

Design with indigenous plant communities in mind for successful habitat restoration.

Hungry Hook Farm LLC (2022)

The following is a general key to creating landscapes that reflect the native plant communities that occur in the Pennsylvania Piedmont region. **This is not a substitute for professional land management services, but a simple key for do-it-yourself ecological design.** The communities outlined below are loosely adapted from the reference “Terrestrial & Palustrine Plant Communities of Pennsylvania” by Jean Fike, with a focus on plant species that are available at local nurseries. Selected communities are indigenous to the Piedmont region of Pennsylvania.

The key separates sites based on three general characteristics: soil moisture, soil pH and available sunlight. It is good practice to get a soil test before investing in a new planting. In lieu of a soil test, there are some practical ways to determine the site’s characteristics as described below. The USDA’s online Web Soil Survey can also assist in determining the site’s soil chemistry. If there are existing native plants on site, identifying the species present can help match the site to its community. **Many plant species can tolerate and grow in varying soil conditions, so the following species lists are only meant as a general guide to establishing indigenous plant communities.** The following community lists are meant to reflect species that are available at local native plant nurseries and are not definitive.

Simple Pennsylvania Piedmont plant community key with links

1. The site is **upland** (elevation generally greater than 650 feet) Go to.... **2**

Upland sites have well-drained, dry to mesic conditions. Terrestrial is a word used to describe these sites. Terrestrial sites might support xerophytes--vegetation that can survive in dry soils. These sites may also be drier because they are south-facing and receive ample sunlight even if they are below 650 feet in elevation. Dry, friable soil generally won’t keep its shape when squeezed into a ball. The soil may also be well-drained because it is rocky or coarsely sandy.

1. The site is **lowland** without periodic standing water (elevation generally less than 650 feet) Go to.... **6**

Lowland characteristics include sites with mesic to moist conditions that may be slow-draining, but don’t usually have saturated soils. They may be sites at elevations higher than 650 feet if they are north-facing and stay consistently cool and moist or have groundwater close to the soil surface. This type of site could also have moist soil because of water supplied from runoff of a nearby impervious surface such as a parking lot. Mesic or moist soil may hold its shape momentarily when squeezed into a ball.

1. The site is a **wetland** with consistently saturated soils and periodic standing water Go to.... **10**

Wetlands are lowland sites with consistently moist to wet soil. They may be slow-draining and have periods when standing water covers the soil. They may also experience dry conditions during the hottest parts of the year. Palustrine is a word also used to describe these sites. The soil at palustrine sites can be saturated enough to produce anaerobic soil conditions. The water at these sites can come from natural flooding, storm water runoff or groundwater seepage. When squeezed into a ball, wetland soils may ooze water.

2. The **upland** site has **acidic** soils Go to.... **3**

A soil test can confirm if the site is acidic with a pH of less than 6.5. Soils may be sandy. Existing plant species may include Pines (*Pinus* spp.) or Blueberries (*Vaccinium* spp.) and other ericaceous plants who cohabit with mycorrhizal fungi.

2. The **upland** site has **calcareous** soils Go to.... **4**

A soil test can confirm calcareous or basic soils with a pH of more than 7.5. There may be visible limestones in the soil.

2. The **upland** site is neither markedly acidic nor calcareous—it has a soil pH near **neutral**. Go to.... **5**

3. The **upland acidic** site is **shady**, getting less than 4 hours of sun a day [Dry Oak Heath](#) (oak-rich) or [Pine and Mixed Hardwood Forest](#) (conifer-rich)

3. The **upland acidic** site is **sunny**, getting at least 4 hours of sun a day [Pine Savana](#)

4. The **upland calcareous** site is **shady**, getting less than 4 hours of sun a day [Dry Oak Mixed Hardwood Forest](#)

