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The Woody Flora of Presquile,
Chesterfield County, Virginia.

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ABSTRACT

Presquile is an island in the James River managed as a wildlife refuge by the United States Department of the Interior. Field collection and identification of the woody flora of the island revealed 98 species distributed among 42 plant families. An annotated list of species is provided. County records are noted. Geographic affinities with regional floras are given attention. The biological significance of Presquile woody plant communities is considered.

INTRODUCTION

Presquile (also called Turkey Island or Presque Isle) became an island in the James River in 1934 when the Army Corps of Engineers dredged a channel across the narrow neck of a peninsula. Since 1952, the island has been managed by the United States Department of the Interior as the Presquile National Wildlife Refuge. Parker and Wyatt (1975) described the island topography, climate, and soils. They also described and delineated five plant communities: river escarpment, fill, swamp, tidal marsh, and field border.

This is the second in a series of reports giving attention to the flora of Presquile. Excluding the relatively small field border community, woody species dominate island plant communities. The presence of several woody species in the swamp community which are unique to the area as well as the susceptibility of that community to destruction by man warrant this early attention to the woody flora. The herbaceous flora is being studied and a report is forthcoming. The author wishes to thank Mr. Harold Olson and Mr. Luther Vick of the Presquile National

Wildlife Refuge staff for their interest and assistance in this study.

ANNOTATED LIST OF WOODY PLANTS

Woody species were collected during the 1973, 1974, and 1975 growing seasons. The following specimens (species) have been identified by the author and are represented by voucher specimens deposited in the Presquile National Wildlife Refuge herbarium. Nomenclature is that of Radford, Ahles, and Bell (1968). Where the Carolina nomenclature does not apply, that of M. L. Fernald (1950) has been incorporated. The order of listing follows that of Radford, etc. (1968). Genera are arranged alphabetically under families and species are alphabetized under genera. The community where collected (Parker and Wyatt, 1975) and the relative abundance within that community are listed for each species. Abundance classes are: very rare, rare, occasional, abundant and very abundant. A single asterisk before the species indicates a county record. Names preceded by two asterisks are those of introduced species which may or may not have become naturalized. The list is inclusive of 98 species distributed among 42 families.

Pinaceae

Pinus taeda L. Field border; very rare.

Taxodiaceae

*Taxodium distichum (L.) Richard. Swamp; occasional.

Cupressaceae

Juniperus virginiana L. Swamp, field border, and fill; occasional.

Poaceae

**Arundinaria gigantea (Walter) Muhl. Swamp; very rare.

Liliaceae

*Smilax bona-nox L. Field border; occasional.

*Smilax laurifolia L. Swamp; occasional.

Loranthaceae

*Phoradendron serotinum (Raf.) M. C. Johnston. Swamp; rare.

Ranunculaceae

*Clematis viorna L. River escarpment; abundant.

Magnoliaceae

Liriodendron tulipifera L. Swamp and fill; occasional.

**Magnolia grandiflora L. Field border; very rare (planted).

Annonaceae

*Asimina triloba (L.) Dunal. Swamp; rare.

Lauraceae

*Lindera benzoin (L.) Blume. Swamp; abundant.

Sassafras albidum (Nuttall) Nees. River escarpment; occasional.

Saxifragaceae

*Itea virginica L. Swamp; very rare.

Hamamelidaceae

Liquidambar styraciflua L. Fill, swamp, and river escarpment; rare.

Platanaceae

Platanus occidentalis L. Swamp (very rare) and fill (occasional).

Rosaceae

**Malus pumila Miller. Field border; very rare (planted).

*Prunus americana Marshall. Swamp; rare.

Prunus serotina Ehrhart. Fill and field border; occasional.

**Pyrus communis L. River escarpment; very rare.

*Rosa palustris Marshall. River escarpment; very rare.

Fabaceae

**Albizia julibrissin Durazzini. Field border; very rare (planted).

*Cercis canadensis L. Swamp; very rare.

Cytisus scoparius (L.) Link. Fill; occasional.

*Gleditsia triacanthos L. Field border; very rare.

Robinia pseudo-acacia L. Fill and field border; abundant.

Simaroubaceae

Ailanthus altissima (Miller) Swingle. River escarpment; occasional.

Anacardiaceae

Rhus copallina L. Field border; rare.

Rhus glabra L. Field border and river escarpment; occasional.

Rhus radicans L. Fill, field border, swamp; occasional.

Rhus typhina L. Field border; rare.

Smilax rotundifolia L. Field border and river escarpment:
abundant.

Salicaceae

- Populus alba L. Fill, rare.
*Populus deltoides Marshall. Fill; occasional.
*Populus heterophylla L. Swamp; very rare
Salix nigra Marshall. Swamp, river escarpment and fill:
occasional to rare.

Myricaceae

- *Myrica cerifera L. Swamp; rare.

Juglandaceae

- *Carya aquatica (Michaux f.) Nuttall. Swamp; very rare.
*Carya cordiformis (Wang) K. Koch. River escarpment and
field border; occasional
*Caraya glabra (Miller) Sweet. River escarpment and fill:
occasional.
**Carya illinoensis (Wang.) K. Koch. Field border; very rare.
*Carya tomentosa (Poiret) Nuttall. Field border and river
escarpment; occasional.
Juglans nigra L. River escarpment and field border; rare.

Betulaceae

- Alnus serrulata (Aiton) Willd. Swamp and marsh; occasional
to abundant.
Betula nigra L. River escarpment and fill; occasional.
*Carpinus caroliniana Walter. Swamp; very abundant.

