jr., Superintendent, Assateague Island National Seashore, Rt. 2, Box 294, Berlin, Md. 21811.

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OSPREY *Pandion haliaetus*

Order: FALCONIFORMES

Family: PANDIONIDAE

Estimated Numbers:

Virginia = 500 plus pairs; in 1972, 390 nests, 130 known productive nests, 262 known young produced, 209 known fledglings (Byrd, 1973).

Delaware = 25 to 30 pairs

Maryland = 750 pairs \pm

Chesapeake Bay has largest known population in North America

Present Distribution:

Virginia - See map 2 of locations of nest sites provided by Dr. M. Byrd, Dept. of Biology, College of William and Mary, Williamsburg, Va. Also see Table I, Proceedings of the first North American Osprey research conference (Byrd, 1973).

Delaware - Information available at Delaware Dept. Natural Resources and Environmental Control (Lesser, 1973); however, many of the sites are outside Chesapeake Bay drainage.

Maryland - See map 2, with nest site locations provided by Mr. Stan Wiemeyer, Research Biologist, Patuxent Wildlife Research Center, Laurel, Md.; and by Mr. Jan Reese, researcher, St. Michaels, Md.

Selected Areas with Active Nests:

	<u>1970</u>	<u>1971</u>
Virginia - James River	3	6
Chickahominy River	-	12
York River	11	28
Mobjack Bay	15	17
New Pt. Comfort	50	45
Rappahannock River	57	77
Fleets Bay	17	29

	<u>1970</u>	<u>1971</u>
Eastern Shore Atlantic Side	41	46
Eastern Shore Ches. Bay Side	-	49
Total Active Nests	<u>194</u>	<u>309</u>

Maryland/Virginia - Lower Potomac River east of Rt. 301
(Wiemeyer, 1972)

Maryland Shore - 100 pairs
Virginia Shore - 40 pairs
Pt. Lookout at
mouth of Potomac
River - 20+ pairs
Smith Pt. at
mouth - 20-30 pairs

Maryland - lower part of Patuxent River - 10± pairs
(Wiemeyer, 1972)
from Cove Pt. at mouth of Patuxent To Fair Haven,
south of Annapolis - 1 to 2 pairs (Wiemeyer, 1972)

from Chester River to Martin Wildlife Refuge along
Eastern Shore of Md. to Va. border of Delmarva
Peninsula - 500 to 600 pairs (Reese, 1973)

Poplar Island - 30 to 35 pairs
Broad Creek - 50 pairs
Martin N.W.R. - 20 to 30 pairs
Choptank River - 24 pairs
South Marsh Island and Bloodworth Island -
100 pairs

Chincoteague Natl. Wildlife Refuge - 10 to 20 pairs
(Appel, 1972); maximum of 8 pairs (Byrd, 1973).

Assateague National Seashore - rare sightings, uncommon
(Norris, 1973).

Delaware - Atlantic shore, mostly out of Chesapeake Bay drainage,
from Oak Orchard to Bombay Hook National Wildlife
Range - 20 to 30 pairs (Norris, 1973)

Oak Orchard and
Little Bay area - 2 to 3 pairs

(1969), etc. In Maryland, Hickey and Anderson (1968) reported 2.0 to 2.8% decrease in egg shell weights. This is resulting in egg breakage and embryonic death.

3. Losses to osprey eggs and young by predators such as raccoons and rats.

4. Destruction of nests and nestlings by high tides, waves and winds.

5. Destruction of nests by U. S. Coast Guard personnel when they are found on top of lighted navigational markers. For example, 43 nests were removed in Talbot Co., between 1963-1969, (Reese, 1970) and maybe as high as 15 nests/year in the central Chesapeake Bay region (Reese, 1965).

6. Increased use of boats and disturbances around osprey nest sites.

Protective Measures Taken or Proposed:

1. Artificial nesting platforms have been erected and maintained annually to enhance osprey nesting success. Reese (1970) erected 133 platforms between 1964 and 1969 in Talbot Co.; and a total of 72 nests platforms have been erected in Martin National Wildlife Refuge. These have shown a high degree of occupancy; for example, a total of 59 nests were active on the 72 structures between 1968 and 1971 (Rhodes, 1972). Production tripled since artificial nest structures were started in 1968, up to 1971.

2. Coast Guard directive against removing osprey nests from navigational aids was issued by Admiral Bullock. It covers Coast Guard personnel and activities in Maryland, Virginia, North Carolina and part of New Jersey. Nests may not be touched during breeding season but may be removed afterwards if interfering with navigational aids.

3. Dr. Byrd and students are putting up signs around marinas and fishing sites asking boaters and fishermen not to tie up next to osprey nests because this may drive off parents and cause death of eggs or young.

4. Continued research on effects of pesticides on osprey reproduction such as presently being carried out at Patuxent Wildlife Research Center, and other research centers.

5. Continued continental censusing and evaluation of populations, plus continued surveillance of Chesapeake Bay populations.

6. Discontinued use of pesticides and other chemicals so as to increase chances of reproductive success; also abatement of water pollution so as to increase fish (food) supply.

Ecological Significance and General Importance:

1. Aesthetic value as a bird of prey and beautiful species.
2. Important indicator species to monitor effects of pesticides, especially in Chesapeake Bay which is near large metropolitan centers.
3. Predation and maintenance of health in prey populations.
4. Bird-watching as a popular recreation.

References: (personal communication)

Mr. J. Appel, Refuge Manager, Chincoteague National Wildlife Refuge, Chincoteague, Maryland.

Dr. M. Byrd, Dept. Biology, College of William and Mary, Williamsburg, Virginia.

Charles Lesser, Mgr. Technical Services, Division Fish and Wildlife, Dept. Natural Resources and Environmental Control, Edward Tathall Bldg., Legislative Add. and D Street, Dover, Delaware, 19901.

T. F. Norris, Supt. Assateague National Seashore, Rt. 2, Box 294, Berlin, Md.

Jan Reese, Researcher, St. Michaels, Md., 21663; also c/o Medical College, Johns Hopkins University, Baltimore, Maryland.

Stanley Wiemeyer, Research Biologist. Patuxent Wildlife Research Center, Laurel, Maryland.

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ARCTIC PEREGRINE FALCON Falco peregrinus tundrius

Order: FALCONIFORMES

Family: PANDIONIDAE

Estimated Numbers: known as fall (and spring to a lesser degree) migrants only, passing Atlantic oceanside. No known breeding birds now reported anywhere in eastern United States (Cade, 1973); up to 2000 individuals (Mattox, 1973); about 1000 first year migrants (Ruos, 1972), 500+ individuals (Ward, 1973).

Present Distribution: Usually sighted at Assateague Island in Maryland and Virginia (36 mi. x 1+ mi.) along the Atlantic Coastal migration route. Largest concentrations found within two-mile swath of ocean. This is probably the largest and most significant resting and feeding site for Arctic Peregrines anywhere in continental United States (Ward, 1973). (Lies outside Chesapeake Bay area).

The major area at Assateague Island is on the north edge of Fox Hill Levels. Other sites given in table below.

PEREGRINE SIGHTINGS ON ASSATEAGUE ISLAND
(taken from Table 4, Ward & Berry, 1972)

	<u>1970 Observation Time</u>		<u>1971 Observation Time</u>	
	in %		in %	
Maryland, North of State Park	1	3	12	11
Md., State Park	-	NT	2	1
Md. beach south State Park	18	52	53	54
Md., Fox Hills Levels	41	36	40	27
Md., Little Fox Levels	-	NT	2	1
Virginia Sector	8	9	11	6

Barrier beaches along islands of Delmarva Peninsula where falcons also occur include: Fisherman, Myrtle, Smith, Shipshoal, Hog, Revel, Cobb, Parramore, and Wreck Islands.

Occasional sporadic sightings are seen around Chesapeake Bay region; more often spring migrants may be seen on west side of Chesapeake Bay and Delmarva oceanside. Birds usually stay 1 to 5 days en route. 10% or less of the adults migrate along the Atlantic Coast beaches with the immatures. Usually the immatures are in a ratio of 5 or more to every one adult (Shor, 1970, b).

Status: Classified as endangered on the U. S. Dept. of Interior's official list. No appreciable recent decline in general abundance of migrants along Atlantic Coast (Ruos, 1972; Ward & Berry, 1972; 92nd Congress). In addition, the age ratios of immatures to adults in 1970-71 seemed similar to those recorded since 1938 (Ward & Berry, 1972; Ruos, 1970). Nevertheless, there is a strong implication that a substantial population decline took place after 1947 (Nye, 1969; Ward & Berry, 1972). Appel (1972) reports fewer sightings of immatures at Chincoteague National Wildlife Refuge in 1972.

Reasons for Decline:

1. Shooting of birds.
2. Destruction of nests.
3. Stealing of eggs, young, and adults, and trapping by falconers and collectors.
4. Breeding failure resulting from cumulative effects of pesticides and other environmental contaminants, affecting the reproductive and egg shell mechanisms. The problem resulting from cumulative effects of pesticides and other environmental contaminants is very well presented by Ward & Berry, 1972, p. 484-485. In addition, there is an occasional direct poisoning from pesticides. There is reason to believe that, based on experience with the American Peregrine Falcon, this subspecies will go into the same pattern of decline even though many migrants seem to come from Greenland where there is a low contamination by pesticides at present.
5. Periodic short-term adverse effects of weather on reproduction, for example, summer of 1972 (Ruos, 1970).

Protective Measures Taken:

1. Federal and most State laws protect the species.
2. Federal year-round protection by law in the U. S., plus most States and Provinces.
3. Research investigations into artificial propagation techniques at Cornell University's Laboratory of Ornithology, Patuxent Wildlife Research Center, and possible other research centers in Canada, plus by 20 or more falconer-aviculturalists.
4. Protection by Denmark, and its colony, Greenland.
5. Surveillance and protection of known nest sites out West and in Canada and Alaska.
6. Cooperative program between the Canadian Wildlife Service and U. S. Wildlife agencies.
7. Continued monitoring of pesticides and effects on birds of prey.

Protective Measures Proposed:

1. An immediate and forceful recommendation against the proposed hardtop road which is to be built between the Chesapeake Bay bridge in Maryland to the Virginia bridge, following along Assateague Island National Seashore. This development would destroy a significant wilderness area which falcons presently utilize for feeding and resting during migration.
2. Further acquisition and protection of barrier beaches and islands along the Atlantic side of Delmarva Peninsula to provide additional safe resting sites for migrating falcons.
3. Reduced use of persistent and other environmental contaminants in the U. S. and Canada and Europe.
4. Continued research on reproductive failure reasons; and improved artificial breeding in captivity.
5. Increased legal protection and enforcement in all countries where Peregrine Falcons breed and winter.
6. Limit use by surf fishermen and motor vehicles along barrier beaches during time of migration of falcons, because resting should not be disturbed. (This added stress factor may be more deleterious than normal if birds are loaded with DDT, DDE, DDD. The birds appear to have less tolerance to disturbances when in this condition).

7. Strengthen efforts to monitor flyways and obtain accurate annual migration numbers and any changes in numbers or age ratios which might signal decline of populations.

8. Encourage competent falconers to trap immature birds and handle them with controlled diets (free of chemicals), exercise, artificial incubation of eggs to prevent breakage, etc. (Cade, 1970).

9. Refrain from planting erosion grasses on barrier beaches, and forbid camping on traditional resting sites so as not to disturb birds unnecessarily or obstruct their surveillance of surroundings.

Ecological Importance and General Importance:

1. Aesthetic appeal as a magnificent bird of prey.
2. Bird-watchers, photography, nature loving.
3. Important indicator species to use in monitoring effects of pesticides, and other environmental contaminants.
4. Predation which helps maintain a healthy population of prey species.
5. Traditional, historical and scientific use of falcons by falconers.

References: (personal communication)

Mr. J. Appel, Refuge Mgr. Chincoteague National Wildlife Refuge, Chincoteague, Virginia.

Dr. Tom Cade, Professor. Researcher. Laboratory of Ornithology, Cornell University, Ithaca, New York 14850.

Mr. J. Mattox. Asst. Deputy Director. Dept. Natural Resources, 907 Ohio Depts. Bldg., Columbus, Ohio, 43215.

Dr. Prescott Ward. DVM. Ecology Division, Edgewood Arsenal, Baltimore, Maryland.

Mr. Jim Ruos, Research biologist. Patuxent Wildlife Research Center, Laurel, Maryland.

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- Ward, F. P. and R. B. Berry. 1972. Autumn migrations of Peregrine Falcons on Assateague Island, 1970-71. Jour. Wildlife Management, vol. 36(2):484-492.

IPSWICH SPARROW* Passerculus princeps

Order: PASSERIFORMES

Family: FRINGILLIDAE

* Discussed more fully in reports: "Rare, Endangered, and Threatened Fish and Wildlife of the Maine Coast", and "Rare, Endangered, and Threatened Fish and Wildlife of the Atlantic Coastal Plain", by A. LaBastille.

Estimated Numbers and Present Distribution: only rare sightings are reported from Chesapeake Bay region, mainly on Assateague Island and other barrier beaches of Delmarva Peninsula during migrations. Sparrows prefer undisturbed coastal beaches with dunes, rocks and grass; therefore, might be expected to stop and rest wherever appropriate habitat still exists.

BOG TURTLE Clemmys muhlenbergi

Order: TESTUDINATA

Family: TESTUDINIDAE

Estimated Numbers: Very difficult to estimate, but probably in magnitude of 30 adults in Chesapeake Bay area of Maryland (Nemuras, 1973); Arndt (1973) estimates 500+ adults in all Chesapeake Bay region; Barton (1973) estimates 1000+ (15 + colonies).

Present Distribution:

Maryland: only recorded from 3 counties: Baltimore, Harford and Cecil and most of these locations actually occur on the Piedmont area; however, the following are probably within the Chesapeake Bay drainage (Nemuras, 1967).

- a. Near Conowingo Dam, Susquehanna River, Cecil Co. 1965-68 and 1947-1969 records.
- b. Broad Creek, Harford Co. - old record.
- c. Elk Neck, Cecil Co. - 1945 record.
- d. Grave Run Mills, Baltimore Co. - 1941 record.
- e. Eko, Baltimore Co. - 1960 record.
- f. Gunpowder Falls, Baltimore Co. - 1960 record.
- g. Sassafras River, Kent Co. - This is the southernmost point where turtles are found on Delmarva Peninsula.
- h. Bel Air, on Rt. 1 near Baltimore - possibly gone.

Delaware:

- a. Newark, New Castle Co. - 1955 record (Nemuras, 1972).
- b. Northern 3/4 of New Castle Co. (Nemuras, 1972).
- c. Odessa, New Castle Co. (Arndt, 1972)

Virginia: No colonies known on coastal plain.

Reasons for Decline:

1. Destruction of bogs.
2. Removal of large numbers of specimens from their colonies by collectors. Bog turtles bring \$100 to \$150 or more per turtle in pet stores and from individual sales.
3. Drying up or pollution of cold, clear ground water and seepage water sources above bogs can change bog habitat and drive out turtles.
4. Flooding, both natural (especially Hurricane Agnes), and man-made (by dams) destroys bogs and colonies of turtles.

Protective Measures Taken:

1. Protected by state law in New York, Pennsylvania, New Jersey and Maryland (Oct. 1972). Illegal to take, sell, transport or hold these turtles, \$1000 fine in Maryland; no enforcement or fines in New Jersey; \$10 in Pennsylvania.
2. A single swamp has been bought by a naturalist to save one colony of Bog Turtles.
3. Extreme secrecy among Bog Turtles investigators and conservationists to prevent information about locales from being made public.

Protective Measures Proposed:

1. Acquire known Bog Turtle bogs and swamps with adjacent drainage basins to save from development. Possibly introduce turtles to prime habitat in hopes of establishing new colonies.
2. Set up state Bog Turtle sanctuaries.
3. Strict fines and enforcement against purchase and sales by pet dealers and collectors.
4. Public education about value of bogs and wetlands and their unique fauna.
5. Continue censuses and life history studies to determine localities, numbers and disturbances, (may be undertaken in 1973 by James Weaver, for Smithsonian Institution).

Ecological Significance and General Values:

1. Of no specific ecological importance, but does add to diversity of wetland fauna.
2. A very old relic, boreal, species of evolutionary interest.
3. Aesthetically pleasing reptile of remarkable intelligence and adaptability to captivity.
4. Scientific and natural appeal of wetlands areas.

References: (Personal communication)

Dr. Rudolf Arndt, Senior Research Biologist, c/o Ichthyological Associates, 100 S. Cass Street, Middletown, Del. 19709.

Mr. A. J. Barton, c/o Undergraduate Program, National Science Foundation, Washington, D. C.

Mr. Ken Nemuras, Herpetologist, 5101 Gwynn Oak Ave., Baltimore, Maryland, 21207.

Mr. Jim Weaver, Herpetologist, 30 Eshelman Rd., Lancaster, Pa. 17601.

Literature:

Arndt, R. G. 1972. Additional records of Clemmys muhlenbergi in Delaware, with notes on reproduction. Bull. Md. Herp. Soc. 8(1):1-5.

Barton, A. J. and J. W. Price, Sr. 1955. Our knowledge of the Bog Turtle, Clemmys muhlenbergi, surveyed and augmented. Copeia. 3:159-165.

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Weaver, J. (editor) Bog Turtle Conservation News. Oct. 17, 1972. etc.

SEA TURTLES* Green Turtle - Chelonia mydas
Loggerhead Turtle - Caretta caretta
Leatherback Turtle - Dermochelys coriacea
Atlantic Ridley Turtle - Lepidochelys kempii
Hawksbill Turtle - Eretmochelys imbricata

Order: CHELONIA

Family: CHELONIDAE

* Discussed more fully in Atlantic Coastal Plain report.

Estimated Numbers and Distribution:

All are endangered or threatened. With exception of the Loggerhead Turtle. The occurrence of marine turtles is largely sporadic and undeterminable along the Atlantic Coast, especially Chesapeake Bay area. The presence of barrier beaches and islands on the Atlantic side of Delmarva Peninsula, and bays of Chesapeake Bay Region, provide possible areas where turtles can rest and feed on journeys along coast.

Green Turtle - rare but regular wanderer along coast - 20 to 30 nest per year (Pritchard, 1972), Rainey, 1972), (Brongersman, 1972). Noted in summer months in Calvert County and Worcester County, Maryland, (Cooper, et al, 1972).

Loggerhead Turtle - most important remaining nesting localities are between Florida Keys and North Carolina.

Noted at Worcester, Wicomico, Dorchester and Calvert Counties in Maryland (Cooper, et al, 1972).

Delaware Fish and Game personnel report few sightings at Delaware River Bay. May have nested historically along Delmarva barrier beaches.

Leatherback Turtles - only sporadic and rare captures on coast (Pritchard, 1972), (Rainey, 1972), (Brongersman, 1972). Four specimens known from shores of Chesapeake Bay: (3 in Calvert County, one in Dorchester County, Cooper, et al., 1972).

Atlantic Ridley Turtle - commonly captured as immatures along coast as far as Mass. (Pritchard, 1972), Rainey, 1972), (Brongersman, 1972).

4 Maryland specimens known: one from Baltimore Harbor, 2 from

Calvert County, 1 from mouth Potomac River (Cooper, et al, 1972).

Hawksbill Turtle - very sporadic to Massachusetts (Brongersman, 1972). No known specimens from Maryland, but undoubtedly occurs in estuaries of Potomac and other rivers (Cooper, et al, 1972).

Protective Measures Proposed:

1. Educate public about endangered status of sea turtles and urge their cooperation towards protecting any turtles seen while on beach or while boating, fishing or swimming.

2. Acquire and protect barrier beaches along Atlantic Coast for those turtles which might possibly nest there.

References:

Delaware Fish and Wildlife Div., Dept. of Natural Resources and Environmental Control, Edward Tathall Bldg., Dover, Del., 19901.

Dr. P. Pritchard, Department of Zoology. Univ. of Florida, Gainesville, Florida, 32601.

Mr. William Rainey. Caribbean Research Institute., College of Virgin Island, St. Thomas, U. S. Virgin Islands, 00801.

Literature:

Brongersman, L. D. 1972. European Atlantic Turtles, Zoologische Verhandelingen, #121, 2 vols., E. J. Bryll Publ; Lyden, Netherlands.

Cooper, J. E. (Chairman), et al. 1972. Endangered amphibians and reptiles of Maryland. Report of Maryland Herpetological Society, 2643 No. Charles St., Baltimore, Md. 21218.

Hardy, J. D., Jr. 1962. Comments on the Atlantic Ridley Turtle, Lepidochelys olivacca kempi, in the Chesapeake Bay. Chesapeake Sci. 3(3):217-220.

Hardy, J. D., Jr. 1969. Records of the Leatherback Turtle, Dermochelys coriacea coriacea, from the Chesapeake Bay. Bull. Md. Herp. Soc. 5(3):92-96.

Harris, H. S. 1969. Distributional Survey: Maryland and the District of Columbia. Bull. Md. Herp. Soc. 5(4):97-161.

Hardy, J. D. 1972. Reptiles of the Chesapeake Bay region. Rept. to U. S. Army Corps of Engineers. In press.

Klimkewicz, M. V. 1972. Reptiles of Mason Neck. Atlantic Naturalist, 27(1):20-25.

MARYLAND DARTER Etheostoma sellare

Order: PERCIFORMES

Family: PERCIDAE

Estimated Numbers: There are evidently only one or two small populations, with numbers unknown.

Present Distribution: Found only in two streams in Harford County, Md.

1. Deer Creek - This is a tributary of Susquehanna River, 1.3 miles southeast of Lanington along Stafford Road; second riffle above mouth of the Creek; 20 to 30 miles above Susquehanna.
 - a. 34 specimens taken in State Park, May, 1965, by Dr. Raney and Dr. Schwartz (Tsai, 1973).
 - b. 8 specimens taken July, 1970, and October, 1971, by Dave Thomas for private collection (Wang, 1973).
 - c. No specimens taken after careful sampling along creek 10-15 miles in length, checking over 100 holes and every few feet along course, upstream and downstream from point where specimens were caught previously (Wang, 1973).

2. Swan Creek - east Branch
 - a. 2 specimens collected in 1912 by Radcliffe and Welsh; the type specimen (see literature).
 - b. 1 specimen taken June 10, 1962, by Drs. Knapp, Richards, Miller and Foster, probably for Smithsonian Institution collection (see literature).
 - c. No specimens taken by Dr. Tsai summer of 1967 and 1968 after sampling (Tsai, 1973).

Status: Listed as endangered by USDI federal list of endangered species; also as rare or extinct (2(a)S) by IUCN list. Nevertheless, both organizations state "there are no data to support a statement that fish have declined". Species is not extinct, as of 1970-71, but is considered endangered by Wang (1973). Tsai (1973) considers species very rare.

Reasons for Decline:

1. Limited habitat. Much of its habitat was drowned out in Ice Age Melt.
2. Very small population.
3. Possible slow natural change of aquatic environment. (e.g. water chemistry, stream contours, stream bottom, ground water, etc.).
4. Evolutionary changes. Species is at the periphery of range of the subgenus.
5. Potential pollution by housing and commercial developments near streams. Presently streams are not polluted, and those nearby developments are not apparently threatening. Potential damming of creeks.
6. Extreme fluctuations in creeks could reduce population, as could siltation.
7. Conowingo Dam, downstream on Susquehanna, has not had any apparent effect on the darters in Deer and Swan Creeks.

Protective Measures Taken:

None other than to request biologists and ichthyologists not to collect or disturb fishes and habitat.

Protective Measures Proposed:

1. Acquire stream banks and bed for several miles on either side of main center of population and maintain as wooded, natural sanctuary for Maryland Darter. This would prevent dams flooding upstream and any developments would have to be set back from creek.
2. Precautions are needed to assure proper handling of sewage, storm water run-off, and other wastes from nearby residential and commercial development to prevent seepage into creeks.
3. Begin investigations into life history of darter, including population movements, to determine possible migratory or seasonal movements in and out of creeks.
4. Prevent fish collectors from decimating existing populations.

Ecological Significance and General Value:

1. Biological and genetic values as unique evolutionary development and species.
2. No value as aquarium fish or pets.
3. Diversity of freshwater fish fauna.

References: (personal communication)

Dr. E. Raney, Director, Ichthyological Associates, Forest Drive, Ithaca, New York, 14850.

Dr. Chufa Tsai, Institute of Natural Resources, University of Maryland, College Park, Maryland.

Dr. Johnson Wang, Ichthyological Associates, Odessa, Delaware.

Literature:

Knapp, L. S., W. J. Richards, R. V. Miller and N. R. Foster. 1963. Rediscovery of the percid fish Etheostoma sellare (Radcliffe and Welsh). Copeia:455.

Radcliffe, L. and W. W. Welsh. 1914. Description of a new darter from Maryland. Bull. U. S. Bur. Fisheries, vol. 32:29-32.

ACKNOWLEDGEMENTS

Special appreciation is extended to the Office of Endangered Species of the United States Department of the Interior's Bureau of Sport Fisheries and Wildlife for its cooperation and willingness to share information contained in the files and "Redbook" of threatened fish and wildlife. In addition, gratitude is expressed to the many Government biologists at the Patuxent Wildlife Research Center and at the Bird and Mammal Laboratories in the Smithsonian Institution for providing valuable information.

A number of scientists at Universities and Cooperative Wildlife Research Units, National Park supervisors and biologists, National Wildlife Refuge Managers, and State Fish and Game Agents were contacted personally, or by telephone and letter. To each of them who responded with pertinent data, sincere thanks is given.