4. The **upland calcareous** site is **sunny**, getting at least 4 hours of sun a day [Dry Calcareous Grassland](#)

5. The **upland** site with a **neutral** soil pH is **shady**, getting less than 4 hours of sun a day [Tulip, Beech and Maple Forest](#) or [Sugar Maple and Basswood Forest \(rocky slopes\)](#)
5. The **upland** site with a **neutral** soil pH is **sunny**, getting at least 4 hours of sun a day [Upland Grass and Forb Community](#) or [Riverside Ice Scour](#)
6. The **lowland** site has **acidic** soils Go to.... **7**
 A soil test can confirm if the site is acidic with a pH of less than 6.5. The soil surface may be covered with conifer needles.
6. The **lowland** site has **calcareous** soils Go to.... **8**
 A soil test can confirm calcareous or basic soils with a pH of more than 7.5. There may be visible limestones in the soil.
6. The **lowland** site is neither acidic nor calcareous—it has a **neutral** soil pH Go to.... **9**
7. The **lowland acidic** site is **shady**, getting less than 4 hours of sun a day [Hemlock Tuliptree Birch Forest](#)
7. The **lowland acidic** site is **sunny**, getting at least 4 hours of sun a day [Red Cedar and Pine Shrubland](#) (serpentine soils)
8. The **lowland calcareous** site is **shady**, getting less than 4 hours of sun a day [Red Maple Black Ash Calcareous Forest](#)
8. The **lowland calcareous** site is **sunny**, getting at least 4 hours of sun a day [Mesic Calcareous Grassland](#)
9. The **lowland** site with a neutral soil pH is **shady**, getting less than 4 hours of sun a day [Rich Hemlock Mesic Hardwood Forest](#) or [Red Oak Mixed Hardwood Forest](#)
9. The **lowland** site with a neutral soil pH is **sunny**, getting at least 4 hours of sun a day [Mesic Grass and Forb Meadow](#) or [Big Bluestem Riverside Grassland](#)
10. The water at this **wetland** site comes from **flooding or storm water runoff** Go to.... **11**
10. The water at this **wetland** site comes from **groundwater or seeps** at the soil surface Go to.... **12**
11. The **wetland** site with **flooding or storm water runoff** is **shady**, getting less than 4 hours of sun a day [Sycamore and Silver Maple Floodplain Forest](#) or [Bottomland Oak Hardwood Forest](#)
11. The **wetland** site with **flooding or storm water runoff** is **sunny**, getting at least 4 hours of sun a day [Buttonbush Wetland](#) or [Wet Meadow Opening](#)
12. The **wetland** site with water coming from **groundwater or seeps** is **shady**, getting less than 4 hours of sun a day [Skunk Cabbage Seep](#)
12. The **wetland** site with water coming from **groundwater or seeps** is **sunny**, getting at least 4 hours of sun a day Go to.... **13**
13. The **wetland** site with water coming from **groundwater or seeps** is **sunny** and influenced by **acidic** soils and water with a pH less than 6.5 [Alder and Meadowsweet Wetland](#)
13. The **wetland** site with water coming from **groundwater or seeps** is **sunny** and influenced by **basic** soils and water with a pH greater than 7.5 [Calcareous Sedge Fen](#)
13. The **wetland** site with water coming from **groundwater or seeps** is **sunny** and has a relatively **neutral** soil pH. [Wet Meadow Opening](#)

Key

*An asterisk denotes the dominant species for each community

Black font: Species listed in “Terrestrial & Palustrine Plant Communities of Pennsylvania” by Jean Fike. To simplify the design process, the plant communities in this key may represent a combination of plant communities addressed in the aforementioned publication.

Brown font: Species listed in “Native Plants for Wildlife Habitat and Conservation Landscaping” by the US Fish and Wildlife Service. These species were added because of their affinity for soils with a certain pH.

UPLANDS: critical habitat for many at-risk species

Acidic Upland

Dry Oak Heath: a community often rich in ericaceous plants with extensive mycorrhizal fungal networks; few herbaceous species

1. **Quercus montana*
2. **Quercus velutina*
3. **Quercus coccinea*
4. **Quercus alba*
5. *Sassafras albidium*
6. *Nyssa sylvatica*
7. *Betula lenta*
8. *Acer rubrum*
9. *Carya glabra*
10. *Pinus rigida*
11. *Pinus virginiana*
12. *Betula lenta*
13. **Kalmia latifolia*
14. **Vaccinium (Lowbush types)*
15. **Gaylussacia baccata*
16. *Viburnum acerifolium*
17. *Comptonia peregrina*
18. *Maianthemum canadense*
19. *Carex pensylvanica, rosea*
20. *Deschampsia flexuosa*
21. *Baptisia tinctoria*
22. *Antennaria plantaginifolia*
23. *Carex swanii*
24. *Heuchera americana*

