PROTECTION
STRATEGY REPORT

Ecological Significance of High Priority Geographic Areas of Particular Concern

SUBMITTED TO:

Coastal Resources Division
Tidewater Administration

SUBMITTED BY:

Maryland Natural Heritage Program
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BLACK BOTTOM PONDS

County: **Kent**
USGS Quad: **Millington**
Approximate Acreage: **270**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The preserve encompasses a nontidal wetland complex of Delmarva bays, deciduous forested and shrub-dominated swamps, emergent marshes, and beaver impoundments. Forested sandy ridges border the wetlands and two perennial streams nearly surround the wetland complex.

The focus of the preserve is a group of four Delmarva bays located in the southwest portion of the preserve. These seasonal ponds harbor an exceptional number and variety of rare plant species. Among these is Featherfoil (Hottonia inflata), a State Endangered species known to occur at just five other Maryland sites. Unlike the other rare species found in the ponds, Featherfoil matures throughout the winter under standing water. Its flowers then begin to emerge above the water surface in spring. In contrast, the other rare species germinate and mature during the summer on the ponds' exposed mudflats; flowering occurs from midsummer to early fall.

Large stands of Harper's Fimbristylis (Fimbristylis perpusilla), a State Endangered species, and the State Rare Clustered Bluets (Oldenlandia uniflora) occur in three of the four seasonal ponds. Harper's Fimbristylis is a candidate for federal listing as Endangered or Threatened. Fewer than 20 extant populations of this species have been reported worldwide and thirteen of those populations occur on Maryland's Eastern Shore. However, only one of the Maryland populations is currently protected.

Populations of three other State Endangered species, [Small Beggar-ticks (Bidens discoidea), Short-bristled Hornedrush (Rhynchospora corniculata)and Giant Sedge (Carex gigantea)] also occur in at least one of the four ponds. At most, just one population of each of these species is presently protected in Maryland.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Bidens discoidea	Small Beggar-ticks	State Endangered

Element Name	Common Name	Status
Carex gigantea	Giant Sedge	State Endangered
Fimbristylis perpusilla	Harper's Fimbristylis	State Endangered
Hottonia inflata	Featherfoil	State Endangered
Rhynchospora corniculata	Short-bristled Hornedrush	State Endangered
Oldenlandia uniflora	Clustered Bluets	State Rare

OTHER SITE VALUES AND SIGNIFICANCE:

Additional rare species may occur in the preserve, particularly in the Delmarva bays. Because the flora and fauna in many of the wetlands vary both seasonally and annually with fluctuations in water level, several visits are required to obtain a complete rare species list for the site.

The nontidal wetland complex provides excellent habitat for a variety of amphibians and reptiles. Potential habitat is present for the State Endangered Eastern Tiger Salamander (Ambystoma tigrinum) and Barking Treefrog (Hyla gratiosa), and the Carpenter Frog (Rana virgatipes), a species In Need of Conservation.

Suitable habitat is also present for a diversity of bird species. For example, the preserve contains foraging habitat for waterbirds, and both breeding and wintering habitat for migratory waterfowl. Moreover, forested areas in the preserve are of sufficient size, age, and shape (with respect to edge:area ratio) to support some obligate forest interior breeding birds.

Additionally, the preserve contains natural (i.e., riparian habitats) as well as man-made (i.e., transmission line right-of-way) landscape features that function as wildlife dispersal and movement corridors to other nearby natural areas.

BROOKVIEW PONDS

County: **Dorchester**
USGS QUAD: **Rhodesdale**
Approximate Acreage: **380**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The Brookview Ponds Preserve includes nine naturally-occurring seasonal ponds that provide habitat for numerous rare species. Like other seasonal ponds (also referred to as Delmarva Bays) on the Delmarva Peninsula, the hydrological system of these ponds is linked to groundwater levels. The ponds usually fill with water in the winter and spring and dry during the summer. The abundance of herbaceous vegetation in the Brookview Ponds is particularly unusual; most seasonal ponds are shallower forested swamps or shrub swamps. Several rare plants grow in the deepest portion of the ponds. These plants germinate in summer on the exposed pond bottom and complete their life cycle in the brief period before fall arrives.