APPENDIX D

RARE, ENDANGERED, AND ENDEMIC PLANTS
OF THE CHESAPEAKE BAY REGION

by

Russell L. Kologiski
Fonda R. Hivick
Clyde W. Reed
Dale W. Jenkins

Center for Natural Areas
Ecology Program
Smithsonian Institution

RARE, ENDANGERED AND ENDEMIC PLANTS OF THE CHESAPEAKE BAY REGION

No list of rare, endangered or endemic plants exists for the Chesapeake Bay Region or for the States of Maryland, Virginia, or Delaware. A list was prepared by reviewing all of the botanical books and manuals of the region, contacting local and other botanists, and checking herbarium specimens in the National Museum of Natural History, the Gray Herbarium at Harvard, and the Herbarium of the New York Botanical Garden. Specimen records were verified and exact locality data were obtained.

Only native species of higher plants were included and rare introduced or adventive species were not considered. The rarity or endangered status was determined on the basis of rarity as a species, not with regard to local rarity in the region or State involved. There were 23 local or endemic species and valid varieties found in the region. Many of these species are known as endemic in only one or a few localities and no where else in the world. Several of the species are possibly extinct at present since they have not been collected for many years and have not been reported. Some of the species have wide distributions but are being rapidly depleted and may be endangered in the near future. No field studies were conducted to determine whether the species presently exist, but all recent information was utilized in determining rarity status.

The data for each species are presented together with distribution maps showing the species distribution, and the detailed distribution in the Bay Region. It is hoped that this will stimulate study of rare and endangered flora and will help in preservation.

Summary List of Rare, Endangered, and Endemic Plants of the Chesapeake Bay

Plant Name	Map Symbol
<u>Alnus</u> <u>maritima</u> (Marsh) Nuttall	1
<u>Aristida</u> <u>lanosa</u> var. <u>macera</u> Fern.& Grisc.	10
<u>Bacopa</u> <u>simulans</u> Fern.	8
<u>Bacopa</u> <u>stragula</u> Fern.	9
<u>Baptisia</u> <u>pinetorum</u> Larisey	5
<u>Calamovilfa</u> <u>brevipilis</u> var. <u>calvipes</u> Fern.	24
<u>Cassia</u> <u>fasciculata</u> var. <u>macroperma</u> Fern.	11
<u>Diodia</u> <u>teres</u> var. <u>hystricina</u> Fern.& Grisc.	
<u>Eupatorium</u> <u>saltuense</u> Fern.	4
<u>Gaylussacia</u> <u>brachycera</u> (Michx.) Gray	2
<u>Juncus</u> <u>caesariensis</u> Coville.	23
<u>Juncus</u> <u>griscomi</u> Fern.	18
<u>Justicia</u> <u>mortuifluminis</u> Fern.	
<u>Lechea</u> <u>maritima</u> var. <u>virginica</u> Hodgdon	3
<u>Oxypolis</u> <u>canbyi</u> (Coult.& Rose) Gern.	12
<u>Panicum</u> <u>aculeatum</u> Hitchc. & Chase	
<u>Panicum</u> <u>mundum</u> Fern.	13
<u>Pycnanthemum</u> <u>monotrichum</u> Fern.	20
<u>Pyxidantha</u> <u>brevifolia</u> Wells.	21
<u>Rudbeckia</u> <u>heliopsidis</u> T. & G.	22
<u>Schwalbea</u> <u>americana</u> L.	6
<u>Scirpus</u> <u>flaccidifolius</u> (Fern.) Schuyler	17
<u>Trillium</u> <u>pusillum</u> var. <u>virginianum</u> Fern.	14

Alnus maritima (Marsh) Nuttall

Seaside Alder

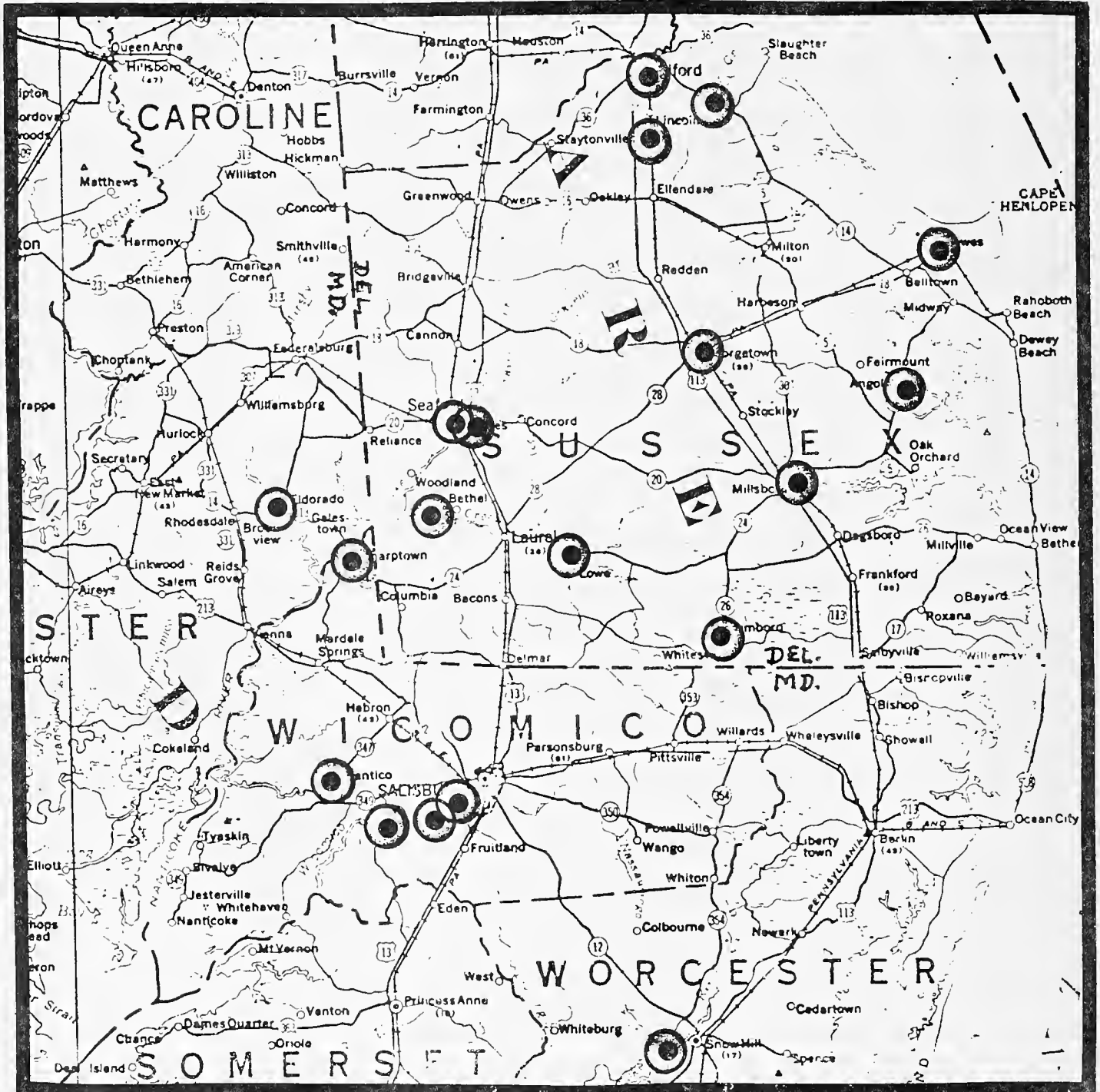
Habit: Small tree or shrub

Habitat: Pond shores and stream banks.

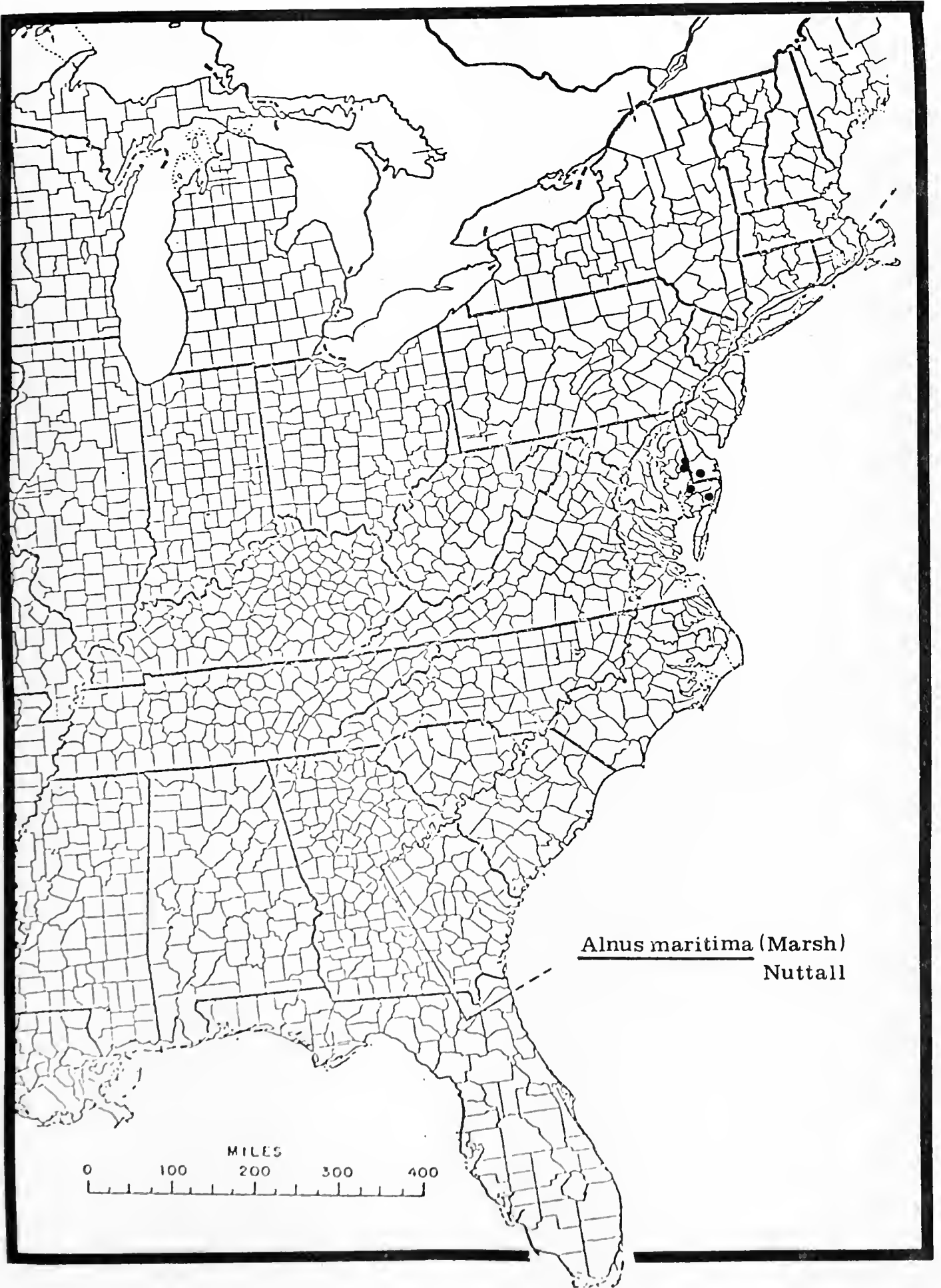
Range: Southern Delaware and adjacent Maryland, also several small populations in Oklahoma; Sussex County, Delaware and Wicomico, Worcester, Caroline Cos. Maryland.

Status: Endemic to the above regions, locally abundant.,

Reference: Mr. Peter Mazzeo, National Arboretum
U.S. National Herbarium.



One inch = approximately eight miles



Alnus maritima (Marsh)
Nuttall

0 100 200 300 400
MILES

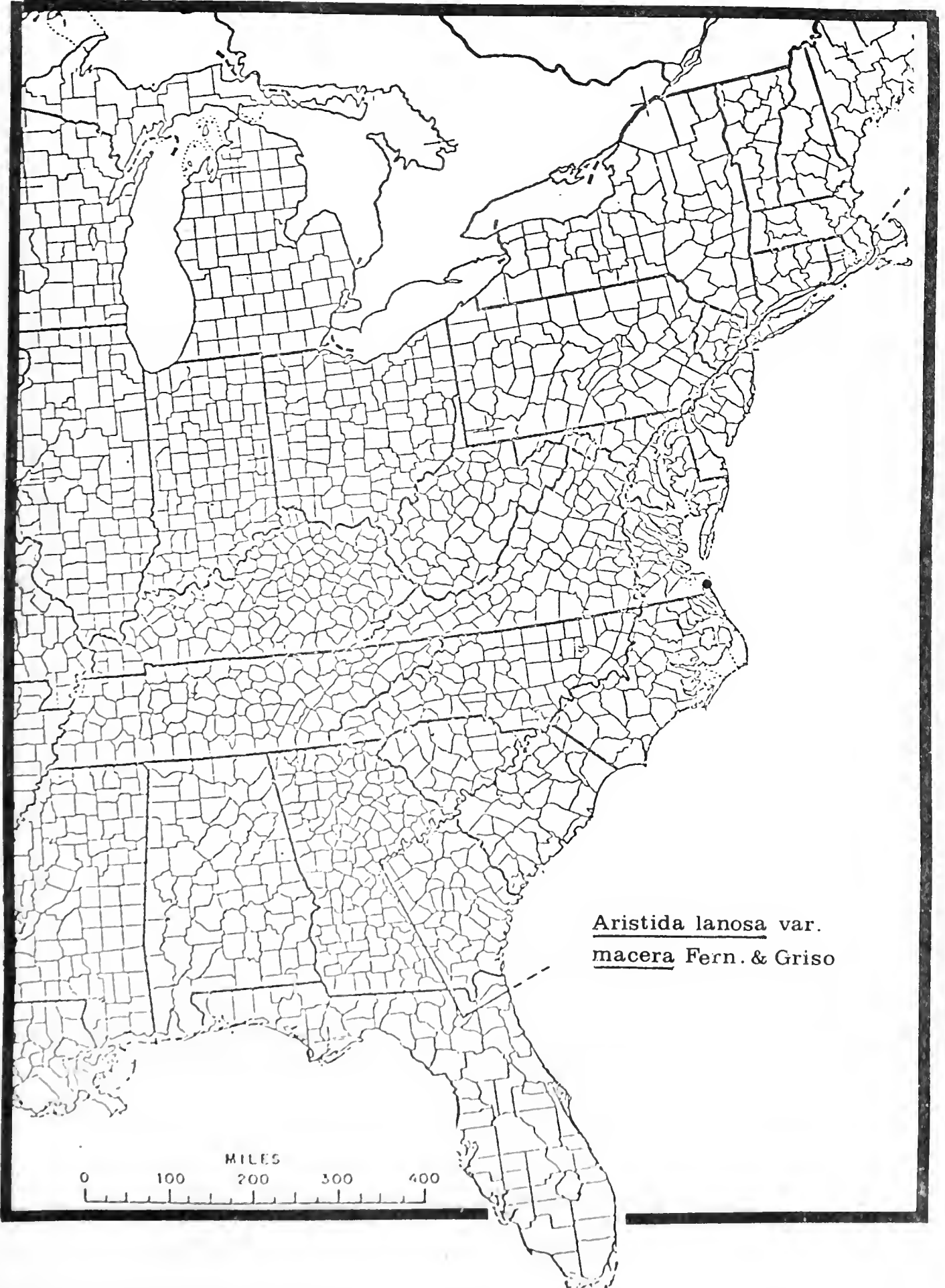
Aristida lanosa var. macera Fern. & Grisc.

Habit: Herb

Habitat: Dry woods

Range: Southeastern Virginia; Princess Anne County, Virginia

Reference: Rhodora 37:135, 1935.



Aristida lanosa var.
macera Fern. & Griso

Bacopa simulans Fern.

Water-hyssop

Habit: Low herb

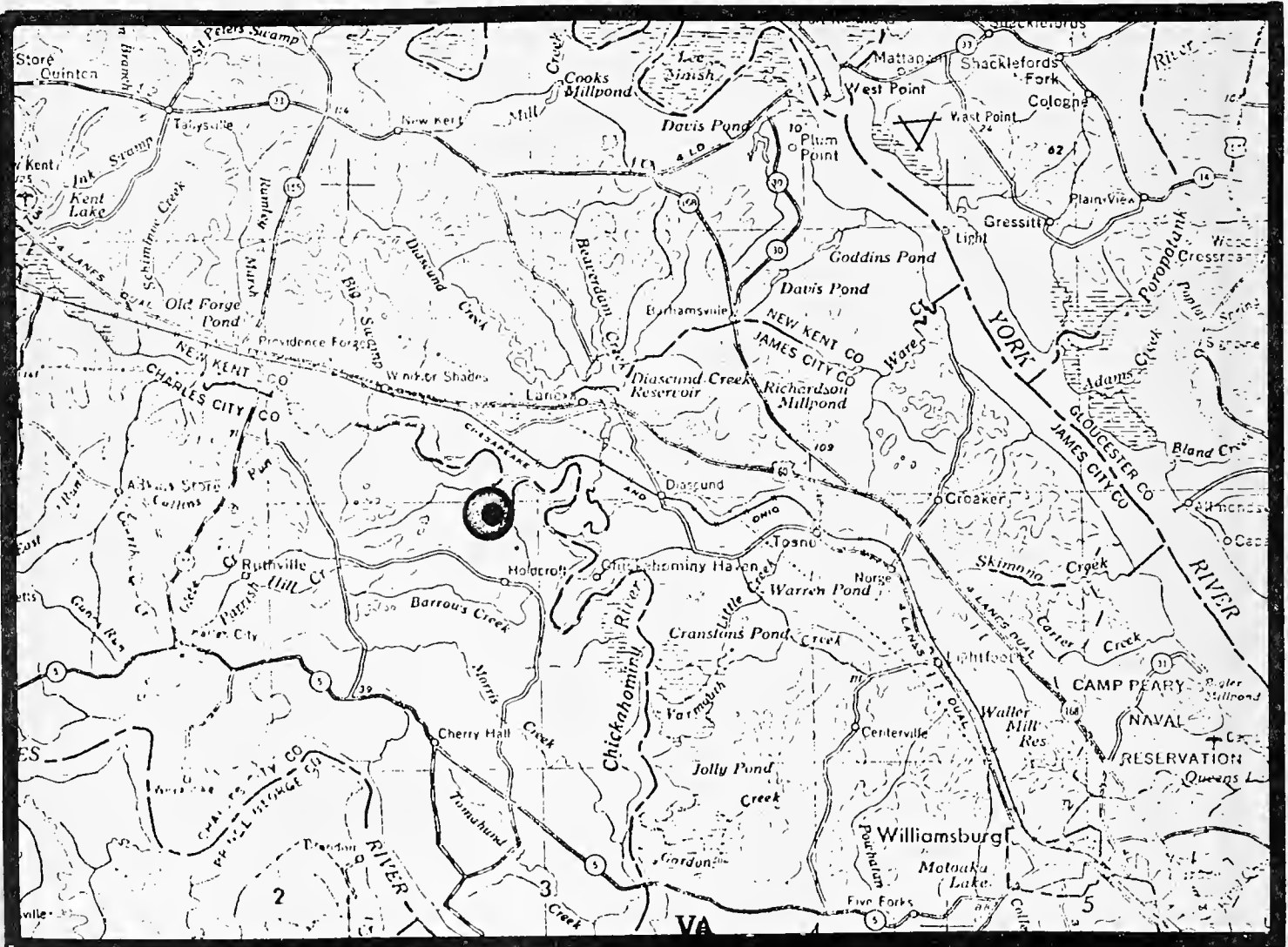
Habitat: Wet tidal shores

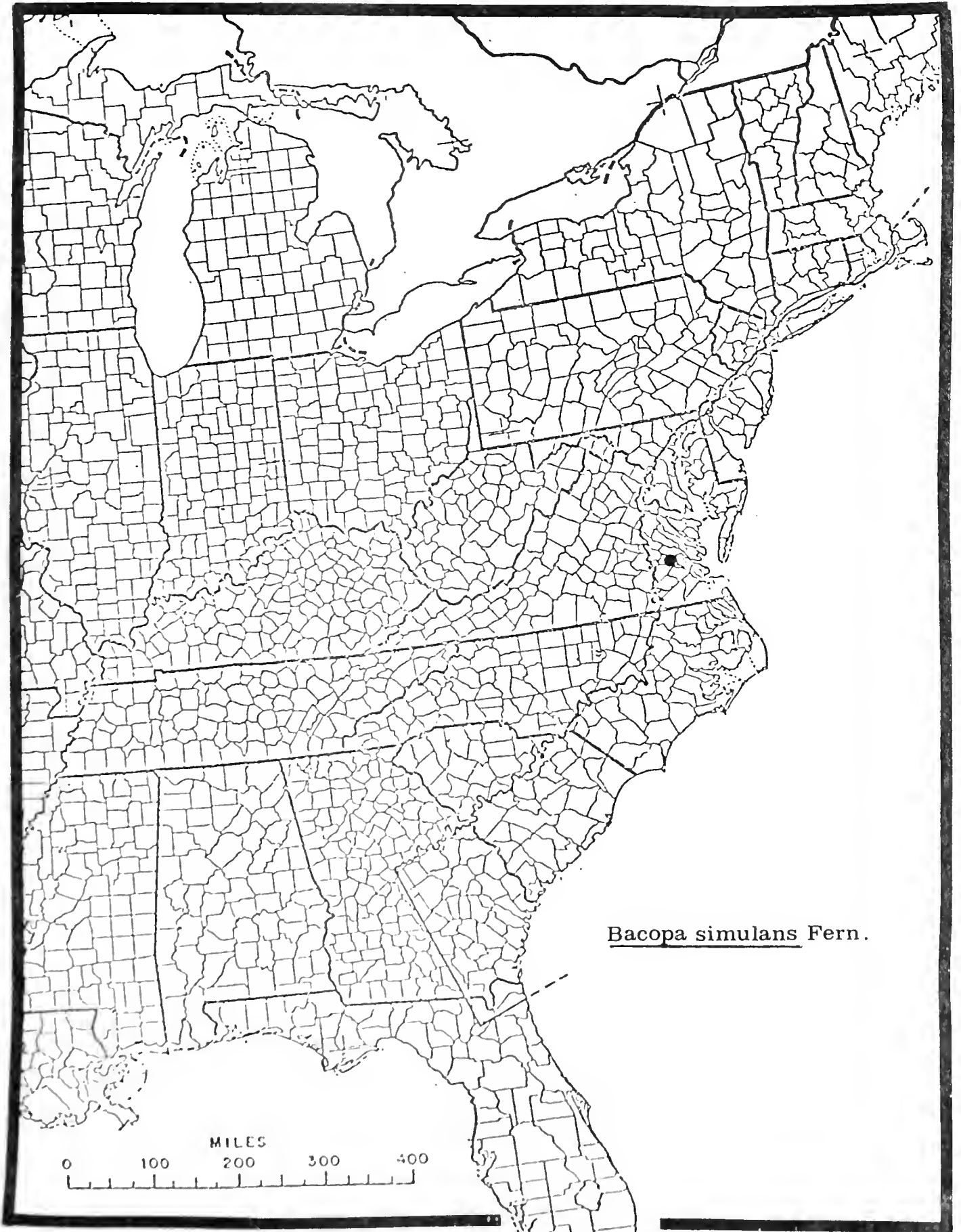
Range: Chickahominy River; Charles City Co., Virginia.

Status: Very rare, endemic and possibly endangered.

Reference: M. L. Fernald. Rhodora, Vol. 44, p.438,
November, 1942.

U.S. National Herbarium
Gray Herbarium





Bacopa simulans Fern.

Bacopa stragula Fern.