Pine and Mixed Hardwood Forest: an adaptation of Fike's Pitch Pine Mixed Oak and Virginia Pine Mixed Hardwood Forest; found on dry, acidic or sandy soils; may occur as a post-agricultural community; a fire tolerant community; similar to the Dry Oak Heath above, but dominated by conifers

1. **Pinus rigida*
2. **Pinus strobus*
3. **Pinus virginiana*
4. *Pinus pungens*
5. *Pinus echinata*
6. **Quercus cocinea*
7. **Quercus alba*
8. **Quercus montana*
9. **Quercus velutina*
10. *Betula lenta*
11. *Nyssa sylvatica*
12. *Carya glabra*

13. *Acer rubrum*
14. *Kalmia latifolia*
15. *Gaylussacia baccata*
16. *Vaccinium spp. (lowbush types)*
17. *Sassafras albidium*
18. *Rhus copallina*
19. *Pteridium aquilinum*
20. *Aralia nudicaulis*
21. *Desmodium spp.*
22. *Gaultheria procumbens*
23. *Danthonia spicata*
24. *Deschampsia flexuosa*
25. *Carex pensylvanica*
26. *Carex rosea*
27. *Carex communis*

Pine Savana: an adaptation of Fike's Pitch Pine Mixed Oak and Little Bluestem Pennsylvania Sedge Opening; dominated by grasses and forbs; a fire tolerant community

28. **Pinus rigida*
29. *Pinus strobus*
30. **Pinus virginiana*
31. *Betula lenta*
32. *Quercus ilicifolia*
33. *Vaccinium (lowbush types)*
34. *Gaylussacia baccata*
35. *Pteridium aquilinum*
36. *Aralia nudicaulis*
37. *Danthonia spicata*
38. *Deschampsia flexuosa*
39. **Carex pensylvanica*
40. *Carex rosea*
41. **Schizachyrium scoparium*
42. *Lespedeza spp*
43. *Polytrichum spp*
44. *Aristida purpurascens*
45. *Asclepias tuberosa*
46. *Viola sagittata*
47. *Baptisia tinctoria*
48. *Solidago speciosa*
49. *Cirsium pumilum*
50. *Andropogon virginicus*
51. *Anemone virginiana*
52. *Carex swanii*
53. *Coreopsis tripteris*

Calcareous Upland

Dry Calcareous Shrubland: an adaptation of Fike's Side-Oats Gramma Calcareous Grassland and Red-cedar Redbud Shrubland; dry, calcareous soils inhibit forest development

1. **Cercis canadensis*
2. **Juniperus virginiana*
3. *Ostrya virginiana*
4. *Cornus florida*
5. *Rhus aromatica*
6. **Bouteloua curtipendula*
7. **Andropogon gerardii*
8. *Deschampsia flexuosa*
9. **Sorghastrum nutans*
10. *Schizachyrium scoparium*
11. *Panicum virgatum*
12. *Aquilegia canadensis*
13. *Lespedeza spp*
14. *Asclepias viridiflora*
15. *Asclpias verticillata*
16. *Solidago bidolor*
17. *Senecio obovatus*
18. *Aquilegia canadensis*
19. *Lonicera sempervirens*
20. *Verbena simplex*
21. *Andropogon virginicus*
22. *Blephilia ciliata*
23. *Danthonia spicata*
24. *Heuchera americana*
25. *Ruellia humilis*

Dry Oak Mixed Hardwood Forest: an adaptation of Fike's Calcareous Opening/Cliff and Dry Oak Mixed Hardwood Forest

1. **Quercus alba*
2. *Quercus montanta*
3. *Quercus rubra*
4. *Quercus velutina*
5. **Betula lenta*

