

Current Mapped Vegetation of the East-West Gateway Region
Interpretive Guide
June 2011

Contact: David D. Diamond and Lee F. Elliott
Missouri Resource Assessment Partnership
University of Missouri, Columbia
diamondd@missouri.edu

In 2010, the Missouri Resource Assessment Partnership (MoRAP), working with the East-West Gateway Council of Governments, produced a current vegetation map of the region as part of an effort to define ecological significance. This product used satellite remote sensing in concert with air photos and information from digital soils maps. The map is five times more detailed (60 classes versus 12), with 25 times the spatial resolution (6 m versus 30 m) of the standard national land cover map produced by the USGS. Detailed methods for development of this data layer can be found in a separate report from the East-West Gateway Council of Governments, and also posted here:

<http://www.cerc.usgs.gov/morap/Assets/UploadedFiles/Projects/EastWestGateway/Regional%20Ecological%20Significance%20Data%20Layer%20Report.pdf>

This interpretive guide is designed to either stand alone as a statistical representation of the current vegetation of the study area, or to accompany a GIS data layer of the current vegetation of the region, which is also available from the East-West Gateway council of governments or from the Missouri Resource Assessment Partnership.

Table 1 provides the area, community significance rank, and a quick, general description (with caveats) of mapped types with reference to more detailed descriptions found in the Appendix. The community significance ranks are based on expert judgment informed by community ranks provided by NatureServe (<http://www.natureserve.org/>) and associated biodiversity information data centers in Missouri (<http://mdc.mo.gov/landwater-care/heritage-program>) and Illinois (<http://dnr.state.il.us/conservation/naturalheritage/index.htm>).

Appendix 1 provides detailed technical descriptions of ecological systems recognized by NatureServe within the region (see <http://www.natureserve.org/getData/USecologyData.jsp>). Some areas of deciduous woodland and forest contain more early successional species than indicated by descriptions found in the Appendix, or in Table 1. The quality of the vegetation can only be mapped from on-site analyses, which were beyond the scope of this effort.

Figure 1. Current vegetation types of the East-West Gateway (see Table 1). Greens are forest types (darker greens are on steeper topography), yellows are grassland types, blues are bottomland types, reds are glade types, tan is cropland, and grays are urban (darker gray represents more dense development).

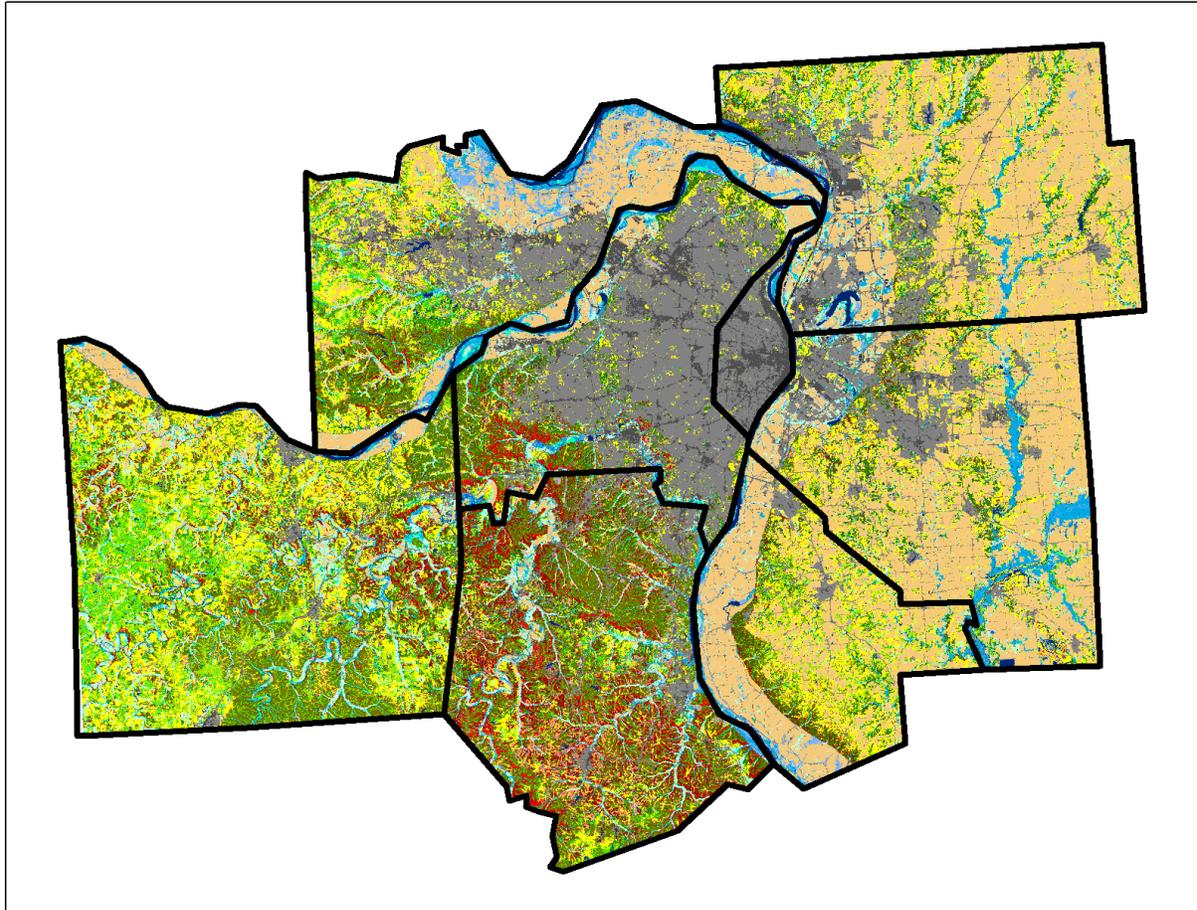


Table 1. Current vegetation of the East-West Gateway region based on community concepts. Disturbance and successional species are often more common in the modern landscape than indicated by these descriptions. Community importance is ranked from least (1) to most (9) important. See Appendix 1 for detailed descriptions of more natural types.