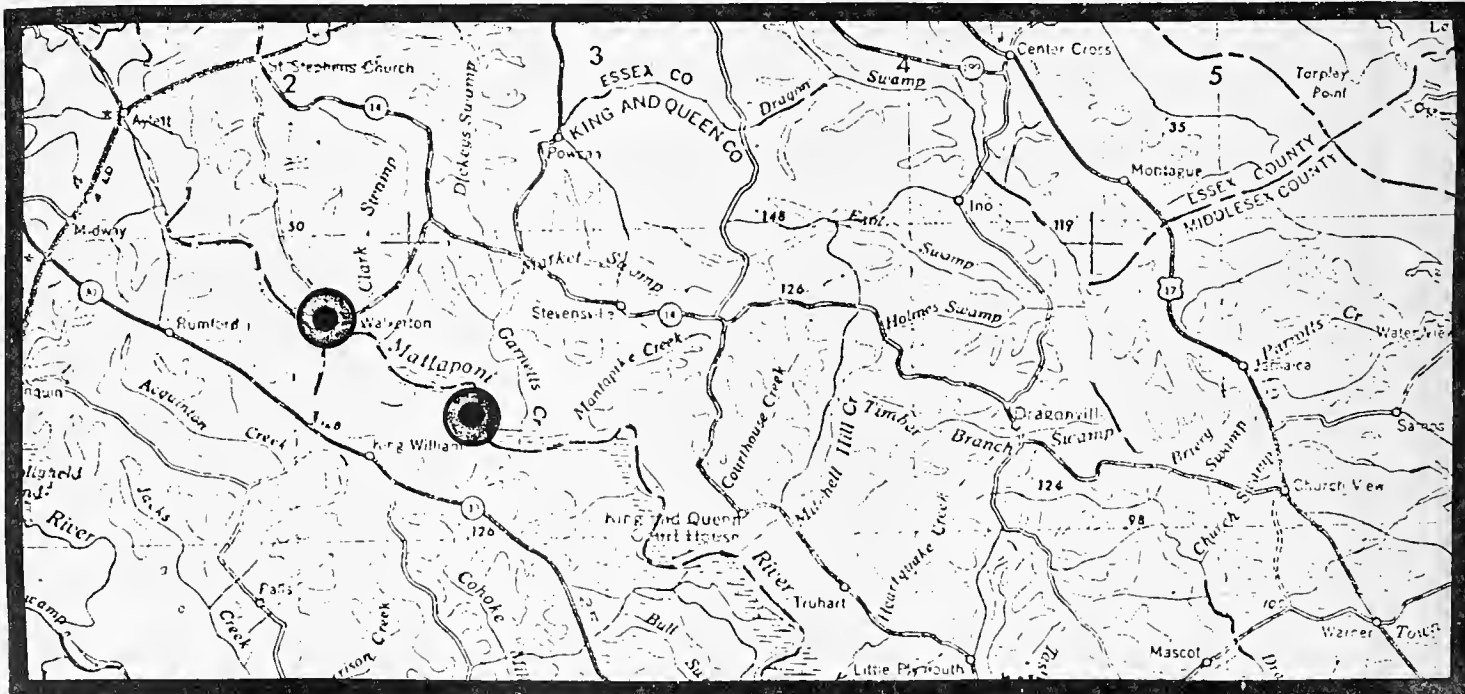
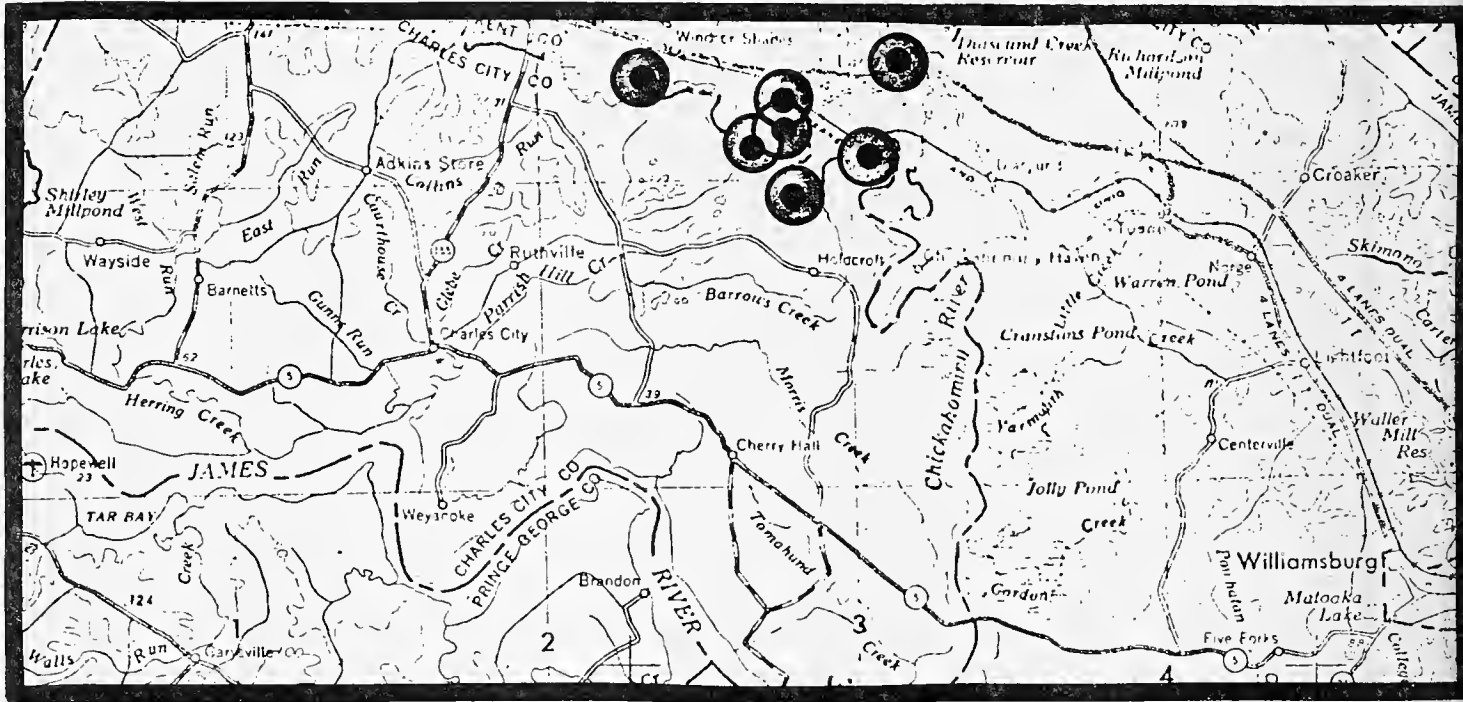
Water-hyssop

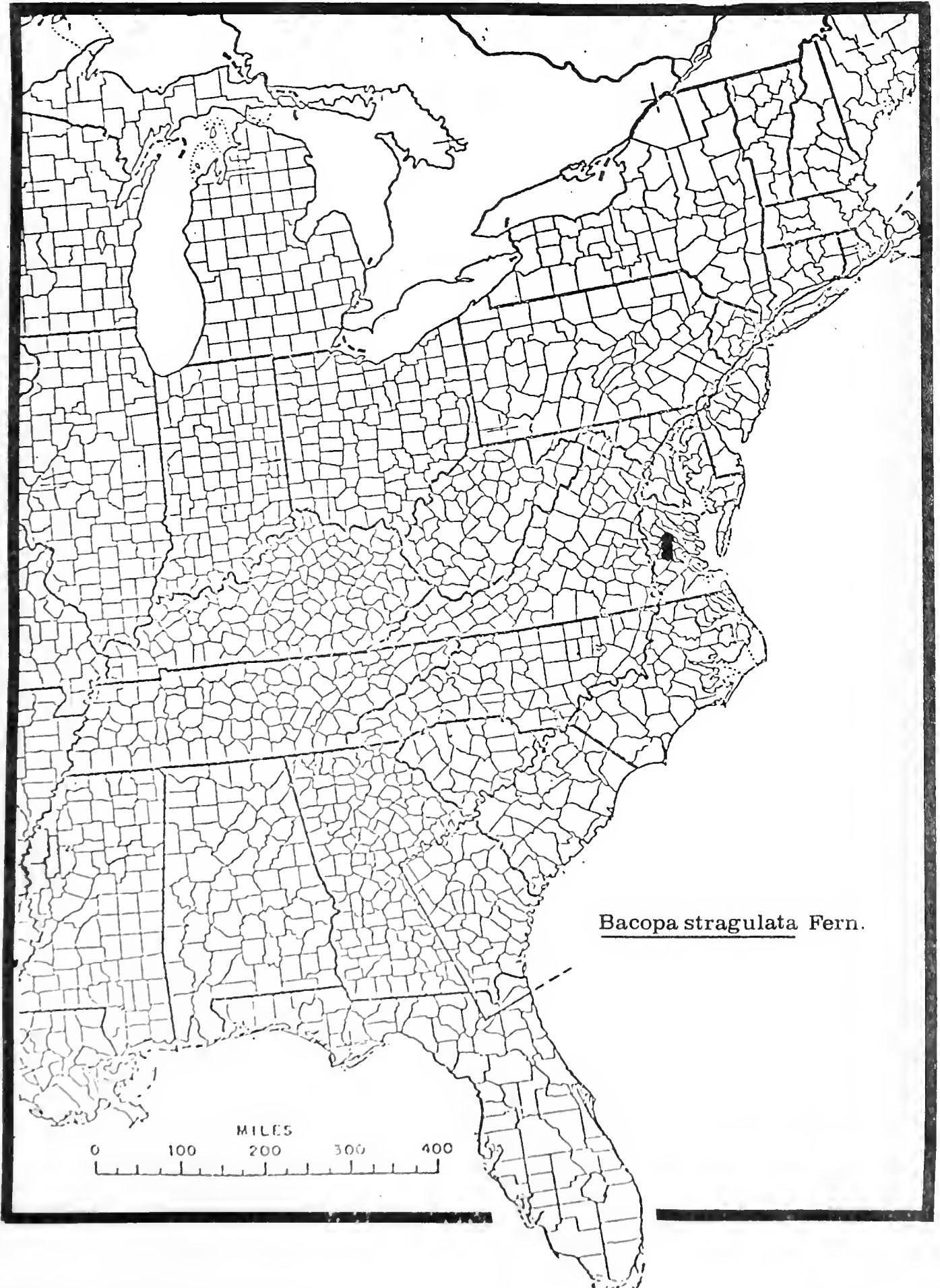
Habit: Low herb

Habitat: Wet tidal shores

Range: Chesapeake Bay drainage system; New Kent, Charles City and King William Cos., Virginia.

Status: Rare, endemic and possibly endangered.

Reference: M.L. Fernald, Rhodora, Vol. 44 p. 434, November, 1942.
U.S. National Herbarium.



Bacopa stragulata Fern.

Baptisia pinetorum Larisey

Habit: Herb

Habitat: Open woods and clearings

Range: Accomac Co., Virginia

Status: Very rare, endemic and probably endangered.

Reference: Dr. Clyde Reed, Reed Herbarium, Baltimore, Maryland.





Calamovilfa brevipilis var. calvipes Fern.

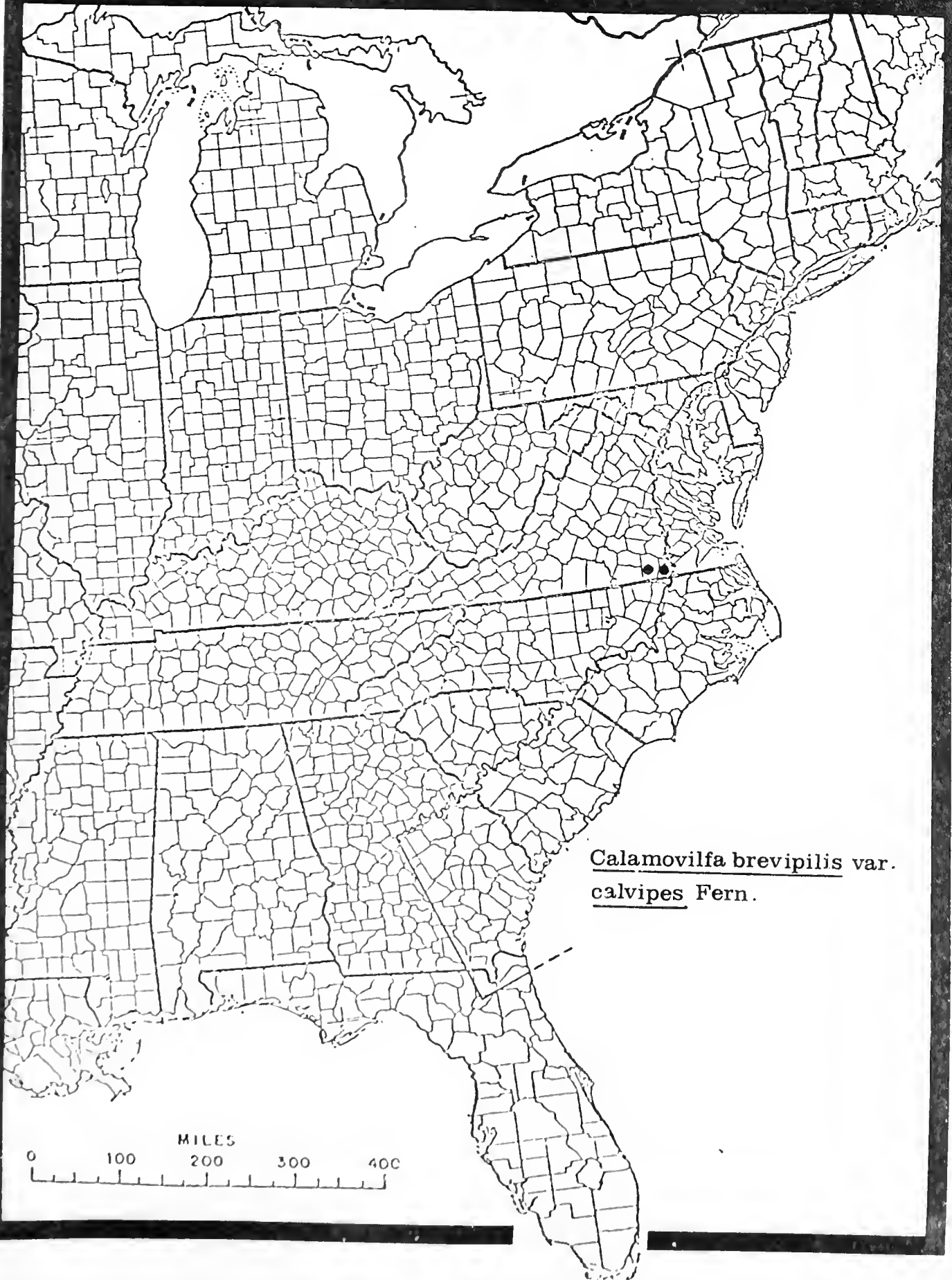
Habit: Herb

Habitat: Wet areas and sphagnum bogs

Range: Southeastern Virginia; Greensville and Brunswick Counties, Virginia.

Status: Very Rare

Reference: A.B. Massey, Virginia Flora, 1961.



Calamovilfa brevipilis var.
calvipes Fern.

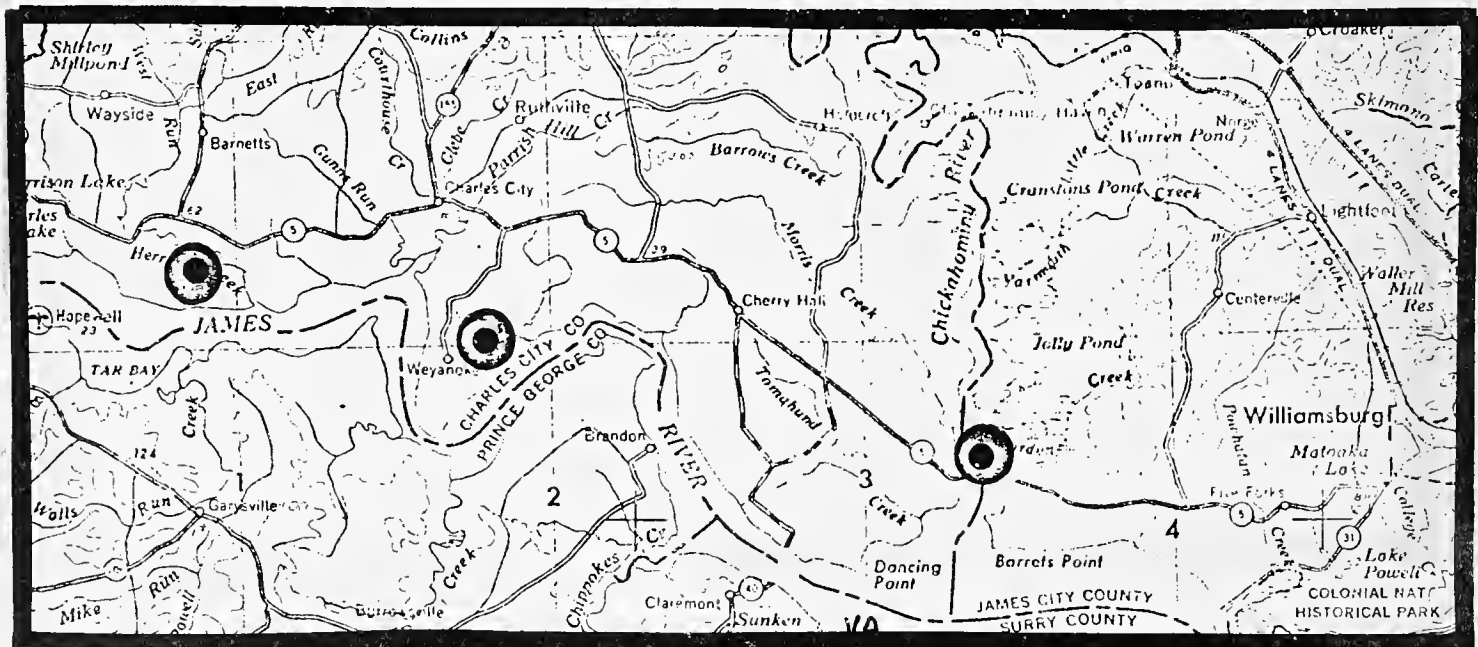
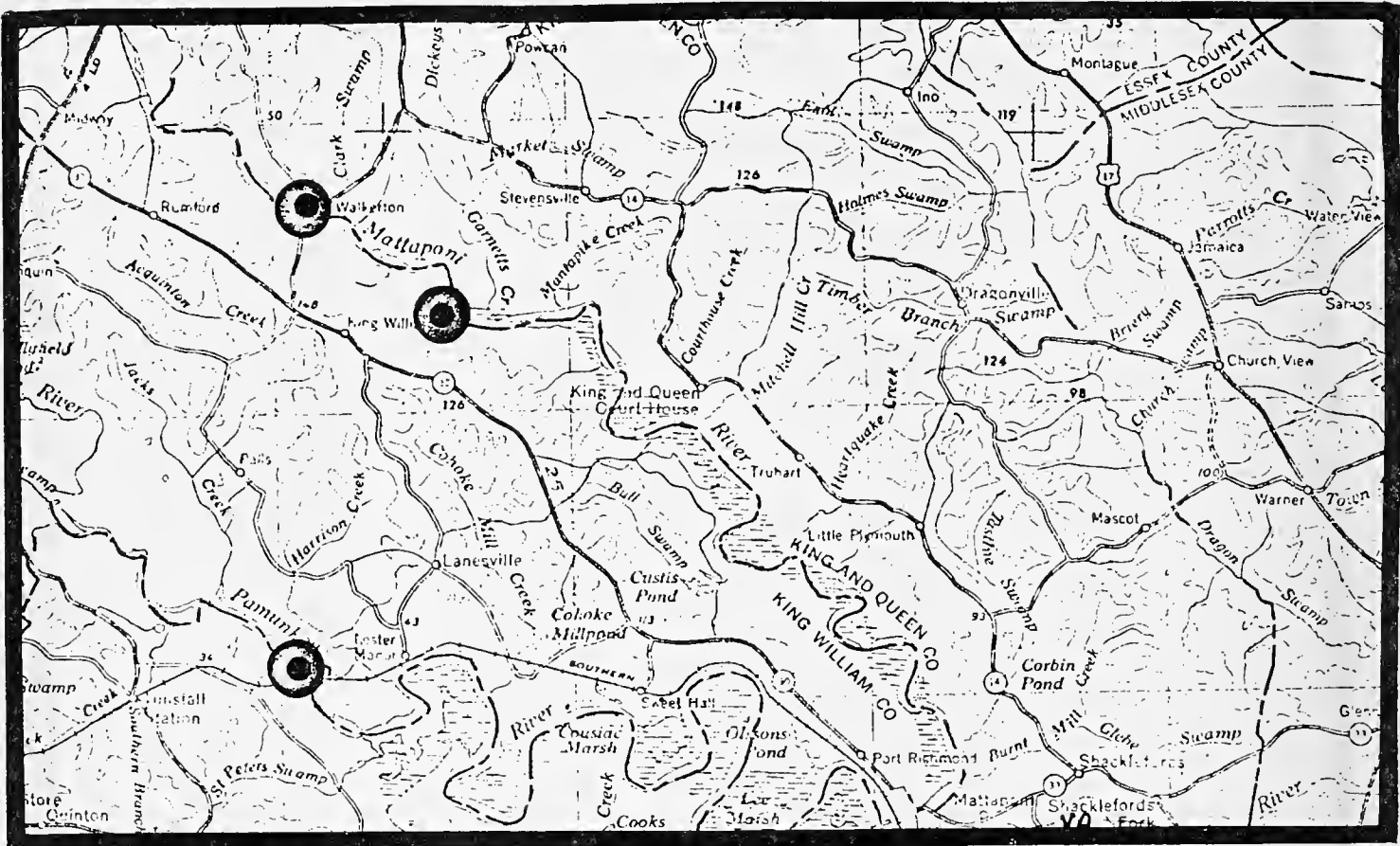
Cassia fasciculata var. macroserma Fern, Partridge-Pea

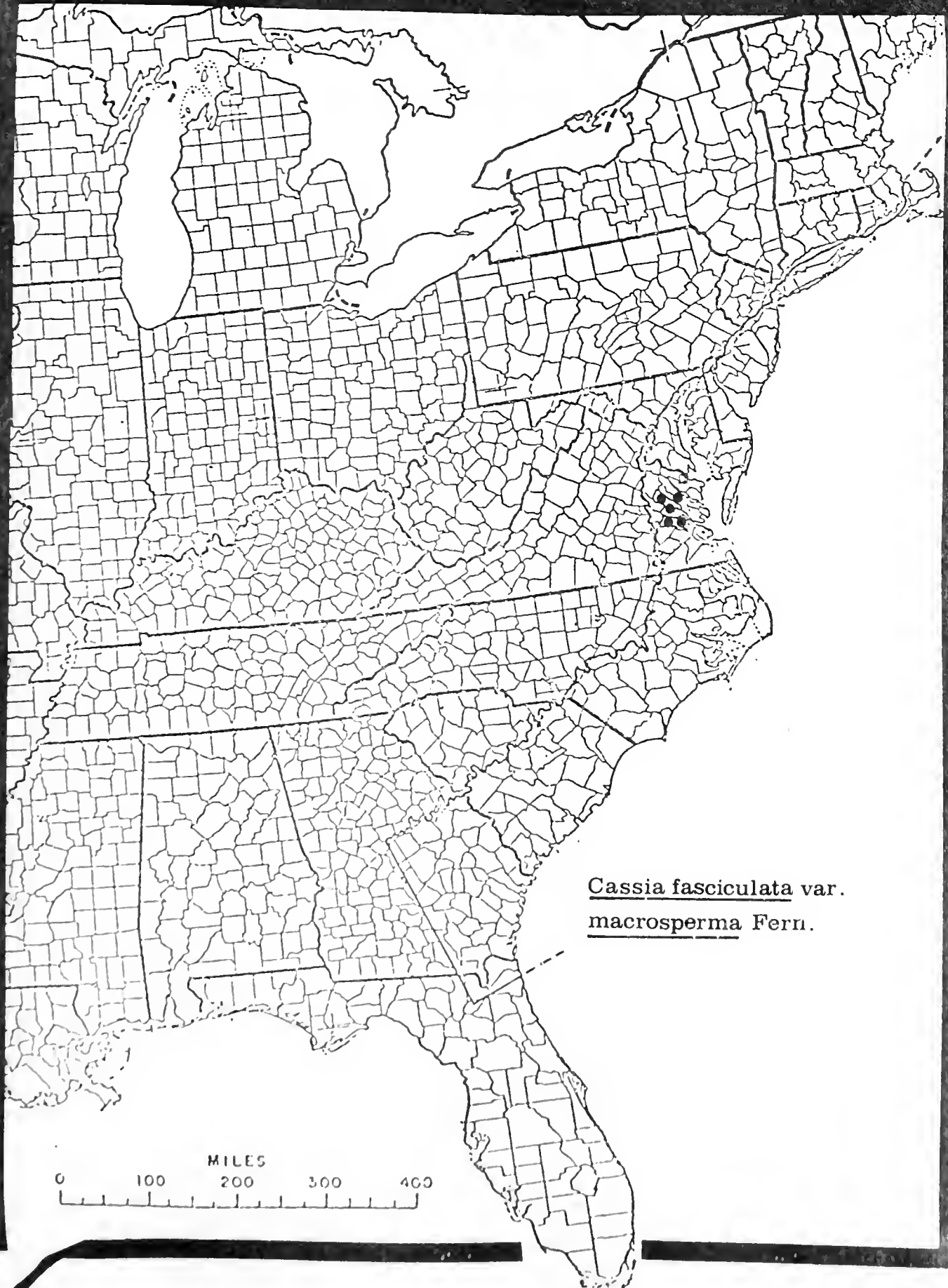
Habit: Herb

Habitat: Tidal marshes

Range: Eastern Virginia; Charles City, James City, New Kent,
King William and King & Queen Cos., Virginia

Status: Endemic

Reference: M.L. Fernald, Rhodora, Vol. 42, p.455, November, 1940.



Cassia fasciculata var.
macrosperma Fern.

D-18

RUBIACEAE

Diodia teres var. hystricina Fern. & Grisc.

