



# Reference Wetland Plant Communities

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Illustrating the range and complexity of the most common wetland types  
in the Mountains and Piedmont of the Southeast.



Mountain bog.

# Reference Wetland Plant Communities

The natural assemblages of plants that occur together in one type of habitat are called communities. Natural communities generally occur in continuously varying patterns. There are seldom discrete breaks in the pattern of the natural diversity. Most environmental factors that determine communities vary over continuous gradients. Species populations respond individually to these gradients producing, continuous variation in composition. Aside from being of theoretical and educational interest, classification of natural communities can be useful in practical ways. Communication and study of natural systems is greatly facilitated with commonly used names. Therefore, any restoration and management can benefit from the experience and knowledge gained at other similar sites. This is especially true of wetland plant communities, which often are small, remote, and generally unnoticed and ignored by the general population. There are important differences in freshwater wetlands that can be identified based on the species composition of the plant community. Below are listed some simple descriptions of the common wetland plant communities as described by Shafale and Weakley (1990).

It is important to note that many wetlands are suitable habitat for invasive weedy species like Chinese privet (*Ligustrum sinense*), Japanese grass (*Microstegium vimineum*), multiflora rose (*Rosa multiflora*), and Japanese honeysuckle (*Lonicera japonica*). The abundance of weedy species in a disturbed wetland may obscure any remnants of the natural community type.

Resources for the identification of wetland plants can be found in common keys and field guides of plants. It is important to be sure that the guide or key being used to identify an unknown plant is intended for that use and covers the geographic area where the plant occurs. There are also specialty publications dealing with wetland plants, and more details can be found if the search is narrowed to a specific plant subject like ferns, grasses, or plants in winter.

## Upland Depression Swamp Forest

This is a rare community type, distributed at scattered locations in the Piedmont on poorly drained upland flats or depressions. The clay hardpan that is usually present holds water and restricts root depth for trees. This community commonly contains shallow, open water pools in springtime which dry during summer. Many types of ephemeral pools are so small that they fit in and under other natural community types.

Typically willow oak (*Quercus phellos*) dominates the closed canopy, but other trees such as red maple (*Acer rubrum*) and sweet gum (*Liquidambar styraciflua*) may also be present. Some examples support uncommon trees such as swamp chestnut oak (*Quercus michauxii*) and overcup oak (*Q. lyrata*). The understory is very sparse and may support only scattered red maple or sweet gum. Shrubs are also sparse but may include blueberries (*Vaccinium* spp.), black haw (*Viburnum prunifolium*), or arrowwood (*Viburnum dentatum*). Vines such as poison ivy (*Toxicodendron radicans*), trumpetvine (*Campsis radicans*), and common greenbrier (*Smilax rotundifolia*) may be prominent. Mosses usually form thick mats in and around depressions. Herbs are very sparse, consisting primarily of sedge species (*Carex* spp.).

A few bottomland, spring-ephemeral species are sometimes present. Upland Depression Swamp Forests are important as amphibian breeding habitat, with potential for rare salamander species.

### **Piedmont/Low Mountain Alluvial Forest**

This type of forest is found along Piedmont streams. It occurs where levee, bottomland, or backswamp topography is well developed as it often is in large river floodplains. Piedmont Alluvial Forests are moist and occasionally flooded, but not subjected to standing water for long periods of time. They occur on alluvial soils of variable textures that are fairly rich from nutrient-rich sediments deposited by flooding and from nutrients leached from adjacent slopes and uplands.

The closed canopy of moisture-loving tree species may include river birch (*Betula nigra*), sycamore (*Platanus occidentalis*), sweet gum (*Liquidambar styraciflua*), elms (*Ulmus* sp.), black walnut (*Juglans nigra*), green ash (*Fraxinus pennsylvanica*), tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and other species. The open to dense understory may include ironwood (*Carpinus caroliniana*), box elder (*Acer negundo*), patches of cane (*Arundinaria gigantea*), and shrubs such as pawpaw (*Asimina triloba*), spicebush (*Lindera benzoin*), yellowroot (*Xanthorhiza simplicissima*), strawberry-bush (*Euonymus americanus*), and silky dogwood (*Cornus amomum*). The herb layer is typically moderately dense and may be very dense in sunny streamside openings. Typical herbs include bottlebrush grass (*Elymus hystrix*), false wood-nettle (*Boehmeria cylindrica*), spring beauty (*Claytonia virginiana*), orange touch-me-not (*Impatiens capensis*), violets (*Viola* spp.), buttercups (*Ranunculus* spp.), fringed sedge (*Carex crinita*), fish-on-a-string (*Chasmanthium latifolium*), Christmas fern (*Polystichum acrostichoides*), jumpseed (*Tovara virginianum*), water horehound (*Lycopus virginicus*), and others. Vines such as Virginia creeper (*Parthenocissus quinquefolius*), poison ivy (*Toxicodendron radicans*), cross-vine (*Anisostichus capreolata*), common greenbrier (*Smilax rotundifolia*), and grapes (*Vitis* spp.) may be present.

