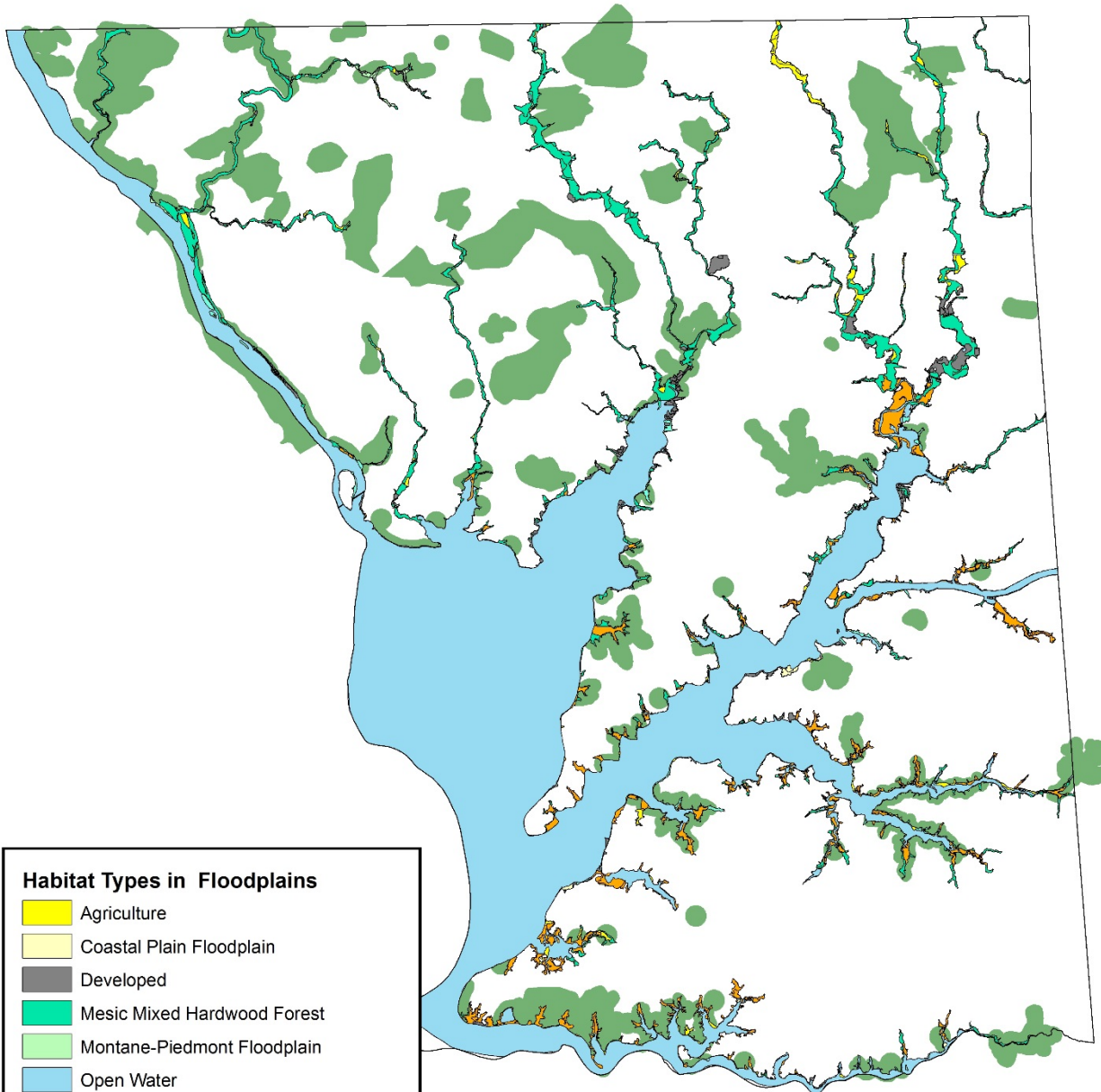


APPENDIX I: Species of Greatest Conservation Need in Cecil County Floodplains











Cecil County staff coordinated with DNR's Wildlife and Heritage Service to prepare this section of the plan. The DNR biologists compiled lists of species of greatest conservation need that could be found within Cecil County's floodplain habitats. County staff mapped the various habitat types within the floodplains using a combination of information on land use, vegetation, wetlands, and aerial photography. However, not all of the floodplain habitats could be mapped due their smaller size and infrequent occurrence throughout the County. Following the 2015 Maryland State Wildlife Action Plan, descriptions of the various habitats are provided below, including both the mapped habitats and those not mapped.

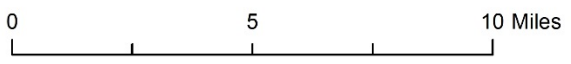
Species of greatest conservation need are those animals, both aquatic and terrestrial, that are at risk or are declining in Maryland. They include threatened and endangered species, as well as many other species whose populations are of concern in the state. They include mammals, birds, reptiles, amphibians, fishes, insects, freshwater mussels, and other invertebrates. A breakdown of the percentage of various floodplain habitats is provided below, followed by a map, and then the listings of species of greatest conservation need that can be found within each habitat type.