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Barren or Sparsely Vegetated	3,635	1	Areas where little or no vegetation existed at the time of image data collection.	N/A
Bottomland Forest: Mixed Bottomland Hardwood Forest	7,135	9	Forests dominated by bottomland hardwoods including <i>Quercus macrocarpa</i> (bur oak), <i>Ulmus</i> spp. (elms), <i>Celtis</i> spp. (hackberries), <i>Fraxinus</i> spp. (ashes), and <i>Salix nigra</i> (black willow), along with <i>Juniperus virginiana</i> (eastern redcedar).	North-Central Interior Floodplain
Bottomland Forest: Pin Oak/Bur Oak-Swamp White Oak/Pecan Forest	5,504	9	Forests generally occupying relatively level sites that are temporarily or seasonally flooded and dominated by species such as <i>Quercus palustris</i> (pin oak), <i>Quercus macrocarpa</i> (bur oak), <i>Quercus bicolor</i> (swamp white oak), and <i>Carya illinoensis</i> (pecan). Other canopy species may include <i>Ulmus rubra</i> (slippery elm), <i>Fraxinus pennsylvanica</i> (green ash), and <i>Celtis laevigata</i> (hackberry). A woody and herbaceous understory may be well-developed with species such as <i>Carpinus caroliniana</i> (American hornbeam) and vines including <i>Toxicodendron radicans</i> (poison ivy).	North-Central Interior Floodplain
Bottomland Forest: Sycamore, Cottonwood, Elm, Ash Hackberry Riverfront Forest	7,615	9	Forests occupying sites directly adjacent to riverfront and on first levees and successional terraces. These forests are dominated by species such as <i>Platanus occidentalis</i> (American sycamore), <i>Populus deltoides</i> (eastern cottonwood), <i>Fraxinus pennsylvanica</i> (green ash), <i>Acer saccharinum</i> (silver maple), <i>Celtis</i> (hackberries), <i>Ulmus</i> (elms), <i>Betula nigra</i> (river birch), <i>Salix nigra</i> (black willow), and <i>Acer negundo</i> (boxelder). Sites experience frequent flooding and understory vegetation is typically not well-developed.	North-Central Interior Floodplain
Bottomland Forest: White Oak/Red Oak-Dogwood/Sycamore Forest	1,319	9	Forests occupying less frequently flooded sites on slight rises such as elevated terraces and upper drainages. These forests are often dominated by mesic forest species such as <i>Quercus alba</i> (white oak), <i>Quercus rubra</i> (northern red oak), and <i>Platanus occidentalis</i> (American sycamore). Other common canopy components include <i>Carya cordiformis</i> (bitternut hickory), <i>Juglans nigra</i> (black walnut), <i>Ulmus rubra</i> (slippery elm), and <i>Quercus macrocarpa</i> (bur oak). Understory may be patchy with species including <i>Carpinus caroliniana</i> (American hornbeam), <i>Corylus americana</i> (American hazelnut), and <i>Lindera benzoin</i> (spicebush).	North-Central Interior Dry-Mesic Oak Forest and Woodland
Bottomland: Disturbance Grassland	57,126	5	Sites on bottomland soils where woody overstory is lacking. These sites are often occupied by managed grasslands.	N/A
Bottomland: Herbaceous-dominated Wetland	13,620	9	Marshes and herbaceous wetlands on bottomland sites often dominated by sedges, <i>Typha</i> spp. (cattails), and other wetland species.	Eastern Great Plains Wet Meadow, Prairie, and Marsh

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Bottomland: Successional Deciduous Woodland and Shrubland	1,911	5	Bottomland sites in early stages of succession where young hardwoods of species such as <i>Celtis</i> spp. (hackberries), <i>Fraxinus pennsylvanica</i> (green ash), <i>Salix nigra</i> (black willow), <i>Gleditsia triacanthos</i> (honeylocust), <i>Acer negundo</i> (boxelder), or <i>Acer saccharinum</i> (silver maple) are pioneering, or where shrub species such as <i>Cephalanthus occidentalis</i> (common buttonbush) dominate.	North-Central Interior Floodplain
Bottomland: Successional Eastern Redcedar Sparse Woodland and Shrubland	6,724	5	Bottomland sites in an early stage of succession where young <i>Juniperus virginiana</i> (eastern redcedar) dominates the site.	North-Central Interior Floodplain
Bottomland: Successional Eastern Redcedar Woodland	1,877	5	Disturbed sites in bottomlands where <i>Juniperus virginiana</i> (eastern redcedar) woodlands have developed.	North-Central Interior Floodplain
Bottomland: Successional Eastern Redcedar-Deciduous Mixed Woodland and Forest	3,044	5	Disturbed sites in bottomlands where <i>Juniperus virginiana</i> (eastern redcedar) retains some dominance in the canopy, but where other hardwood species such as <i>Celtis</i> spp. (hackberries), <i>Gleditsia triacanthos</i> (honeylocust), <i>Fraxinus pennsylvanica</i> (green ash), and/or <i>Ulmus</i> spp. (elms) share dominance.	North-Central Interior Floodplain
Bottomland: Successional or Disturbance Woodland and Forest	618	5	Woodland or forest on bottomland sites dominated by early successional hardwood species such as <i>Celtis</i> spp. (hackberries), <i>Gleditsia triacanthos</i> (honeylocust), <i>Maclura pomifera</i> (osage orange), <i>Salix nigra</i> (black willow), and/or <i>Acer saccharinum</i> (silver maple).	N/A
Bottomland: Wooded Wetland	30,046	9	Frequently flooded sites that may retain water for much of the year. These sites may be dominated by species such as <i>Salix nigra</i> (black willow), <i>Acer saccharinum</i> (silver maple), <i>Quercus bicolor</i> (swamp white oak), or <i>Cephalanthus occidentalis</i> (common buttonbush).	North-Central Interior Floodplain
Central Dissected Till Plains: Loess and Till Upland Bur Oak/Post Oak Upland Woodland	5	6	Woodlands of ridgetops and slopes frequently dominated by species such as <i>Quercus macrocarpa</i> (bur oak), <i>Quercus stellata</i> (post oak), <i>Quercus alba</i> (white oak), <i>Quercus velutina</i> (black oak), and <i>Carya texana</i> (black hickory). The understory may be somewhat well-developed, depending on fire history, with species such as <i>Ceanothus americanus</i> (New Jersey tea) or <i>Rhus aromatica</i> (fragrant sumac). The herbaceous layer is often dominated by prairie species, including <i>Schizachyrium scoparium</i> (little bluestem).	North-Central Interior Dry-Mesic Oak Forest and Woodland
Central Dissected Till Plains: Loess or Till Upland Bur Oak/Post Oak-Bluestem Prairie and Savanna (wooded)	1,461	6	Sites that are more typically open sites dominated by species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Sorghastrum nutans</i> (Indiangrass), and <i>Andropogon gerardii</i> (big bluestem), but where woody species such as <i>Quercus macrocarpa</i> (bur oak), <i>Quercus stellata</i> (post oak), <i>Quercus velutina</i> (black oak), <i>Ceanothus americanus</i> (New Jersey tea), <i>Cornus drummondii</i> (roughleaf dogwood), and <i>Rhus aromatica</i> (fragrant sumac) conspicuously occupy the site.	North-Central Interior Oak Savanna
Cropland	267,685	2	Sites under active cultivation of crops. Some fields may rotate into and out of cultivation frequently.	N/A
Cultural/Disturbance Upland Sandstone Grassland	101	3	Upland sites on sandstone substrate where woody overstory is lacking. These sites are often occupied by managed grasslands.	N/A