6. **Carya cordiformis*
7. *Carya glabra*
8. *Celtis occidentalis*
9. *Acer saccharum*
10. *Acer rubrum*
11. **Carpinus caroliniana*
12. *Amelanchier arborea*
13. *Quercus mulhenbergii*
14. **Ostrya virginiana*
15. **Cornus florida*
16. **Cercis canadensis*
17. *Hydrangea arborescens*
18. *Rhus aromatica*
19. *Dryopteris marginalis*
20. *Allium cernuum*
21. *Heuchera americana*
22. *Aquilegia canadensis*
23. *Arabis lyrata*
24. *Dodecathon meadia*
25. *Saxifraga virginiana*
26. *Maianthemum racemosum*
27. *Polygonatum biflorum*
28. *Lysimachia quadrifolia*
29. *Uvularia sessifolia*
30. *Carex pensylvanica*
31. *Carex communis*
32. *Hieracium venosum*
33. *Aralia nudicaulis*
34. *Polygonatum biflorum*
35. *Senna marilandica*
36. *Antennaria plantaginifolia*
37. *Aronia melanocarpa*
38. *Blephilia ciliata*
39. *Carex radiata*
40. *Carex swanii*
41. *Carex jamesii*
42. *Ruellia strepens*

Neutral Upland

Tuliptree, Beech and Maple Forest

1. **Liriodendron tulipifera*
2. **Fagus grandiflora*
3. **Acer saccharum*
4. *Acer rubrum*
5. *Quercus alba*
6. *Quercus rubra*
7. *Betula lenta*
8. *Nyssa sylvatica*
9. *Carya ovata*
10. *Carya tomentosa*
11. *Carpinus caroliniana*
12. *Cornus florida*
13. *Ostrya virginiana*
14. *Viburnum acerifolium*
15. *Viburnum prunifolium*
16. *Hamamelis virginiana*
17. *Lindera benzoin*
18. *Podophyllum peltatum*

19. *Sanguinaria canadensis*
20. *Dicentra cucullaria*
21. *Allium tricoccum*
22. *Claytonia virginiana*
23. *Symphyotrichum cordifolium*
24. *Carex radiata*

Sugar Maple Basswood Forest: similar to the Tuliptree, Beech and Maple Forest above, but often found on rocky slopes; spring ephemerals abound

1. **Acer saccharum*
2. **Tilia americana*
3. *Quercus rubra*
4. *Fraxinus americana*
5. *Betula lenta*
6. *Betula alleghaniensis*
7. *Lindera benzoin*
8. *Hamamelis virginiana*
9. *Asimina triloba*
10. *Staphylea trifolia*
11. *Anemone quinquefolia*
12. *Actaea racemosa*
13. *Geranium maculatum*
14. *Caulophyllum thalictroides*
15. *Allium tricoccum*
16. *Hepatica nobilis*
17. *Sanguinaria canadensis*
18. *Erythronium americanum*
19. *Arisaema triphyllum*
20. *Cardamine concatenata*
21. *Asarum canadense*
22. *Maianthemum racemosum*
23. *Dryopteris marginalis*
24. *Solidago flexicaulis*
25. *Hieracium paniculatum*
26. *Symphyotrichum cordifolium*
27. *Aralia nudicaulis*
28. *Carex radiata*
29. *Cornus alternifolia*

Upland Grass and Forb Community: an adaptation of Fike's Riverside Grassland; a community found where mowing or fire suppresses woody species such as under a powerline or on maintained grasslands; often human-maintained

1. *Andropogon gerardii*
2. **Andropogon virginicus*
3. **Schizachyrium scoparium*
4. **Sorghastrum nutans*
5. *Lespedeza spp*
6. *Oenothera perennis*
7. *Oenothera fruticosa*
8. *Eragrostis spectabilis*
9. *Viola sagittata*
10. *Carex bushii*
11. *Baptisia tinctoria*
12. *Baptisia australis (western PA)*
13. *Rosa carolina*
14. *Solidago nemoralis*
15. *Solidago pubescens*
16. *Solidago bicolor*
17. *Asclepias tuberosa*
18. *Asclepias viridiflora*
19. *Dichanthelium clandestinum*
20. *Solidago speciosa*
21. *Solidago odora*
22. *Tephrosia virginica*
23. *Aristida purpurascens*
24. *Symphyotrichum laeve*
25. *Rudbeckia hirta*
26. *Cirsium pumilum*
27. *Antennaria neglecta*
28. *Antennaria plantaginifolia*
29. *Andropogon virginicus*
30. *Anemone virginiana*
31. *Ipomoea pandurata*
32. *Eragrostis spectabilis*
33. *Pycnanthemum incanum*