To date, sixteen rare and uncommon plant species and the Carpenter Frog (Rana virgatipes), a species In Need of conservation in Maryland, are known to occur at this site. Five plant species that grow here are especially significant. Lance-leaved Sabatia (Sabatia difformis) had not been seen in Maryland since the early 1940's until it was discovered at this site in 1987. Capitate Beakrush (Rhynchospora cephalantha), also found in 1987, had not been recorded in Maryland since 1972. Wrinkled Jointgrass (Coelorachis rugosa) and Canby's Lobelia (Lobelia canbyi) are known from only one and two other Maryland locations, respectively. Moreover, the occurrence of Canby's Lobelia at this site represents the largest and most viable population of this species in the state. Finally, the only known Maryland population of Showy Aster (Aster spectabilis) occurs in the site's southeastern uplands.

Also of significance are the linear boggy areas that have formed in the poorly-draining ditches. Five of the rare species listed below inhabit these wetlands.

***Since the original survey of this site, the owner sprayed herbicide at several bays. Subsequently, most of the rare dicot species experienced significant population declines. We have placed acquisition plans on hold until we can determine whether these species will recover. We are discussing voluntary protection with the owner.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Aster spectabilis	Showy Aster	State Endangered*
Carex barrattii	Barratt's Sedge	State Endangered
Coelorachis rugosa	Wrinkled Jointgrass	State Endangered
Hypericum denticulatum	Coppery St. John's-wort	State Endangered
Lobelia canbyi	Canby's Lobelia	State Endangered
Rhynchospora torreyana	Torrey's Beakrush	State Endangered
Sabatia difformis	Lance-leaved Sabatia	State Endangered*
Eupatorium leucolepis	White-bracted Boneset	State Endangered
Rhynchospora cephalantha	Capitate Beakrush	State Endangered
Erianthus brevibarbis	Wooly Beardgrass	State Endangered
Rana virgatipes	Carpenter Frog	In Need of Conservation
Oldenlandia uniflora	Clustered Bluets	State Rare
Scleria reticularis	Reticulated Nutrush	State Rare
Amphicarpum purshii	Pursh's Amphicarpum	Watchlist
Drosera rotundifolia	Round-leaved Sundew	Watchlist
Lycopodium alopecuroides	Fox-tail Clubmoss	Watchlist
Rhynchospora gracilenta	Slender Beakrush	Watchlist

*Officially listed as Endangered Extirpated; not yet officially changed to Endangered status.

OTHER VALUES AND SIGNIFICANCE:

It is likely that other rare species of plants and animals will be found when these ponds are further explored. In years of particularly high or low water levels, many species not yet observed may be found.

Seasonal ponds provide breeding, nesting, and feeding grounds for migratory waterfowl and songbirds. In addition, the ponds provide ideal habitat for reptiles and amphibians such as the Eastern Tiger Salamander (Ambystoma tigrinum), a State Endangered Species.

CHEWS LAKE

County: **Prince Georges**
USGS Quad: **Bristol**
Approximate Acreage: **167**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The mature floodplain forest that borders Chews Lake is composed of species that usually dominate riparian floodplain forests along rivers much larger than the streams that flow through the protection area. Sycamore, American Elm, and Box Elder dominate the forest canopy. The herbaceous layer is lush and includes many spring wildflowers. A long beaver dam maintains the water level in the swamp. Other than beaver activity and a horse trail, there has been minimal recent disturbance to this forest.

Two rare plant species inhabit this unusual floodplain forest. Both are listed as Endangered in Maryland. This is the only known site in Maryland for Field Sedge (Carex conoidea). Further survey is needed to determine the size and vigor of this population. Corville's Phacelia (Phacelia ranunculacea) is known from only one other site in the State. The population at Chews Lake is much larger than the other known population of this species; thousands of flowering plants carpet the floodplain. Because the potential habitat for these rare species is extensive and of high quality, this site offers an excellent opportunity to preserve these species in Maryland.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Carex conoidea	Field Sedge	State Endangered
Phacelia ranunculacea	Corville's Phacelia	State Endangered

OTHER VALUES AND SIGNIFICANCE:

The floodplain and adjacent upland forest provide habitat for deer, beaver, and forest interior dwelling birds. The lake provides habitat for water dependent species of birds, amphibians, and reptiles. In addition, the broad floodplain forest absorbs floodwaters, thus reducing potential flooding and pollution downstream.