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Cultural/Disturbance: Upland Limestone/Dolomite and Chert Grassland	44,937	3	Upland sites on limestone, dolomite, or chert substrate where woody overstory is lacking. These sites are often occupied by managed grasslands.	N/A
Cultural/Disturbance: Upland Loess and Till Grassland	114,151	3	Upland sites on loess or occupying glacial till where woody overstory is lacking. These sites are often occupied by managed grassland.	N/A
Disturbance or Successional Upland Grassland	11,282	3	Grasslands on upland sites that would naturally be occupied by woodland, but where managed grasslands are maintained.	N/A
Herbaceous-dominated Wetlands (non-riverine)	4,671	7	Marshes and herbaceous wetlands surrounding upland ponds or reservoirs. These sites may be dominated by sedges, <i>Typha</i> spp. (cattails), and other wetlands species.	N/A
Illinois Hill Prairie or Glade (grassy)	2,227	9	Representative at Fults Hill Prairie. Site dominated by <i>Sorghastrum nutans</i> (Indiangrass), <i>Schizachyrium scoparium</i> (little bluestem), and <i>Bouteloua curtipendula</i> (sideoats grama). Forbs such as <i>Asclepias viridiflora</i> (green comet milkweed), <i>Brickellia eupatorioides</i> (false boneset), <i>Linus sulcatum</i> (grooved flax), <i>Lithospermum incisum</i> (fringed puccoon), <i>Penstemon pallidus</i> (pale beardtongue), <i>Psoraleidium tenuiflora</i> (slimflower scurfpea), <i>Sisyrinchium campestre</i> (prairie blue-eyed grass), and <i>Spiranthes mangicamporum</i> (Great Plains ladies' tresses) may also be characteristic.	Central Tallgrass Prairie
Illinois Hill Prairie or Glade (wooded)	4,259	9	Hill prairie sites that are more commonly dominated by species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Sorghastrum nutans</i> (Indiangrass), and <i>Bouteloua curtipendula</i> (sideoats grama) where woody species such as <i>Sassafras albidum</i> (sassafras), <i>Quercus stellata</i> (post oak), <i>Juniperus virginiana</i> (eastern redcedar), <i>Rhus copallinum</i> (winged sumac), and <i>Rhus glabra</i> (smooth sumac) have invaded.	Central Tallgrass Prairie
Illinois Loess and Till: Mesic Backslope Red Oak/Basswood-Sugar Maple Forest	665	9	Mesic forests occupying protected and lower slope positions where the canopy may be dominated by species such as <i>Acer saccharum</i> (sugar maple), <i>Tilia americana</i> (basswood), <i>Quercus rubra</i> (northern red oak), <i>Quercus alba</i> (white oak), <i>Ulmus</i> spp. (elms), <i>Fraxinus pennsylvanica</i> (green ash), <i>Carya cordiformis</i> (bitternut hickory) and <i>Carya ovata</i> (shagbark hickory). <i>Ostrya virginiana</i> (hophornbeam), <i>Carpinus caroliniana</i> (American hornbeam) may be conspicuous in the understory along with scattered shrubs such as <i>Ribes</i> spp. (currant) and <i>Sambucus</i> spp. (elderberry). Spring ephemeral herbaceous species are characteristic of the understory.	North-Central Interior Maple-Basswood Forest
Illinois Loess and Till: Typic Backslope White Oak/Red Oak-Hickory Woodland and Forest	4,744	8	Slope forests of loess or glaciated till dominated by overstory species such as <i>Quercus alba</i> (white oak), <i>Quercus rubra</i> (northern red oak), <i>Quercus macrocarpa</i> (bur oak), <i>Carya cordiformis</i> (bitternut hickory), <i>Carya ovata</i> (shagbark hickory), <i>Carya alba</i> (mockernut hickory). Shrub layer including species such as <i>Corylus americana</i> (American hazelnut) and <i>Amelanchier arborea</i> (common serviceberry) may be present.	North-Central Interior Dry-Mesic Oak Forest and Woodland