LOWLANDS: Rich, diverse communities; much of this community was cleared for farmland over the past few centuries

Acidic Lowland

Hemlock Tuliptree Birch Forest: may be found in coves spared from farmland clearing

1. **Liriodendron tulipifera*
2. **Tsuga canadensis*
1. **Betula lenta*
2. **Betula alleghaniensis*
3. *Acer rubrum*
4. *Acer saccharum*
5. *Quercus rubra*
6. *Fagus grandiflora*
7. *Prunus serotina*
8. *Pinus strobus*
9. *Hamamelis virginiana*
10. *Rhododendron maximum*
11. *Maianthemum canadense*

12. *Podophyllum peltatum*
13. *Dryopteris marginalis*
14. *Arisaema triphyllum*
15. *Eurybia divaricata*
16. *Polystichum acrostichoides*
17. *Viola* spp.
18. *Tiarella cordifolia*
19. *Actaea pachypoda*
20. *Aralia racemosa*
21. *Cornus alternifolia*

Red Cedar and Pine Shrubland: historically restricted to serpentine soils where edaphic factors and fire suppress tree canopy dominance; may also be atop abandoned mining areas

1. **Juniperus virginiana*
2. **Pinus rigida*
3. **Pinus virginiana*
4. *Robinia pseudoacacia*
5. *Quercus stellata*
6. *Quercus prinoides*

7. *Sassafras albidum*
8. *Rhus copallina*
9. *Gaylussacia baccata*
10. *Rhus copallina*
11. **Schizachyrium scoparium*
12. **Andropogon gerardii*
13. *Sporobolus heterolepis*
14. *Dichanthelium depauperatum*
15. *Deschampsia flexuosa*
16. *Bouteloua curtipendula*
17. *Eupatorium aromaticum*
18. *Eupatorium rotundifolium*
19. *Oenothera fruticosa*
20. *Solidago nemoralis*
21. *Antennaria plantaginifolia*
22. *Senecio anonymus*
23. *Viola sagittata*
24. *Rudbeckia fulgida*
25. *Aronia arbutifolia*

Calcareous Lowland

Red Maple Black Ash Calcareous Forest: presence of alkaline groundwater

1. **Acer rubrum*
2. **Fraxinus nigra*
3. *Quercus bicolor*
4. *Nyssa sylvatica*
5. *Ulmus americana*
6. *Rhamnus alnifolia*
7. *Physocarpus opulifolius*
8. *Spiraea latifolia*
9. *Rhododendron viscosum*
10. *Ilex verticillata*
11. *Alnus serrulata*
12. *Vaccinium corymbosum*
13. *Onoclea sensibilis*
14. *Osmunda regalis*
15. *Symplocarus foetidus*
16. *Viola* spp.
17. *Carex flava*
18. *Carex interior*
19. *Carex stricta*
20. *Carex leptalea*
21. *Cornus amomum*
22. *Cornus racemosa*
23. *Corylus americana*
24. *Sambuca nigra*
25. *Sambuca racemosa*

26. *Staphylea trifolia*
27. *Viola striata*
28. *Arabis laevigata*
29. *Carex jamesii*
30. *Diarrhena obovata*
31. *Carex jamesii*

Mesic Calcareous Grassland: an adaptation of Fike's Calcareous Cliff and Riverside Scour communities; found where humans maintain the area by mowing or fire to suppress woody species such as under a powerline or on maintained grasslands; mesic soil in the Piedmont is likely to be forested unless edaphic factors limit the growth of woody species such as in cases of rocky, acidic or basic soils; species below reflect many of the author's opinions of suitable grassland species for a calcareous meadow

1. **Quercus muhlenbergii*
2. **Ostrya virginiana*
3. *Fraxinus americana*
4. **Bouteloua curtipendula*
5. *Andropogon gerardii*
6. *Sorghastrum nutans*
7. *Schizachyrium scoparium*
8. *Lespedeza* spp
9. *Allium cernuum*
10. *Aster oblongifolius*
11. *Dodecatheon meadia*
12. *Cornus amomum*