% Floodplain	Acres	Habitat Types
7.3	875.9	Agriculture
0.7	79.8	Coastal Plain Floodplain
12.4	1482.5	Developed
50.5	6017.6	Mesic Mixed Hardwood Forest
0.9	103.8	Montane-Piedmont Floodplain
0.3	34.5	Roadside & Utility Rights-of-Way
3.5	415.6	Tidal Forest
24.4	2913.5	Tidal Freshwater Marsh & Shrubland
	2438.2	



Habitat Types in Floodplains

-  Agriculture
-  Coastal Plain Floodplain
-  Developed
-  Mesic Mixed Hardwood Forest
-  Montane-Piedmont Floodplain
-  Open Water
-  Roadside & Utility Rights-of-way
-  Tidal Forest
-  Tidal Freshwater Marsh & Shrubland
-  Sensitive Species Project Review Areas



Mapped Floodplain Habitats

Coastal Plain Floodplain

This habitat is characterized by a variety of flooded habitats that border Coastal Plain streams and rivers. These floodplain habitats are influenced by temporary or seasonal overbank flooding, groundwater seepage, and beaver activity. The vegetation of Coastal Plain Floodplains is both structurally and compositionally diverse, and often occurs as a mosaic of forests, woodlands, shrublands, and herbaceous communities. Species composition varies widely with stream order, soil type, and flooding regime. Floodplain forests of small intermittent streams and braided streams may support combinations of sycamore, green ash, red maple, sweetgum, black gum, river birch, swamp chestnut oak, and willow oak. Diverse understories are often present and characterized by mixtures of American hornbeam, pawpaw, American elm, American holly, spicebush and herbs of Jack-in-the-pulpit, false nettle, poison-ivy, Virginia creeper, sweet woodreed, and various sedges. Similarly, floodplain forests of larger Coastal Plain Rivers with well-drained terraces or natural levees will often support species such as tulip poplar, beech, and box elder. Poorly drained floodplains, backswamps, and depressions of small Coastal Plain streams and rivers may support seasonally flooded swamps dominated by green ash, red maple, and plants tolerant of fluctuating water levels such as lizard's-tail. Floodplain pools, beaver ponds, and other open water habitats are also characteristic of Coastal Plain Floodplains. These habitats are subjected to irregular disturbances that change water levels, such as the breaching of beaver dams and storm events. These habitats are highly variable in size, structure, and species composition. They often support a variety of floating aquatic, emergent, and woody vegetation. Species common to these habitats include white water-lily, spatterdock, pondweeds, duckweeds, bladderworts, rice cutgrass, common rush, smartweeds, pickerelweed, arrow-arum, three-way sedge, common cattail, American bur-reed, swamp loosestrife, and buttonbush.

Species

Group	Scientific Name	Common Name
Amphibian	<i>Lithobates kauffeldi</i>	Atlantic Coast leopard frog
Bird	<i>Anas rubripes</i>	American black duck
Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Nyctanassa violacea</i>	Yellow-crowned night-heron
Bird	<i>Nycticorax nycticorax</i>	Black-crowned night-heron
Bird	<i>Buteo platypterus</i>	Broad-winged hawk
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Actitis macularius</i>	Spotted sandpiper
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Tringa flavipes</i>	Lesser yellowlegs
Bird	<i>Tringa melanoleuca</i>	Greater yellowlegs
Bird	<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker
Bird	<i>Empidonax traillii</i>	Willow flycatcher

Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Vireo flavifrons</i>	Yellow-throated vireo
Bird	<i>Riparia riparia</i>	Bank swallow
Bird	<i>Certhia americana</i>	Brown creeper
Bird	<i>Catharus fuscescens</i>	Veery
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Helminthos vermivorus</i>	Worm-eating warbler
Bird	<i>Icteria virens</i>	Yellow-breasted chat
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Bird	<i>Protonotaria citrea</i>	Prothonotary warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Vermivora pinus</i>	Blue-winged warbler
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Insect	<i>Gomphaeschna furcillata</i>	Harlequin darner
Insect	<i>Libellula axilena</i>	Bar-winged skimmer
Insect	<i>Lycaena hyllus</i>	Bronze copper
Mammal	<i>Cryptotis parva</i>	Least shrew
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Graptemys geographica</i>	Northern map turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle
Reptile	<i>Lampropeltis getula</i>	Eastern kingsnake
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Mesic Mixed Hardwood Forest

This habitat develops over acidic, nutrient poor soils of the Coastal Plain and Piedmont in a variety of moist landscape settings including ravines, lower slopes, undulating uplands, and flatwoods. They are characterized by mixed canopies of tulip poplar, American beech, white oak, northern red oak, mockernut hickory, pignut hickory and understories of white flowering dogwood, paw paw, American strawberry-bush, and American hornbeam. Many of the oaks and other associated trees of these forests vary by region. For example, loblolly pine and American holly are occasionally prominent in Coastal Plain Mesic Mixed Hardwood Forests, but are absent in Piedmont stands. The infertile soils of these forests rarely support lush layers of herbaceous vegetation like those in basic mesic forests; however, ferns such as Christmas fern and New York fern may be locally abundant in patches. Other plants common to this

key wildlife habitat include pink lady's-slipper, false Solomon's-seal, perfoliate bellwort, Indian cucumber root, crane fly orchid, and spotted wintergreen.

