

Minnesota County Biological Survey
Benton County Map – Native Plant Community Text
July 2002

Aspen Forest

Mesic deciduous forests on level to gently undulating terrace deposits. Continuous canopy (75-100% cover) dominated by quaking aspen (*Populus tremuloides*), big-toothed aspen (*Populus grandidentata*) with bur oak (*Quercus macrocarpa*), northern pin oak (*Quercus ellipsoidalis*). Patchy to continuous shrub layer with American hazelnut (*Corylus americana*), beaked hazelnut (*Corylus cornuta*), Allegheny blackberry (*Rubus alleghaniensis*), gray dogwood (*Cornus racemosa*), chokecherry (*Prunus virginiana*), pin cherry (*Prunus pennsylvanica*). Ground layer with abundant wild sarsaparilla (*Aralia nudicaulis*), pointed-leaved tick trefoil (*Desmodium glutinosum*), hog peanut (*Amphicarpaea bracteata*), large-leaved aster (*Aster macrophyllus*), bracken (*Pteridium aquilinum*), sun-loving sedge (*Carex pensylvanica*). (this description is based on closest aspen forest releves to Benton County—needs revision)

Black Ash Swamp

Forested swamps on saturated mineral or organic soils in depressions or shallow basins. Standing water typical, especially in spring or early summer. Patchy to interrupted canopy (25-75% cover) dominated by black ash (*Fraxinus nigra*) with occasional American elm (*Ulmus americana*). Patchy shrub layer, with speckled alder (*Alnus incana*), mountain maple (*Acer spicatum*), and winterberry (*Ilex verticillata*) common. Diverse ground layer of wet forest and mesic forest herbs.

Black Ash Swamp - Seepage Subtype

Forested swamps in shallow drainage-ways on soils saturated by groundwater seepage. Canopy dominated by black ash (*Fraxinus nigra*) with occasional green ash (*Fraxinus pennsylvanica*) and sugar maple (*Acer saccharum*). Sparse shrub layer with scattered black ash (*Fraxinus nigra*), red maple (*Acer rubrum*), and other tree saplings, plus winterberry (*Ilex verticillata*), gray dogwood (*Cornus racemosa*), wild black currant (*Ribes americanum*), and other shrubs. Diverse ground layer with sedges (*Carex* spp.) and mesic to wet forest forbs common. Typical forb species are common enchanter's nightshade (*Circaea lutetiana*), Michigan lily (*Lilium michiganense*), fringed loosestrife (*Lysimachia ciliata*), and ragwort (*Senecio* sp.) Meadow-like openings present in areas of highest groundwater seepage.

Dry Oak Savanna - Sand-Gravel Subtype

Dry to dry-mesic savannas on level sandy river terraces or steep, sandy south-to west-facing slopes along the Mississippi River. Tree canopy of scattered or clumped open-grown bur oak (*Quercus macrocarpa*), often stunted or fire-scarred. Open understory with ground layer of species typical of dry-mesic prairies. Common grasses include little bluestem (*Schizachyrium scoparium*), porcupine grass (*Stipa spartea*), and prairie dropseed (*Sporobolus heterolepis*) with occasional big bluestem (*Andropogon gerardii*) or other tall grasses. Typical forbs include Virginia ground cherry (*Physalis virginiana*), long-headed thimbleweed (*Anemone cylindrica*), prairie smoke (*Geum triflorum*), hoary puccoon (*Lithospermum canescens*), slender beard tongue (*Penstemon gracilis*), heath aster (*Aster ericoides*), and northern bedstraw (*Galium boreale*); starry false Solomon's seal (*Smilacina stellata*) may be abundant below oak trees. Ground layer also with scattered low shrubs, especially leadplant (*Amorpha canescens*), prairie rose (*Rosa arkansana*), and prairie willow (*Salix humilis*). In absence of fire many occurrences are succeeding to woodland or brushland, with prairie understory displaced by bur oak saplings,

American hazelnut (*Corylus americana*), smooth sumac (*Rhus glabra*), and other woody plants. Grazed or disturbed areas with abundant Kentucky bluegrass (*Poa pratensis*).