The community often grades to Mesic Mixed Hardwood Forest, and less frequently to Dry-Mesic Oak-Hickory Forest, on adjacent slopes. It may grade to other wetland forest communities at junctures with large stream or river floodplains.

### **Piedmont/Mountain Bottomland Forest**

Bottomland Forests occur on rich alluvial soils in wide floodplains of large streams or rivers. Intact examples are among the rarest of communities in the Southeast. They do not occur on active levees adjacent to river channels, but are subjected to infrequent flooding. Due to the fertility and infrequent flooding of this community type, many have been converted to pasture or agriculture.

The closed canopy of bottomland trees may include tuliptree (*Liriodendron tulipifera*), sweet gum (*Liquidambar styraciflua*), swamp white oak (*Quercus bicolor*), white oak (*Q. alba*), Shumard oak (*Q. shumardii*), willow oak (*Q. phellos*), green ash (*Fraxinus pennsylvanica*), bitternut hickory (*Carya cordiformis*), sugarberry (*Celtis* sp.), and other species. Understory species may include ironwood (*Carpinus caroliniana*), red maple (*Acer rubrum*), flowering dogwood (*Cornus florida*), and American holly (*Ilex opaca*). The shrub layer is patchy with species such as pawpaw (*Asimina triloba*), spicebush (*Lindera benzoin*), strawberry bush (*Euonymus americanus*), hollies (*Ilex* spp.), and potentially others. The sparse to lush herb layer may include Christmas fern (*Polystichum acrostichoides*), sedges (*Carex* spp.), false wood-nettle (*Boehmeria cylindrica*), jumpseed (*Tovara virginianum*), fish-on-a-string (*Chasmanthium latifolium*), slender spikegrass (*Chasmanthium laxum*), jack-in-the-pulpit (*Arisaema triphyllum*), heartleaf aster (*Aster divaricata*), honewort (*Cryptotaenia canadensis*), or other species.

The community may grade to Piedmont/Mountain Swamp Forest or Piedmont/Mountain Levee Forest within the floodplain and to Mesic Mixed Hardwood or Oak-Hickory communities on adjacent slopes.

## Piedmont/Mountain Swamp Forest

This uncommon community occurs on backswamps, sloughs, and flats on large floodplains. It typically occurs back from the stream channel and active levee areas and may grade to a Bottomland Forest community on slightly elevated floodplain terraces. It is seasonally to frequently flooded, often for relatively long periods of time.

Flood-tolerant tree species often include sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), black willow (*Salix nigra*), or green ash (*Fraxinus pennsylvanica*) which dominate this closed canopy. An understory is often absent and may include species such as winged elm (*Ulmus alata*), ironwood (*Carpinus caroliniana*), deciduous hollies (*Ilex* spp.), or dense tag alder (*Alnus serrulata*). Vines such as poison ivy (*Toxicodendron radicans*), cross-vine (*Anisostichus capreolata*), and greenbriers (*Smilax* spp.) may be prominent. Herbs are generally sparse and may include lizard's-tail (*Saururus cernuus*), false wood-nettle (*Boehmeria cylindrica*), orange touch-me-not (*Impatiens capensis*), and sedges (*Carex* spp.).

This community can grade to Levee Forest at the riparian interfaces and various Mesic Forest types as elevation and distance from the riparian zone increases.

## Piedmont/Mountain Levee Forest

This uncommon community type occurs occasionally on well-developed active levees or point bars along large stream or river channels on sandy alluvial soils.