Buttonweed

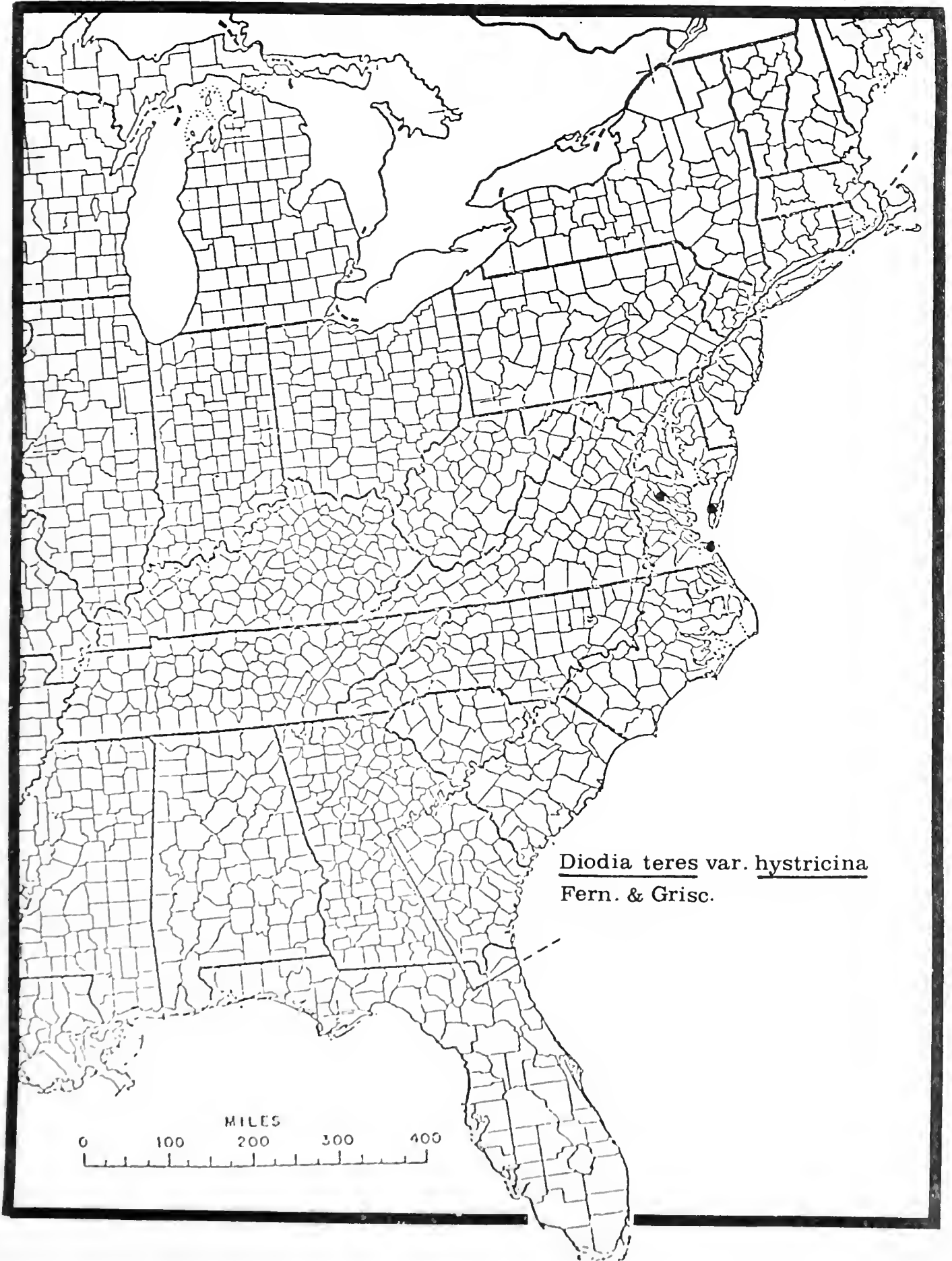
Habit: Herb

Habitat: Dry sands

Range: Coastal Virginia; Essex, Princess Anne and Northampton Counties, Virginia.

Status: Endemic

Reference: U.S. National Herbarium



Eupatorium saltuense Fern.

Thoroughwort

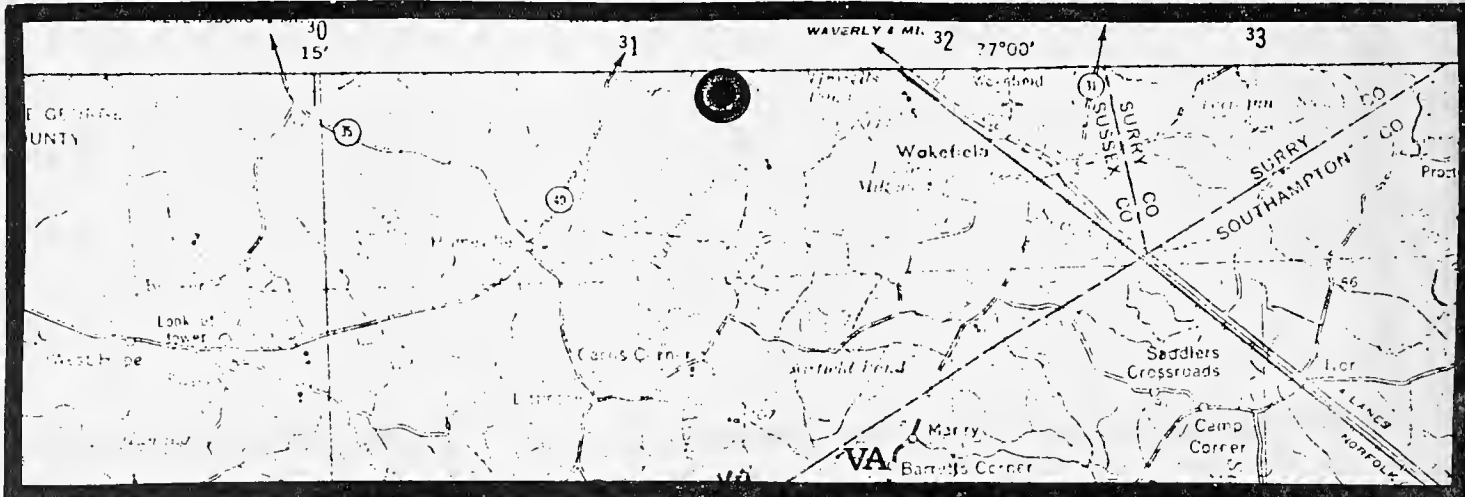
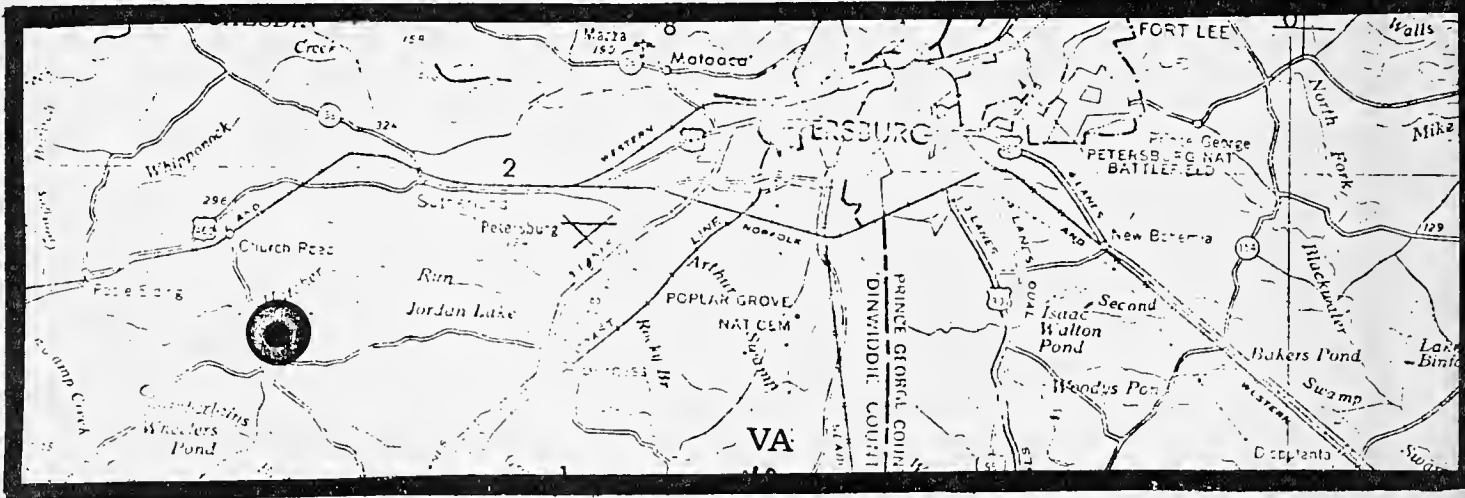
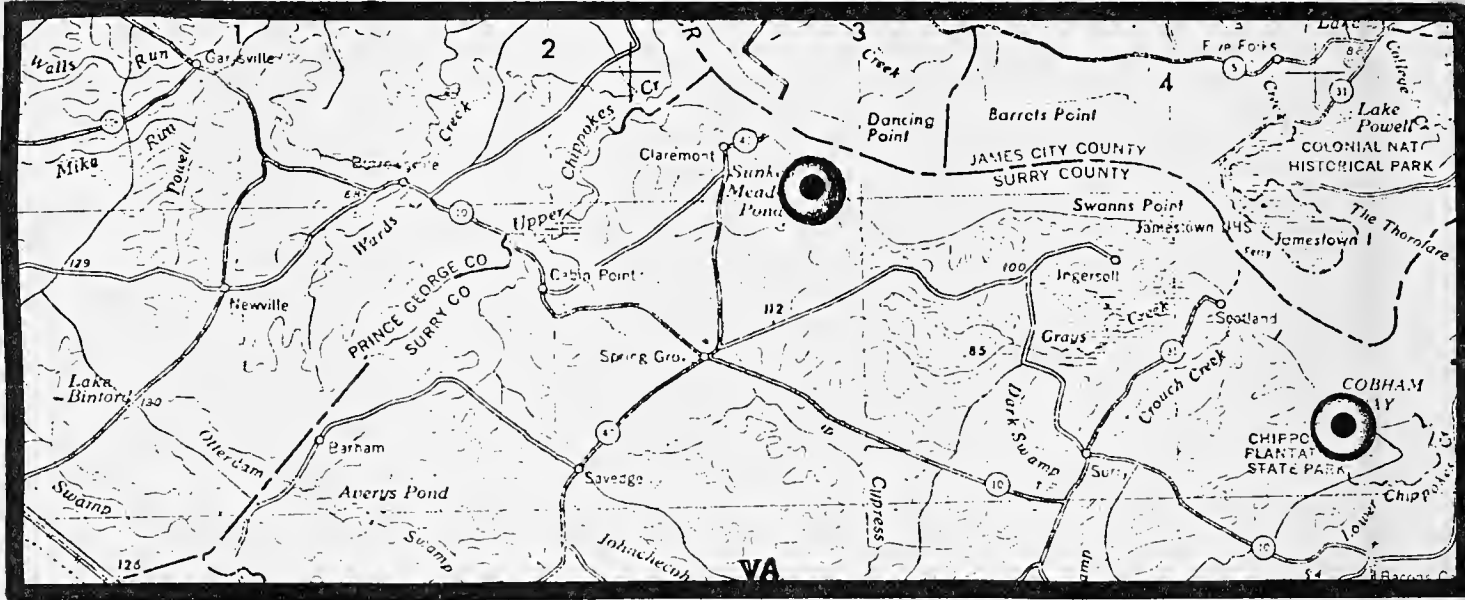
Habit: Herb

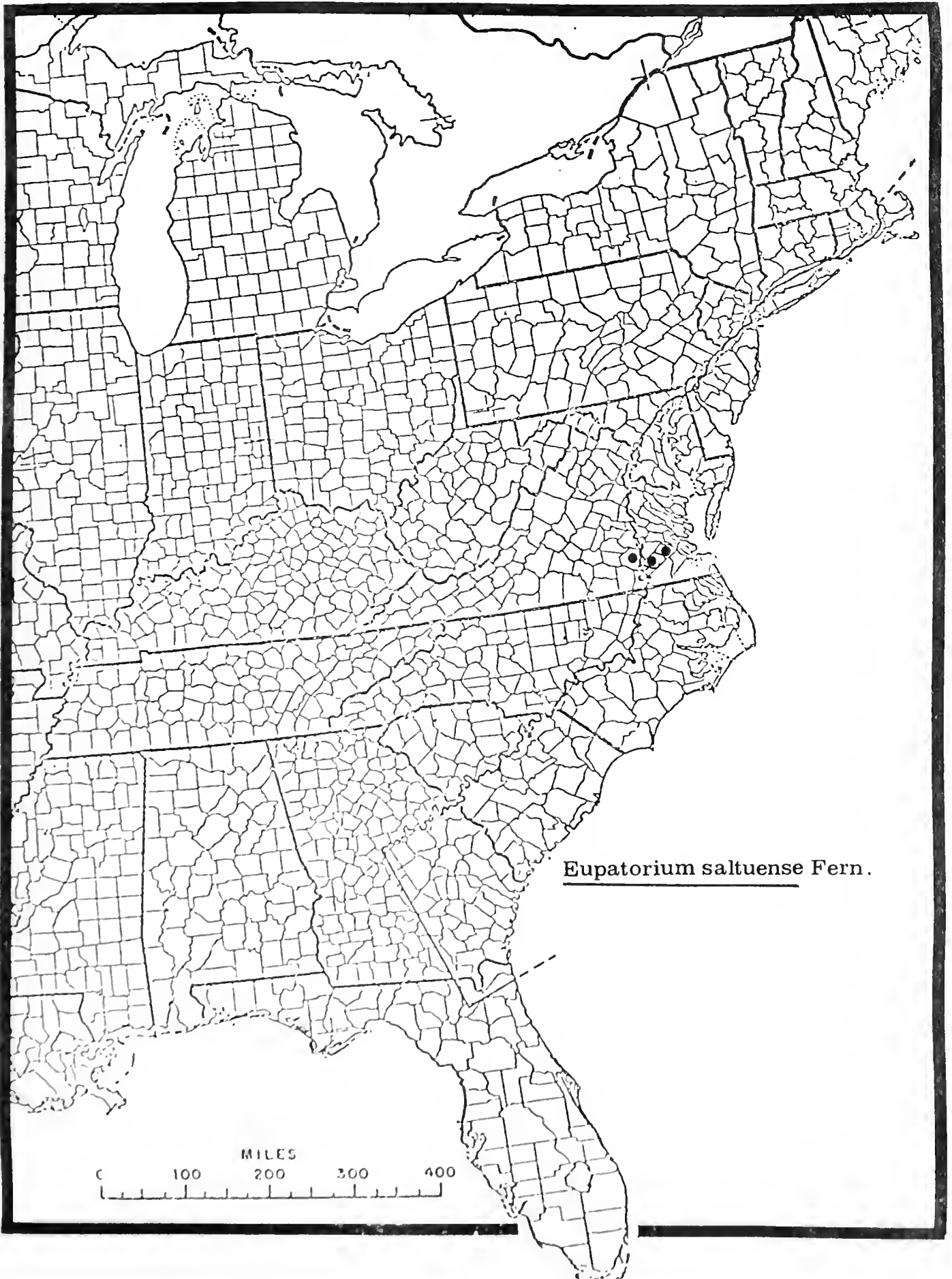
Habitat: Rich woods, thickets and clearings

Range: Southeastern Virginia; Surry, Sussex and Dinwiddie Cos., Virginia

Status: Endemic and rare

Reference: M.L. Fernald, Rhodora, Vol. 44, p. 461, December, 1942.





Eupatorium saltuense Fern.

MILES
0 100 200 300 400

Gaylussacia brachycera (Michx.) Gray

Box Huckleberry

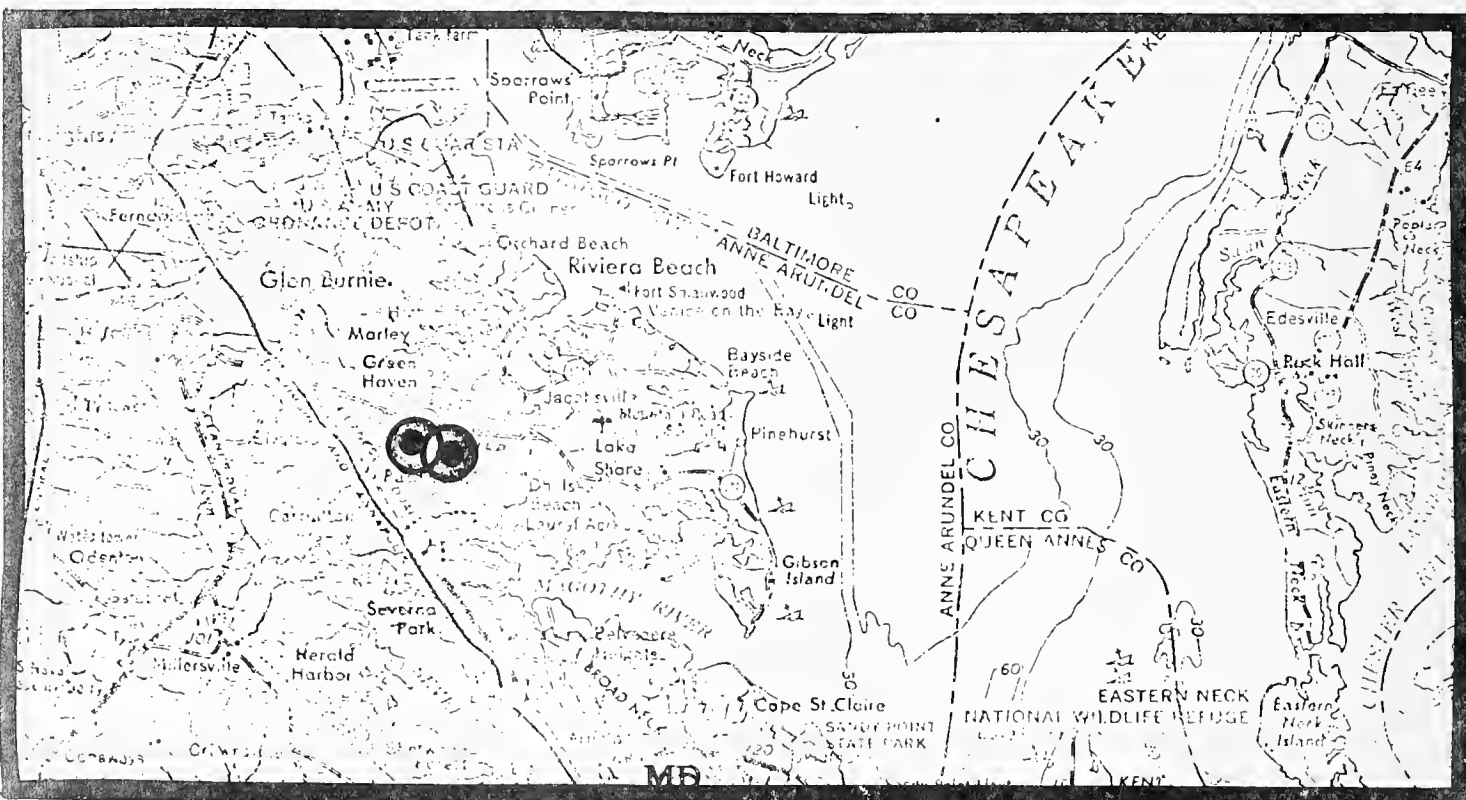
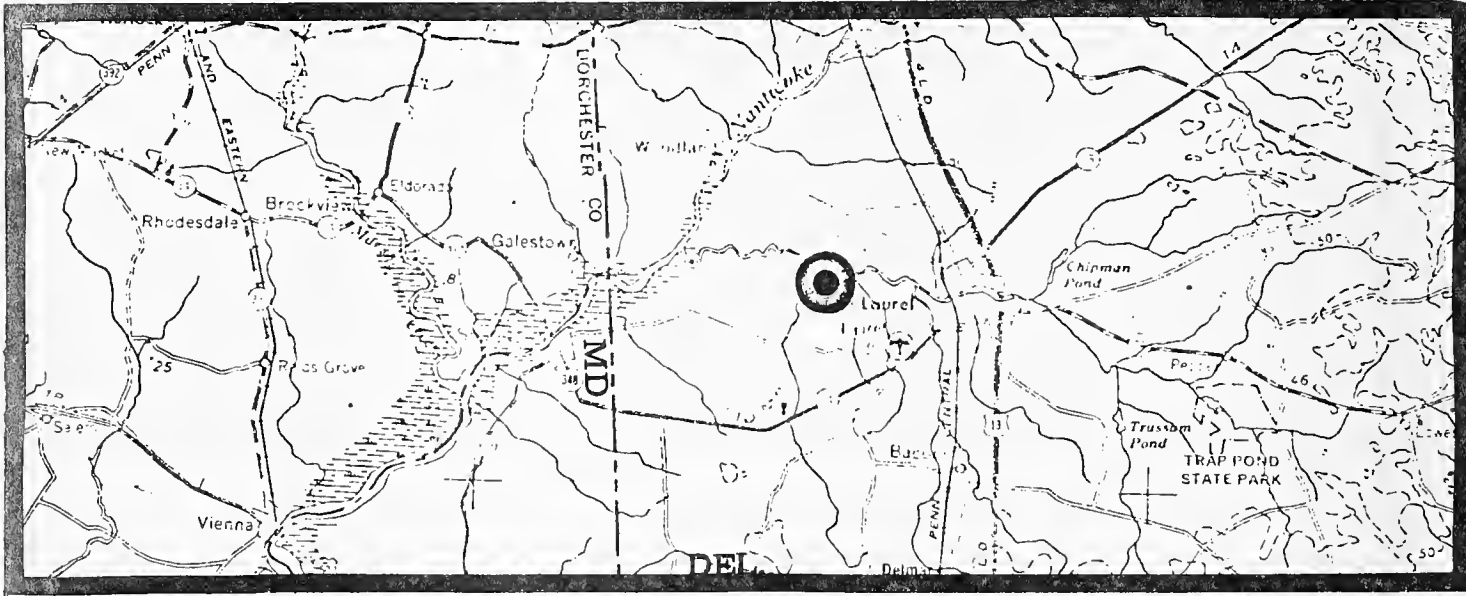
Habit: Evergreen, low shrub

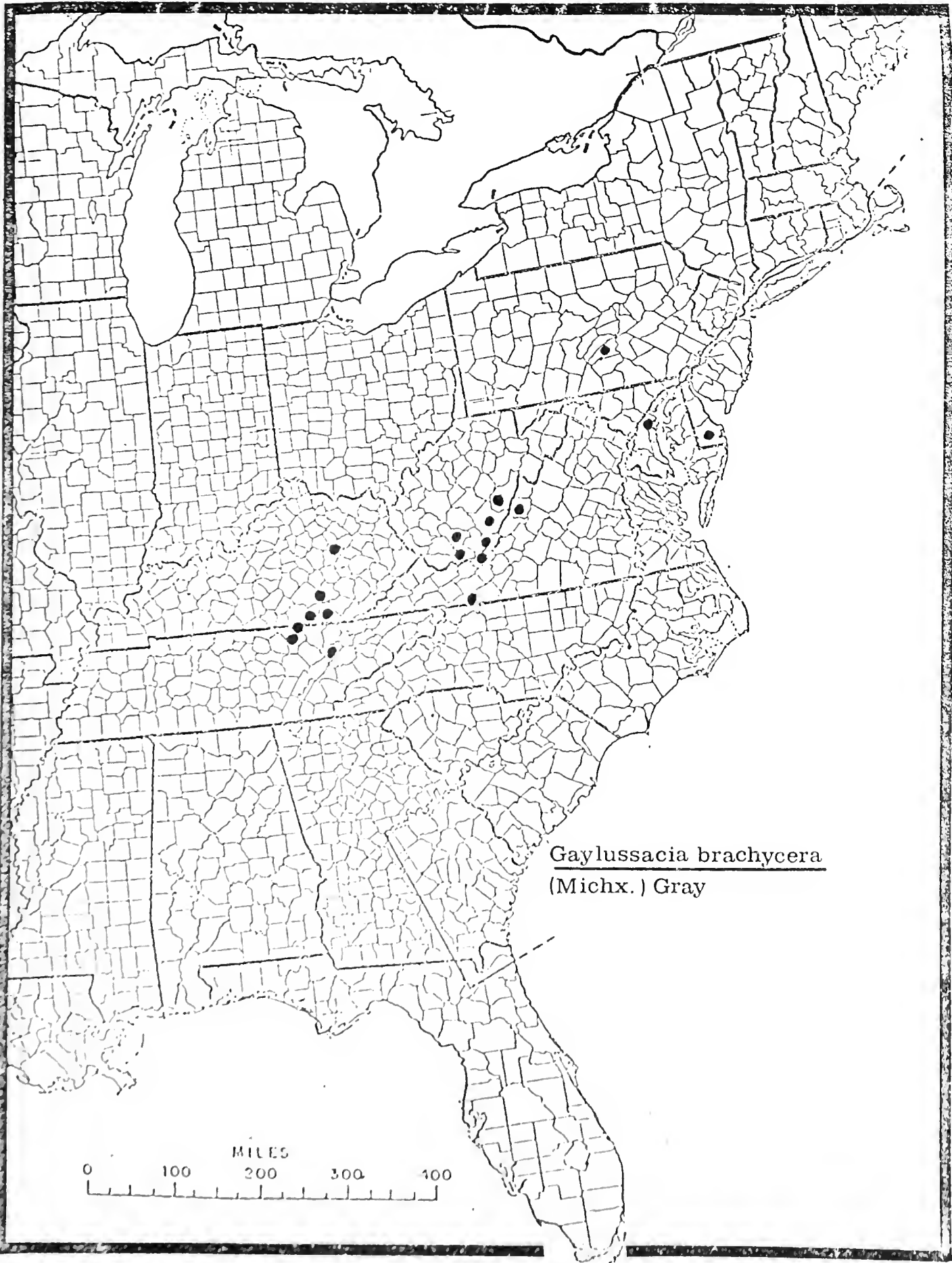
Habitat: Sandy woods and slopes

Range: Maryland and Delaware to Pennsylvania and Kentucky and eastern Tennessee; very local except in W. Virginia; Sussex Co., Delaware and Anne Arundel Co., Maryland.