Dry Prairie - Barrens Subtype

Dry prairies on gently rolling to strongly rolling sites where terrace or outwash sand deposits have been reworked by wind into dunes. Usually sparsely vegetated with patches of bare sand interspersed with scattered grasses and forbs. Typical species include porcupine grass (*Stipa spartea*), sand reed grass (*Calamovilfa longifolia*), little bluestem (*Schizachyrium scoparium*), sand dropseed (*Sporobolus cryptandrus*), linear-leaved panic grass (*Panicum linearifolium*), and Schweinitz's nut sedge (*Cyperus schweinitzii*), along with the forbs silky prairie clover (*Dalea villosa*), western spiderwort (*Tradescantia occidentalis*), hairy puccoon (*Lithospermum carolinense*), green-flowered peppergrass (*Lepidium densiflorum*), and large-flowered beard tongue (*Penstemon grandiflorus*). Bare sand in wind-eroded areas colonized by distinctive species such as seaside three-awn (*Aristida tuberculosa*), beach heather (*Hudsonia tomentosa*), bearberry (*Arctostaphylos uva-ursi*), long-leaved panic grass(?) (*Panicum perlongum*), and rock spikemoss (*Selaginella rupestris*).

Dry Prairie - Sand-Gravel Subtype

Dry to dry-mesic prairies on level sandy terraces and outwash plains or on steep, sandy south- to west-facing slopes along the Mississippi River. Best areas dominated by grasses such as big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparius*), and porcupine grass (*Stipa spartea*), with scattered dry-mesic prairie forbs. Typical forbs include purple prairie clover (*Dalea purpurea*), heath aster (*Aster ericoides*), and white sage (*Artemisia ludoviciana*). Disturbed areas may have abundant Kentucky bluegrass (*Poa pratensis*). In absence of fire, encroachment by oak saplings, American hazelnut (*Corylus americana*), smooth sumac (*Rhus glabra*), or other woody species is common.

Emergent Marsh

Open wetlands on mineral or organic soils in shallow basins in rolling terrain. Standing water present through most of the growing season. Dominant species vary, but often include zones of cattails (*Typha* spp.), lake sedge (*Carex lacustris*), rice cut grass (*Leersia oryzoides*), woolgrass (*Scirpus cyperinus*), soft stem bulrush (*Scirpus validus*), and broad-leaved arrowhead (*Sagittaria latifolia*). Associated plants include willows (*Salix* spp.), speckled alder (*Alnus incana*), water parsnip (*Sium suave*), and water plantain (*Alisma* sp.).

Floodplain Forest - Silver Maple Subtype

Deciduous forests on annually flooded sandy or silty alluvial soils on floodplains of large to medium rivers. Interrupted canopy (50-75% cover) dominated by silver maple (*Acer saccharinum*) and green ash (*Fraxinus pennsylvanica*) with occasional red elm (*Ulmus rubra*), box elder (*Acer negundo*), and hackberry (*Celtis occidentalis*). Sparse to patchy shrub layer. Ground layer with stinging nettle (*Urtica dioica*), clearweed (*Pilea* spp.), Virginia wild rye (*Elymus virginicus*), and sedges (*Carex* spp.) Trees often covered with vines, especially in areas adjacent to canopy gaps. Small depressions and ephemeral pools common.

Lowland Hardwood Forest

Wet-mesic deciduous forests on level stream terraces or on low, level terrain adjacent to wetlands. Soils poorly drained silty or clayey loams, or sandy alluvium with high water tables. Canopy a mix of black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), and bur oak (*Quercus macrocarpa*) with occasional red maple (*Acer rubrum*). Elms (*Ulmus* spp.) common in

subcanopy. Diverse shrub layer, sometimes with abundant American hazelnut (*Corylus americana*). Rich ground layer with several sedges (*Carex* spp.) typical—especially starry sedge (*Carex rosea*), charming sedge (*Carex blanda*), brome-like sedge (*Carex bromoides*), and bladder sedge (*Carex intumescens*)—along with mix of mesic and wet-mesic forest forbs such as lady fern (*Athyrium filix-femina*), jack-in-the-pulpit (*Arisaema triphyllum*), common enchanter's nightshade (*Circaea lutetiana*), spotted touch-me-not (*Impatiens capensis*), early meadow-rue (*Thalictrum dioicum*), and large-flowered trillium (*Trillium grandiflorum*). Dense patches of wood nettle (*Laportea canadensis*) and ostrich fern (*Matteuccia struthiopteris*) also common. Small ephemeral pools present in depressions.