The canopy typically supports sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), box elder (*Acer negundo*), sugarberry (*Celtis* spp.), sweet gum (*Liquidambar styraciflua*), tuliptree (*Liriodendron tulipifera*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), bitternut hickory (*Carya cordiformis*), black walnut (*Juglans nigra*), willow oak (*Quercus phellos*), Shumard oak (*Q. shumardii*), or other species. The understory is often variable in density and may support ironwood (*Carpinus caroliniana*), pawpaw (*Asimina triloba*), box elder, American holly (*Ilex opaca*), or the canopy species. The shrub layer is typically patchy and may include spicebush (*Lindera benzoin*), yellowroot (*Xanthorrhiza simplicissima*), or cane (*Arundinaria gigantea*). Vines such as poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolius*), cross-vine (*Anisostichus capreolata*), greenbriers (*Smilax* spp.), or trumpetvine (*Campsis radicans*) may be prominent. The herb layer can be lush and diverse, with species such as jumpseed (*Tovara virginiana*), false wood-nettle (*Boehmeria cylindrica*), fish-on-a-string (*Chasmanthium latifolium*), slender spikegrass (*Chasmanthium laxum*), bottlebrush grass (*Elymus hystrix*), heartleaf aster (*Aster divaricatus*), spring beauty (*Claytonia virginiana*), and green-head coneflower (*Rudbeckia laciniata*).

The community is distinguished from Bottomland Forest by its location adjacent to river channels, and from Swamp Forest by being higher and drier, as well as by its composition of plants.

## Low Elevation Seep

This community occurs where seepages and springs flow from bases of slopes along streams or at the edges of floodplains. It exists as very small areas on saturated, mucky soils and usually occurs in moist forests near streams. Low Elevation Seeps differ from ephemeral pools in that they generally drain, though often sluggishly, and support sparse to dense herb communities.

They are habitat for widespread wetland herbs such as orange touch-me-not (*Impatiens capensis*), fringed sedge (*Carex crinita*), green-head coneflower (*Rudbeckia laciniata*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), kidneyleaf buttercup (*Ranunculus abortivus*), hooked buttercup (*Ranunculus recurvatus*), or turtleheads (*Chelone* spp.). Herb cover may be fairly dense to almost absent.

The seeps are less frequently flooded than adjacent streambeds and probably function as seed sources for establishment of plants downstream to replace those dislodged in floods. They may also be important breeding habitat for various amphibians. In agriculturally disturbed areas these seeps often take the form of Meadow Bogs.

## Swamp Forest-Bog Complex

This community occurs in poorly drained bottomlands, generally with visible microtopography of ridges and sloughs or depressions.

It is a forest with closed or open canopy and open or dense shrub layer interspersed with small boggy openings in depressions. The canopy includes Canada hemlock (*Tsuga canadensis*) or red maple (*Acer rubrum*), depending on the location and elevation. A subtype of this community has red spruce (*Picea rubens*) as a canopy tree. Other trees include black willow (*Salix nigra*), sweet birch (*Betula lenta*), white oak (*Quercus alba*), white pine (*Pinus strobus*), and a few other alluvial species. The dominant shrubs are usually great laurel (*Rhododendron maximum*) and mountain laurel (*Kalmia latifolia*), with silky willow (*Salix sericea*), tag alder (*Alnus serrulata*), silky dogwood (*Cornus amomum*), southern wild raisin (*Viburnum nudum*), and poison sumac (*Toxicodendron vernix*). The herbs in the boggy open areas include seepage goldenrod (*Solidago patula*), New York aster (*Aster novae-angliae*), robin runaway (*Dalibarda repens*), cinnamon fern (*Osmunda cinnamomea*), northern long sedge (*Carex folliculata*), mountain fringed sedge (*Carex gynandra*), little bog sedge (*Carex leptalea*), straight sedge (*Carex stricta*), purple pitcher plant (*Sarracenia purpurea*), broadleaf arrowhead (*Sagittaria latifolia*), and rice cutgrass (*Leersia virginica*). In the closed canopy forest areas melic mannagrass (*Glyceria melicaria*), clubmoss (*Lycopodium obscurum*), sensitive fern (*Onoclea sensibilis*), Canada mayflower (*Maianthemum canadense*), New York fern (*Thelypteris novboracensis*), and royal fern (*Osmunda regalis*) are common herbs. Scattered sphagnum mats occur in the boggy areas. This is an important community for bog turtles.

The factors that are responsible for creating and maintaining these communities are not well known. Some of the known examples are very old and apparently stable. The boggy openings are generally associated with small depressions. As in the Southern Appalachian Bogs, beaver activities may be a significant factor in these communities. The frequency of flooding is not known.