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Illinois Loess and Till: White Oak/Red Oak-Hickory Woodland and Forest	16,166	6	Forest of level to gently rolling uplands on loess or glacial till dominated by <i>Quercus alba</i> (white oak), <i>Quercus rubra</i> (northern red oak), <i>Quercus velutina</i> (black oak) and <i>Carya ovata</i> (shagbark hickory)	North-Central Interior Dry-Mesic Oak Forest and Woodland
Illinois Pin Oak/Post Oak-Hickory Flatwood Forest	48	6	Oak species such as <i>Quercus stellata</i> (post oak), <i>Quercus velutina</i> (black oak), <i>Quercus palustris</i> (pin oak), and <i>Quercus marilandica</i> (blackjack oak) commonly dominate the overstory. Saplings of these species and species such as <i>Sassafras albidum</i> (sassafras) and <i>Carya</i> spp. (hickories) dominate the woody understory. Herbaceous species such as <i>Helianthus divaricatus</i> (woodland sunflower), <i>Carex</i> spp. (sedges), and <i>Cinna arundinacea</i> (sweet woodreed) are common in the ground layer.	South-Central Interior / Upper Coastal Plain Flatwoods
Illinois Post Oak-Bluestem Prairie and Savanna (wooded)	246	6	Open woodland ridges and rolling topography dominated by <i>Quercus stellata</i> (post oak) and <i>Quercus velutina</i> (black oak). Species such as <i>Carya ovata</i> (shagbark hickory) and <i>Carya alba</i> (mockernut hickory) may also be present. The understory is composed of a fairly diverse prairie flora dominated by <i>Schizachyrium scoparium</i> (little bluestem).	North-Central Interior Oak Savanna (Ozark-Ouachita Dry Oak Woodland?)
Mississippi River: Mesic Bottomland Prairie	84	9	Tallgrass prairie on the floodplain of the Mississippi River often dominated by species such as <i>Andropogon gerardii</i> (big bluestem).	Central Tallgrass Prairie
Mississippi River: Wet Bottomland Prairie	130	9	Wet prairie on the floodplain of the Mississippi River dominated by species such as <i>Spartina pectinata</i> (prairie cordgrass), <i>Calamagrostis canadensis</i> (bluejoint reedgrass), and <i>Carex</i> spp. (sedges).	Eastern Great Plains Wet Meadow, Prairie, and Marsh
Mississippi River: Wet-mesic Bottomland Prairie	1,115	9	Tallgrass prairie on the floodplain of the Mississippi River dominated by <i>Andropogon gerardii</i> (big bluestem), <i>Panicum virgatum</i> (switchgrass), and <i>Spartina pectinata</i> (prairie cordgrass). Species such as <i>Calamagrostis canadensis</i> (bluejoint reedgrass), <i>Tripsacum dactyloides</i> (eastern gamagrass), <i>Carex</i> spp. (sedges), and <i>Helianthus grosseserratus</i> (sawtooth sunflower) may also be present.	Central Tallgrass Prairie
Open Water	25,434	1	Open water on lakes, ponds, and in streams and rivers.	N/A
Ozark Highlands: Chert Backslope White Oak/Black Oak-Dogwood Woodland and Forest	59,712	8	Slope forest or woodland on chert substrates often dominated by an overstory of <i>Quercus alba</i> (white oak), <i>Quercus velutina</i> (black oak), <i>Quercus rubra</i> (northern red oak), and <i>Carya</i> spp. (hickories). The understory often contains <i>Cornus florida</i> (flowering dogwood), sapling of the overstory species and a patchy shrub layer including species such as <i>Vaccinium pallidum</i> (Blue Ridge blueberry). The herbaceous layer is dominated by a rich spring flora, but becomes sparse later in the season.	Ozark-Ouachita Dry-Mesic Oak Forest

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Ozark Highlands: Chert Upland Mixed Oak Woodlands	4,843	6	Dry upland woodland dominated by oak species such as <i>Quercus velutina</i> (black oak), <i>Quercus stellata</i> (post oak), <i>Quercus marilandica</i> (blackjack oak), and <i>Quercus coccinea</i> (scarlet oak). <i>Carya texana</i> (black hickory) and <i>Quercus alba</i> (white oak) may also be present. Understory species may include <i>Vaccinium arboreum</i> (farkleberry), <i>Amelanchier arboreum</i> (common serviceberry), <i>Rhus aromatica</i> (fragrant sumac) and/or <i>Vaccinium pallidum</i> (Blue Ridge blueberry). The herbaceous layer may be well-developed with species including <i>Schizachyrium scoparium</i> (little bluestem).	Ozark-Ouachita Dry Oak Woodland
Ozark Highlands: Chert Upland Post Oak-Bluestem Prairie and Savanna (wooded)	8,391	6	Open woodlands on chert substrate dominated by species such as <i>Quercus stellata</i> (post oak), <i>Quercus marilandica</i> (blackjack oak), and <i>Quercus velutina</i> (black oak). The herbaceous layer is well-developed with species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Andropogon gerardii</i> (big bluestem), and <i>Sorghastrum nutans</i> (Indiangrass).	Ozark-Ouachita Dry Oak Woodland
Ozark Highlands: Limestone/Dolomite Backslope White Oak/Chinquapin Oak-Dogwood Woodland and Forest	12,777	8	Slope forest and woodland on limestone/dolomite substrate dominated by species such as <i>Quercus alba</i> (white oak), <i>Quercus muehlenbergii</i> (chinkapin oak), <i>Quercus rubra</i> (northern red oak), and <i>Quercus velutina</i> (black oak). <i>Carya alba</i> (mockernut hickory) and <i>Carya ovata</i> (shagbark hickory) may also be encountered. Shade tolerant species such as <i>Ulmus rubra</i> (slippery elm), <i>Cercis canadensis</i> (eastern redbud), <i>Cornus florida</i> (flowering dogwood), <i>Juglans nigra</i> (black walnut), <i>Ostrya virginiana</i> (hophornbeam), and <i>Carpinus caroliniana</i> (American hornbeam) may occupy the subcanopy. The herbaceous layer may be rich and diverse, especially in the spring.	Ozark-Ouachita Dry-Mesic Oak Forest
Ozark Highlands: Limestone/Dolomite Cliff/Talus Complex	710	8	Sites on limestone or dolomite with slope greater than 100%. These sites may be sparsely to moderately well-vegetated. Sites may be relatively dry to mesic.	Central Interior Calcareous Cliff and Talus
Ozark Highlands: Limestone/Dolomite Upland Chinquapin Oak-Post Oak/White Oak Woodland	7,986	6	Upland woodlands on ridges and upper slopes of limestone or dolomite substrates where the overstory is dominated by <i>Quercus muehlenbergii</i> (chinkapin oak), <i>Quercus alba</i> (white oak), <i>Quercus stellata</i> (post oak), and <i>Quercus velutina</i> (black oak). The herbaceous layer may be patchy to dense with species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Bouteloua curtipendula</i> (sideoats grama), <i>Muhlenbergia sobolifera</i> (rock muhly), and <i>Helianthus hirsutus</i> (hairy sunflower).	Ozark-Ouachita Dry-Mesic Oak Forest
Ozark Highlands: Limestone/Dolomite Upland Glade/Chinquapin Oak Woodland Complex (deciduous woods)	10,887	9	Open woodlands on limestone or dolomite dominated by species such as <i>Quercus muehlenbergii</i> (chinkapin oak), <i>Fraxinus quadrangulata</i> (blue ash), and <i>Juniperus virginiana</i> (eastern redcedar). Shrubs such as <i>Rhus aromatica</i> (fragrant sumac), <i>Frangula caroliniana</i> (Carolina buckthorn), and <i>Crataegus</i> spp. (hawthorn) may be present. Rock may be exposed at the surface with a patchy herbaceous layer with species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Sorghastrum nutans</i> (Indiangrass), and <i>Bouteloua curtipendula</i> (sideoats grama).	Ozark-Ouachita Dry Oak Woodland