Maple-Basswood Forest

Mesic deciduous forests on level to rolling, moderately well-drained loamy glacial till. Interrupted to continuous canopy (50-100% cover) dominated by a mix of basswood (*Tilia americana*), northern red oak (*Quercus rubra*), bur oak (*Quercus macrocarpa*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), black ash (*Fraxinus nigra*), or green ash (*Fraxinus pennsylvanica*), with occasional quaking aspen (*Populus tremuloides*). Sparse to patchy subcanopy and shrub layer, typically with ironwood (*Ostrya virginiana*), sugar maple (*Acer saccharum*), basswood (*Tilia americana*), chokecherry (*Prunus virginiana*), pagoda dogwood (*Cornus alternifolia*), and prickly gooseberry (*Ribes cynosbati*). Ground layer characterized by mix of spring-blooming and shade-tolerant forest herbs such as yellow violet (*Viola pubescens*), Virginia waterleaf (*Hydrophyllum virginianum*), Burdick's leek (*Allium tricoccum*), large-flowered trillium (*Trillium grandiflorum*), bloodroot (*Sanguinaria canadensis*), zigzag goldenrod (*Solidago flexicaulis*), Clayton's sweet cicely (*Osmorhiza claytonii*), Maryland black snakeroot (*Sanicula marilandica*), long-stalked sedge (*Carex pedunculata*), and bearded shorthusk (*Brachyelytrum erectum*). Some sites with dense patches of wood nettle (*Laportea canadensis*) by mid-summer, especially where community grades into lowland hardwood forest. Often with small lowland hardwood forest, hardwood swamp, shrub swamp, or open wetland inclusions.

Mesic Prairie

Dry-mesic to wet-mesic prairies on well-drained to somewhat poorly drained, level to gently rolling sandy terraces and outwash deposits in the Mississippi River Valley. Dominated by tall and medium-height grasses, especially big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), little bluestem (*Schizachyrium scoparius*), porcupine grass (*Stipa spartea*), and hay sedge (*Carex foenea*). Other common species include prairie wild onion (*Allium stellatum*), gray goldenrod (*Solidago nemoralis*), stiff sunflower (*Helianthus pauciflorus*), leadplant (*Amorpha canescens*), and prairie rose (*Rosa arkansana*).

Oak Forest - Dry Subtype

Dry deciduous forests on level, very well-drained outwash sand, or on south- to west-facing slopes on gravelly glacial till. Interrupted canopy (50-75% cover) of northern pin oak (*Quercus ellipsoidalis*), bur oak (*Quercus macrocarpa*), or white oak (*Quercus alba*), with occasional paper birch (*Betula papyrifera*) or black cherry (*Prunus serotina*). Quaking aspen (*Populus tremuloides*) sometimes present at margins. Oldest oaks often open-grown or semi-opengrown, becoming overtopped by younger trees. Subcanopy either absent or with scattered red maples (*Acer rubrum*). Well-developed, diverse shrub layer with American hazelnut (*Corylus americana*), gray dogwood (*Cornus racemosa*), prickly ash (*Zanthoxylum americanum*), and chokecherry (*Prunus virginiana*) common. Ground layer of dry forest and woodland herbs such as hog peanut (*Amphicarpaea bracteata*), pointed-leaved tick trefoil (*Desmodium glutinosum*),

wild sarsaparilla (*Aralia nudicaulis*), mountain rice grass (*Oryzopsis asperifolia*), and sun-loving sedge (*Carex pensylvanica*).