## Southern Appalachian Bog

Southern Appalachian Bogs occur on flat or gently sloping areas in valley bottoms that are not subject to flooding; on wet organic or mucky mineral soils; and in very acidic conditions. Water comes from groundwater seepage.

The vegetation is concentric or patchily zoned around wetter spots. This is an herb and shrub dominated plant community, with a rich mix of plants, both vascular and bryophytes, with large sphagnum mats. Alluvial and wetland trees like red maple (*Acer rubrum*), white pine (*Pinus strobus*), and Canada hemlock (*Tsuga canadensis*), may occur in areas within the wetland or dominate the edges. Shrubs may include tag alder (*Alnus serrulata*), swamp rose (*Rosa palustris*), silky willow (*Salix sericea*), red chokeberry (*Aronia arbutifolia*), mountain laurel (*Kalmia latifolia*),

and great laurel (*Rhododendron maximum*). The herb layer may include a rich list including cinnamon fern (*Osmunda cinnamomea*), northern long sedge (*Carex folliculata*), mountain fringed sedge (*Carex gynandra*), a sedge (*Carex scabrata*), little bog sedge (*Carex leptalea*), straight sedge (*Carex stricta*), white beakrush (*Rhynchospora alba*), woodland bulrush (*Scirpus expansus*), cottongrass bulrush (*Scirpus cyperinus*), Gray's lily (*Lilium grayi*), lamp rush (*Juncus effusus*), woods rush (*Juncus subcaudatus*), tawny cottongrass (*Eriophorum virginicum*), kidneyleaf grass-of-Parnassis (*Parnassia asarifolia*), swamp saxifage (*Saxifaga pennsylvanica*), and golden club (*Orontium aquaticum*). Sphagnum mats cover more than an acre at several sites.

The factors that are responsible for creating and maintaining these communities are not well known. Grazing and browsing have been factors in almost all bog habitats. Most bogs experience an invasion of trees and shrubs in the absence of grazing. The current tendency for rapid succession suggests that some form of periodic or chronic natural disturbance, now disrupted, may have kept the bogs open.

## Southern Appalachian Fen

This natural assemblage of plants occurs in flat or slightly sloping areas which are not subject to flooding. These wet areas are fed by seeping mineral-rich groundwater of circum-neutral or only mildly acidic water and are generally found over shallow bedrock. The only known example of this habitat type is at Bluff Mountain, North Carolina. However, some other sites have certain characteristics of this community type, only less developed.

The vegetation is a complex mixture of herbaceous wetland species. The dominant species include white beakrush (*Rhynchospora alba*), brownish beakrush (*Rhynchospora capitellata*), woods rush (*Juncus subcaudatus*), twig rush (*Cladium mariscoides*), straight sedge (*Carex stricta*), autumn sneezeweed (*Helenium autumnale*), little bluestem (*Schizachyrium scoparium*), Canada burnet (*Sanguisorba canadensis*), and cluster goldenrod (*Solidago glomerata*). Other herbs commonly found include lamp rush (*Juncus effusus*), tawny cottongrass (*Eriophorum virginicum*), grass-of-Parnassus (*Parnassia grandifolia*), sticky bog asphodel (*Tofieldia glutinosa*), northern long sedge (*Carex folliculata*), cone shaped sedge (*Carex conoidea*), Buxbaum's sedge (*Carex buxbaumii*), and little bog sedge (*Carex leptalea*). Characteristic bryophytes include sphagnum (*Sphagnum subsecundum*), golden glade moss (*Rhytidium rugosum*), a moss (*Hypnum pratense*), and others.

Because of the complex zonation, small changes in drainage or water supply could cause major shifts in vegetation. Water level manipulation may thus be a useful management technique in many bog types. The natural factors which prevent the succession to woody cover are not well known, but must include the level of saturation and the shallow depth to bedrock, which often leads to woody plant uprooting during storms. The seepage of high pH water might also be a detriment to woody species as well as making this community one of the rarest in the Southeast.

## High Elevation Seep

These communities are usually on slopes at high elevations sites that are subject to constant seepage. Soils are rocky, gravelly, or mucky and the sites are usually too small to appear on soil maps. Generally an open to dense bed of wetland herbs is present. Seeps are often small enough to be substantially shaded by trees rooted in adjacent communities, but some are larger and more open.