Status: Rare in areas outside of West Virginia but of special interest because it is possibly the oldest living plant.

Reference: H. N. Moldenke, Wildflower, Vol. 33, pp. 4-8, January, 1957. U.S. National Herbarium.





Juncus caesariensis Coville.

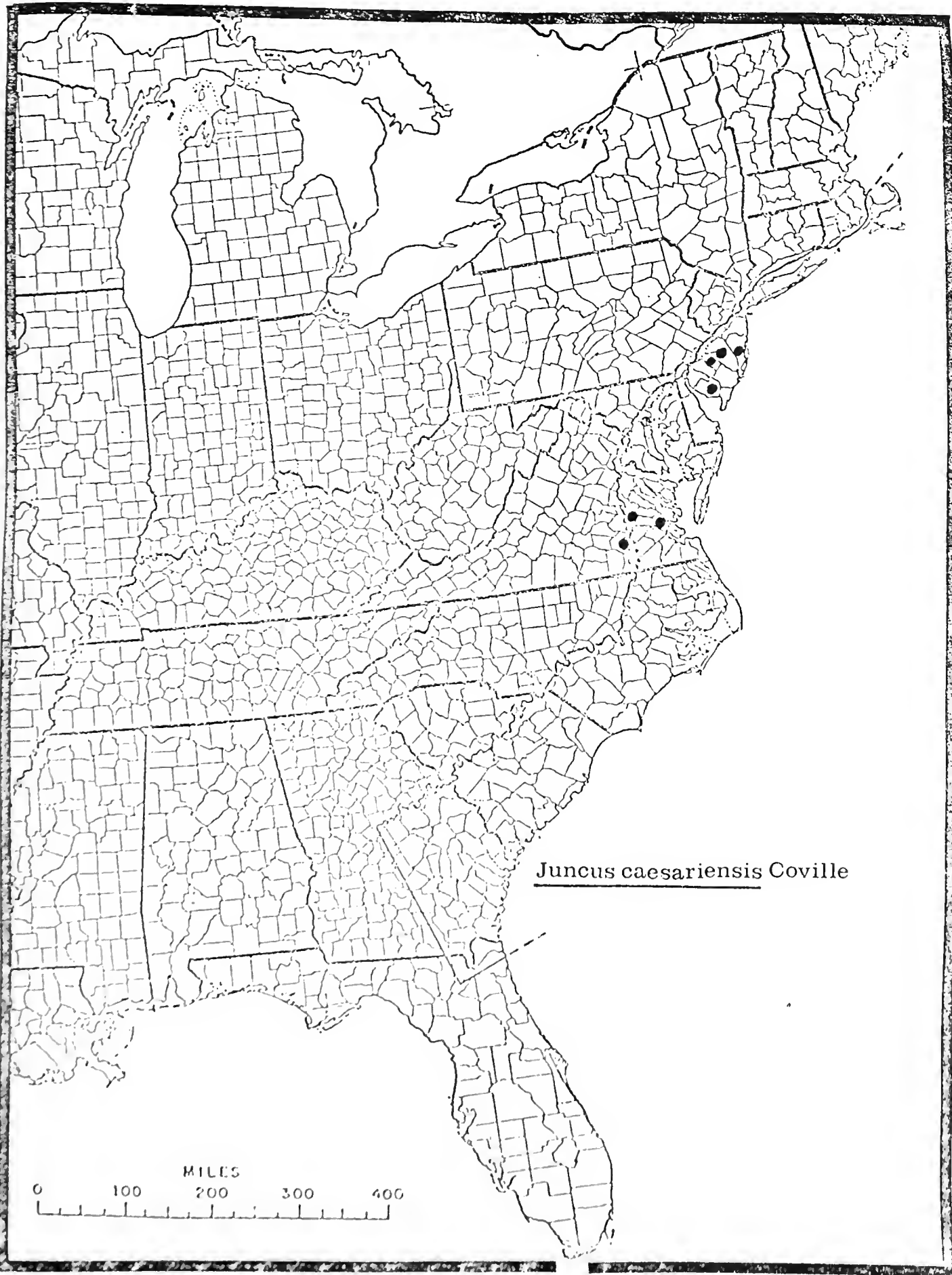
Habit: Herb

Habitat: Wet peaty places

Range: New Jersey; Southeastern Virginia; Glen Burnie, Anne Arundel Co., Maryland; Elko Station, Henrico, Burgers Station, Dinwiddie, and James City Counties, 3 miles West of Williamsburg, Virginia.

Status: Local. Rare.

Reference: U. S. National Herbarium
Gray Herbarium
A. B. Massey, Virginia Flora, 1961



Juncus griscomi Fern.

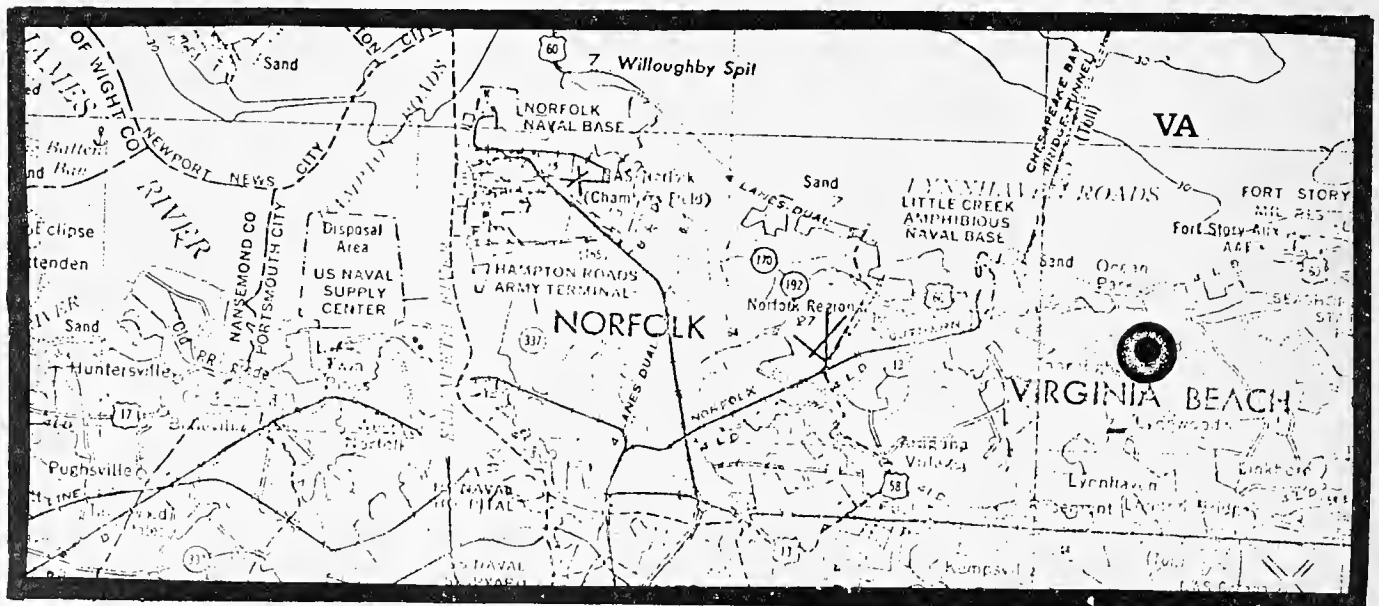
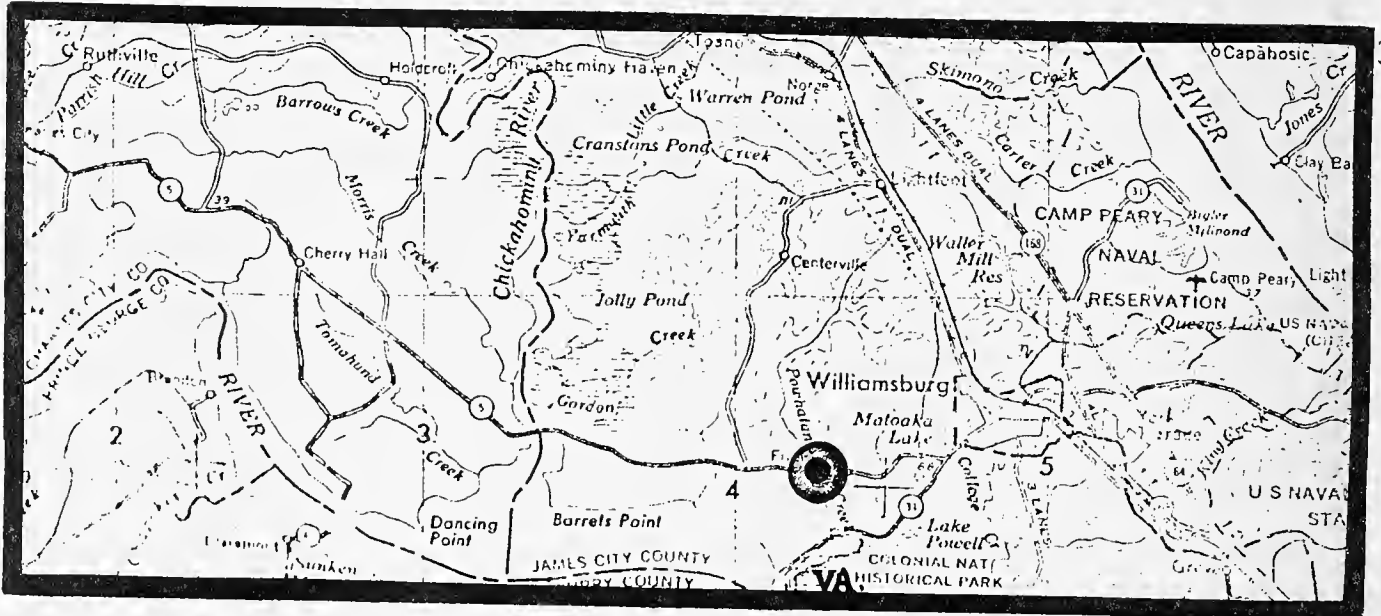
Habit: Herb

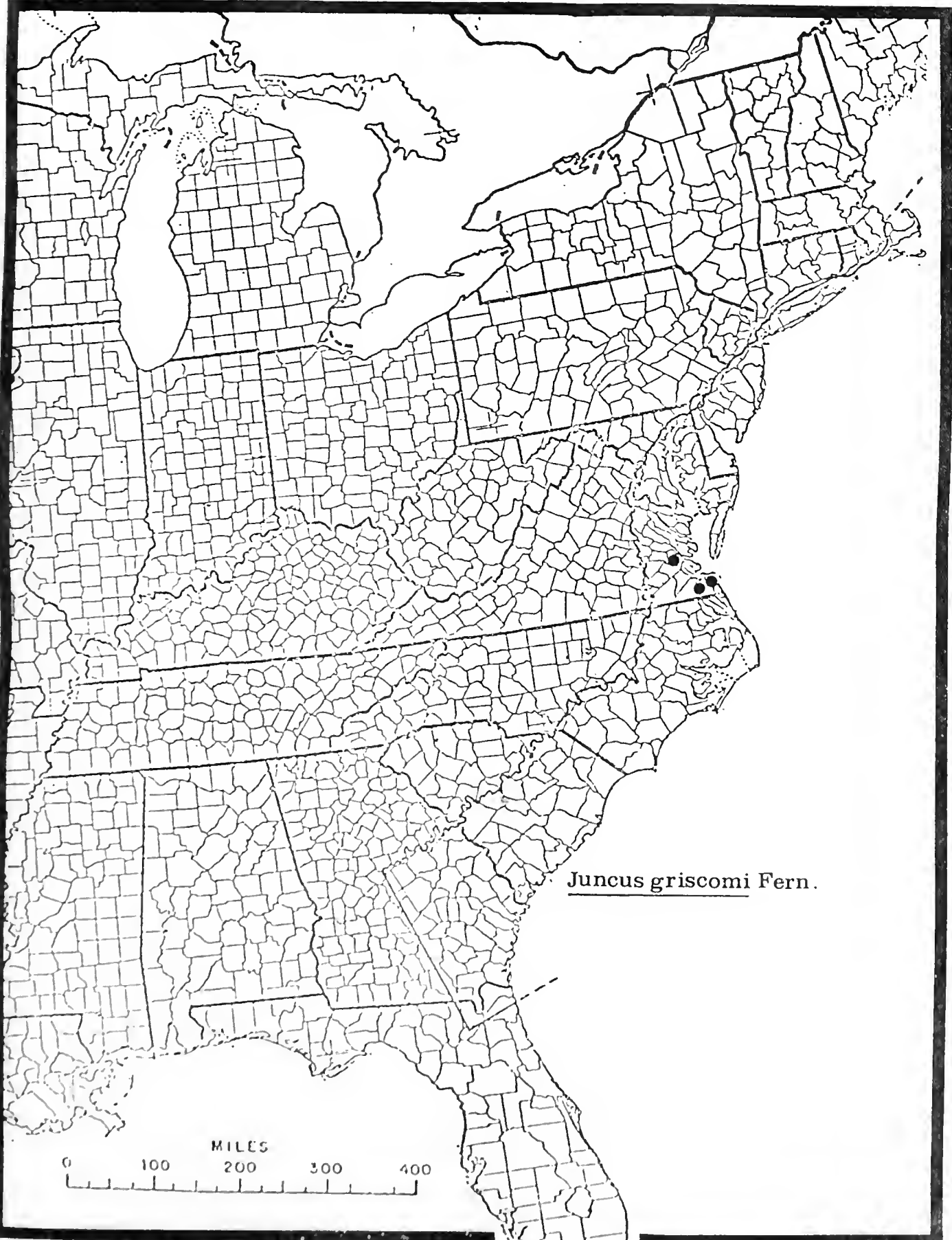
Habitat: Wet woodlands

Range: Princess Anne, James City and Norfolk Counties, Virginia.

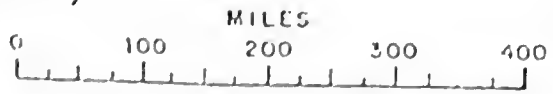
Status: Endemic and rare.

Reference: M.L. Fernald, Rhodora 38: 401, Nov., 1936.
U.S. National Herbarium





Juncus griscomi Fern.

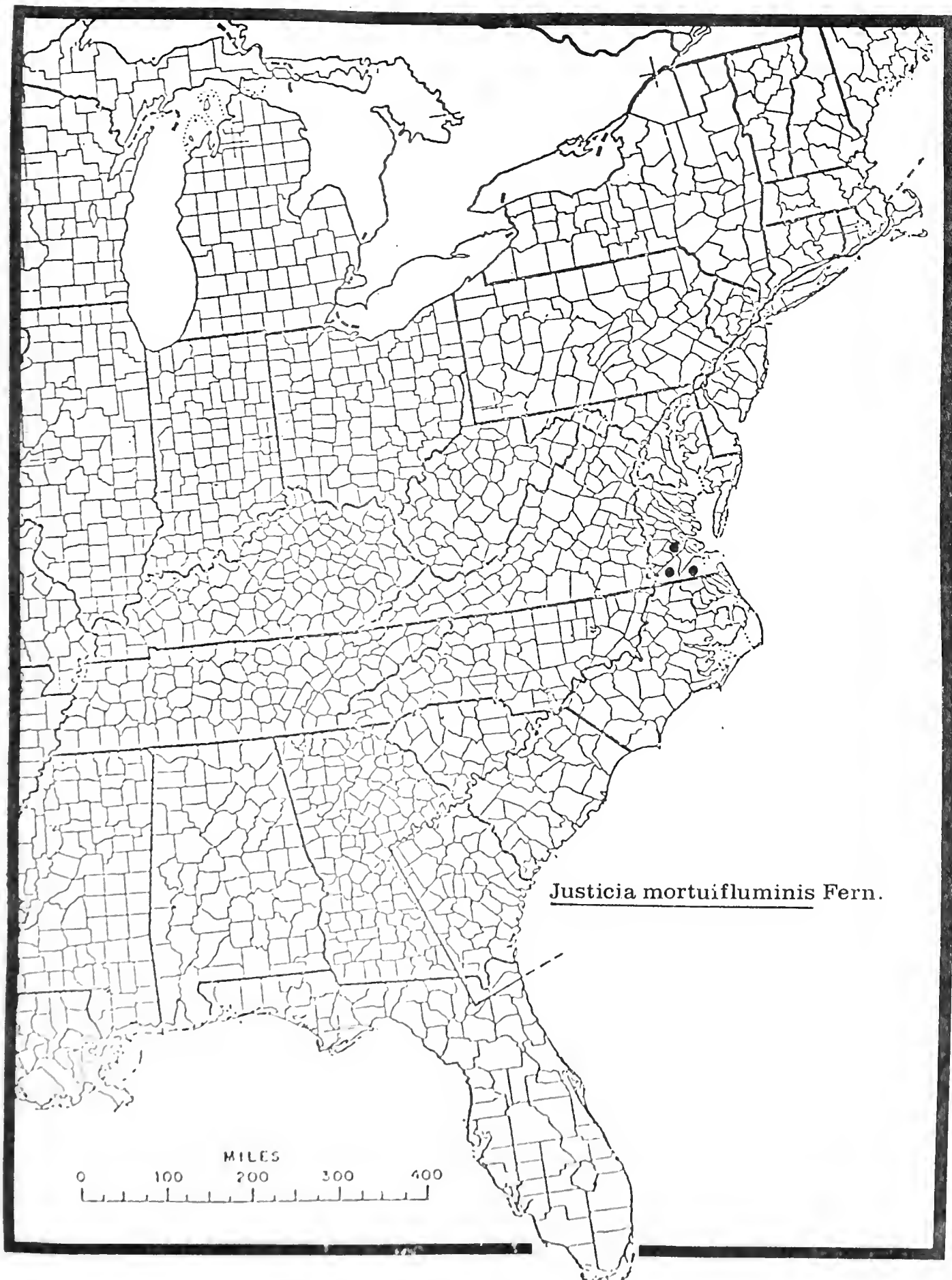


Justicia mortuifluminis Fern.

Habitat: Wooded bottomlands and shaded margins of quiet water.

Range: Southhampton, Surry, Nansemond counties, Virginia.

Status: Endemic and rare.



Justicia mortuifluminis Fern.

MILES
0 100 200 300 400

D-30

CISTACEAE

Lechea maritima var. virginica Hodgdon

Pinweed

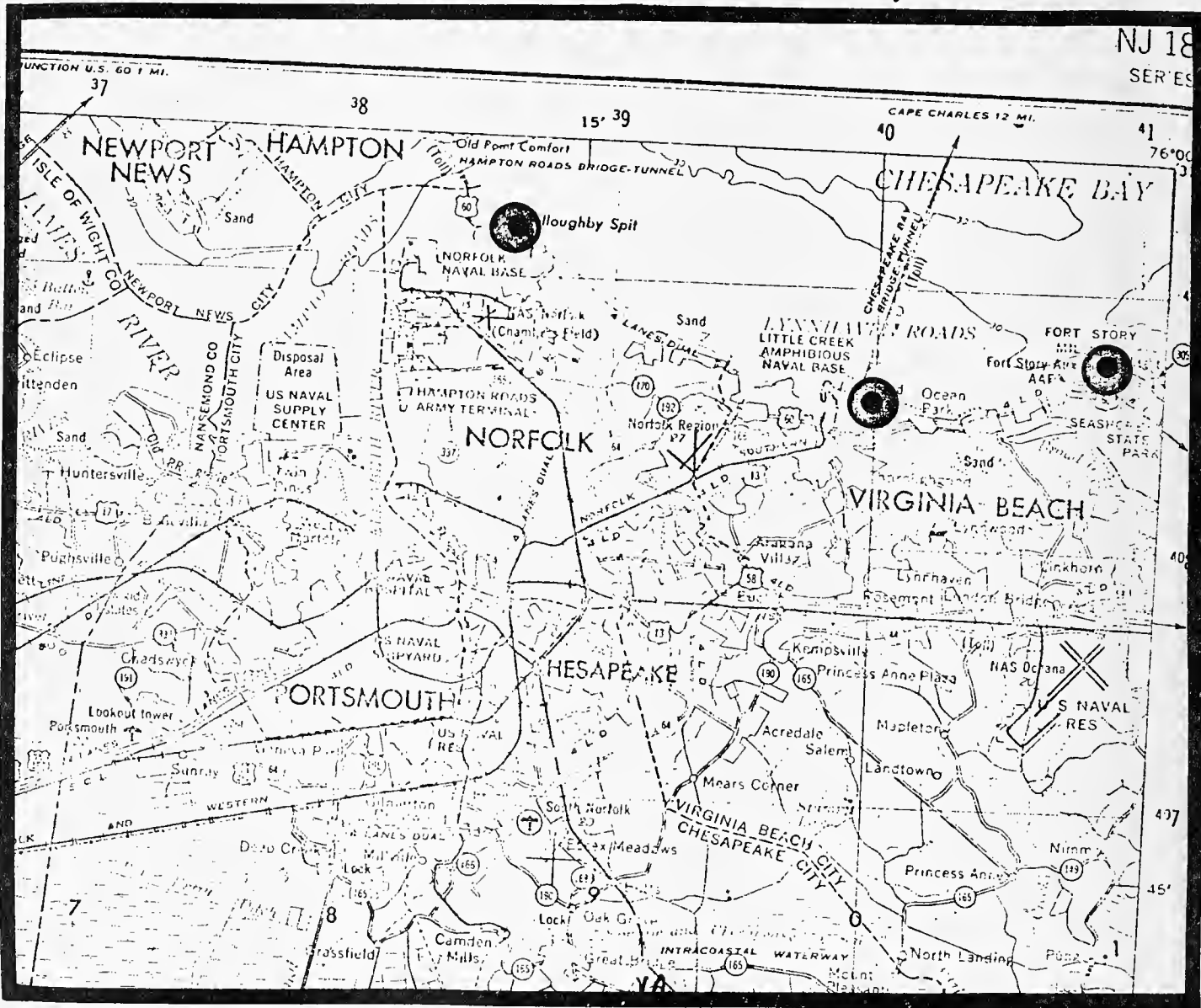
Habit: Herb

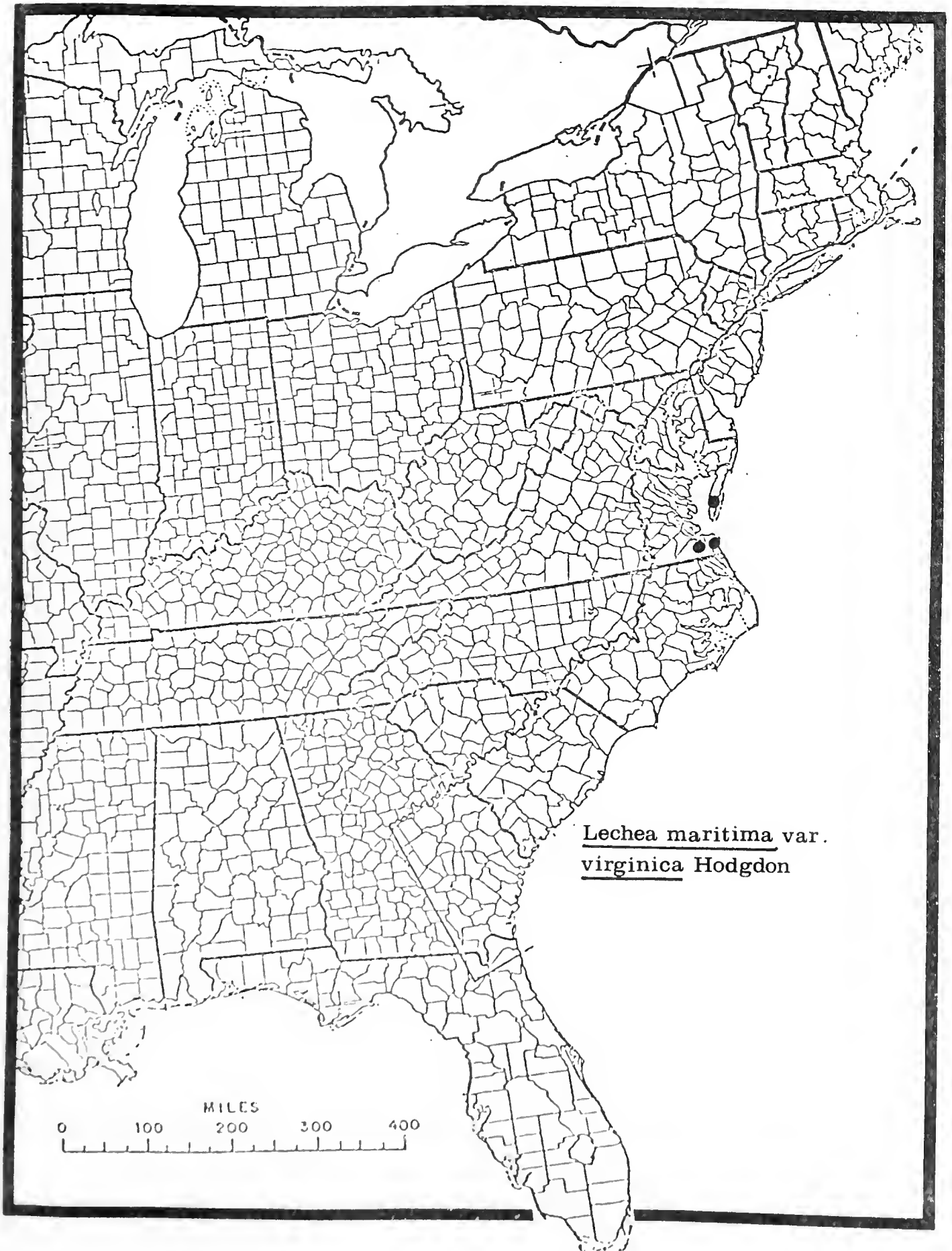
Habitat: Dunes and open sand flats

Range: Southeastern Virginia: Virginia Beach City, Norfolk and Northampton Counties, Virginia.