GALES CREEK

County: **Dorchester**
USGS Quad: **Sharptown**
Approximate Acreage: **545**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The Gales Creek site includes two millponds, Irving and Galestown Millponds, and a tidally influenced wetland that together host an exceptional number and variety of rare species. Irving Millpond is no longer impounded but consists of palustrine shrub swamp with a bog at the center. There are few bogs on Maryland's Eastern Shore, and this unique habitat supports six of the rare plant species. Galestown Millpond, on the other hand, is still impounded and supports an open water habitat. On the Maryland coastal plain, such man-made ponds are the only ones which have constant fresh water inflow and outflow. Historically, beaver were responsible for creating such conditions. However, these animals were nearly extirpated from the coastal plain during the earlier part of this century and are now uncommon. Consequently, the unusual conditions provided by a large body of gently flowing fresh water provide habitat for some specialized rare plants. The spillway area just below the Galestown Millpond dam represents the uppermost tidally influenced section of the Gales Creek watershed and contains a large subtidal, open water wetland that supports at least five rare plant species.

At least 20 rare and uncommon plant species are known to occur at this site. Thirteen species are designated as State Endangered, and one is listed as State Threatened. One of these species, Seven-angled Pipewort (Eriocaulon septangulare), was thought to have been extirpated from Maryland until found at this site. Three plants, Seaside Alder (Alnus maritima), Larger Floating-heart (Nymphoides aquatica), and Reversed Bladderwort (Utricularia resupinata) are rare throughout the region. The latter species was discovered in 1897 and has never before been known to occur in Maryland. The Alder is a candidate for listing under the U.S. Endangered Species Act. This site also supports five uncommon plant species on the Watchlist.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Bidens discoidea	Small Beggar-ticks	State Endangered*

Element Name	Common Name	Status
Elatine minima	Small Waterwort	State Endangered
Eleocharis robbinsii	Robbins' Spikerush	State Endangered
Eriocaulon parkeri	Parker's Pipewort	State Endangered
Eriocaulon septangulare	Seven-angled Pipewort	State Endangered*
Eupatorium leucolepis	White-bracted Boneset	State Endangered
Fuirena pumila	Smooth Fuirena	State Endangered
Nymphoides aquatica	Larger Floating-heart	State Endangered
Psilocarya scirpoides	Long-beaked Baldrush	State Endangered
Scirpus subterminalis	Water Clubrush	State Endangered
Sclerolepis uniflora	Pink Bog-button	State Endangered
Utricularia resupinata	Reversed Bladderwort	State Endangered
Xyris fimbriata	Fringed Yelloweyed-grass	State Endangered
Sarracenia purpurea	Northern Pitcher-plant	State Threatened
Alnus maritima	Seaside Alder	State Rare
Cladium mariscoides	Twigrush	Watchlist
Drosera rotundifolia	Round-leaved Sundew	Watchlist
Eleocharis olivacea	Green Spikerush	Watchlist
Rhynchospora alba	White Beakrush	Watchlist
Sagittaria graminea	Grass-leaved Arrowhead	Watchlist

*Officially listed as Endangered Extirpated; not yet officially changed to Endangered status.

OTHER SITE VALUES AND SIGNIFICANCE:

This protection area is contiguous with the Upper Nanticoke River Natural Heritage Area, an area targeted for protection by

the State because it contains several State Endangered Species, is a unique blend of hydrological, climatological and biological features, and is considered to be one of the best statewide examples of its kind. Because Gales Creek site is just upstream, its water quality directly affects the species and natural communities in the Natural Heritage Area. By preserving both areas, an extensive wildlife corridor is established which provides for the free flow of both plants and animals within their natural habitat.

The southernmost 1,000 ft. of this protection area are within the Chesapeake Bay Critical Area. This portion of the protection area is therefore covered by the provisions of the Critical Area Law (NRA 8-1801-1816). Additional regulatory actions provided by county government and/or by extending protection of the area farther upstream would strengthen the intent of the law and improve its effectiveness.

These millponds and the adjacent subtidal and swamp forest wetlands provide ideal breeding, nesting, and feeding habitat for resident waterbirds and migratory waterfowl and songbirds. Additionally, the area supports a variety of amphibians and reptiles, and contains suitable habitat for such area-sensitive mammals as otter (Lutra canadensis) and mink (Mustela vison).