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Ozark Highlands: Limestone/Dolomite Upland Glade/Chinquapin Oak Woodland Complex (grassy)	15,269	9	Upland sites on limestone or dolomite generally lacking woody overstory, though sometimes a sparse, open woodland. Open woodlands may typically have stunted <i>Quercus muehlenbergii</i> (chinkapin oak) and/or <i>Juniperus virginiana</i> (eastern redcedar). Rock is often exposed at the surface and the herbaceous layer are often dominated by <i>Schizachyrium scoparium</i> (little bluestem), <i>Sorghastrum nutans</i> (Indiangrass), and/or <i>Bouteloua curtipendula</i> (sideoats grama).	Central Interior Highlands Calcareous Glade and Barrens
Ozark Highlands: Limestone/Dolomite Upland Glade/Chinquapin Oak Woodland Complex (juniper or mixed woods)	32,864	9	Upland sites on limestone or dolomite occurring in a mosaic with more open canopy sites. These sites have a canopy sharing dominance between <i>Juniperus virginiana</i> (eastern redcedar) and deciduous species such as <i>Quercus muehlenbergii</i> (chinkapin oak). Rock may be exposed at the surface and the herbaceous layer is dominated by species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Sorghastrum nutans</i> (Indiangrass), and/or <i>Bouteloua curtipendula</i> (sideoats grama).	Ozark-Ouachita Dry Oak Woodland
Ozark Highlands: Loess and Till Backslope Grassland, Sparse Woodland, and Shrubland	718	8	Slopes on loess and glaciated till with a sparse woody canopy, a shrub canopy, or lacking woody overstory. May be similar to successional grasslands or glades in the modern landscape.	North-Central Interior Dry-Mesic Oak Forest and Woodland (Ozark-Ouachita Dry-Mesic Oak Forest)
Ozark Highlands: Loess and Till Backslope White Oak/Black Oak-Hickory Woodland and Forest	12,011	8	Woodlands or forests on slopes with a substrate of loess or glaciated till. These sites are dominated by various oak species, including <i>Quercus alba</i> (white oak), <i>Quercus velutina</i> (black oak), and <i>Quercus rubra</i> (northern red oak). Hickory species such as <i>Carya ovata</i> (shagbark hickory) and/or <i>Carya alba</i> (mockernut hickory) also commonly share dominance in the overstory. <i>Ostrya virginiana</i> (hophornbeam) may be common in the understory. Spring ephemeral herbaceous species often occupy the herbaceous layer.	North-Central Interior Dry-Mesic Oak Forest and Woodland (Ozark-Ouachita Dry-Mesic Oak Forest)
Ozark Highlands: Loess and Till Upland Post Oak/White Oak-Black Oak Woodland	16,744	6	Dry upland woodlands on loess or glaciated till substrate dominated by <i>Quercus stellata</i> (post oak), <i>Quercus alba</i> (white oak), and/or <i>Quercus velutina</i> (black oak). <i>Carya ovata</i> (shagbark hickory) and <i>Carya alba</i> (mockernut hickory) are also common associates. The understory consists of prairie species including <i>Schizachyrium scoparium</i> (little bluestem).	North-Central Interior Dry Oak Forest and Woodland (Ozark-Ouachita Dry Oak Woodland)
Ozark Highlands: Mesic Backslope and Valley Red Oak/White Oak-Sugar Maple/Basswood Forest	8,010	9	Mesic forests on protected slopes, lower slope positions, and terraces dominated by species such as <i>Quercus rubra</i> (northern red oak), <i>Quercus alba</i> (white oak), <i>Acer saccharum</i> (sugar maple), or <i>Tilia americana</i> (American basswood). <i>Quercus muehlenbergii</i> (chinkapin oak) and <i>Carya cordiformis</i> (bitternut hickory) may also occupy the canopy. An understory with species such as <i>Aesculus glabra</i> (Ohio buckeye), <i>Asimina triloba</i> (pawpaw), <i>Carpinus caroliniana</i> (American hornbeam), and/or <i>Staphylea trifolia</i> (American bladdernut) is often well-developed. The herbaceous layer is characterized by a diverse spring flora.	Ozark-Ouachita Mesic Hardwood Forest