Status: Endemic and rare

Reference: Dr. Clyde Reed, Reed Herbarium, Baltimore, Maryland





Lechea maritima var. virginica Hodgdon

MILES
0 100 200 300 400

D-32

UMBELLIFERAE

Oxypolis canbyi (Coulter & Rose) Fern.

Parsley Family

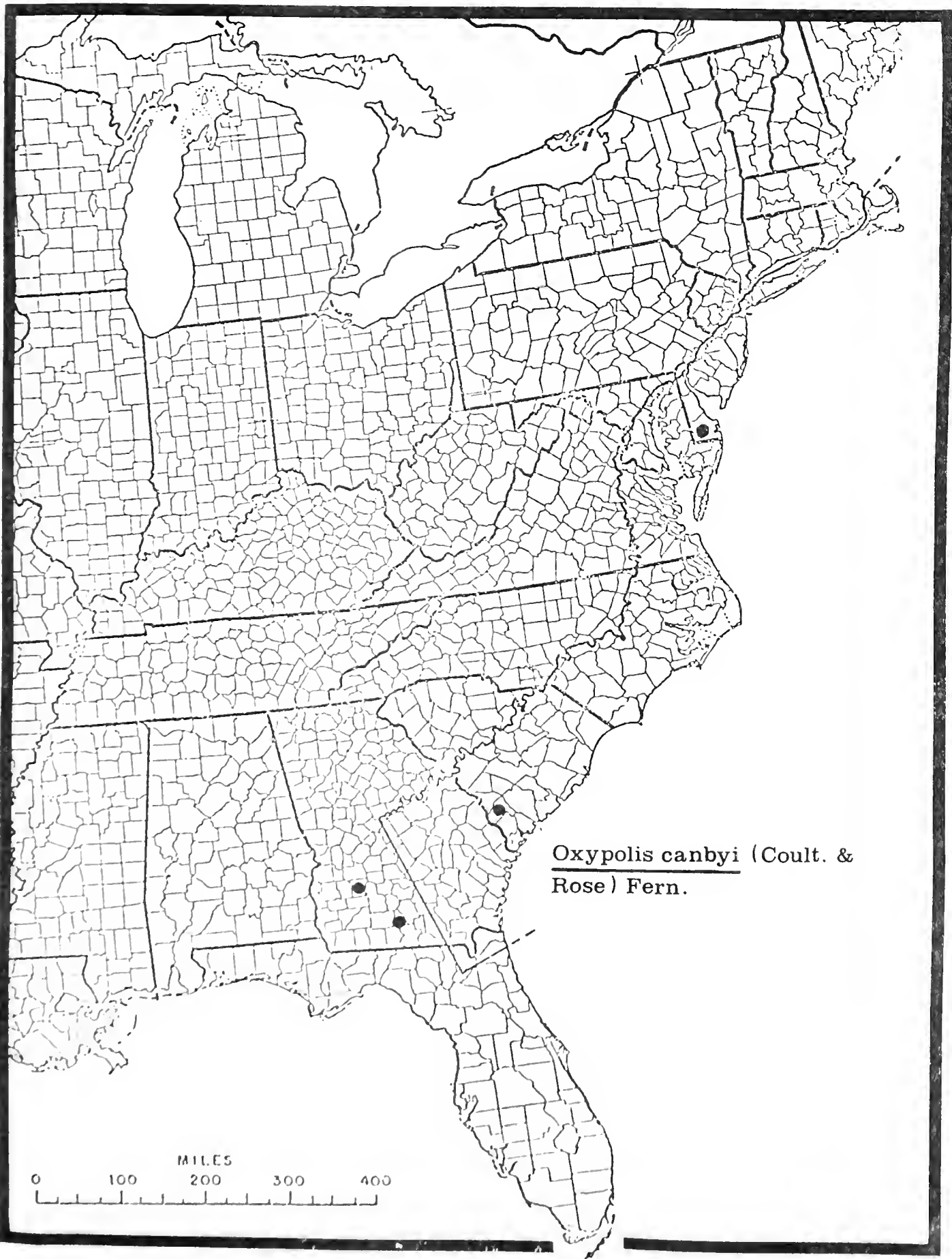
Habit: Herb

Habitat: Meadows and bogs

Range: Hampton Co., South Carolina and Cooke Co., Lee Co.,
Georgia; Ellendale in Sussex Co., Bloomington, Delaware.

Status: Local, perhaps extinct.

References: National Herbarium
Gray Herbarium



Oxypolis canbyi (Coult. & Rose) Fern.

MILES
0 100 200 300 400

Panicum aculeatum Hitchc. & Chase

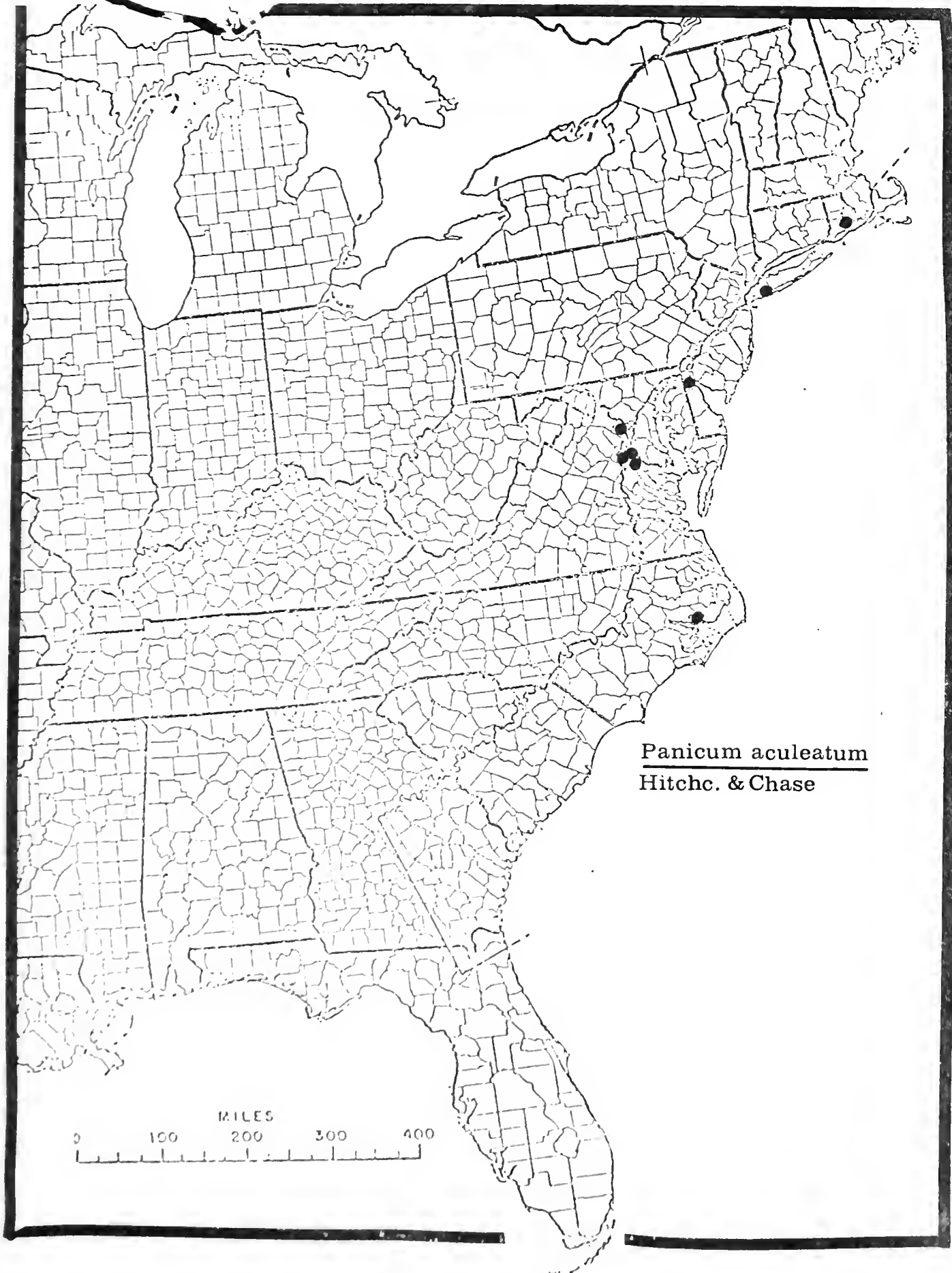
Habit: Herb

Habitat: Moist to wet woods

Range: Connecticut, Eastern New York to North Carolina; District of Columbia and Arlington and Fairfax Counties, Virginia.

Status: Rare and little known.

References: Rhodora 8:209. 1906.



Panicum aculeatum
Hitchc. & Chase

Panicum mundum Fern.

Panic grass

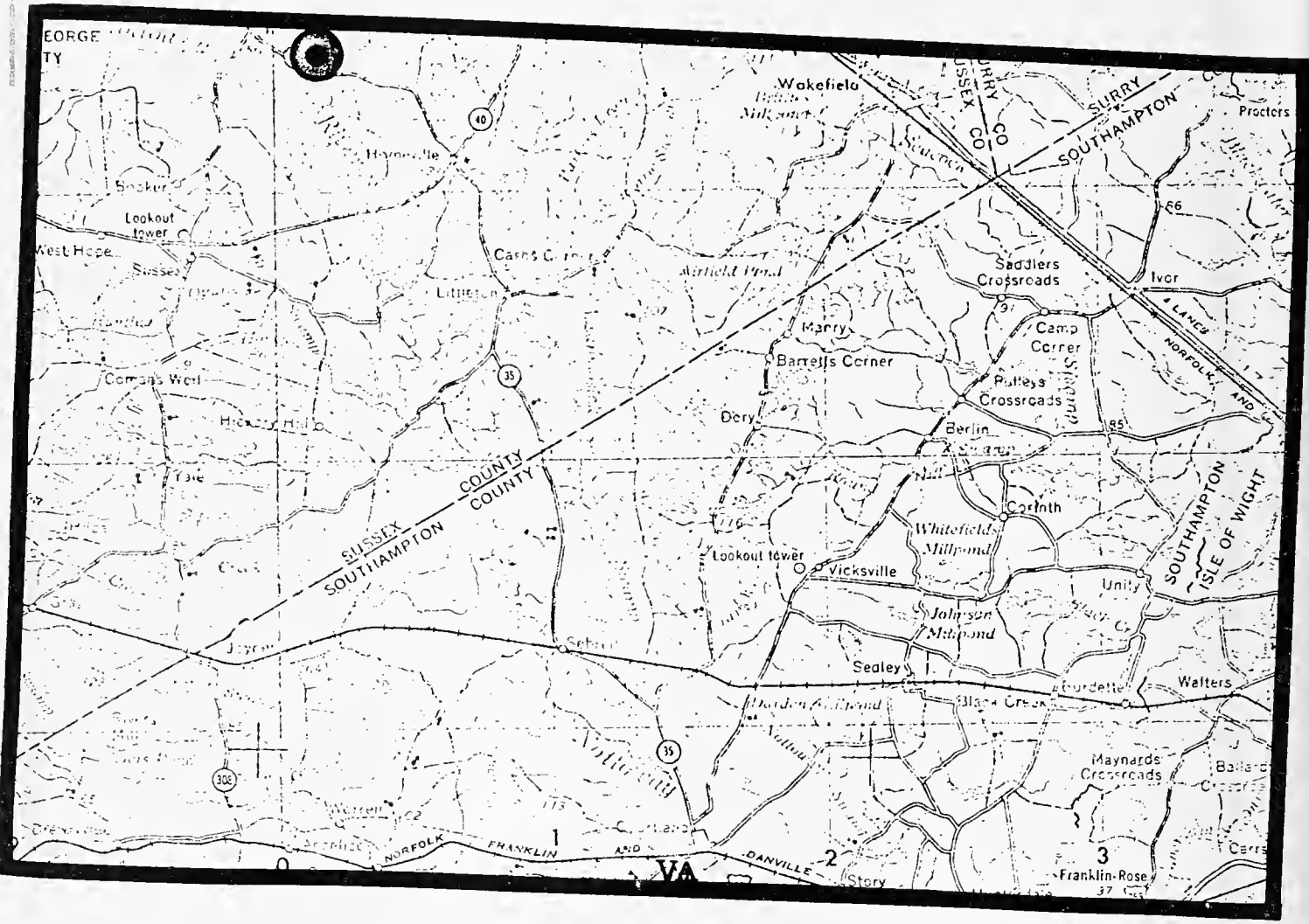
Habit: Herb

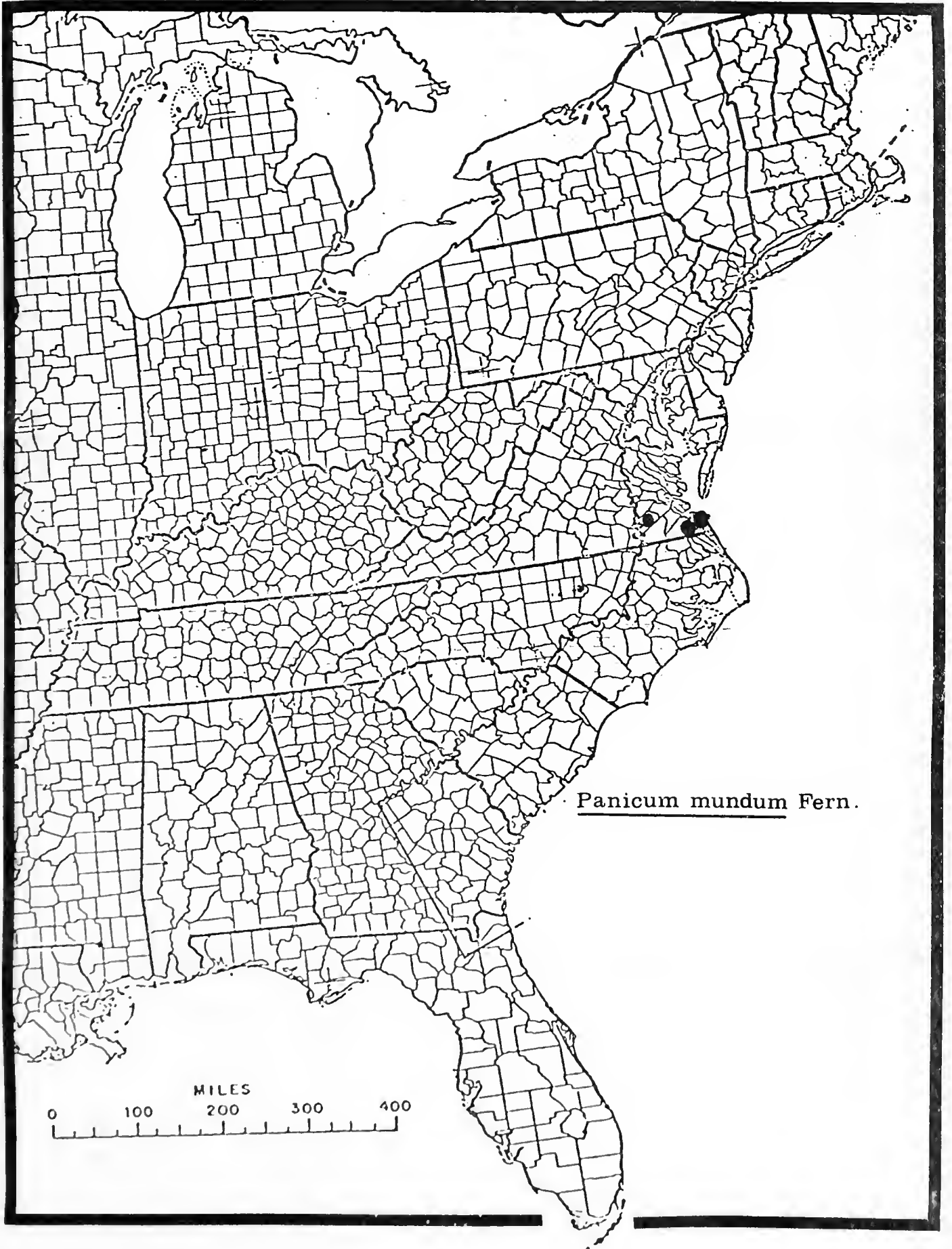
Habitat: Peaty soil

Range: Southeastern Virginia; Sussex, Princess Anne and Norfolk Counties, Virginia.

Status: Endemic and rare, possibly endangered.

Reference: M.L. Fernald, Rhodora, Vol. 38, p. 392, November, 1936.





Panicum mundum Fern.

MILES

0 100 200 300 400

D-38

LAMIACEAE

Pycnanthemum monotrichum Fern.

Mountain mint

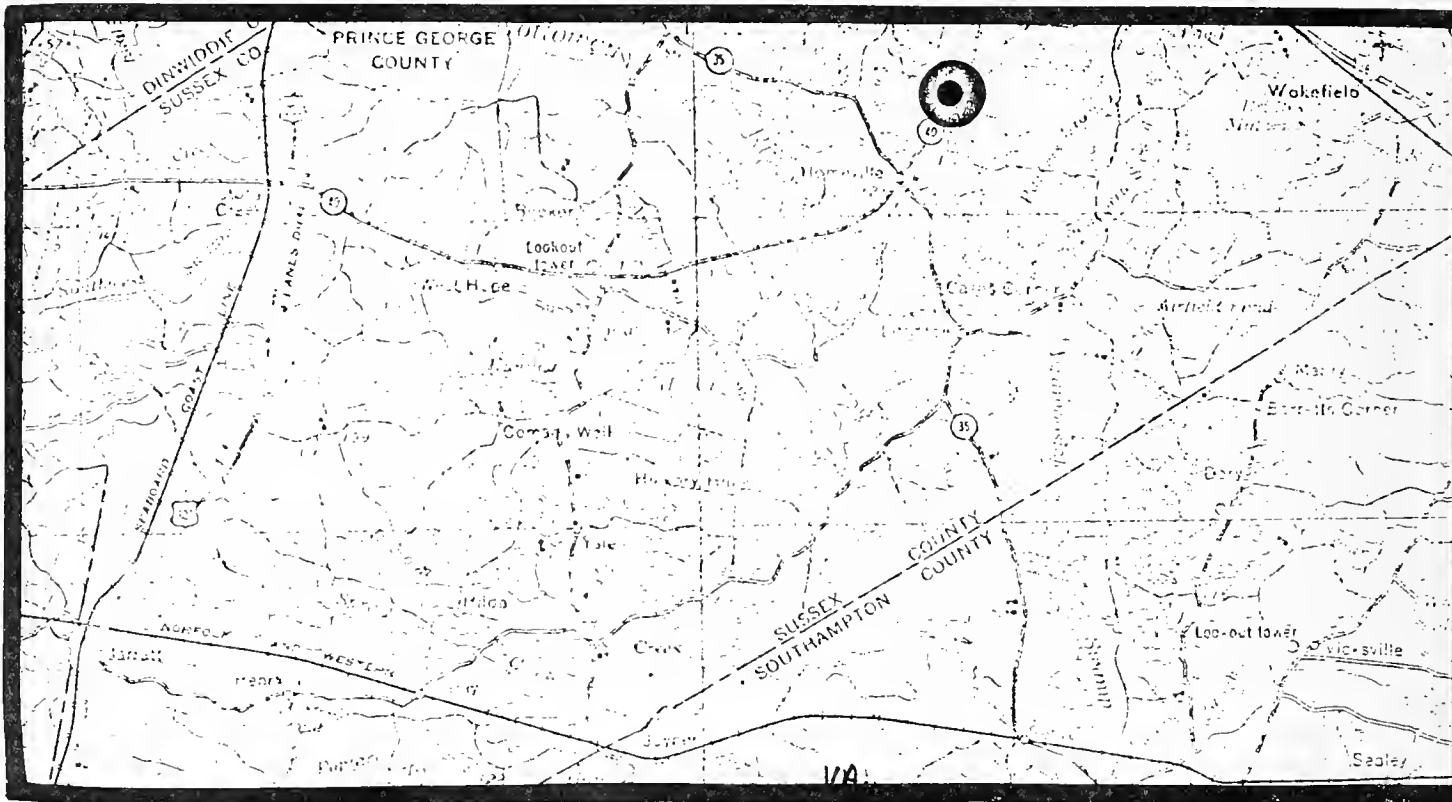
Habit: Herb

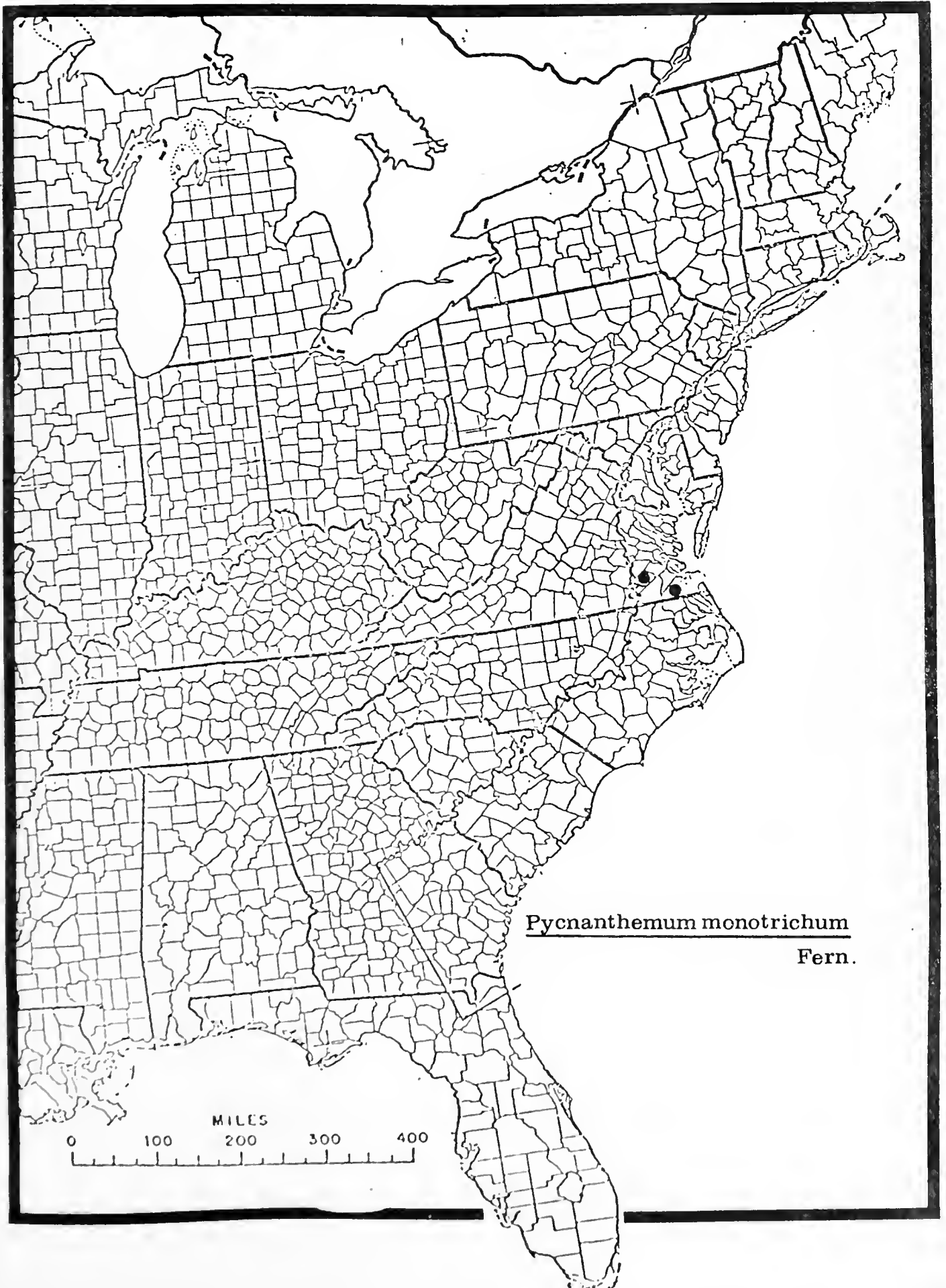
Habitat: Dry sandy woods and clearings

Range: Southeastern Virginia; Sussex and Nansemond Counties, Virginia.

Status: Endemic and rare

References: M.L. Fernald, Rhodora, Vol. 47, p. 176, May, 1945.





Pycnanthemum monotrichum
Fern.