GOLTS PONDS

County: **Kent**
USGS Quad: **Millington**
Approximate Acreage: **37**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

This protection area contains two Delmarva bays, unique nontidal wetland ecosystems restricted in Maryland to the Eastern Shore. These bays, also referred to as seasonal ponds, are centripetally-drained basins which range in size from one to fifteen acres and which hold up to 4 ft. of water in the spring. They often contain rare, disjunct, or endemic species and are considered unique because they are among the few remaining naturally open freshwater wetlands on the Coastal Plain. Many similar ponds have been drained for agriculture and development.

Three rare or uncommon plant species occur here. One is Harper's Fimbristylis (Fimbristylis perpusilla), a State Endangered species and a candidate for Federal Endangered Species status. The Golts Ponds population is the northernmost occurrence of the species. Other rare plants found here are Carex gigantea, which is also at the northern limit of its range, and Twining Bartonia (Bartonia paniculata), a Watchlist Species.

This site harbors a large population of the Barking Treefrog (Hyla gratiosa). This amphibian is known from just two other sites in Maryland. The recent observations of this species constitute a northern extension of its known range. The only previous report of the Barking Treefrog in Maryland was of a single, dead specimen.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Carex gigantea	Giant Sedge	State Endangered
Fimbristylis perpusilla	Harper's Fimbristylis	State Endangered
Bartonia paniculata	Twining Bartonia	Watchlist

OTHER VALUES AND SIGNIFICANCE:

Additional rare species of plants and animals may be found when further surveys are conducted at this site. In years of particularly high or low water levels, many species not yet observed may be found. Historically, seasonal ponds with herbaceous habitats have been shown to contain a great variety of unusual species.

Seasonal ponds provide breeding, nesting, and feeding grounds to migratory waterfowl and songbirds. In addition, the ponds provide ideal habitat for reptiles and amphibians, including several rare species.

KANE CROSSROADS POND

County: **Queen Anne's**
USGS Quads: **Goldsboro and Sudlersville**
Approximate Acreage: **130**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

Although most seasonal ponds are forested or dominated by shrubs, this pond, surrounded by swamp forest, is dominated by herbaceous vegetation. Fluctuations in groundwater level produce seasonal and annual fluctuations in the pond's water level. Normally the pond fills in the fall, winter and spring, and dries in the summer. Many similar ponds, also known as Delmarva Bays, have been destroyed by drainage or filling for agriculture or development. As Delmarva bays decline in numbers, so do the plant and animal species which rely on them for habitat. Remaining bays often harbor rare, disjunct, or endemic species specially adapted to the fluctuating water levels.

Most of the rare or uncommon species inhabiting this pond germinate after the pond has dried and complete their life cycles before fall frost. The populations of these species and the dominant herbaceous species are maintained by the fluctuating groundwater regime.

An unusual variety of rare species inhabit the pond center, including a State Endangered Species, Harper's Fimbristylis (Fimbristylis perpusilla). Known from fewer than 20 sites worldwide, Harper's Fimbristylis is a candidate for listing under the U.S. Endangered Species Act. Thirteen extant populations of this species are known from Maryland, but only one is protected. Two State Rare species, Reticulated Nutrush (Scleria reticularis) and Clustered Bluets (Oldenlandia uniflora), are each known from fewer than twenty extant sites in Maryland. The Carpenter Frog, a species In Need of Conservation, and an uncommon grass species also inhabit this pond.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Fimbristylis perpusilla	Harper's Fimbristylis	State Endangered
Rana virgatipes	Carpenter Frog	In Need of Conservation
Scleria reticularis	Reticulated Nutrush	State Rare

Element Name	Common Name	Status
Oldenlandia uniflora	Clustered Bluets	State Rare
Panicum hemitomon	Maidencane	Watchlist

OTHER VALUES AND SIGNIFICANCE:

Additional rare species may occur at this site, such as the State Endangered Species, Eastern Tiger Salamander (Ambystoma tigrinum). Although the pond provides ideal habitat for amphibians, this species was not apparent in late summer when the pond was surveyed. The flora and fauna of seasonal ponds varies seasonally and annually with the pond's water level, and several visits will be needed to complete a thorough survey.