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Ozark Highlands: Sandstone Backslope Red Oak/White Oak-Sugar Maple Forest	8,966	8	Mesic forests on slopes on sandstone substrate. These forests are typically dominated by <i>Quercus rubra</i> (northern red oak), <i>Quercus alba</i> (white oak), <i>Acer saccharum</i> (sugar maple), and/or <i>Fraxinus americana</i> (white ash). <i>Carya cordiformis</i> (bitternut hickory), <i>Carya alba</i> (mockernut hickory), <i>Ulmus rubra</i> (slippery elm), and <i>Juglans nigra</i> (black walnut) may also occur in the canopy. The herbaceous layer may have numerous forbs and ferns.	Ozark-Ouachita Mesic Hardwood Forest
Ozark Highlands: Sandstone Upland Glade/Post Oak Woodland Complex (deciduous woods)	215	9	Woodlands on sandstone substrate of uplands. The overstory is dominated by <i>Quercus stellata</i> (post oak) and <i>Quercus marilandica</i> (blackjack oak). The typically sparse shrub layer (<50% cover) contains species such as <i>Vaccinium arboreum</i> (farkleberry). The herbaceous layer is often sparse with moss and lichen well-represented.	Ozark-Ouachita Dry Oak Woodland
Ozark Highlands: Sandstone Upland Glade/Post Oak Woodland Complex (grassy)	1,890	9	Open sites with sparse woody overstory or lacking overstory on sandy substrate of ridges, rolling upland exposures, and knobs. Scattered and stunted <i>Quercus stellata</i> (post oak) and <i>Quercus marilandica</i> (blackjack oak) may be present. Herbaceous species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Aristida dichotoma</i> (churchmouse threawn), and <i>Croton</i> spp. (doveweeds) are common. Mosses and lichens are abundant on exposed rock.	Central Interior Highlands Dry Acidic Glade and Barrens
Ozark Highlands: Sandstone Upland Glade/Post Oak Woodland Complex (juniper or mixed woods)	2,381	9	Woodlands with a mixed woody canopy dominated by <i>Juniperus virginiana</i> (eastern redcedar) as well as deciduous species such as <i>Quercus stellata</i> (post oak), <i>Quercus marilandica</i> (blackjack oak), and <i>Quercus velutina</i> (black oak).	Ozark-Ouachita Dry Oak Woodland (Central Interior Highlands Dry Acidic Glade and Barrens)
Ozark Highlands: Sandstone Upland Post Oak/Black Oak-Blackjack Oak/Scarlet Oak Woodland	5,595	6	Upland woodlands of ridgetops and rolling uplands on sandstone substrate. The overstory is dominated by species such as <i>Quercus stellata</i> (post oak), <i>Quercus velutina</i> (black oak), <i>Quercus coccinea</i> (scarlet oak), and <i>Carya texana</i> (black hickory). <i>Quercus alba</i> (white oak) may be present in the canopy. <i>Vaccinium arboreum</i> (farkleberry) may be a common shrub in the understory.	Ozark-Ouachita Dry Oak Woodland
Ozark Highlands: Upland Dry Post Oak-Bluestem Flatwoods (wooded)	15,889	6	Woodlands occupying sites with a subsurface hardpan causing a perched water table. <i>Quercus stellata</i> (post oak) usually dominates the overstory, though other species such as <i>Quercus marilandica</i> (blackjack oak), <i>Quercus bicolor</i> (swamp white oak), and <i>Quercus palustris</i> (pin oak) may also be overstory components. The herbaceous layer may be dominated by species such as <i>Schizachyrium scoparium</i> (little bluestem), <i>Cinna arundinacea</i> (sweet woodreed), <i>Carex</i> spp. (sedges), or <i>Chasmanthium latifolium</i> (Indian woodoats).	South-Central Interior / Upper Coastal Plain Flatwoods
Riverine and Bottomland Unvegetated Soil, Mud, Sand, or Gravel	927	5	Mud, sand, or gravel bars along rivers and other barren sites where vegetation is very sparse during the period of image acquisition.	N/A

<u>Current Vegetation</u>	<u>Area (ha)</u>	<u>Comm Import</u>	<u>Brief Conceptual Description</u>	<u>Ecological System</u>
Successional Upland Deciduous Sparse Woodland and Shrubland	2,902	4	Upland sites dominated by deciduous successional species such as <i>Prunus</i> spp. (plums), <i>Gleditsia triacanthos</i> (honeylocust), <i>Sassafras albidum</i> (sassafras), <i>Diospyros virginiana</i> (common persimmon), <i>Celtis</i> spp. (hackberries), <i>Rhus</i> spp. (sumacs) and other species.	N/A
Successional Upland Eastern Redcedar Evergreen Sparse Woodland and Shrubland	6,201	4	Upland sites recovering from disturbance where <i>Juniperus virginiana</i> (eastern redcedar) dominate a sparse woodland or shrubland.	N/A
Successional Upland Eastern Redcedar Evergreen Woodland and Forest	16,309	4	Upland sites recovering from disturbance where <i>Juniperus virginiana</i> (eastern redcedar) dominate a closed woodland or forest.	N/A
Successional Upland Eastern Redcedar-Deciduous Mixed Woodland and Forest	38,325	4	Upland sites recovering from disturbance where a woodland or forest has developed that is dominated by <i>Juniperus virginiana</i> (eastern redcedar) in combination with deciduous components such as <i>Sassafras albidum</i> (sassafras), <i>Gleditsia triacanthos</i> (honeylocust), <i>Diospyros virginiana</i> (common persimmon), <i>Prunus</i> spp. (plums), and other species.	N/A
Urban High Intensity	39,466	1	Built-up areas and wide transportation corridors that are dominated by impervious cover.	N/A
Urban Low Intensity	205,831	1	Built-up but not entirely covered by impervious cover, and includes most of the non-industrial areas within cities and towns.	N/A
Woody-dominated Wetland (non-riverine)	1,618	7	Wetland sites on uplands, such as ponds and reservoirs, dominated by woody species such as <i>Cephalanthus occidentalis</i> (common buttonbush) or <i>Salix nigra</i> (black willow).	N/A

Appendix 1: Ecological Systems within the East-West Gateway Region

Descriptions were compiled and modified by Lee Elliott. The primary sources include NatureServe at <http://www.natureserve.org/getData/USecologyData.jsp>, *Atlas of Missouri Ecoregions* by Timothy A. Nigh and Walter A. Schroeder, and *Terrestrial Natural Communities of Missouri* by Paul W. Nelson..

Central Interior Calcareous Cliff and Talus (CES202.690)

This system is found primarily in non-Appalachian portions of the Central Interior Division. It ranges from the Ouachitas east to the Cumberland and north into the Western Allegheny Plateau and Lake states. Limestone and dolomite outcrops and talus distinguish this system. Examples range from moist to dry and from sparsely to moderately well-vegetated. Woodland species such as *Thuja occidentalis* can establish along the ridgetops. Understory species can range from grassland species, such as *Andropogon gerardii* on drier slopes, to more mesic species in areas with higher moisture and more soil development. Wind and water erosion along with fire are the primary natural dynamics influencing this system. Some associations included here are rocky openings in forest stands, sometimes with moisture present from groundwater seepage. Also included are wet and dry cliffs. The flora of these wetter examples may include (across the broad range of the system) *Aconitum noveboracense*, *Adiantum capillus-veneris*, *Adoxa moschatellina*, *Aquilegia canadensis*, *Asplenium rhizophyllum*, *Boehmeria cylindrica*, *Chrysosplenium iowense*, *Cystopteris bulbifera*, *Dichanthelium depauperatum*, *Heuchera americana*, *Heuchera americana* var. *hirsuticaulis*, *Heuchera villosa* var. *arkansana*, *Hydrangea arborescens*, *Impatiens pallida*, *Lobelia siphilitica*, *Toxicodendron radicans*, and *Woodsia obtusa*.