Species

Group	Scientific Name	Common Name
Bird	<i>Buteo platypterus</i>	Broad-winged hawk
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Caprimulgus vociferus</i>	Eastern whip-poor-will
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Certhia americana</i>	Brown creeper
Bird	<i>Catharus fuscescens</i>	Veery
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Helmitheros vermivorus</i>	Worm-eating warbler
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga discolor</i>	Prairie warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Mammal	<i>Sorex fumeus</i>	Smoky shrew
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle

Montane-Piedmont Floodplain

This habitat encompasses a wide variety of floodplain habitats along small streams and large river systems in the Piedmont region of Cecil County. These habitats are very diverse with species distributions influenced by geology, soil properties, and flooding regimes. Temporarily and intermittently flooded bottomland forests are prominent along many of the rivers and are frequently characterized by species such as sycamore, silver maple, black walnut, river birch, boxelder, paw-paw,

and American elm. Distinct alluvial landforms such as gravel bars, levees, terraces, old oxbows, and sloughs are usually present at varying scales along larger rivers. Young, flood-scoured woodlands sometimes occur along shoreline areas and islands, especially in high-gradient rocky sections and along flood-deposited sand and gravel bars. Such areas are frequently dominated by dense, nearly pure stands of small (2-8 m tall) sycamore, boxelder, river birch and green ash trees. Frequently embedded within floodplain forests are floodwater pools and seasonally flooded backswamps and sloughs dominated by red maple, silver maple, sweetgum, and hydrophytic oaks such as pin oak and swamp white oak. These backwater areas usually exhibit distinctive hummock-and-hollow microtopography with maximum flood depths of 50-70 cm. Along smaller, higher gradient streams, where the floodplain is narrower and alluvial landforms develop at much smaller scales, mesophytic species may occur. Commonly encountered is a mixture of bottomland and mesophytic species which include tulip poplar, sugar maple, basswood, American beech, and white pine. At higher elevations, eastern hemlock, black cherry, yellow birch, and dense thickets of great laurel are usually prominent.

Species

Group	Scientific Name	Common Name
Bird	<i>Mergus merganser</i>	Common merganser
Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Nyctanassa violacea</i>	Yellow-crowned night-heron
Bird	<i>Nycticorax nycticorax</i>	Black-crowned night-heron
Bird	<i>Buteo platypterus</i>	Broad-winged hawk
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Actitis macularius</i>	Spotted sandpiper
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Tringa flavipes</i>	Lesser yellowlegs
Bird	<i>Tringa melanoleuca</i>	Greater yellowlegs
Bird	<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker
Bird	<i>Empidonax traillii</i>	Willow flycatcher
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Vireo flavifrons</i>	Yellow-throated vireo
Bird	<i>Riparia riparia</i>	Bank swallow
Bird	<i>Certhia americana</i>	Brown creeper
Bird	<i>Catharus fuscescens</i>	Veery
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Helmitheros vermivorus</i>	Worm-eating warbler
Bird	<i>Icteria virens</i>	Yellow-breasted chat
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Bird	<i>Protonotaria citrea</i>	Prothonotary warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga cerulea</i>	Cerulean warbler

Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Vermivora pinus</i>	Blue-winged warbler
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Insect	<i>Anax longipes</i>	Comet darner
Insect	<i>Gomphaeschna furcillata</i>	Harlequin darner
Insect	<i>Libellula axilena</i>	Bar-winged skimmer
Insect	<i>Atrytone logan</i>	Delaware skipper
Insect	<i>Boloria selene</i>	Silver-bordered fritillary
Insect	<i>Euphydryas phaeton</i>	Baltimore checkerspot
Insect	<i>Euphyes conspicua</i>	Black dash
Insect	<i>Poanes massasoit massasoit</i>	Mulberry wing
Mammal	<i>Cryptotis parva</i>	Least shrew
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Glyptemys muhlenbergii</i>	Bog turtle
Reptile	<i>Graptemys geographica</i>	Northern map turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Roadside & Utility Rights-of-Way

These habitats comprise a mixture of managed grasslands and shrub-dominated early successional forest areas that are maintained along roadsides, gas pipelines, and in powerline rights-of-way. Vegetation composition includes both native and non-native species and varies across the region. Depending on site conditions (e.g., soils, geology, slope, aspect, etc.) and how vegetation along the roadside or right-of-way is managed, these areas may, to some degree, mimic the natural disturbances and early successional phases of adjacent natural systems. Because these areas are usually rather narrow, although long, strips of habitat, they are usually not suitable for vertebrates that are area-sensitive and require the interior of large habitat patches for optimal breeding conditions. Therefore, these areas are more valuable as habitat for species, especially invertebrates, that may not require large habitat patches, as migratory or dispersal corridors for birds and other vertebrates, or as additional “linkage” habitat that connects and expands the size of adjacent patches of managed successional forests or grasslands. In highly fragmented or mosaic landscapes, connectivity between habitat patches may be important for the survival of wildlife on a species-specific basis.