13. *Corylus americana*
14. *Lonicera sempervirens*
15. *Liatris spicata*
16. *Blephilia ciliata*
17. *Pycnanthemum virginianum*
18. *Veronicastrum virginicum*

19. *Tradescantia virginiana*
20. *Ruellia humilis*
21. *Hypericum prolificum*
22. *Senna marilandica*
23. *Astragalus canadensis*
24. *Diospyros virginiana*

Neutral Lowland

Rich Hemlock Mesic Hardwood Forest: a community rich in useful and medicinal species

1. **Tsuga canadensis*
2. **Liriodendron tulipifera*
3. **Fagus grandiflora*
4. *Quercus rubra*
5. *Acer saccharum*
6. *Betula lenta*
7. *Betula alleghaniensis*
8. *Tilia americana*
9. *Carya ovata*
10. *Magnolia tripetala*
11. *Asimina triloba*
12. *Staphylea trifolia*
13. *Rhododendron maximum*
14. *Lindera benzoin*
15. *Adiantum pedatum*
16. *Erythronium americanum*
17. *Maianthemum canadense*
18. *Anemone quinquefolia*
19. *Dicenta spp.*
20. *Cimicifuga racemosa*
21. *Geranium maculatum*
22. *Caulophyllum thalictroides*
23. *Allium tricoccum*
24. *Arisaema triphyllum*
25. *Hepatica spp.*
26. *Sanguinaria canadensis*
27. *Asarum canadense*
28. *Tiarella cordifolia*
29. *Eurybia macrophylla*
30. *Eurybia divaricata*
31. *Solidago caesia*
32. *Symphyotrichum cordifolium*
33. *Viola striata*
34. *Actaea pachypoda*
35. *Aralia racemosa*
36. *Cystopteris protrusa*
37. *Carex plantaginea*
38. *Arabis laevigata*
39. *Campanulastrum americanum*

Mesic Grass and Forb Meadow: this “community” is generally human-made in the Pennsylvania Piedmont; mesic soil in the Piedmont is likely to be forested unless edaphic factors limit the growth of woody species such as in cases of rocky, acidic or basic soils; species below reflect the author’s opinion of suitable meadow species for the Piedmont

1. *Andropogon gerardii*
2. *Sorghastrum nutans*
3. *Schizachyrium scoparium*
4. *Elymus riparius*
5. *Tridens flavus*
6. *Lespedeza spp*
7. *Rudbeckia hirta*
8. *Symphyotrichum laeve*
9. *Symphyotrichum urophyllum*
10. *Symphyotrichum lateriflorum*
11. *Symphyotrichum lanceolatum*
12. *Solidago spp.*
13. *Oligoneuron rigidum*
14. *Symphyotrichum novae-angliae*
15. *Tradescantia ohiensis*
16. *Anaphalis margaritacea*
17. *Aronia prunifolia*
18. *Euthamia graminifolia*
19. *Heliopsis helianthoides*
20. *Pycnanthemum virginianum*
21. *Pycnanthemum muticum*
22. *Asclepias syriaca*
23. *Apocynum cannabinum*
24. *Commelina virginica*

Red Oak Mixed Hardwood

1. **Quercus rubra*
2. *Quercus velutina*
3. **Acer rubrum*
4. *Quercus alba*
5. *Carya tomentosa*
6. *Carya ovata*
7. *Betula lenta*
8. *Betula alleghaniensis*
9. *Fagus grandiflora*
10. *Liriodendron tulipifera*

11. *Viburnum dentatum*
12. *Viburnum acerifolium*
13. *Carpinus caroliniana*
14. *Ostrya virginiana*
15. *Amelanchier laevis*
16. *Amelanchier arborea*
17. *Hamamelis virginiana*
18. *Maianthemum racemosum*
19. *Uvularia sessifolia*
20. *Podophyllum peltatum*

21. *Medeola virginiana*
22. *Caulophyllum thalictroides*
23. *Dennstaedtia punctilobula*
24. *Dryopteris* spp.
25. *Eurybia divaricata*
26. *Viola* spp.
27. *Solidago caesia*
28. *Actaea racemosa*
29. *Carex swanii*
30. *Cornus alternifolia*