The dominant plants include turtleheads (*Chelone* spp.), American speedwell (*Veronica americana*), umbrella-leaf (*Diphylleia cymosa*), branch lettuce (*Saxifraga micranthidifolia*), mountain bittercress (*Cardamine clematidis*), autumn sneezeweed (*Helenium autumnale*), American golden

saxifrage (*Chrysosplenium americanum*), knotweeds (*Polygonum* spp.), round-leaf sundew (*Drosera rotundifolia*), spotted water-hemlock (*Citcuta maculata*), brownish beakrush (*Rhynchospora capitellata*), woods rush (*Juncus subcaudatus*), twig rush (*Cladium mariscoides*), straight sedge (*Carex stricta*), northern long sedge (*Carex folliculata*), mountain fringed sedge (*Carex gynandra*), little bog sedge (*Carex leptalea*), other sedges (*Carex* spp.), New York aster (*Aster novae-angliae*), orange or yellow touch-me-not (*Impatiens pallida* and/or *I. capensis*), St. John's worts (*Hypericum* spp.), violets (*Viola* spp.), mountain pennywort (*Hydrocotyle americana*), green-head coneflower (*Rudbeckia laciniata*), red bee balm (*Monarda didyma*), seepage goldenrod (*Solidago patula*), false hellebore (*Veratrum dioicum*), Gray's lily (*Lilium grayi*), cinnamon fern (*Osmunda cinnamomea*), trailing wolfsbane (*Acontium reclinatum*), and meadowrues (*Thalictrum clavatum* and *T. dioicum*). Sphagnum is often present and may occasionally have significant coverage. Woody species usually include great laurel (*Rhododendron maximum*), mountain laurel (*Kalmia latifolia*), tag alder (*Alnus serrulata*), southern wild raisin (*Viburnum nudum*), and red maple (*Acer rubrum*).

This community type is apparently stable, although variations in hydrology from year to year may influence species dominance. Occurrence is related to the strike and dip of metamorphic foliation or fractures in the underlying rocks. High elevation seeps grade to various high elevation terrestrial communities. This is still a tentative classification for a community that is known to include significant variation and which might include other conceptual groupings. The small size of these community occurrences makes them sensitive to disturbance and destruction. These are often point-sources for freshwater in a headland forest watershed, and thus require more understanding and appreciation for their role in the watershed.

## Upland Pool

Upland Pools are small upland depressions in the Piedmont and Mountain regions, where water is pooled over an impermeable substrate. Soils are shallow muck over a clay or rock layer. They are generally too small to be on soil maps. The hydrology is palustrine, seasonally to permanently flooded. Rainfall is the main source of water. Since they often occur in late winter and early spring, they are commonly called vernal pools.

Various wetland shrubs and herbs dominate the vegetation. Trees such as black gum (*Nyssa sylvatica*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), and sweet gum (*Liquidambar styraciflua*) may be present along the edge or on islands. Shrub species include buttonbush (*Chephalanthus occidentalis*), vaccinium species (*Vaccinium* spp.), swamp doghobble (*Leucothoe racemosa*), and in some areas ti-ti (*Cyrilla racemiflora*). Herbs include royal fern (*Osmunda regalis*), many sedges (*Carex* spp.), lamp rush (*Juncus effusus*), sphagnum (*Sphagnum* spp.), and other mosses.

Over long periods, these pools presumably will fill with sediment and organic matter. They tend to succeed to Upland Depression Swamp Forests in time. They are becoming rare community types and can be important habitats for local populations of amphibians.

## Hillside Seepage Bog

Hillside Seepage Bogs are small areas in the Mountains, Piedmont, or upper Coastal Plain at the break of slopes or edges of bottomlands that are constantly saturated with groundwater seepage. They contain wet, mucky, and often deep soils over rock or gravel. Hydrology is palustrine, permanently saturated to intermittently dry.

Vegetation is typically zoned in relation to substrate and saturation. The outer zone of trees and shrubs includes black gum (*Nyssa sylvatica*), tuliptree (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and sweet gum (*Liquidambar styraciflua*), along with some herbs such as royal fern

(*Osmunda regalis*), partridgeberry (*Mitchella repens*), Virginia chain fern (*Woodwardia virginica*), and species from the interior zone. The interior zone can have a low canopy of tall shrubs like tag alder (*Alnus serrulata*), red chokeberry (*Aronia arbutifolia*), mountain laurel (*Kalmia latifolia*), and tuliptree (*Liriodendron tulipifera*). The interior, wettest parts of the community are composed of sedges (*Carex* spp.), pipeworts (*Eriocaulon* spp.), pitcher plants (*Sarracenia flava* and *S. purpurea*), grass pink (*Calopogon tuberosus*), cinnamon fern (*Osmunda cinnamomea*), and a few other common wetland forbs and graminoids. There may also be a range of *Sphagnum* species forming various mats. These communities are distinguished from Upland Pools and Upland Depression Swamps by being wetted by seepage. They are distinguished from Low Elevation Seeps by the well-developed sphagnum mats and the importance of other bog species.