Species

Group	Scientific Name	Common Name
Bird	<i>Empidonax traillii</i>	Willow flycatcher
Bird	<i>Setophaga discolor</i>	Prairie warbler
Bird	<i>Vermivora pinus</i>	Blue-winged warbler
Insect	<i>Bombus citrinus</i>	Lemon cuckoo bumble bee
Insect	<i>Danaus plexippus</i>	Monarch
Insect	<i>Hesperia leonardus</i>	Leonard's skipper
Insect	<i>Hesperia metea</i>	Cobweb skipper
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink

Tidal Forest

The Tidal Forest habitat includes a variety of tidally flooded forests that border the upper reaches of Coastal Plain Rivers and tributaries. These habitats are species rich and structurally complex with open canopies and floristically diverse lower strata. In much of our region, these freshwater habitats are dominated by mixtures of hardwoods such as ash, gum, and maple. These communities often develop in narrow ecotones between regularly tidally flooded areas and the upland interface. The shrub layer in freshwater Tidal Forests is usually dense and diverse often including species such as northern arrow-wood, winterberry, silky dogwood, swamp azalea, swamp rose, fetterbush, and sweet pepperbush. Climbing vines are common in multiple layers and may include species such as common wild yam, poison-ivy, common greenbrier, and Virginia creeper. Pronounced hummock-and-hollows microtopography is characteristic of tidal forests. Hollows are regularly inundated by tidal water, whereas hummocks are less frequently flooded thus supporting the establishment of trees and numerous herbs. The exceptional species diversity and richness in these habitats can be attributed to the flooding frequency and hummock-and-hollow microtopography. Regularly flooded hollows support many flood-tolerant swamp species, such as jewelweed, arrow arum, halberd-leaved tearthumb, lizard's-tail, and sedges such as tussock sedge. Elevated above normal high tides, hummocks provide habitat for marsh blue violet, water hemlock, clearweed, false nettle, and ferns such as royal fern, cinnamon fern, and marsh fern.

Species

Group	Scientific Name	Common Name
Amphibian	<i>Lithobates kauffeldi</i>	Atlantic Coast leopard frog

Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Vireo flavifrons</i>	Yellow-throated vireo
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Helminthophila vermivorus</i>	Worm-eating warbler
Bird	<i>Icteria virens</i>	Yellow-breasted chat
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Bird	<i>Protonotaria citrea</i>	Prothonotary warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Insect	<i>Lycaena hyllus</i>	Bronze copper
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Graptemys geographica</i>	Northern map turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle
Reptile	<i>Lampropeltis getula</i>	Eastern kingsnake
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Tidal Freshwater Marsh & Shrubland

Tidal Freshwater Marshes and Shrublands are flooded twice daily by lunar tides. In Maryland, they are widely distributed along tidal rivers and shores of the Chesapeake Bay. This habitat occurs in upper sections of tidal rivers and creeks where water is consistently fresh (salinity less than 0.5 ppt). Pulses of higher salinity are common during spring high tides and episodes of low river discharge during drought cycles. Typically, there are two distinct zones in a tidal freshwater marsh; a low elevation zone dominated by short, broad-leaf emergents bordering mudflats or open water, and a slightly higher-elevation area dominated by tall graminoids. Plants in the low zone may include spatterdock, arrow arum, and pickerelweed while higher zones often support species such as wild rice, jewelweed, sweetflag, dotted smartweed, rice cutgrass, tearthumbs, and beggar-ticks. This zonation can be attributed to flooding depth, duration, and frequency. Tidal freshwater shrublands commonly form small, linear patches on floodplains between tidal emergent marshes and Tidal Forests. On narrow or constricted floodplains, discrete shrub-dominated communities occur along ecotones or transitional areas and may not be physiognomically distinct. Stands occupying rather expansive marshes or large estuary meanders on broader floodplains are commonly fronted or surrounded by emergent marshes forming depositional

islands. The vegetation of tidal freshwater shrub wetlands is very diverse and typically contains species characteristic of both tidal marshes and tidal forests. Common are shrubs such as smooth alder, winterberry, marsh rose, smooth arrow-wood, southern bayberry, and silky dogwood. Pronounced hummock and hollow microtopography is characteristic and contributes to relatively high species richness with most species confined to irregularly flooded hummocks. Hollows are regularly flooded and typically contain only those species tolerant of frequent inundation.

Species

Group	Scientific Name	Common Name
Insect	<i>Atrytone logan</i>	Delaware skipper
Insect	<i>Lycaena hyllus</i>	Bronze copper
Amphibian	<i>Lithobates kauffeldi</i>	Atlantic Coast leopard frog
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Malaclemys terrapin terrapin</i>	Northern diamond-backed terrapin
Reptile	<i>Lampropeltis getula</i>	Eastern kingsnake
Bird	<i>Anas rubripes</i>	American black duck
Bird	<i>Oxyura jamaicensis</i>	Ruddy duck
Bird	<i>Podilymbus podiceps</i>	Pied-billed grebe
Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Ixobrychus exilis</i>	Least bittern
Bird	<i>Nyctanassa violacea</i>	Yellow-crowned night-heron
Bird	<i>Nycticorax nycticorax</i>	Black-crowned night-heron
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Actitis macularius</i>	Spotted sandpiper
Bird	<i>Arenaria interpres</i>	Ruddy turnstone
Bird	<i>Calidris alba</i>	Sanderling
Bird	<i>Calidris alpina</i>	Dunlin
Bird	<i>Calidris pusilla</i>	Semipalmated sandpiper
Bird	<i>Tringa flavipes</i>	Lesser yellowlegs
Bird	<i>Tringa melanoleuca</i>	Greater yellowlegs
Bird	<i>Cistothorus palustris</i>	Marsh wren
Mammal	<i>Cryptotis parva</i>	Least shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat

Floodplain Habitats Not Mapped

Artificial Impoundment and Wetland

No natural lakes occur in Cecil County; the County lies well south of the southern extent of glaciation and

lacks other natural lake-forming, geologically-based processes. However, numerous man-made wetlands, ponds, and lakes of varying sizes exist. These habitats are usually the result of water diversion. In many cases, impoundments were created at the expense of natural streams and river systems. Cecil County does, however, contain some small natural, open freshwater areas in the form of beaver impoundments, wetland openings (e.g., Carolina bays, vernal pools, montane bogs and fens, flooded riverine floodplain openings) and river oxbows. A variety of species of conservation need inhabit such areas and also use man-made impoundments and wetlands. In a few cases (e.g., black-banded sunfish), where natural aquatic habitats have been destroyed or degraded, artificial impoundments provide critical refugia. Today, the number and overall extent of the state's natural open water areas and wetlands have been greatly reduced due to various forms of wetland, stream and river habitat loss and degradation. Also, beaver populations in many parts of the state have never fully recovered from pre-1900 declines due to fur trapping pressure; the effects on aquatic ecosystems and associated wildlife have been significant.

Species

Group	Scientific Name	Common Name
Bird	<i>Anas rubripes</i>	American black duck
Bird	<i>Aythya americana</i>	Redhead
Bird	<i>Aythya valisineria</i>	Canvasback
Bird	<i>Clangula hyemalis</i>	Long-tailed duck
Bird	<i>Melanitta americana</i>	Black scoter
Bird	<i>Melanitta fusca</i>	White-winged scoter
Bird	<i>Melanitta perspicillata</i>	Surf scoter
Bird	<i>Oxyura jamaicensis</i>	Ruddy duck
Bird	<i>Gavia immer</i>	Common loon
Bird	<i>Podiceps auritus</i>	Horned grebe
Bird	<i>Podilymbus podiceps</i>	Pied-billed grebe
Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Ixobrychus exilis</i>	Least bittern
Bird	<i>Nycticorax nycticorax</i>	Black-crowned night-heron
Bird	<i>Aquila chrysaetos</i>	Golden eagle
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Actitis macularius</i>	Spotted sandpiper
Bird	<i>Arenaria interpres</i>	Ruddy turnstone
Bird	<i>Calidris alba</i>	Sanderling
Bird	<i>Calidris alpina</i>	Dunlin
Bird	<i>Calidris pusilla</i>	Semipalmated sandpiper
Bird	<i>Limnodromus griseus</i>	Short-billed dowitcher
Bird	<i>Phalaropus fulicarius</i>	Red phalarope
Bird	<i>Phalaropus lobatus</i>	Red-necked phalarope
Bird	<i>Pluvialis squatarola</i>	Black-bellied plover
Bird	<i>Tringa flavipes</i>	Lesser yellowlegs
Bird	<i>Tringa melanoleuca</i>	Greater yellowlegs
Bird	<i>Tringa semipalmata</i>	Willet

Freshwater Mussel	<i>Elliptio fisheriana</i>	Northern lance
Freshwater Mussel	<i>Lampsilis radiata</i>	Eastern lampmussel
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Malaclemys terrapin terrapin</i>	Northern diamond-backed terrapin
Reptile	<i>Terrapene carolina</i>	Eastern box turtle

Coastal Plain Seepage Swamp

This habitat is characterized by gently sloping forests of small headwaters, ravine bottoms, and toe-slopes where groundwater is discharged at ground surface and carried away as stream flow. Often the groundwater seepage is perennial and characterized by diffuse drainage and braided channels with sand, gravel, or peaty substrates. Soils are typically moderately to strongly acidic and nutrient-poor; however, basic seepage swamps may develop in ravines that have downcut into tertiary-aged shell marl deposits. Coastal Plain Seepage Swamps are associated with mostly closed to semi-open canopies of red maple, blackgum, tulip polar, sweetbay magnolia, green ash, white ash, and pitch pine. The shrub and herbaceous layers in many Coastal Plain Seepage Swamps are diverse and recognized by dense patches of skunk cabbage and colonies of ferns such as cinnamon fern, marsh fern, royal fern, New York fern, and netted chainfern. Other notable plants include jewelweed, small green orchid, Virginia water horehound, Jack-in-the-pulpit, false nettle, and numerous sedges. In addition, hummocks of peat mosses can be quite abundant and diagnostic to Coastal Plain Seepage Swamps of acidic substrates. The shrub layer may include winterberry, sweet pepperbush, swamp azalea, spicebush, possum-haw, highbush blueberry, and vines of poison-ivy, greenbrier, and Virginia creeper. Coastal Plain Seepage Swamps are naturally small-patched habitats vulnerable to hydrological disturbances, beaver activity, logging, and surface runoff.