The seasonal pond offers feeding, breeding, and nesting grounds for migratory waterfowl and songbirds, and feeding grounds for resident waterbirds. Deer also feed and rest in seasonal ponds.

MARYLAND POINT SWAMP

County: **Charles**
USGS Quad: **Nanjemoy**
Approximate Acreage: **160**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

This diverse wetland complex contains fine examples of forested swamp, shrub swamp, emergent marsh, and bottomland forest. Six rare or uncommon plant species inhabit these wetlands. Three of these species are known from fewer than six sites in Maryland. The dominant aquatic plant in most of the shrub swamp and emergent marsh, American Frog's-bit (Limnobium spongia) is an extremely rare species known from no other site in the State. Growing on the northern fringe of its range, the presence of numerous flowering and fruiting plants indicates that this is a thriving and viable population of this rare species.

This wetland is, at least in part, influenced by beaver activity, which aids in maintaining consistent water levels throughout the growing season. Historically, beaver played an important role in the creation of freshwater wetlands required by many rare species. Unfortunately, the decline of beaver populations has resulted in the loss of many of these important habitats. Many more have been destroyed by drainage for logging, development, and agricultural purposes.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Limnobium spongia	American Frog's-bit	State Endangered*
Rhynchospora corniculata	Short-bristled Hornedrush	State Endangered
Carex louisianica	Louisiana Sedge	State Endangered
Ludwigia decurrens		State Rare
Utricularia gibba	Humped Bladderwort	Watchlist
Bartonia paniculata	Twining Bartonia	Watchlist

*Officially listed as Endangered Extirpated; not yet officially changed to Endangered status.

OTHER VALUES AND SIGNIFICANCE:

Further survey of the area will likely reveal additional rare plant species in this wetland complex. The potential for rare amphibians is also high. This wetland provides excellent habitat for resident waterbirds and migratory waterfowl. Signs of recent beaver and deer activity provide evidence that varied forms of wildlife inhabit this area.

STONY RUN

County: **Anne Arundel**
USGS Quad: **Relay**
Approximate Acreage: **165**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The Pitch Pine-Red Maple Swamp Forest that borders Stony Run is a rare community on the Upper Coastal Plain. Several of the herbaceous species in the swamp usually inhabit colder regions in the mountains or in the Piedmont further north. Forests as mature as the swamp along Stony Run are rare throughout the Coastal Plain. The well-stratified canopy and the presence of large trees (pines greater than 15 in. in diameter) indicate that portions of this protection area have not been logged in more than 60 years. A colorful display of native wildflowers blankets the forest in the spring and summer. The absence of non-native species throughout much of the swamp is probably a result of minimal recent disturbance to this area.

Three rare plant species grow in the well-developed herbaceous layer of the swamp forest. One of these, Swamp Pink (Helonias bullata), is known from just four other sites in Maryland and is rare throughout its range. Portions of two of the sites for this species are protected voluntarily by landowners, but these voluntary agreements do not offer long-term protection for these sites. Bog Fern (Thelypteris simulata) is known from fewer than a dozen sites in the State. This relatively mature swamp forest provides opportunity to preserve these rare species as well as a rare community.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Helonias bullata	Swamp Pink	State Endangered Federally Threatened
Arundinaria gigantea	Giant Cane	State Threatened
Thelypteris simulata	Bog Fern	State Threatened
Listera australis	Southern Twayblade	Watchlist

OTHER VALUES AND SIGNIFICANCE:

The Stony Run Protection Area is adjacent to a State Park and offers an excellent opportunity to increase the diversity of

habitats within the park. Whether this swamp forest is annexed to the park or protected as a separate entity, it will enhance the recreational and educational values of the park by providing an unusual habitat for visitors to explore.

Two additional rare plant species, Clammyweed (Polanisia dodecandra) and Halbered-leaved Greenbrier (Smilax pseudo-china) have been reported from this area but have not been observed recently. Because there has been little disturbance to portions of the habitat, further survey may reveal that these species still inhabit the swamp forest.

TANHOUSE CREEK

County: **Worcester**
USGS Quad: **Public Landing**
Approximate Acreage: **250**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The upland oak-Tulip Poplar forest and Red Maple-Sweet Gum swamp include many species that are characteristic of Piedmont forests but rare on the Coastal Plain. These species, including Bloodroot, Showy Orchis, and Cut-leaved Toothwort, are indicative of soils that are much less acidic than typical Coastal Plain soils. The high degree of relief along Tanhouse Creek is also unusual for this region and provides a variety of habitats along the elevation gradient.