D-40

DIAPENSIACEAE

Pyxidantha brevifolia Wells

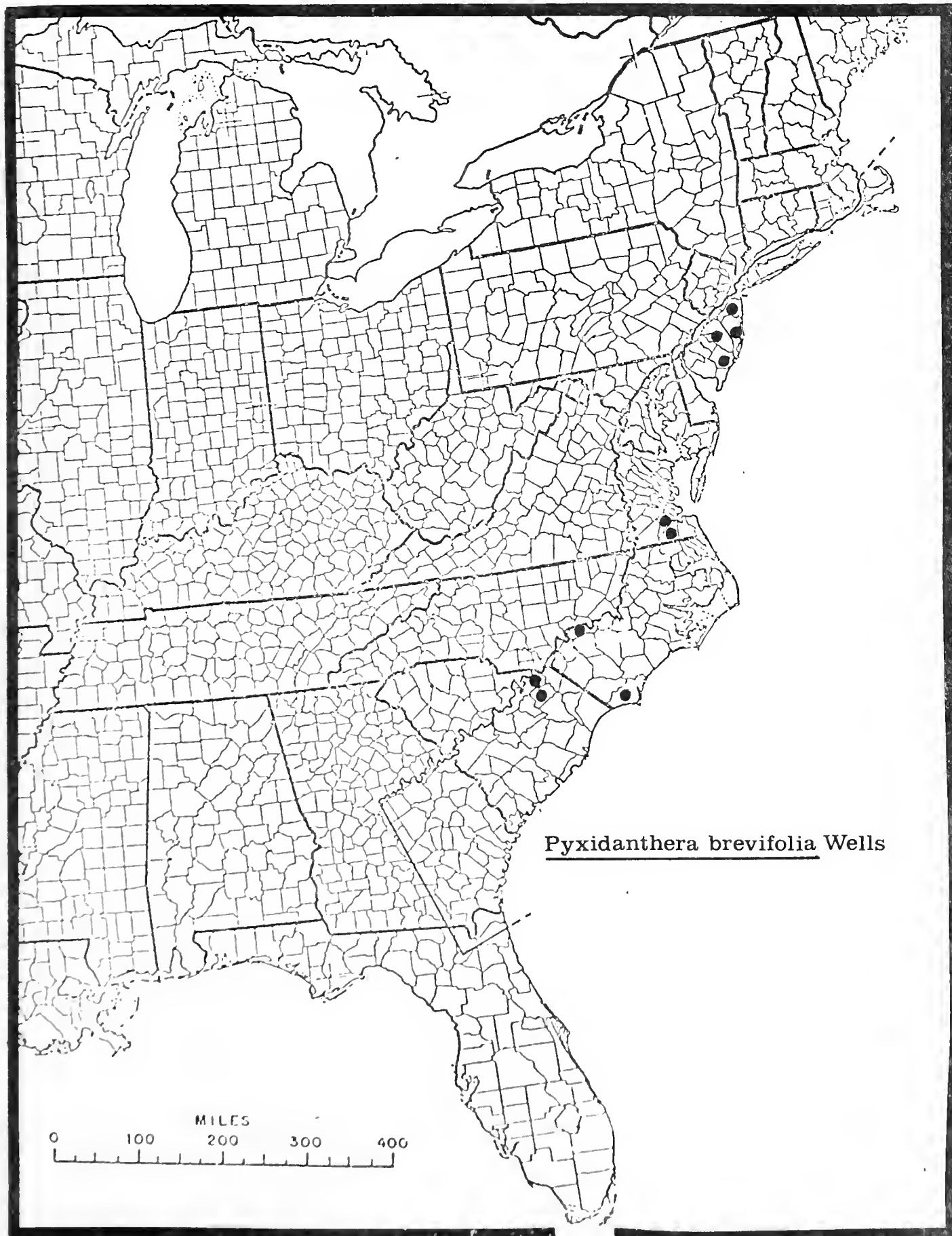
Flowering moss; pyxie

Habit: Herb

Habitat: Sandy pine barrens

Range: Burlington, New Jersey; Ocean, Mounouth and Atlantic
Cos., South Carolina; Nansemond, and South of Zuni and
South of Lee's Mill, Isle of Wight Counties, Virginia.

References: Gray Herbarium
A. B. Massey, Virginia Flora, 1961.



Pyxidantha brevifolia Wells

Rudbeckia heliopsidis T. & G.

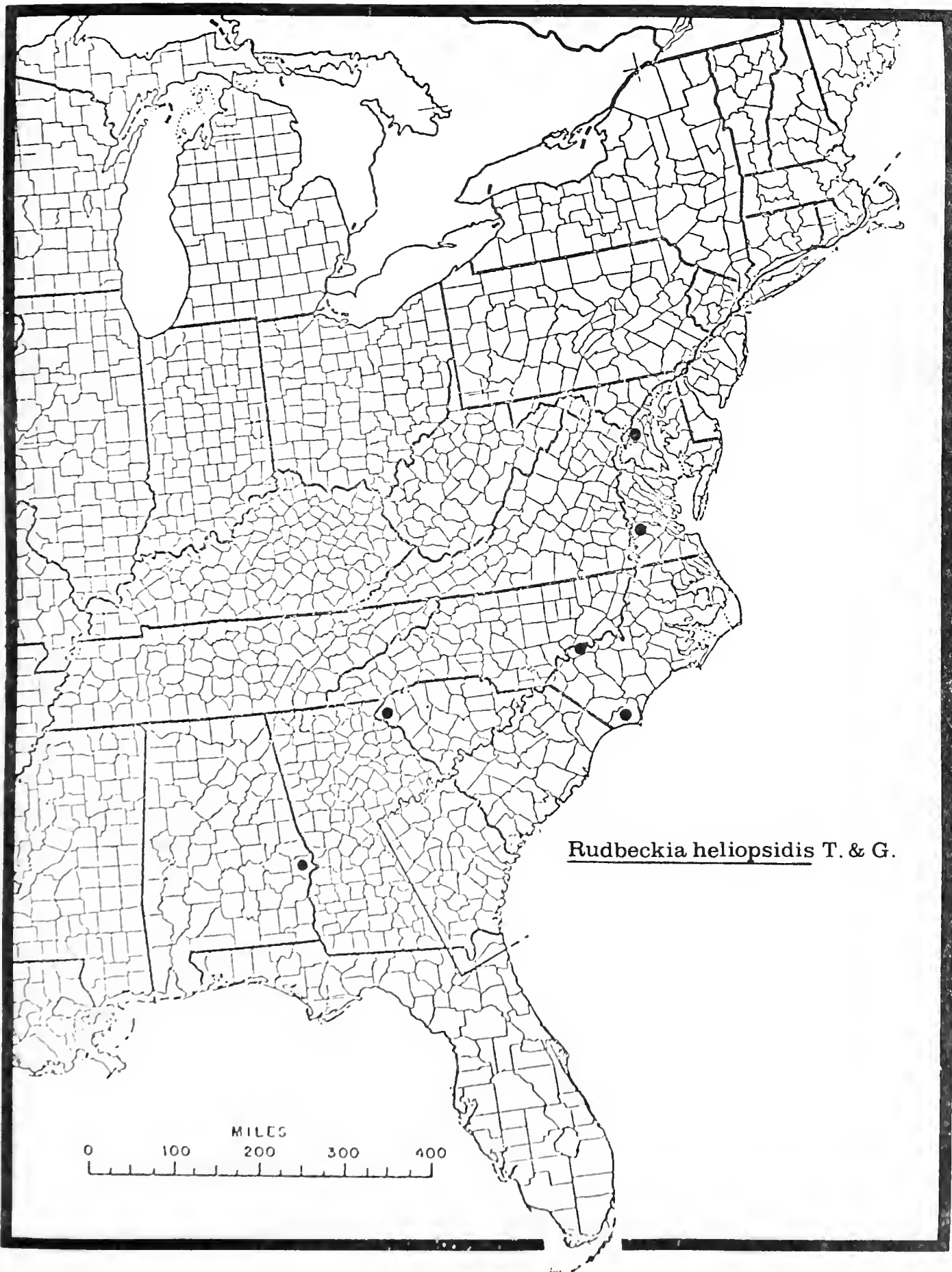
Habit: Herb

Habitat: Dry woods - pine and oak woods and thickets.

Range: Southeastern Virginia, Georgia and Alabama; 2 to 3 miles North of Disputanta, Prince George County, Virginia; South Carolina and North Carolina.

Status: Very local; rare.

Reference: National Herbarium
North Carolina State University Herbarium



Rudbeckia heliopsidis T. & G.

MILES
0 100 200 300 400

Schwalbea americana L.

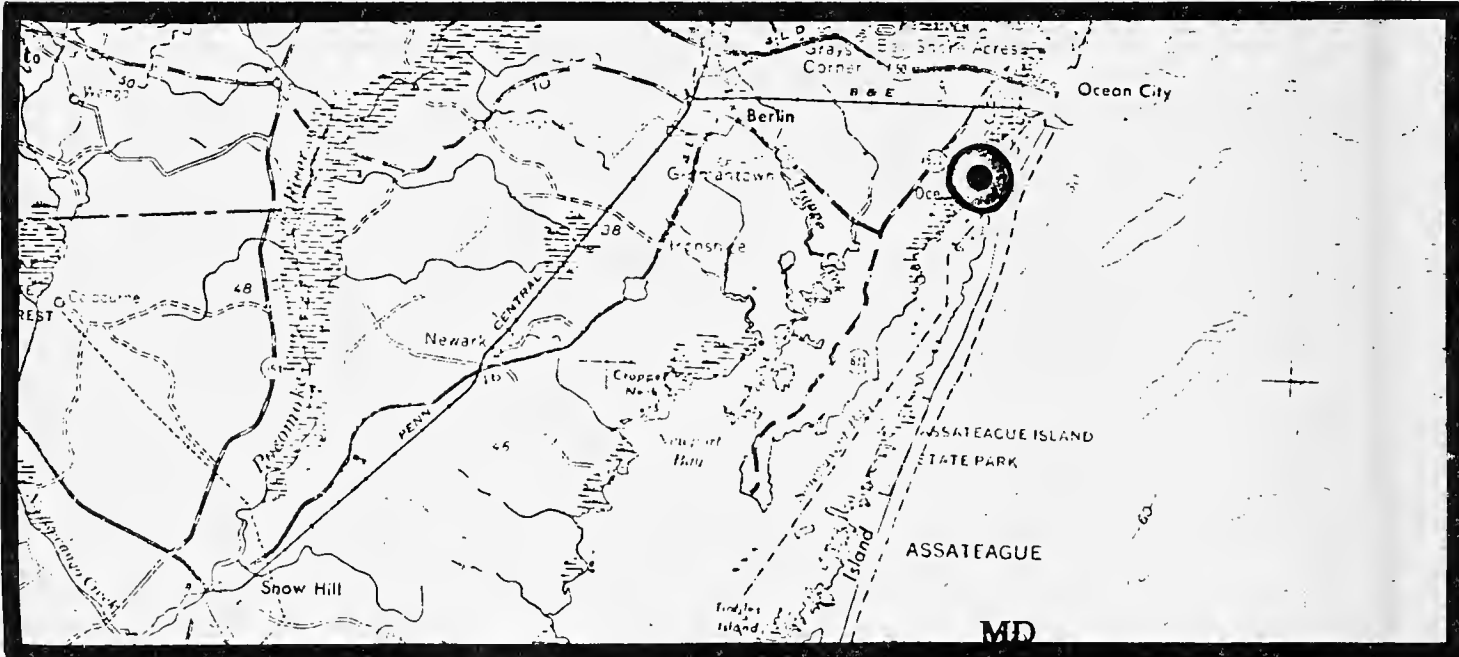
Chaffseed

Habit: Herb

Habitat: Moist sandy soil; pinelands, oakwoods and clearings.

Range: New England south to Florida and Texas; Wicomico and Worcester Counties, Maryland; New Castle County, Delaware; and Greenville County, Virginia.

Status: Rare and endangered

Reference: U.S. National Herbarium
Gray Herbarium



Schwalbea americana L.

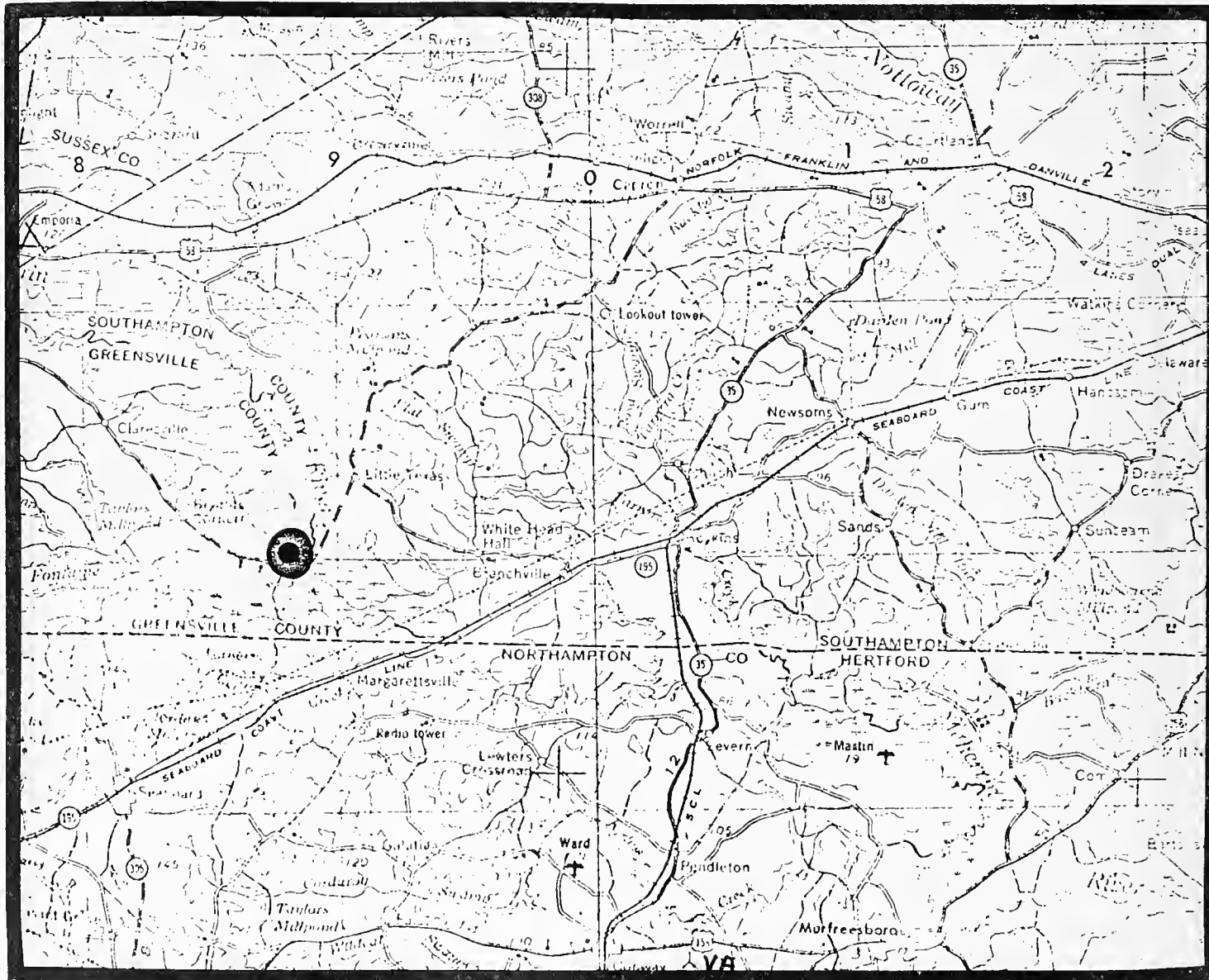
Scirpus flaccidifolius (Fern.) Schuyler

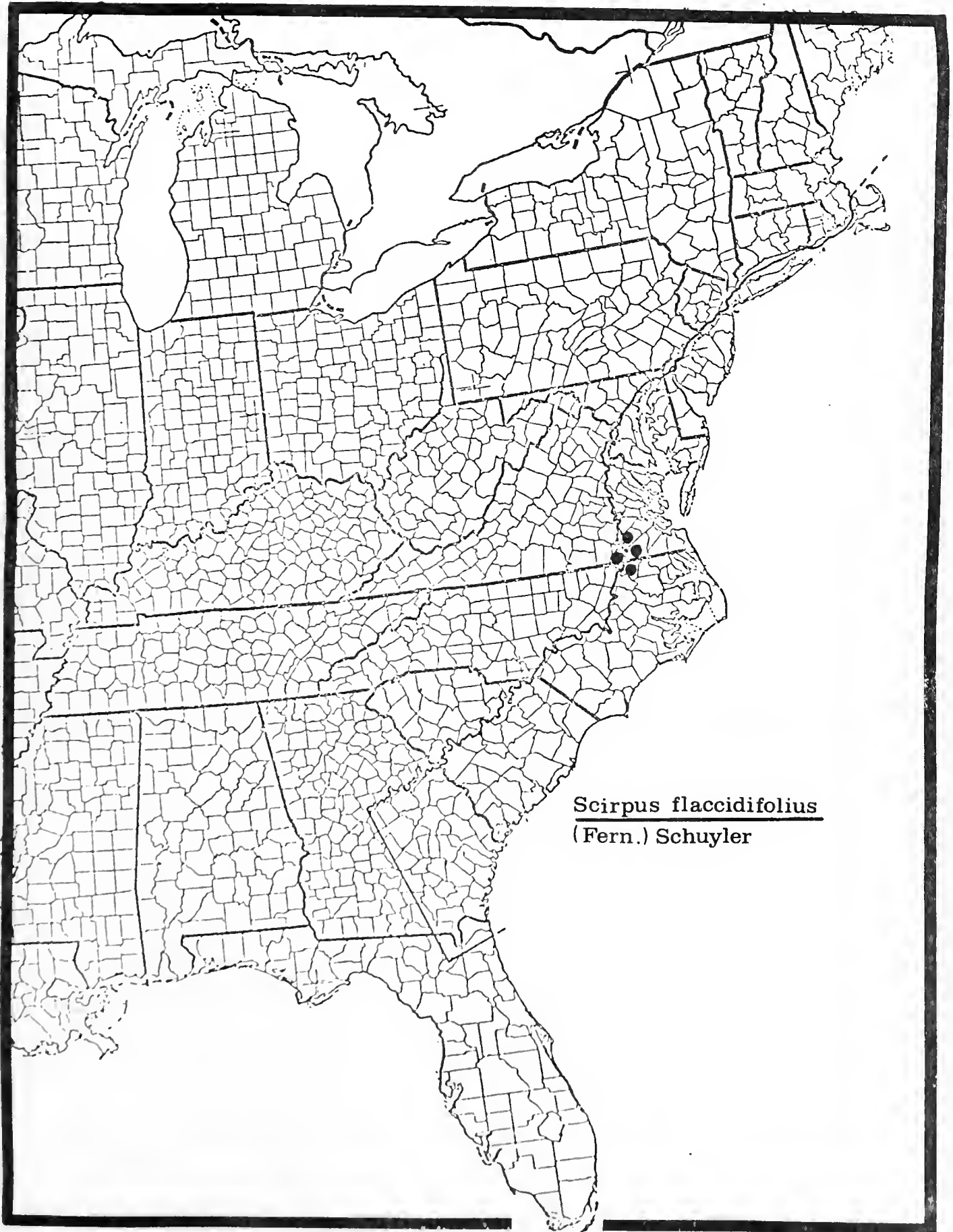
Habit: Herb

Habitat: Wooded alluvial bottomland

Range: Southeastern Virginia and northeastern North Carolina; Southampton County, Virginia.

Status: Endemic and rare.

References: Dr. A.E. Schuyler, Rhodora 69: 198-202, 1967.
U.S. National Herbarium



Scirpus flaccidifolius
(Fern.) Schuyler

Trillium pusillum var. virginianum Fern.

Trillium

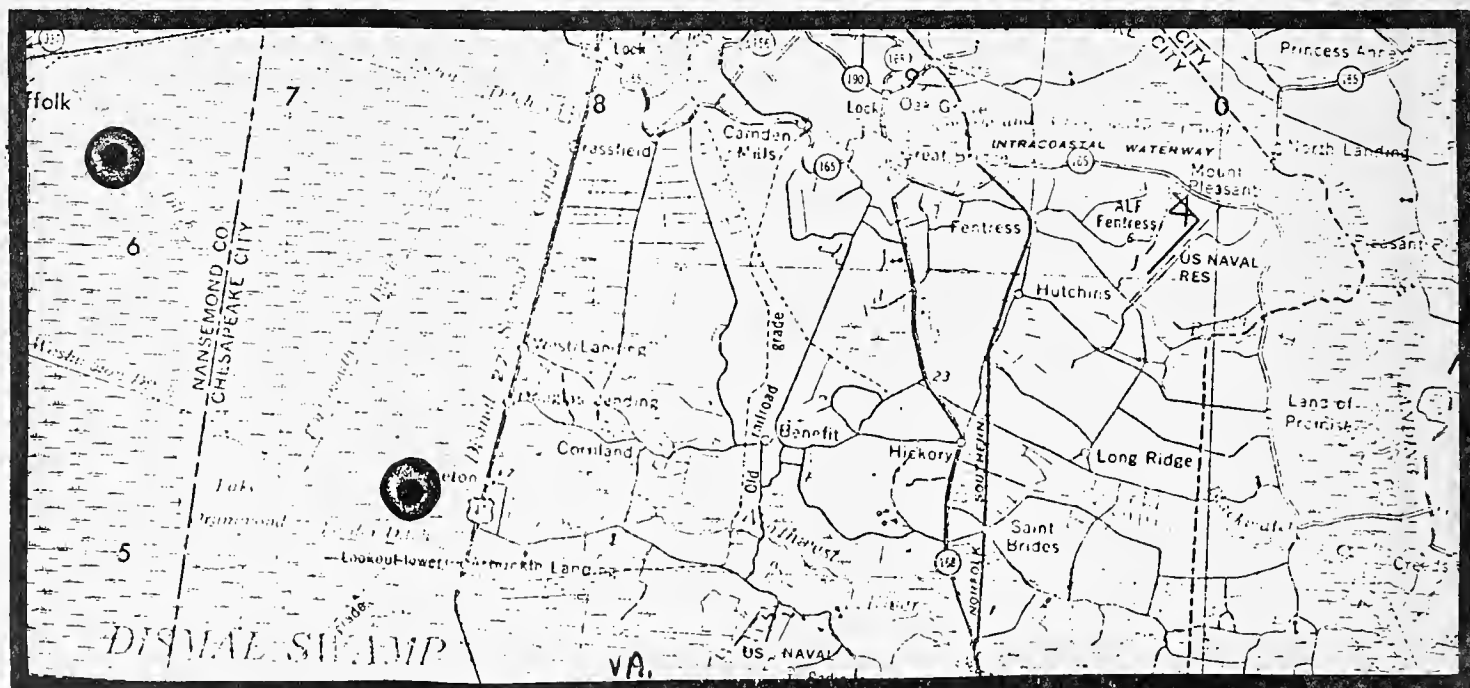
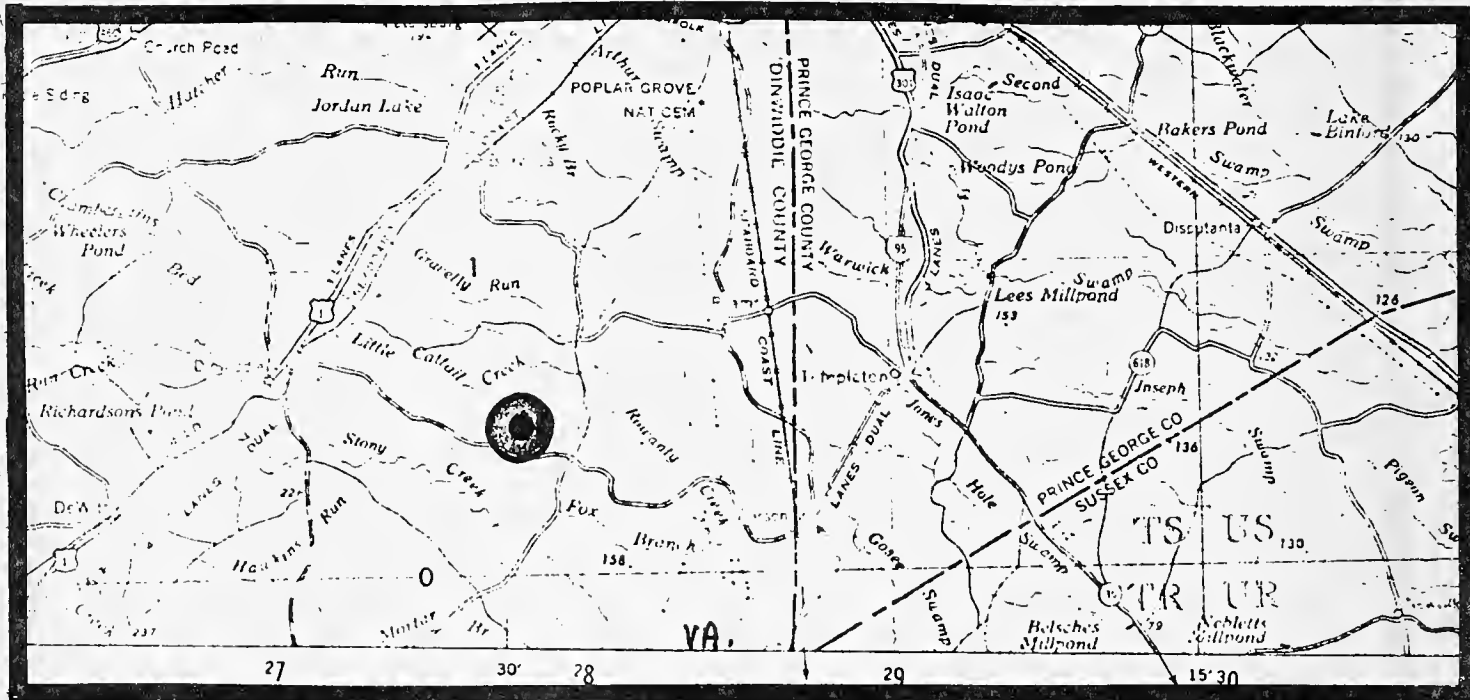
Habit: Herb