Species

Group	Scientific Name	Common Name
Amphibian	<i>Pseudotriton ruber</i>	Northern red salamander
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush

Bird	<i>Protonotaria citrea</i>	Prothonotary warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Insect	<i>Cordulegaster erronea</i>	Tiger spiketail
Insect	<i>Libellula axilena</i>	Bar-winged skimmer
Insect	<i>Libellula flavida</i>	Yellow-sided skimmer
Insect	<i>Tachopteryx thoreyi</i>	Gray petaltail
Insect	<i>Lycaena hyllus</i>	Bronze copper
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys muhlenbergii</i>	Bog turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle
Reptile	<i>Lampropeltis getula</i>	Eastern kingsnake
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Coastal Plain Stream

Cecil County's coastal plain streams extend from the fall line southward toward the Chesapeake Bay. These streams are typically low gradient (<1%) and found at elevations of less than 50' above sea level. Silt, sand, gravel, and small cobble are the dominant substrates. Most coastal plain streams contain only runs, glides and pools; however, gravel riffles are common in those streams draining the rolling hills on the western and upper eastern shore. Because coastal plain streams lack stable substrates such as bedrock and boulders, wood and submerged aquatic vegetation are important channel features. Submerged logs and tree roots slow the flow of nutrients and sediment, provide cover for fishes and stream insects, and control stream bank erosion. Eastern mudminnow, golden shiner, creek chubsucker, and fallfish are common in these systems. These streams are also important habitat to the American eel from the juvenile to adult stage. The Elk and Lower Susquehanna river basins contain non-blackwater coastal plain streams.

Species

Group	Scientific Name	Common Name
Amphibian	<i>Pseudotriton ruber</i>	Northern red salamander
Bird	<i>Ardea herodias</i>	Great blue heron

Bird	<i>Nyctanassa violacea</i>	Yellow-crowned night-heron
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Fish	<i>Alosa mediocris</i>	Hickory shad
Fish	<i>Alosa sapidissima</i>	American shad
Fish	<i>Notropis bifrenatus</i>	Bridle shiner
Fish	<i>Percina bimaculata</i>	Chesapeake Logperch
Freshwater Mussel	<i>Anodonta implicata</i>	Alewife floater
Freshwater Mussel	<i>Elliptio fisheriana</i>	Northern lance
Freshwater Mussel	<i>Lampsilis radiata</i>	Eastern lampmussel
Freshwater Mussel	<i>Leptodea ochracea</i>	Tidewater mucket
Insect	<i>Cordulegaster erronea</i>	Tiger spiketail
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Glyptemys muhlenbergii</i>	Bog turtle
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Hemlock-Northern Hardwood Forest

The Hemlock – Northern Hardwood Forest habitat is characterized by cool, mesic forests of low mountain slopes and valleys in Cecil County. The composition of Hemlock – Northern Hardwood Forests varies with site conditions and has been heavily influenced by destructive fires and extensive logging of eastern hemlock, red spruce, white pine, and hardwoods in the early 1900's. Today's stands are typically dominated by northern hardwoods such as sugar maple, American beech, black cherry, and yellow birch with mixtures of eastern hemlock. Other tree associates may include northern red oak, white oak, white pine, sweet birch, red spruce, white ash, basswood, and red maple. The understory of Hemlock-Northern Hardwood Forests may include species such as striped maple, witch hazel, maple-leaf viburnum, and dense patches of great laurel and mountain laurel. It is not uncommon to discover the herbaceous layers in some stands entirely dominated by patches of hayscented fern or New York fern. Other characteristic herbs include Indian cucumber-root, whorled wood aster, Canada mayflower, bellworts, violets, and wood-ferns. This habitat is related in part to small outlying stands of eastern hemlock that occur along north-facing river bluffs and ravines in the Piedmont and Coastal Plain.

Species

Group	Scientific Name	Common Name
Bird	<i>Buteo platypterus</i>	Broad-winged hawk

Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Caprimulgus vociferus</i>	Eastern whip-poor-will
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Certhia americana</i>	Brown creeper
Bird	<i>Catharus fuscescens</i>	Veery
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Helmitheros vermivorus</i>	Worm-eating warbler
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird
Bird	<i>Setophaga americana</i>	Northern parula
Bird	<i>Setophaga citrina</i>	Hooded warbler
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Piranga olivacea</i>	Scarlet tanager
Mammal	<i>Sorex fumeus</i>	Smoky shrew
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle

Intertidal Mud Flat and Sand Flat

This habitat is characterized by mud flats and sand flats of embayed areas along the coast. They are best developed in shallow protected estuarine bays, pools, and along small tidal creeks and guts. The depth and frequency of tidal flooding is variable depending on the landscape setting, but most flats are exposed twice daily during low tide cycles. Though not species rich, vascular aquatic species can be abundant and often include species such as eelgrass, beaked ditch-grass, horned pondweed, and sago pondweed. Aquatic algae can be also abundant and may frequently include species of sea-lettuces.

Species

Group	Scientific Name	Common Name
Bird	<i>Anas rubripes</i>	American black duck
Bird	<i>Ardea alba</i>	Great egret
Bird	<i>Ardea herodias</i>	Great blue heron
Bird	<i>Nyctanassa violacea</i>	Yellow-crowned night-heron

Bird	<i>Nycticorax nycticorax</i>	Black-crowned night-heron
Bird	<i>Haliaeetus leucocephalus</i>	Bald eagle
Bird	<i>Actitis macularius</i>	Spotted sandpiper
Bird	<i>Arenaria interpres</i>	Ruddy turnstone
Bird	<i>Calidris alba</i>	Sanderling
Bird	<i>Calidris alpina</i>	Dunlin
Bird	<i>Calidris pusilla</i>	Semipalmated sandpiper
Bird	<i>Limnodromus griseus</i>	Short-billed dowitcher
Bird	<i>Numenius phaeopus</i>	Whimbrel
Bird	<i>Pluvialis squatarola</i>	Black-bellied plover
Bird	<i>Tringa flavipes</i>	Lesser yellowlegs
Bird	<i>Tringa melanoleuca</i>	Greater yellowlegs
Reptile	<i>Malaclemys terrapin</i> terrapin	Northern diamond-backed terrapin