Fagaceae

- *Quercus faloata Michaux. Fill; occasional.
*Quercus laurifolia Michaux. Swamp; very rare.
*Quercus lyrata Walter. Swamp; very rare.
*Quercus marilandica Muenchh. Fill; very rare.
*Quercus nigra L. Swamp; very rare.
*Quercus palustris Muenchh. Swamp; very rare.
*Quercus phellos L. Swamp; occasional.
*Quercus primus L. River escarpment; occasional.
Quercus velutina Lam. Fill; rare.

Ulmaceae

- *Celris laevigata Willd. Fill and river escarpment; occasional.
*Ulmus alata Michaux. River escarpment; occasional
*Ulmus americana L. River escarpment, fill and swamp;
occasional.
*Ulmus rubra Muhl. Swamp and fill; occasional

Moraceae

- *Maclura ponifera (Raf.) Schneider. Fill and river excarp-
ment; occasional.
*Morus aloa L. Fill; rare.
*Morus rubra L. Fill; occasional.

Aquifoliaceae

- *Ilex decidua Walter. Swamp; occasional.
*Ilex opaca Aiton. Swamp, fill, and river escarpment; occasional.
*Ilex verticillata (L.) Gray. Swamp; very rare.

Aceraceae

- Acer negundo L. Fill and swamp; rare.
Acer rubrum L. Swamp; very abundant.
*Acer saccharinum L. River escarpment; very rare.

Hippocastanaceae

- Aesculus glabra Willd. Field border; very rare (planted).

Rhamnaceae

- *Berchemia scandens (Hill) K. Koch. Swamp; rare.

Vitaceae

- Parthenocissus quinquefolia (L.) Planchon. Swamp, fill, field border, and river escarpment; occasional.
*Vitis aestivalis Michaux. Swamp, fill, and river escarpment; occasional.
*Vitis cinerea Engelm. ex Millardet. Swamp, river escarpment; occasional.
Vitis rotundifolia Michaux. Swamp and river escarpment; occasional.
Vitis vulpina L. Swamp; rare.

Malvaceae

- **Hibiscus syriacus L. River escarpment; occasional.

Lythraceae

- **Lagerstroemia indica L. Field border; rare (planted).

Araliaceae

- *Aralia spinosa L. Fill; very rare.

Nyssaceae

- *Nyssa aquatica L. Swamp; occasional.
*Nyssa sylvatica Marshall. Swamp, fill and river escarpment; occasional to very abundant.

Cornaceae

- *Cornus amomum Miller. Swamp; rare.
Cornus florida L. Swamp and river escarpment; rare.
*Cornus stricta Lam. Swamp; very rare.

Clethraceae

- Clethra alnifolia L. Swamp; rare.

Ericaceae

- *Vaccinium atrococcum (Gray) Porter. Swamp; abundant.

affinities with both coastal plain and piedmont floras. This situation would be expected in that Chesterfield County is bisected from north to south by the line dividing coastal plain and piedmont geographic provinces. However, the following species are generally considered to be restricted to coastal plain communities:

Taxodium distichum
Smilax laurifolia
Populus heterophylla
Myrica cerifera
Carya aquatica
Quercus lyrata

Fraxinus caroliniana
Berchemia scandens
Clethra alnifolia
Cornus stricta
Nyssa aquatica
Quercus laurifolia

The presence of these species on Presquile is due to the existence of a swamp habitat conducive to their establishment, growth and reproduction. Chesterfield County apparently represents the northwestern range limit of some species, notably Nyssa aquatica, Berchemia scandens, Carya aquatica, Quercus laurifolia, Quercus lyrata, Populus heterophylla, and Fraxinus caroliniana. Though meager herbarium collections in Virginia are poor indicators of their range limits, Carya aquatica, Quercus laurifolia, Nyssa aquatica, Berchemia scandens and Cornus stricta are apparently not too distant from their northern-most range limit in that they are not reported for Maryland by Brown and Brown (1972).

BIOLOGICAL SIGNIFICANCE

Swamp habitats in Virginia continue to be reduced in size or destroyed under the influence of man's agricultural and industrial demands. Most swamp communities in the James River area have been either destroyed or heavily modified. Many of these communities are now devoid of species which have been traditionally used to characterize their floras. The Presquile swamp is inclusive of several species not found in other swamp

communities of the area. Presquile is located on or near the northern and northwestern limit of the geographic distribution of this community type on the eastern coast of North America. Presquile's continued protection would allow both the preservation of an endangered habitat with its unique plant communities as well as the preservation of several species less commonly found in swamp communities of the area.

Within the Presquile swamp, stands of Nyssa aquatica are particularly noteworthy. They illustrate characteristics noted for stands of the species in central parts of its range. With increasing disturbance and elimination of swamp communities in surrounding areas, stands inclusive of this species on Presquile could conceivably occupy a relict status in the near future.

Size of the Presquile swamp (approximately 800 acres) as well as the physical difficulty of traversing the area have likely allowed some woody species growing there to escape detection by the author. Further collecting may reveal additional species generally associated with the southeastern swamp forest type. Such revelations would likely lead to modification in the range distributions of those species.

The refuge status of Presquile should ensure a minimum influence by man on the island communities. However, the danger of water-borne materials harmful to the natural state of Presquile lowland communities is potentially great because of the downstream location from a metropolitan area. This aspect is deserving of attention and monitoring to preclude potential destruction of island habitats and communities.

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