Included in this atypical flora are seven rare or uncommon plant species. An extensive population of Dwarf Trillium (Trillium pusillum var. virginianum), a State Threatened member of the Lily Family, thrives along Tanhouse Creek's banks. This is one of only seven known occurrences in the state. This plant species is known from fewer than fifty sites worldwide and is a candidate for listing under the U.S. Endangered Species Act. All known populations of this wildflower in Maryland occur in Worcester County, which may be indicative of highly specific soil and hydrologic requirements.

The woods along Tanhouse Creek also harbor Maryland's only known population of Atamasco Lily, Zephyranthes atamasco, another member of the Lily family. This Highly State Rare wildflower occurs here at the northern extreme of its range. Protecting populations at the edge of a species' range preserves the species' genetic variability and its ability to respond to environmental changes.

Five uncommon plant species inhabit this site. These species are not yet believed to be threatened, but are worthy of monitoring.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Trillium pusillum var. virginianum	Dwarf Trillium	State Threatened
Zephyranthes atamasco	Atamasco Lily	Highly State Rare

Element Name	Common Name	Status
Aristolochia serpentaria	Virginia Snakeroot	Watchlist
Carex seorsa	Weak Stellate Sedge	Watchlist
Carex styloflexa	Bent Sedge	Watchlist
Listera australis	Southern Twayblade	Watchlist
Viola brittoniana	Britton's Violet	Watchlist

OTHER VALUES AND SIGNIFICANCE:

This protection area contains a floristically diverse forest which supports numerous plant species not typical of the lower Coastal Plain. The relief along the creek is unusual for the lower coastal plain. The plants found here are more common in the Piedmont and upper Coastal Plain, and indicate rich, well-drained soils.

The protection area also includes a small section of brackish tidal marsh. Such marshland is exceptionally productive, supporting numerous invertebrates which form the basis of the food chain.

WHITAKER SWAMP

County: **Cecil**
USGS Quads: **Bay View, Havre De Grace, North East**
Approximate acreage: **287**

SUMMARY OF ECOLOGICAL SIGNIFICANCE:

The preserve contains a prime example of a mature, deciduous swamp forest. Few swamp forests of this size and age remain in Maryland due to clearing and draining for development or logging. The high water quality of groundwater seeps feeding this swamp is maintained by the undisturbed, forested slopes that border the swamp. The circumneutral soils, an unusual feature in Cecil County, and well-shaded mesic to hydric forested conditions support a high diversity of herbaceous species. Especially notable is the rich spring and early summer wildflower display.

The well-shaded seepage slopes support the state's largest population of Swamp Pink (Helonias bullata), a species recently listed as Federally Threatened. Swamp Pink historically occurred from New York to Georgia in highly specific habitats consisting of groundwater-influenced, perennially saturated but not flooded, forested soils. Because of these habitat restrictions and relatively low reproductive success, Swamp Pink has probably always been rare throughout its range. However, extensive loss of required habitat has reduced this species' distribution to fewer than 100 populations. In New York, Swamp Pink is currently believed to be extirpated, and only four other populations are known in Maryland.

Whitaker Swamp also supports the State Endangered Darlington's Spurge (Euphorbia purpurea), which is a candidate for federal listing, and an excellent population of the State Threatened Climbing Fern (Lygodium palmatum). Each of these species is known from fewer than five sites in Maryland. None of these populations is currently protected.

ELEMENT SUMMARY TABLE:

Element Name	Common Name	Status
Helonias bullata	Swamp Pink	State Endangered Federally Threatened
Euphorbia purpurea	Darlington's Spurge	State Endangered
Lygodium palmatum	Climbing Fern	State Threatened

OTHER SITE VALUES AND SIGNIFICANCE:

The large nontidal wetland provides excellent foraging and breeding habitat for amphibians, some obligate forest interior birds, and a variety of other forest and swamp dwelling wildlife and plants. In addition, the wetlands and surrounding uplands serve to maintain and enhance water quality of the rivers they feed and, ultimately, the Chesapeake Bay.