Montane-Piedmont Acidic Seepage Swamp

This habitat of the Piedmont region is characterized by gently sloping seepage swamps of small headwaters, large spring seeps, ravine bottoms, and toe-slopes. Seepage swamps develop where groundwater is forced to the surface along an impermeable clay or rock layer due to hydrostatic pressure resulting from gravity or artesian flow. They often have a diffuse drainage pattern of braided channels and rivulets that typically remain saturated throughout the year due to perennial groundwater seepage. The soils are acidic and derived from the weathering of sandstone, quartzite, and granitic bedrock. In this case, the hydrology and acidic soils of seepage swamps in the piedmont region combine to support a very distinctive flora. Acidic Seepage Swamps are structurally forests and woodlands with canopies ranging from closed to semi-open canopy. Canopy trees commonly include red maple, tulip poplar, and blackgum. Small openings of shrubs and herbs are typical in areas of windfall or beaver activity. Shrubs vary depending on the region but common species may include winterberry, swamp azalea, highbush blueberry, great-laurel, mountain-laurel, speckled alder, and arrowwoods. The forest floor is comprised of sphagnum moss covered hummocks and mucky hollows frequently dominated by skunk cabbage, American false-hellebore and cinnamon fern. Other common associates may include long sedge, bog sedge, three-seed sedge, white-edged sedge, marsh marigold, orchids, buttercups and asters.

Species

Group	Scientific Name	Common Name
Bird	<i>Scolopax minor</i>	American woodcock
Bird	<i>Empidonax traillii</i>	Willow flycatcher
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Catharus fuscescens</i>	Veery
Bird	<i>Hylocichla mustelina</i>	Wood thrush
Bird	<i>Geothlypis formosa</i>	Kentucky warbler
Bird	<i>Mniotilta varia</i>	Black-and-white warbler
Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Bird	<i>Protonotaria citrea</i>	Prothonotary warbler
Bird	<i>Seiurus aurocapillus</i>	Ovenbird

Bird	Setophaga americana	Northern parula
Bird	Setophaga citrina	Hooded warbler
Bird	Setophaga ruticilla	American redstart
Bird	Vermivora pinus	Blue-winged warbler
Bird	Piranga olivacea	Scarlet tanager
Insect	Cordulegaster erronea	Tiger spiketail
Insect	Tachopteryx thoreyi	Gray petaltail
Insect	Euphydryas phaeton	Baltimore checkerspot
Insect	Euphyes conspicua	Black dash
Insect	Hesperia sassacus	Indian skipper
Insect	Poanes massasoit massasoit	Mulberry wing
Mammal	Eptesicus fuscus	Big brown bat
Mammal	Lasiurus borealis	Eastern red bat
Mammal	Myotis lucifugus	Little brown myotis
Mammal	Myotis septentrionalis	Northern myotis
Mammal	Nycticeius humeralis	Evening bat
Mammal	Perimyotis subflavus	Tricolored bat
Mammal	Neovison vison	American mink
Mammal	Lynx rufus	Bobcat
Reptile	Clemmys guttata	Spotted turtle
Reptile	Terrapene carolina	Eastern box turtle
Reptile	Thamnophis sauritus	Common ribbonsnake

Piedmont Stream

Piedmont streams, defined by their western boundary of the County line to the eastern border at the fall line, are among the most biologically productive systems in the County. The physical and chemical nature of Piedmont streams is governed largely by the varying topography and geology of the Piedmont physiographic province. Streams along the eastern edge share similar physical characteristics with the neighboring Coastal Plain. Here, streams are typically low to moderate gradient (1-2%) with silt, sand, and gravel substrates common. Juxtaposition of these two physiographic provinces results in a mixing of aquatic biota, with several predominantly Coastal Plain species commonly found within Piedmont streams draining this transition zone. Fish species common to these streams include tessellated darter, eastern blacknose dace, common shiner, and bluntnose minnow. High- gradient Piedmont streams are characterized by cobble-boulder substrates with bedrock outcrops common. Blue Ridge sculpin, brown trout, brook trout, and longnose dace are frequently encountered in these systems. Streamside trees and logs play an important role in shaping the stream channel and banks, creating pools and slow-water areas beneficial to many aquatic species. Logs and leaf litter are also a primary source of organic matter forming the base of the food web in these streams.