Component Associations	
Association Unique ID	Association Name
CEGL002245	<i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> Bedrock Bluff Herbaceous Vegetation
CEGL002291	Limestone - Dolostone Midwest Dry Cliff Sparse Vegetation
CEGL002292	Limestone - Dolostone Midwest Moist Cliff Sparse Vegetation
CEGL002308	Limestone - Dolostone Talus Sparse Vegetation
CEGL002315	Small Eroding Bluffs Midwestern Sparse Vegetation
CEGL002387	<i>Impatiens pallida</i> - <i>Cystopteris bulbifera</i> - <i>Adoxa moschatellina</i> - (<i>Chrysosplenium iowense</i> , <i>Aconitum noveboracense</i>) Herbaceous Vegetation
CEGL002451	<i>Thuja occidentalis</i> Cliff Woodland
CEGL002596	<i>Thuja occidentalis</i> / <i>Carex eburnea</i> - <i>Pellaea atropurpurea</i> Woodland
CEGL004078	<i>Schizachyrium scoparium</i> - <i>Sporobolus compositus</i> var. <i>compositus</i> - <i>Rudbeckia fulgida</i> var. <i>fulgida</i> Wooded Herbaceous Vegetation
CEGL004267	<i>Quercus muehlenbergii</i> - (<i>Juniperus virginiana</i> var. <i>virginiana</i>) Unglaciated Bluff Woodland
CEGL004393	<i>Rhus aromatica</i> - <i>Celtis tenuifolia</i> / <i>Carex eburnea</i> Shrubland

Component Associations	
Association Unique ID	Association Name
CEGL004395	<i>(Hydrangea arborescens, Toxicodendron radicans) / Heuchera americana - (Dichanthelium depauperatum, Woodsia obtusa)</i> Shrubland
CEGL004708	<i>Hydrangea arborescens / Impatiens (capensis, pallida) - Heuchera villosa</i> Shrubland
CEGL004728	<i>Adiantum capillus-veneris - Boehmeria cylindrica - Lobelia siphilitica</i> Herbaceous Vegetation
CEGL004739	<i>Andropogon gerardii - Chasmanthium latifolium - Amsonia tabernaemontana var. salicifolia</i> Herbaceous Vegetation
CEGL005058	<i>Acer saccharum - Tilia americana - Fraxinus americana / Ostrya virginiana / Geranium robertianum</i> Woodland
CEGL007819	<i>Hydrangea arborescens / Heuchera (americana var. hirsuticaulis, villosa var. arkansana) - Aquilegia canadensis</i> Shrubland
CEGL008486	<i>Cystopteris bulbifera - Asplenium rhizophyllum</i> Ozark Sparse Vegetation [Provisional]

Central Interior Highlands Calcareous Glade and Barrens (CES202.691)

This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions with scattered occurrences in northern Missouri. It occurs along moderate to steep slopes and steep valleys on primarily southerly to westerly facing slopes. Limestone and/or dolomite bedrock typify this system with shallow, moderately to well-drained soils interspersed with rocks. These soils often dry out during the summer and autumn, and then become saturated during the winter and spring. *Schizachyrium scoparium* dominates this system and is commonly associated with *Andropogon gerardii*, *Bouteloua curtipendula*, and calcium-loving plant species. Stunted woodlands primarily dominated by *Quercus muehlenbergii* interspersed with *Juniperus virginiana* occur on variable-depth-to-bedrock soils. Fire is the primary natural dynamic, and prescribed fires help manage this system by restricting woody growth and maintaining the more open glade structure.

Component Associations	
Association Unique ID	Association Name
CEGL002143	<i>Quercus muehlenbergii</i> - <i>Fraxinus (quadrangulata, americana)</i> / <i>Schizachyrium scoparium</i> Woodland
CEGL002251	<i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> - <i>Rudbeckia missouriensis</i> - <i>Mentzelia oligosperma</i> Wooded Herbaceous Vegetation
CEGL002398	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Bouteloua curtipendula</i> - <i>Rudbeckia missouriensis</i> - <i>Hedyotis nigricans</i> Wooded Herbaceous Vegetation
CEGL002426	<i>Juniperus virginiana</i> Alkaline Bluff Woodland
CEGL002428	<i>Quercus marilandica</i> - (<i>Juniperus virginiana</i>) / <i>Schizachyrium scoparium</i> - <i>Danthonia spicata</i> Wooded Herbaceous Vegetation
CEGL004078	<i>Schizachyrium scoparium</i> - <i>Sporobolus compositus</i> var. <i>compositus</i> - <i>Rudbeckia fulgida</i> var. <i>fulgida</i> Wooded Herbaceous Vegetation
CEGL004217	<i>Quercus stellata</i> - <i>Quercus alba</i> - (<i>Quercus falcata</i>) / <i>Schizachyrium scoparium</i> Woodland
CEGL004271	<i>Juniperus virginiana</i> var. <i>virginiana</i> - <i>Fraxinus quadrangulata</i> / <i>Symphotrichum oblongifolium</i> - <i>Panicum flexile</i> - <i>Sedum pulchellum</i> Woodland
CEGL004346	<i>Sedum pulchellum</i> - <i>Talinum calcaricum</i> - <i>Leavenworthia</i> spp. / <i>Nostoc commune</i> Herbaceous Vegetation
CEGL004347	<i>Sedum pulchellum</i> - <i>Talinum calycinum</i> - <i>Oenothera linifolia</i> Shale Herbaceous Vegetation
CEGL004393	<i>Rhus aromatica</i> - <i>Celtis tenuifolia</i> / <i>Carex eburnea</i> Shrubland
CEGL004464	<i>Juniperus virginiana</i> / <i>Schizachyrium scoparium</i> - <i>Silphium terebinthinaceum</i> var. <i>luciae-brauniae</i> - <i>Carex juniperorum</i> - <i>Castilleja coccinea</i> Wooded Herbaceous Vegetation
CEGL004669	<i>Eleocharis (bifida, compressa)</i> - <i>Nothoscordum bivalve</i> Herbaceous Vegetation
CEGL004672	<i>Juniperus ashei</i> Ozark Clifftop Woodland
CEGL004738	<i>Juniperus virginiana</i> / <i>Schizachyrium scoparium</i> - (<i>Andropogon gerardii</i> ,