Oak Forest - Mesic Subtype

Dry-mesic to mesic deciduous forests on level to rolling glacial till. Variable canopy, dominated by a mix of northern red oak (*Quercus rubra*), bur oak (*Quercus macrocarpa*), basswood (*Tilia americana*), quaking aspen (*Populus tremuloides*), or green ash (*Fraxinus pennsylvanica*), with occasional red maple (*Acer rubrum*) or sugar maple (*Acer saccharum*). Subcanopy often with ironwood (*Ostrya virginiana*), red maple (*Acer rubrum*), or sugar maple (*Acer saccharum*). American hazelnut (*Corylus americana*), beaked hazelnut (*Corylus cornuta*), dogwoods (*Cornus* spp.), nannyberry (*Viburnum lentago*), basswood (*Tilia americana*), and chokecherry (*Prunus virginiana*) common in shrub layer. Ground layer of mesic forest herbs such as large-flowered trillium (*Trillium grandiflorum*), wood anemone (*Anemone quinquefolia*), interrupted fern (*Osmunda claytoniana*), zigzag goldenrod (*Solidago flexicaulis*), round-lobed hepatica (*Anemone americana*), early meadow-rue (*Thalictrum dioicum*), wild sarsaparilla (*Aralia nudicaulis*), rattlesnake fern (*Botrychium virginianum*), pointed-leaved tick trefoil (*Desmodium glutinosum*), lopseed (*Phryma leptostachya*), and wild geranium (*Geranium maculatum*). Often with small wetland inclusions.

Oak Forest - subtype not determined

Either oak forest - dry subtype or oak forest - mesic subtype, or intermediate between the two subtypes.

Rich Fen - Sedge Subtype

Open wetlands on saturated organic soils in large wetland complexes. Dominated by narrow-leaved sedges such as wiregrass sedge (*Carex lasiocarpa*) and woolly sedge (*Carex pellita*), with scattered wetland grasses, especially fowl bluegrass (*Poa palustris*), fowl manna grass(?) (*Glyceria striata*), and bluejoint (*Calamagrostis canadensis*). Common forbs include willow-herbs (*Epilobium* spp.), bugleweed (*Lycopus* spp.), buckbean (*Menyanthes trifoliata*), and great water dock (*Rumex orbiculatus*). Scattered low shrubs are common, especially meadowsweet (*Spiraea alba*), birch (*Betula* sp.), and willows (*Salix* spp.).

Rock Outcrop

Dry sparsely vegetated communities on exposed granite bedrock. Typically occurs as a complex of vegetation types on bare rock surfaces, on shallow soil in crevices and around exposed rock, and in pools in shallow depressions on rock surfaces. Bare rock often covered by mosses and lichens, with *Polytrichum piliferum* and *Cladonia* spp. common. Drought-tolerant grasses and forbs present in crevices and on small patches of soil. Characteristic species include poverty grass (*Danthonia spicata*), small-flowered fameflower (*Talinum parviflorum*), rusty woodsia (*Woodsia ilvensis*), prairie wild onion (*Allium stellatum*), harebell (*Campanula rotundifolia*), bluets (*Hedyotis longifolia*), and rock spikemoss (*Selaginella rupestris*). Historically, dry-mesic prairie and oak savanna vegetation occurred on shallow soils surrounding rock exposures, but wild-fire suppression and disturbance from livestock grazing and rock quarrying have resulted in displacement of prairie species by dense brush or trees—especially eastern red cedar (*Juniperus virginiana*) and bur oak (*Quercus macrocarpa*)—and by exotic grasses such as Kentucky bluegrass (*Poa pratensis*) and smooth brome (*Bromus inermis*).

Shrub Swamp

Shrub-dominated wetlands on saturated mineral or organic soils in shallow wetland basins. Dense shrub cover of willows (*Salix* spp.), speckled alder (*Alnus incana*), or red-osier dogwood

(*Cornus sericea*), with scattered deciduous trees, including green ash (*Fraxinus pennsylvanica*), paper birch (*Betula papyrifera*), and elms (*Ulmus* spp.) Herbaceous layer of common open wetland species such as lake sedge (*Carex lacustris*), tussock sedge (*Carex stricta*), bluejoint (*Calamagrostis canadensis*), spotted joe pye weed (*Eupatorium maculatum*), common boneset (*Eupatorium perfoliatum*), tufted loosestrife (*Lysimachia thyrsoiflora*), and common marsh marigold (*Caltha palustris*).