Species

Group	Scientific Name	Common Name
Amphibian	Pseudotriton ruber	Northern red salamander
Bird	Nyctanassa violacea	Yellow-crowned night-heron

Bird	<i>Parkesia motacilla</i>	Louisiana waterthrush
Crustacean	<i>Orconectes obscurus</i>	Allegheny crayfish
Fish	<i>Notropis bifrenatus</i>	Bridle shiner
Fish	<i>Percina bimaculata</i>	Chesapeake Logperch
Freshwater Mussel	<i>Anodonta implicata</i>	Alewife floater
Freshwater Mussel	<i>Lampsilis radiata</i>	Eastern lampmussel
Insect	<i>Cordulegaster erronea</i>	Tiger spiketail
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys insculpta</i>	Wood turtle
Reptile	<i>Glyptemys muhlenbergii</i>	Bog turtle
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Piedmont Seepage Wetland

This habitat is characterized by open, graminoid-dominated meadows and shrub swamps scattered throughout low stream valleys of the Piedmont. They are common features at the toeslopes of rolling hills and margins of floodplains where groundwater seepage can be found throughout much of the year. The water table is usually at or near the surface throughout much of the growing season causing most habitats to remain saturated, but conditions may vary yearly from site to site. The substrates of Piedmont Seepage Wetlands are primarily comprised of mineral soils with mucky, organic surficial layers. The vegetation structure varies from graminoid-dominated meadows of tussock sedge, common rush, wood reed, and rice cutgrass to a patchwork of shrub swamps dominated by alder, meadowsweet, southern arrowwood, buttonbush, spicebush, marsh rose, and black willow. Other common species include jewelweed, skunk cabbage, sensitive fern, wood reed, wool-grass, Joe pye-weed, American golden saxifrage, shallow sedge, tearthumbs, and marsh fern. In addition, purple loosestrife, common reed, Japanese stilt-grass and reed canary grass are frequently reported non-native invasive plants in these habitats. Though trees are relatively unimportant in these habitats, woody plant succession of red maple is a common problem that usually indicates a cessation of grazing.

Species

Group	Scientific Name	Common Name
Amphibian	<i>Pseudotriton ruber</i>	Northern red salamander
Bird	<i>Scolopax minor</i>	American woodcock

Bird	<i>Empidonax traillii</i>	Willow flycatcher
Bird	<i>Empidonax virescens</i>	Acadian flycatcher
Bird	<i>Setophaga ruticilla</i>	American redstart
Bird	<i>Vermivora pinus</i>	Blue-winged warbler
Insect	<i>Cordulegaster erronea</i>	Tiger spiketail
Insect	<i>Libellula flavida</i>	Yellow-sided skimmer
Insect	<i>Tachopteryx thoreyi</i>	Gray petaltail
Insect	<i>Danaus plexippus</i>	Monarch
Insect	<i>Euphydryas phaeton</i>	Baltimore checkerspot
Insect	<i>Euphyes conspicua</i>	Black dash
Insect	<i>Hesperia sassacus</i>	Indian skipper
Insect	<i>Lycaena hyllus</i>	Bronze copper
Insect	<i>Poanes massasoit massasoit</i>	Mulberry wing
Mammal	<i>Sorex hoyi winnemana</i>	Southern pygmy shrew
Mammal	<i>Eptesicus fuscus</i>	Big brown bat
Mammal	<i>Lasiurus borealis</i>	Eastern red bat
Mammal	<i>Myotis lucifugus</i>	Little brown myotis
Mammal	<i>Myotis septentrionalis</i>	Northern myotis
Mammal	<i>Nycticeius humeralis</i>	Evening bat
Mammal	<i>Perimyotis subflavus</i>	Tricolored bat
Mammal	<i>Neovison vison</i>	American mink
Mammal	<i>Lynx rufus</i>	Bobcat
Reptile	<i>Clemmys guttata</i>	Spotted turtle
Reptile	<i>Glyptemys muhlenbergii</i>	Bog turtle
Reptile	<i>Terrapene carolina</i>	Eastern box turtle
Reptile	<i>Thamnophis sauritus</i>	Common ribbonsnake

Spring

The Spring habitat is a concentrated discharge of groundwater at a small (usually < 1 m²), distinct site or opening in the ground. Springs are uncommon, isolated features and most occur west of the Fall Line. They provide critical habitat for highly rare aquatic snails and subterranean invertebrates, salamanders, crayfish and other invertebrates. Because some Springs discharge directly into streams or wetlands, they also play a vital role in maintaining the ecological integrity of these habitats which, in turn, may harbor species of conservation concern (e.g., Pearl Dace, Brook Trout, rare dragonflies and damselflies). Springs emit groundwater due to hydrostatic pressure resulting from gravity or artesian flow, although other physical forces may play a role (e.g., buoyant effect of dissolved gases). Several types of Springs exist including contact, scree and fault springs. Perhaps the most common type is fracture or crevice springs. Here, groundwater moves downward due to gravity, flowing through fractures and crevices underneath the ground and emerging as a spring where a major fracture in a rock formation occurs at the earth's surface, usually along a ravine or swale. The flow or discharge rate of springs can range from less than one gallon per minute to nearly 10,000 gallons per minute. Springs differ from seeps in that the latter appear on the ground surface as broad, diffuse zones of wetness or percolation rather than distinct discharge sites. Also, seeps and associated wetlands often support distinct plant communities while springs are essentially aquatic and geological features.

Species

Group	Scientific Name	Common Name
Crustacean	<i>Stygobromus caecilius</i>	Cecil groundwater amphipod
Crustacean	<i>Stygobromus felleri</i>	Feller's groundwater amphipod
Crustacean	<i>Stygobromus pizzinii</i>	Pizzini's amphipod
Crustacean	<i>Stygobromus tenuis</i>	Tenuis amphipod
Flatworm	<i>Sphalloplana</i> sp 1	A planarian