The dynamics and maintenance of this system are not well known. All known bogs are undergoing rapid proliferation of shrubs and trees, as if some disturbance that used to maintain these sites is no longer acting. Both natural fire and impact of grazers have been suggested as woody vegetation control agents. Beaver removal from the Piedmont during the last 200-300 years, and their subsequent reintroduction, may provide more clues to the impact these grazing and wetland-building animals have on these wetland types.

## Low Elevation Seep

This plant community occurs at the base of slopes or edges of floodplains. Its saturated soils are not generally noted on soil maps. The palustrine hydrology type is permanently flooded.

These are generally small enough to be shaded by trees rooted in surrounding communities. Occasional wetland trees like red maple (*Acer rubrum*), or willow oak (*Quercus phellos*) may grow in the midst of the seep. A variety of wetland herbs can be found in seeps including lizard's tail (*Saururus cernuus*), orange touch-me-not (*Impatiens capensis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), false nettle (*Boehmeria cylindrica*), green-head coneflower (*Rudbeckia laciniata*), hooked buttercup (*Ranunculus recurvatus*), turtleheads (*Chelone glabra*), rushes (*Juncus* spp.), and branch lettuce (*Saxifraga micranthidifolia*). These are also wonderful sites for breeding amphibians and may serve as local centers where many individuals return to breed each year. The loss of these small sites contributes to the local decline of salamander and frog populations.

The dynamics of these small systems are poorly known; however, many have been stable for a long time. These communities respond to drops in the water table and to extended drought. Well-developed Low Elevation Seeps contrast sharply with adjacent plant communities and land uses in both their vegetation and soils. While they lack some of the high elevation and northern species and most of the *Sphagnum* mosses, they are very rich local centers of biodiversity deserving of restoration and management.

## Floodplain Pool

This natural community occurs in depressions in abandoned river channels on floodplains, holding standing water all or part of the year. The soil types of these small areas are generally not distinguished on soil maps.

The central parts of this community may contain standing water and may or may not have higher plants. The edges may or may not include zones of aquatic vegetation, like sedges (*Carex* spp.), false nettle (*Boehmeria cylindrica*), seedbox (*Ludwigia* spp.), touch-me-not (*Impatiens capensis*), cinnamon fern (*Osmunda cinnamomea*), and royal fern (*Osmunda regalis*). Shrubs such as tag alder (*Alnus serrulata*) and spicebush (*Lindera benzoin*) may occur along the edges.

The dynamics of these pools are not well known. Major floods may flush accumulated sediment out of these pools, alter their shape, and maintain their aquatic communities. They are common and larger in low gradient Coastal Plain valleys, and smaller and more rare in the Piedmont and Mountains. These communities are generally surrounded by Bottomland or Alluvial Forest types or land converted to agricultural use.

### **Meadow Bog (Wet Pasture)**

The term Meadow Bog is used to describe a Mountain or Piedmont wetland that has been altered by human use. Meadow Bogs are frequently found on agricultural land, primarily in pastures and wet spots in hay fields. These bogs are swampy wet areas vegetated with sedges, herbs, shrubs, and sparse trees. The vegetation is a mixture of one or more of the natural communities that occur in the area and alien plants typical of human-altered fields, forests, and farms. Native plants that are sensitive to disturbances are largely rare or missing and introduced weedy species are common. Depending on the kind and type of disturbance, Meadow Bog vegetation patterns may also be modified by increased fertilizer and chemical loading, grazing, seeding with fescue, herbicides, dumping, and other alterations.

The animal communities of a healthy wetland are also altered in the Meadow Bog. Populations of native animal species decline with loss of habitat and distance to the nearest human activity. In the case of many urban and suburban wetlands, increased predator numbers (raccoons, skunks, cats, and dogs) result in declines in prey species. Compound this with loss of habitat, road intrusion, hydrologic changes, chemical assaults, and a host of other wetland "land-uses," native animal communities are under serious pressure.

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### **Bibliography**

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