WETLANDS: the water filters of the Chesapeake Bay

Floodplain or Seasonal Periodic Flooding

Sycamore and Silver Maple Floodplain Forest: an adaptation of Fike's Sycamore River Birch Box Elder Floodplain Forest and Silver Maple Floodplain Forest

1. **Acer saccharinum*
2. **Platanus occidentalis*
3. **Acer negundo*
4. **Betula nigra*
5. *Acer rubrum*
6. *Ulmus americana*
7. *Salix nigra*
8. *Salix sericea*
9. *Cornus amomum*
10. *Cornus racemosa*
11. *Viburnum recognitum, dentatum*
12. *Physocarpus opulifolius*
13. *Lobelia cardinalis*
14. *Polygonum virginianum*
15. *Impatiens* spp.
16. *Caltha palustris*
17. *Peltandra virginica*
18. *Sagittaria latifolia*
19. *Conoclinium coelestinum*
20. *Symphyotrichum prenanthoides*
21. *Viola* spp.
22. *Clematis virginiana*
23. *Allium canadense*
24. *Apios americana*
25. *Carex grayi*
26. *Diarrhena obovata*
27. *Elymus riparius*
28. *Elymus hystris*

Bottomland Oak Hardwood Forest

1. **Quercus palustris*
2. **Quercus bicolor*
3. *Acer rubrum*

4. *Ulmus americana*
5. *Nyssa sylvatica*
6. *Fraxinus nigra*
7. *Lindera benzoin*
8. *Viburnum recognitum*
9. *Viburnum dentatum*
10. *Impatiens* spp.
11. *Thelypteris palustris*
12. *Agrimona parviflora*
13. *Symphyotrichum prenanthoides*
14. *Viola* spp.
15. *Zizia aurea*
16. *Allium canadense*
17. *Carex grayi*
18. *Chelone glabra*

Buttonbush Wetland: a shrub-dominated wetland providing crucial habitat for a number of plant, insect and animal species

1. **Cephalanthus occidentalis*
2. *Sambucus canadensis*
3. *Cornus amomum*
4. *Cornus sericea*
5. *Salix sericea*
6. *Rhododendron viscosum*
7. *Ilex verticillata*
8. *Dulichium arundinaceum*
9. *Triadenum virginicum*
10. *Polygonatum hydropiperoides*
11. *Polygonatum punctatum*
12. *Polygonatum amphibium*
13. *Scirpus cyperinus*
14. *Thelypteris palustris*
15. *Senna hebecarpa*
16. *Clematis virginiana*
17. *Andropogon glomeratus*

18. *Carex squarrosa*
19. *Chelone glabra*

Riverside Ice Scour: despite its close proximity to the water, this community experiences occasional drought as well as flooding; the soils are rocky with little organic matter; a community found where natural factors such as scouring ice or flooding remove many woody species; a holdout for many rare species

1. *Aristida purpurascens*
2. *Hibiscus laevis*
3. *Boltonia asteroides*
4. *Hypericum prolificum*
5. *Amorpha fruticosa*
6. *Spartina pectinata*
7. *Eupatorium spp.*
8. *Senecio spp.*
9. *Physocarpus opulifolius*
10. *Zizia aurea*
11. *Hydrangea arborescens*
12. *Betula nigra*
13. *Solidago odora*
14. *Solidago bicolor*
15. *Solidago nemoralis*
16. *Allium cernuum*
17. *Liatris spicata*
18. *Sisyrinchium angustifolium*
19. *Tephrosia virginiana*
20. *Rosa carolina*

21. *Solidago simplex*
22. *Tripsacum dactyloides*
23. *Arabis lyrata*
24. *Aronia melanocarpa*
25. *Campanula rotundifolia*
26. *Coreopsis tripteris*
27. *Diospyros virginiana*
28. *Chionanthus virginicus*
29. *Euthamia graminifolia*

Big Bluestem Indian Grass River Grassland: a community found where natural factors such as scouring ice or flooding remove woody species; or where humans maintain the area by mowing or fire to suppress woody species such as under a powerline or on maintained grasslands