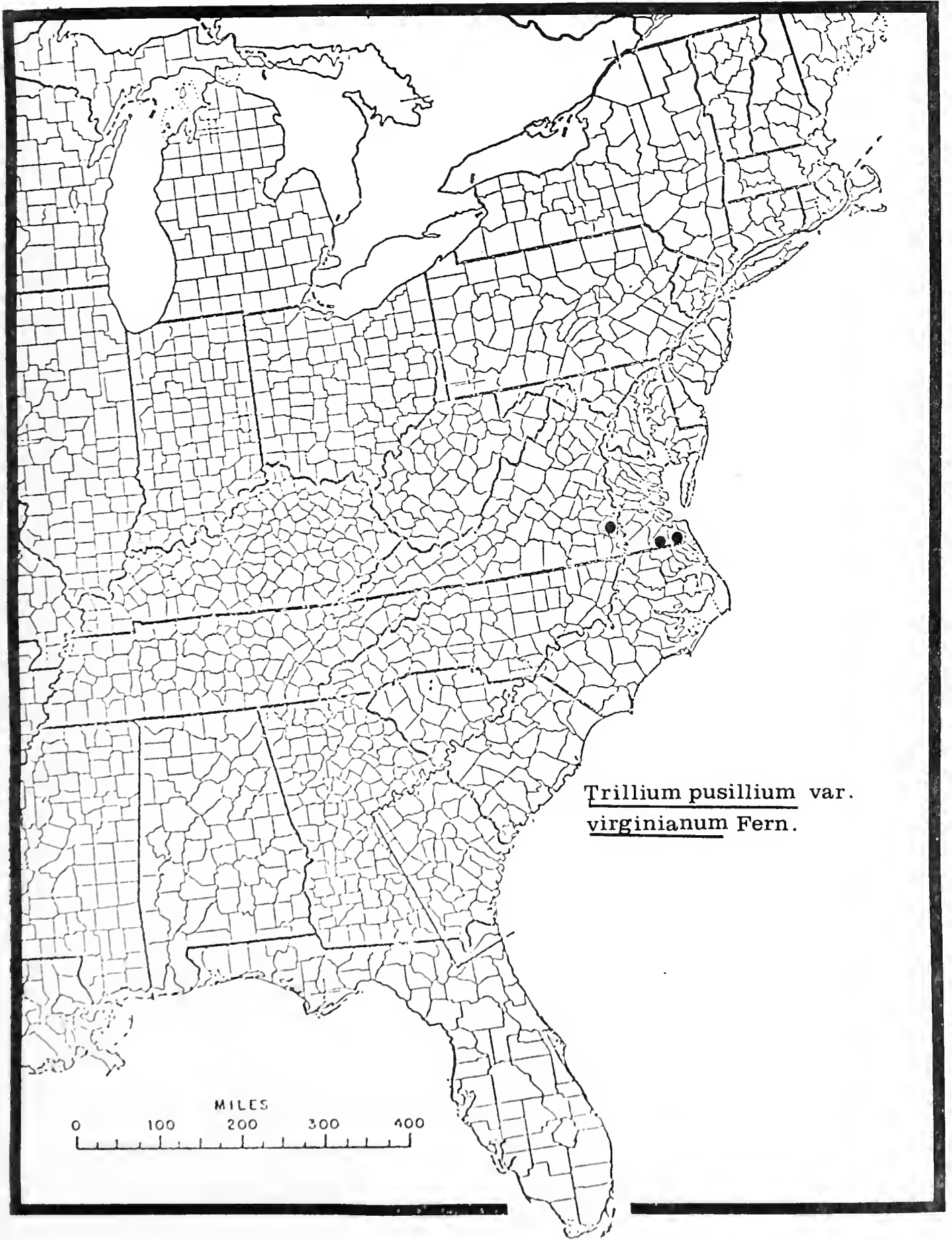
Habitat: Damp woodlands

Range: Southeastern Virginia, Nansemond Co. and Chesapeake City, Virginia.

Status: Rare and endangered

Reference: Brooke Meanley, Atlantic Naturalist, Vol. 24, No. 1, Summer 1969





Trillium pusillum var.
virginianum Fern.

APPENDIX E

PRESENTLY PROTECTED AREAS OF CHESAPEAKE BAY

David W. Kunhardt
Research Assistant

and staff

SUMMARY OF PRESENTLY PROTECTED AREAS OF CHESAPEAKE BAY

<u>Ownership</u>	<u>Number of Sites</u>	<u>Acres</u>	<u>Hectares</u> ¹
FEDERAL			
Military	43	266,000	107,500
National Wildlife Refuges ²	8	32,400	13,100
Other	20	56,200	22,700
STATE			
Forests	5	20,750	8,380
Parks	36	56,760	22,930
Wildlife Management Areas ³	30	78,700	31,800
Other	26	80,600	32,570
PRIVATE OR QUASI-PUBLIC	8	10,770	4,350
	Total	602,200	243,300

¹The hectare is a unit of area in the metric system. One hectare equals 10,000 square meters or 2.471 acres. There are approximately 258 hectares per square mile.

²Includes some land not in the N.W.R. system but administered by the U. S. Department of Interior's Bureau of Sport Fisheries and Wildlife.

³Includes some land not in the W.M.A. systems but held with identical management practices. Also includes Virginia Natural Areas.

PRESENTLY PROTECTED AREAS OF CHESAPEAKE BAY REGION

State of Maryland

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
NATIONAL Military				
Air Force	USAF Transmitter Station Reservation	Anne Arundel	420	7-G
Army	Aberdeen Proving Grounds (Annex)	Harford	129	2-J
	Aberdeen Proving Grounds Reservation	Harford	13,445	2-K, 3-K, 3-L 4-J, 4-K
	Atkisson Reservoir (Army Chemical Center)	Harford	242	3-J
	Ft. George Meade Military Reservation	Anne Arundel	5,252	6-F, 6-G
	US Military Reservation (Globecom Radio Receiving Station)	Prince Georges	687	9-F
	US Military Reservation (Army Radio Receiving Center)	Charles	242	10-E
	Bloodsworth Island Bombing Range	Dorchester	1,940	13-L
		Subtotal (Army)	21,937	
Navy	US Naval Ordnance Lab	Montgomery, Prince Georges	388	6-E
	US Naval Academy Dairy	Anne Arundel	283	6-G
	US Naval Reservation	Anne Arundel	388	7-I
	US Naval Reservation	Prince Georges	263	8-F, 9-F
	US Naval Propellent Plant, Indian Head	Charles	889	10-C
	US Naval Research Lab, Cedar Point Neck	Charles	566	11-D
	US Naval Reservation	St. Marys	2,424	12-I
	US Naval Air Base	St. Marys	388	13-I
		Subtotal (Navy)	5,5	
		Total (Military)	27,946	

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>	
NATIONAL National Wildlife Refuges (NWR)	Susquehanna NWR	Harford	4,050	3-L	
	US Dept. of Interior Wildlife Research Center	Prince Georges, Anne Arundel	287	6-F	
	Eastern Neck NWR	Kent	923	6-K	
	Blackwater NWR	Dorchester	4,531	11-K	
	Martin NWR	Somerset	1,786	14-L, 14-M, 15-L, 15-M	
		Total (NWR)	11,579		
	National Forests, Parks & Others (NFP)	US Dept. of Agriculture Research Center	Prince Georges	3,878	6-E, 6-F
		Greenbelt Park	Prince Georges	485	7-E
		St. Elizabeth's Farm	Prince Georges	186	8-D
		Ft. Foote Park	Prince Georges	32	8-D
Ft. Washington National Park		Prince Georges	137	9-D	
Piscataway Park		Prince Georges, Charles	1,414	9-D	
		Total (NFP)	6,132		
		Total (NATIONAL)	45,657		
STATE Forests		Elk Neck State Forest	Cecil	1,108	2-M
		Cedarville State Forests	Prince Georges, Charles	1,414	9-F, 10-F
	Doncaster State Forests	Charles	591	10-C	
	Eastern Shore Experimental Forest or Wicomico State Forest	Wicomico	444	12-Q	
	Pocomoke State Forest	Worcester	4,828	12-P, 12-Q, 13-P, 13-Q, 14-P, 14-Q	
		Total (Forests)	8,385		

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
STATE	Rock Ridge in Deer Creek State Park	Harford	263	2-J
Parks	Susquehanna State Park	Harford	646	2-K
	Baltimore Falls State Park	Baltimore	2,424	3-H, 3-I
	Elk Neck State Park	Cecil	566	3-L, 3-M
	Patapsco State Park	Baltimore, Howard	2,510	4-F, 5-F, 5-G
	Gunpowder State Park	Baltimore	323	4-J
	Savage Park	Howard	61	5-F
	Guilford Park	Howard	182	5-F
	Ft. Smallwood State Park	Anne Arundel	40	5-I
	Seyern Run Natural Environment Area	Anne Arundel	646	6-G, 6-H
	Sandy Point State Park	Anne Arundel	283	6-I
	Anacostia River Park + Indian Creek Park + Northwest Branch Park	Prince Georges	606	7-E
	Robert Watkins State Park	Prince Georges	194	7-F
	Wye Oak State Park	Talbot	9	7-L
	Tuckahoe State Park	Queen Annes, Caroline	1,535	7-M
	Poplar Island, Jefferson and Coaches Island	Talbot	50	8-J, 9-J
	Martinak State Park	Carolina	69	8-N
	Cosca Regional Park	Prince Georges	202	9-E
	Smallwood State Park	Charles	137	10-C
	Calvert Cliffs State Park	Calvert	606	11-I
	Burce State Park	Charles	57	11-B
	St. Mary's River	St. Marys	283	12-H
	St. Clement's Island	St. Marys	28	13-G
	Milburn Landing State Park	Worcester	101	13-Q, 14-Q
	Shad Landing State Park	Worcester	220	13-Q
	Point Lookout State Park	St. Marys	190	14-J
	Jane's Island State Park	Somerset	1,159	14-M, 14-N, 15-M, 15-N
	Total (Parks)		13,390	

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
STATE	Elkton WMAs	Cecil	356	2-M, 2-N, 3-M, 3-N
Wildlife	C & D Canal Lands (Wildlife Management Agreement)	Cecil	1,212	2-N
Management	Millington Wildlife Demonstration Area	Kent	889	4-N
Areas (WMA)	Merkle WMA (on Patuxent River)	Prince Georges	444	9-G
	Idylwild Wildlife Area	Caroline	623	9-N
	Myrtle Grove WMA	Charles	304	10-D
	Harry Bowen WMA (on Patuxent River)	Prince Georges	121	10-G
	Linkwood WMA	Dorchester	126	10-M
	Taylor's Island WMA	Dorchester	393	11-J
	Le Compte Wildlife Refuge	Dorchester	137	11-M
	Fishing Bay WMA (north section)	Dorchester	3,673	11-L, 11-M, 12-L, 12-M
	Fishing Bay WMA (south portion)	Dorchester	888	12-M
	Ellis Bay WMA	Wicomico	773	12-M, 12-N
	Johnson WMA	Wicomico	63	12-P, 12-Q
	Foster Estate Wildlife Management Agreement with Maryland Fish and Game Dept.	Worcester	2,020	12-P
	Deal Island WMA	Somerset	4,028	13-M, 13-N
	Wellington WMA	Somerset	158	13-O, 13-P
	Fairmount WMA	Somerset	584	14-N
	Vaughn State WMA	Worcester	408	14-Q
	Cedar Island WMA	Somerset	1,215	15-M, 15-N
	Pocomoke Sound WMA	Somerset	3,645	15-N
		Total (WMA)	22,060	

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
STATE	Loch Raven Reservoir, (city of Baltimore)	Baltimore	2,868	3-H
Other	Univ. of Maryland Plant Research Farm	Montgomery, Prince Georges	263	6-E
	Rocky George Reservoir	Montgomery, Prince Georges, Howard	202	6-E, 6-F
	Crownsville State Hospital	Anne Arundel	384	6-H
	Patuxent River Parcels	Prince Georges	1,681	7-G, 8-G, 9-G
	North Basin Reservoir	Anne Arundel	129	7-H
	Wye Oak Reservoir	Talbot	48	7-L
	Boys' Village of Maryland	Prince Georges	404	9-F
	Southern Maryland Public Works Camp	Charles	40	10-F
	Salisbury Airport No. 2	Wicomico	<u>263</u>	12-P
		Total (Other)	<u>6,282</u>	
		Total (STATE)	50,117	
QUASI-PUBLIC or PRIVATE (QPP)	Whitaker Iron Co. 1 & Wildlife Management Agreement	Cecil	1,818	1-L, 1-M, 2-L, 2-M
	Broad Creek Memorial Scout Camp	Harford	485	1-J
	Camp Rodney Scout Preservation	Cecil	444	2-M
	Beltwoods	Prince Georges	16	7-F
	CBCES-Smithsonian Institution	Anne Arundel	808	7-H, 8-H
	Wye Institute	Queen Annes	61	7-I
	Battle Creek Cypress Swamp (TNC)	Calvert	<u>40</u>	11-H
		Total (QPP)	<u>3,672</u>	
			99,446	

TOTAL FOR THE STATE OF MARYLAND

State of Virginia

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
NATIONAL				
Military				
Air Force	Langley Air Force Base	Hampton City	1,212	22-I, 22-J
Army	Ft. Belvoir Military Reservation	Fairfax	2,707	8-C, 8-D, 9-C, 9-D
	US Military Reservation (Radio Tower)	Prince William	444	9-C
	A.P. Hill Military Reservation	Caroline	28,967	13-A, 13-B, 13-C, 14-A, 14-B, 14-C
	Ft. Lee Military Reservation	Prince Georges	1,778	20-B
	Camp Wallace Military Reservation	James City	81	21-G
	Ft. Eustis Military Reservation	Newport News City	2,304	21-G, 21-H
	US Military Reservation (Plum Tree Island Bombing Range)	York	1,212	21-J, 22-J
	US Military Reservation	Northampton	194	21-M
	US Military Reservation	Newport News City	485	22-I
	Big Bethel Reservoir	Newport News City	162	22-I
	Ft. Monroe Military Reservation	Hampton City	81	22-J
	US Military Reservation	Isle of Wight	61	23-H
	Ft. Story Military Reservation	Virginia Beach City	364	23-L
		Total (Army)	<u>38,840</u>	
Navy	US Naval Reservation (Dahlgren Weapons Lab)	King George	1,495	12-D
	Camp Peary Naval Reservation	York	3,759	19-G, 20-G
	Naval Supply Center	York	1,414	20-G, 20-F
	US Naval Weapons Station	York	4,121	20-G, 20-H, 21-G, 21-H
	US Naval Supply Center	York	122	21-H
	Craney Island US Naval Supply Center	Chesapeake City	1,091	23-I, 23-J

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
NATIONAL Military Navy	US Naval Reservation, Little Creek Amphibious Base	Virginia Beach City	263	23-K
	US Naval Transmitter Station	Nansemond	323	24-H
	Oceana Naval Air Station	Virginia Beach City	1,010	24-L
	US Naval Reservation (Fentress Landing Field)	Chesapeake City	364	25-K, 25-L
		Total (Navy)	13,962	
Other	US Coast Guard Station	Prince Georges	525	21-B
	Quantico Marine Corps Schools	Prince William, Stafford	25,048	9-A, 9-B, 10-A, 10-B, 11-A, 11-B
		Total (Other)	25,573	
National Wildlife Refuges (NWR)	Mason Neck NWR	Fairfax	580	9-C
	Presquile NWR	Chesterfield	536	19-B, 19-C, 20-B, 20-C
	Fisherman's Island Wildlife Refuge	Northampton	404	22-M
		Total (NWR)	1,520	
		Total (Military)	79,587	
National Forests, Parks & Others (NFP)	George Washington Memorial Parkway Sanctuary	Alexandria City	65	8-D
	George Washington Memorial Parkway Tidal Marshes	Fairfax	194	8-D
	Prince William Forest Park	Prince William	7,353	9-A, 10-A, 10-B
	District of Columbia Dept. of Corrections, Lorton Reformatory	Fairfax	1,252	9-B
	Ft. Hunt National Park	Fairfax	121	9-D
	Fredericksburg and Spotsylvania National Military Park	Fredericksburg City, Spotsylvania	1,010	12-A
	George Washington Birthplace National Monument	Westmoreland	159	13-E

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
NATIONAL NFP	Pamunkey Indian Reservation	King William	404	18-D, 18-E
	Richmond National Battlefield Park	Hanover, Henrico	303	19-B, 19-C
	Harrison Lake National Hatchery	Charles City	180	20-C
	Petersburg National Military Park	Prince Georges	525	21-B
	Colonial National Historical Park	James City	3,810	20-F, 21-F, 21-G, 21-H, 21-I
	Total (NFP)		<u>15,376</u>	
	Total (NATIONAL)		96,483	
STATE Parks	Bull Run Regional Park	Fairfax	65	9-A
	Pohick Bay Regional Park	Fairfax	5,252	9-C
	Mason Neck State Park	Fairfax	768	9-C
	Westmoreland State Park	Westmoreland	525	13-E, 13-F
	York River State Park	James City	1,212	19-G
	Chippokes Plantation State Park	Surry	404	21-G
	Lake Maury (Mariners' Museum Park)	Newport News City	283	22-I
	Seashore State Park	Virginia Beach City	929	23-L
	Sleepy Hole Park	Nansemond	106	24-H
		Total (Parks)		<u>9,544</u>
		Total (WMA)		<u>4,015</u>
Wildlife Management Areas (WMA)	Lands End WMA	King George	190	13-D
	Michael Marsh WMA	Accomack	1,010	15-O
	Saxis Waterfowl Management Area and Refuge	Accomack	2,075	15-O
	Parkers Marsh Natural Area	Accomack	307	17-N
	Hog Island State Waterfowl Refuge	Surry	364	21-G
	Game Refuge Pond (Nebletts Mill Pond)	Sussex	61	22-C
	Charles C. Steirly Natural Area	Sussex	8	22-E
		Total (WMA)		<u>4,015</u>

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
STATE	Gunston Hall	Fairfax	226	9-C
Other	Elko Tract	Henrico	808	19-C
	Diascund Creek Reservoir	New Kent	7,676	19-E, 19-F
	Eastern State Hospital Reservation	James City	202	20-F
	Waller Mill Reservoir	York	5,656	20-G
	Skiffles Creek Reservoir	James City, Newport News City	202	21-H
	City Reservoir, Hardwoods Mill Reservoir	York, Newport News City	2,949	21-H, 21-I
	Collisium Park	Hampton City	61	22-I
	Langley View Park	Hampton City	32	22-J
	Salt Ponds	Hampton City	61	22-J
	Northend Point Natural Preserve	Hampton City	242	22-J
	Lake Whitehurst, Norfolk Municipal Gardens and Airport	Norfolk City	5,252	23-K
	Lake Burnt Mills Reservoir	Isle of Wight,	455	23, 24-G
	Lake Prince Reservoir	Nansemond	989	24-G, -H
	Lake Cohoon Reservoir	Isle of Wight	459	24-G, 25-G
	Western Branch Reservoir	Nansemond	710	24-H
	Lake Meade Reservoir	Nansemond	310	24-H
		Total (Other)	26,290	
		Total (STATE)	39,849	
PRIVATE	Alexander Berger Memorial Sanctuary	Spots and Caroline	327	13-A
	College of William and Mary	Williamsburg City	355	21-G
		Total (Private)	682	
		TOTAL FOR THE STATE OF VIRGINIA	137,014	

STATE OF DELAWARE

<u>Ownership</u>	<u>Name</u>	<u>County</u>	<u>Hectares</u>	<u>Map Coordinates</u>
WMA	Petersburg State Wildlife Area	Kent	5,252	6-0
	Nanticoke Wildlife Area	Sussex	485	10-0
	TOTAL FOR THE STATE OF DELAWARE		5,737	
	DISTRICT OF COLUMBIA			
D.C.	Theodore Roosevelt Island	D.C.	36	7-D
National	National Arboretum	D.C.	808	7-E
Other	and Kenilworth Aquatic Gardens and Anacostia Park Fort DuPont Park and Fort Chaplin Park and Fort Dairs Park and Fort Stanton Park			
	TOTAL FOR THE DISTRICT OF COLUMBIA		1,200	
	GRAND TOTAL		244,025	

4. Existing Preserved Natural Areas

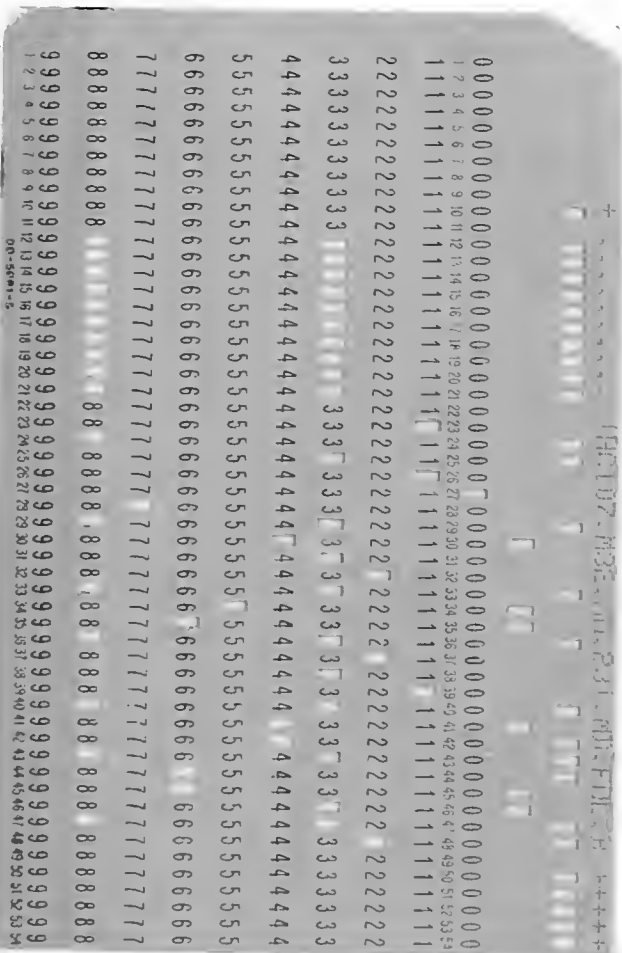
Designation of preserved natural areas is difficult since there are different types of preservation and protection. State and federal forests preserve flora and fauna but are subject to cutting, management, and multiple use. State and federal parks have much human use and are subject to management and partial development for recreation. The status of State and federal wildlife management areas and refuges is also variable since they preserve wildlife and flora, but are subject to management and change.

There are 17 sites (Table 3) which may be considered as preserved natural areas, but the status of some of these areas are not clear, particularly those preserved by State departments as forests, parks, or refuges. This list should be considered as very tentative, since some of the areas may not qualify as fully preserved natural areas.

The Nature Conservancy sites, the Natural Landmark areas, and the Smithsonian Institution areas can be considered as preserved natural areas. The State of Virginia has designated three natural areas--Charles C. Steirly Natural Area, Parkers Marsh Natural Area, and Seashore Natural Area. The latter is also a State Park with some tourist facilities and use.

TABLE 3. PRESERVED NATURAL AREAS

	Size of Area (Hectares)	Owner	Type of Area	Preservation
Hellen Creek Hemlock Preserve, Md.	36	Nature Conserv.	Hemlock Outlier	Good
Alexander Berger Memorial Sanctuary, Va.	346	"	Diverse Veg. & Wildlife	Good
Hambleton Island	11	"	Virgin Cedar & Pine	Good
Battle Creek Cypress Swamp, Md.	40	"	Cypress Outlier	Good; Landmark
Charles C. Steirly Natural Area, Va.	8	State of Virginia	Cypress & Tupelo	Good
Long Green Creek Valley and Sweathouse Branch, Md.	101	State of Md. Park	Forests and Rivers	Good
Belt Woods, Md.	16	Episcopal Church	Virgin Mature Forest	Proposed Landmark
Parkers Marsh Natural Area, Va.	307	State of Virginia	Tidal Marsh	Good
Patuxent River Wildlife Research Center, Md.	286	BSFW	Forests and Wildlife	Good; SAF Area
Seashore Natural Area, Va.	606	Va. State Park	Dunes and Forests	Good; Landmark
Mill Creek Bird Sanctuary, Md.	62	Quasi- Public	Oak-Pine Forest	Good
Hock Tract, Md.	6	Md. State Road Com.	Virgin forest	Good
Corcoran Tract (Part of Sandy Point State Park), Md.	56	Md. State Forest & Pk	Virgin Oak & Pine	Good
Smithsonian Chesapeake Bay Center for Environmental Studies, Md.	808	Smithsonian Institution	Forests & Marshes	Good
LeCompte Bryant Fox Squirrel Refuge, Md.	137	Md. Dept. Game & Fish	Hardwood & Softwood	Good
Pocomoke River Swamp, Md. (over 7,000 ha.)	202	Quasi-Public & State	Cypress & Cedar Swamp	Partly Preserved
Poplar Island, Jefferson and Coaches Islands, Md.	50	Smithsonian Institution	Forest & Marshes	Good
Total	3,078			



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