White Pine - Hardwood Forest

Mesic hardwood-conifer forests on rich cobbly soil over granite bedrock. Tall, patchy supercanopy (25-50% cover) of white pine (*Pinus strobus*) over continuous canopy (75-100% cover) of red maple (*Acer rubrum*), northern red oak (*Quercus rubra*), basswood (*Tilia americana*), sugar maple (*Acer saccharum*), and black ash (*Fraxinus nigra*). Sparse subcanopy with sugar maple (*Acer saccharum*), blue beech (*Carpinus caroliniana*), and ironwood (*Ostrya virginiana*). Patchy, diverse shrub layer of blue beech (*Carpinus caroliniana*), American hazelnut (*Corylus americana*), downy arrowwood (*Viburnum rafinesquianum*), bush honeysuckle (*Diervilla lonicera*), and tree saplings. Ground layer with species typical of mesic deciduous forests, especially wild ginger (*Asarum canadense*), lady fern (*Athyrium filix-femina*), common enchanter's nightshade (*Circaea lutetiana*), wood anemone (*Anemone quinquefolia*), spotted touch-me-not (*Impatiens capensis*), large-leaved aster (*Aster macrophyllus*), round-lobed hepatica (*Anemone americana*), and wild geranium (*Geranium maculatum*). Community now uncommon in the county, with only one example remaining.

Wet Meadow

Open wetlands on wet, seasonally flooded mineral or organic soils in shallow basins or local drainage areas; often associated with shrub swamps. Dominated by broad-leaved sedges such as lake sedge (*Carex lacustris*), Hayden's sedge (*Carex haydenii*), and tussock sedge (*Carex stricta*), and also often by bluejoint (*Calamagrostis canadensis*). Common forbs include marsh bellflower (*Campanula aparinoides*), dwarf raspberry (*Rubus pubescens*), marsh vetchling (*Lathyrus palustris*), spotted joe pye weed (*Eupatorium maculatum*), common boneset (*Eupatorium perfoliatum*), bog aster (*Aster borealis*), and great water dock (*Rumex orbiculatus*). Scattered clumps of willows (*Salix* spp.) or red-osier dogwood (*Cornus sericea*) and patches of meadowsweet (*Spiraea alba*) typical.

Wet Prairie

Wet-mesic to wet prairies on poorly drained mineral or organic soils. Abundant or characteristic grasses and sedges include interior sedge (*Carex interior*), redbud (*Agrostis stolonifera*), Buxbaum's sedge (*Carex buxbaumii*), sweet grass (*Hierochloa odorata*), fringed brome (*Bromus ciliatus*), and prairie cordgrass (*Spartina pectinata*). Common forbs include Virginia mountain mint (*Pycnanthemum virginianum*), spotted joe pye weed (*Eupatorium maculatum*), common strawberry (*Fragaria virginiana*), sensitive fern (*Onoclea sensibilis*), northern marsh fern (*Thelypteris palustris*), and red-stemmed aster (*Aster puniceus*). Scattered low shrubs often present, including Bebb's willow (*Salix bebbiana*), pussy willow (*Salix discolor*), and red-osier dogwood (*Cornus sericea*).

Willow Swamp

Shrub-dominated wetlands on saturated mineral or organic soils in shallow wetland basins. Typically with patchy to dense cover of willows, especially slender willow (*Salix petiolaris*). Common herbaceous species below willows or in openings include silvery sedge (*Carex canescens*), lake sedge (*Carex lacustris*), giant bur reed (*Sparganium eurycarpum*), clearweed

(*Pilea* spp.), willow-herbs (*Epilobium* spp.), three-cleft bedstraw (*Galium trifidum*), marsh skullcap (*Scutellaria galericulata*), and northern white violet (*Viola macloskeyi*).