1. **Andropogon gerardii*
2. **Sorghastrum nutans*
3. *Panicum virgatum*
4. *Scizachyrium scoparium*
5. *Sporobolus asper*
6. *Apocynum cannabinum*
7. *Lespedeza violacea*
8. *Baptisia australis (western PA)*
9. *Tripsacum dactyloides*
10. *Arnoglossum atriplicifolium*
11. *Clematis virginiana*
12. *Anaphalis margaritacea*
13. *Elymus riparius*
14. *Helenium autumnale*

Groundwater Wetland (may flood from storm water run-off, but soils retain moisture from underground sources year-round from groundwater close to the surface)

Skunk Cabbage Golden Saxifrage Forest Seep

1. **Symplocarpus foetidus*
2. **Chrysosplenium americanum*
3. *Osmunda cinnamomea*
4. *Carex folliculata*
5. *Mitchella repens*
6. *Impatiens capensis*
7. *Dryopteris carthusiana*
8. *Cardamine pennsylvanica*
9. *Saxifraga pennsylvanica*
10. *Glyceria melicaria*
11. *Thelypteris novaboracensis*
12. *Onoclea sensibilis*
13. *Lindera benzoin*

Alder and Meadowsweet Wetland: an adaptation of Fike's Highbush Blueberry Meadowsweet Wetland, Alder-Sphagnum Wetland and Red Maple Sedge Woodland, a

shrub-dominated wetland providing crucial habitat for a number of plant, insect and animal species

1. **Alnus serrulata*
2. **Alnus incana*
3. **Vaccinium corymbosum*
4. **Spiraea alba*
5. **Spiraea tomentosa*
6. *Ilex verticillata*
7. *Cornus racemosa*
8. *Osmunda cinnamomea*
9. *Sambucus canadensis*
10. *Acer rubrum*
11. *Juncus sp*
12. *Eleocharis sp*
13. *Onoclea sensibilis*
14. *Thelypteris paustris*
15. *Impatiens capensis*
16. *Caltha palustris*

17. *Peltandra virginica*
18. *Sagittaria latifolia*
19. *Symphyotrichum novae-angliae*
20. *Vaccinium macrocarpon*
21. *Viola cucullata*
22. *Aronia arbutifolia*
23. *Carex squarrosa*
24. *Chelone glabra*
25. *Doellengeria umbellata*
26. *Gentiana clausa*

Calcareous Sedge Fen: adaptable wet meadow species that tolerate calcareous groundwater

1. *Carex stricta*
2. *Carex lacustris*
3. *Carex prairea*
4. *Carex leptalea*
5. *Pycnanthemum virginianum*
6. *Verbena hastata*
7. *Eupatorium maculatum*
8. *Onoclea sensibilis*
9. *Cirsium muticum*
10. *Polemonium reptans*
11. *Symphyotrichum puniceum*
12. *Vernonia noveboracensis*
13. *Corylus americana*
14. *Carex squarrosa*

Wet Meadow Opening: This community is usually dominated by graminoids; may be flooded in the spring, but dry in the summer

1. *Scirpus cyperinus*
2. *Leersia oryzoides*
3. *Dulichium arundinaceum*
4. *Thelypteris palustris*
5. *Carex stipata*
6. *Carex stricta*
7. *Carex tribuloides*
8. *Carex lurida*
9. *Bidens spp.*
10. *Eupatorium perfoliatum*
11. *Eutrochium fistulosum*
12. *Vernonia noveboracensis*
13. *Mimulus ringens*
14. *Sagittaria latifolia*
15. *Glyceria canadensis*
16. *Eleocharis sp*
17. *Spiraea tomentosa*
18. *Cephalanthus occidentalis*
19. *Cornus amomum*
20. *Vaccinium corymbosum*
21. *Andropogon glomeratus*
22. *Corylus americana*
23. *Conoclinium coelstinum*
24. *Senna hebecarpa*
25. *Symphyotrichum novae-angliae*
26. *Zizia aurea*
27. *Aronia prunifolia*
28. *Carex squarrosa*
29. *Chelone glabra*
30. *Gentiana clausa*
31. *Helenium autumnale*

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