Component Associations	
Association Unique ID	Association Name
	<i>Sorghastrum nutans</i>) - <i>Silphium (trifoliatum, terebinthinaceum)</i> Wooded Herbaceous Vegetation
CEGL005131	<i>Quercus muehlenbergii</i> - <i>Juniperus virginiana</i> / <i>Schizachyrium scoparium</i> - <i>Manfreda virginica</i> Wooded Herbaceous Vegetation
CEGL005280	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Tradescantia bracteata</i> Alkaline Bedrock Herbaceous Vegetation
CEGL005284	<i>Quercus muehlenbergii</i> / <i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> Wooded Herbaceous Vegetation
CEGL007772	<i>Sporobolus (neglectus, vaginiflorus)</i> - <i>Leavenworthia exigua var. laciniata</i> - <i>Viola egglestonii</i> Herbaceous Vegetation
CEGL007824	(<i>Quercus stellata, Ulmus alata</i>) / <i>Schizachyrium scoparium</i> - <i>Symphotrichum patens var. patentissimum</i> Wooded Herbaceous Vegetation
CEGL007833	<i>Juniperus ashei</i> / <i>Cotinus obovatus</i> / <i>Carex eburnea</i> - <i>Rudbeckia missouriensis</i> Woodland
CEGL007967	<i>Juniperus ashei</i> Dry Chalk Outcrop Woodland
CEGL007994	<i>Fraxinus quadrangulata</i> - <i>Juniperus virginiana var. virginiana</i> / <i>Schizachyrium scoparium</i> - <i>Lithospermum canescens</i> Woodland
CEGL008563	<i>Sporobolus vaginiflorus var. ozarkanus</i> Ozark Herbaceous Vegetation

Central Interior Highlands Dry Acidic Glade and Barrens (CES202.692)

This system is primarily found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions with small occurrences in northern Missouri. It occurs on flatrock outcrops and along moderate to steep slopes or valley walls of rivers along most aspects. Parent material includes chert, igneous and/or sandstone bedrock with well- to excessively well-drained, shallow soils interspersed with rock and boulders. These soils are typically dry during the summer and autumn, becoming saturated during the spring and winter. Grasses such as *Schizachyrium scoparium* and *Sorghastrum nutans* dominate this system with stunted oak species (*Quercus stellata*, *Quercus marilandica*) and shrub species such as *Vaccinium* spp. occurring on variable depth soils. *Juniperus virginiana* can be present and often increases in the absence of fire. In Kentucky, this system includes both sandstone glades found in the Shawnee Hills (EPA Ecoregions 71a, 72h of Woods et al. (2002)), as well as shale glades found in the Knobs region (EPA Ecoregions 70d, 71c of Woods et al. (2002)), both in the Kentucky Interior Low Plateau. It also includes dry *Quercus stellata*-dominated barrens on Cretaceous-aged gravel substrates on the northern fringes of the Upper East Gulf Coastal Plain Ecoregion in southern Illinois and western Kentucky. This system is influenced by drought and infrequent to occasional fires. Prescribed fires help manage this system by maintaining an open glade structure.

Component Associations	
Association Unique ID	Association Name
CEGL002149	<i>Quercus stellata</i> - <i>Quercus marilandica</i> - <i>Quercus velutina</i> - <i>Carya texana</i> / <i>Schizachyrium scoparium</i> Woodland
CEGL002211	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Danthonia spicata</i> - <i>Silene regia</i> Chert Herbaceous Vegetation
CEGL002212	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Andropogon ternarius</i> - <i>Coreopsis grandiflora</i> Sandstone - Shale Herbaceous Vegetation
CEGL002242	<i>Schizachyrium scoparium</i> - <i>Aristida dichotoma</i> - <i>Croton willdenowii</i> / Lichens Wooded Herbaceous Vegetation
CEGL002243	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Coreopsis lanceolata</i> - <i>Croton willdenowii</i> Wooded Herbaceous Vegetation
CEGL002244	<i>Schizachyrium scoparium</i> - <i>Sedum nuttallianum</i> - <i>Selaginella rupestris</i> - <i>Portulaca pilosa</i> / Lichens Wooded Herbaceous Vegetation
CEGL002391	<i>Quercus stellata</i> - <i>Quercus marilandica</i> / <i>Schizachyrium scoparium</i> Wooded Herbaceous Vegetation
CEGL002425	<i>Quercus marilandica</i> / <i>Vaccinium arboreum</i> / <i>Danthonia spicata</i> Scrub Woodland
CEGL003706	<i>Quercus prinus</i> / <i>Cornus florida</i> - <i>Amelanchier arborea</i> / <i>Pityopsis graminifolia</i> var. <i>latifolia</i> Woodland
CEGL004062	<i>Quercus marilandica</i> - <i>Juniperus virginiana</i> var. <i>virginiana</i> / <i>Schizachyrium scoparium</i> - <i>Hypericum gentianoides</i> Wooded Herbaceous Vegetation
CEGL004214	<i>Quercus falcata</i> - <i>Quercus (coccinea, stellata)</i> / <i>Schizachyrium scoparium</i> Woodland
CEGL004392	<i>Asplenium montanum</i> - <i>Heuchera parviflora</i> var. <i>parviflora</i> - <i>Silene</i>

Component Associations	
Association Unique ID	Association Name
	<i>rotundifolia</i> Sparse Vegetation
CEGL004439	<i>Quercus prinus</i> / <i>Danthonia spicata</i> - <i>Silene caroliniana</i> Woodland
CEGL005134	<i>Quercus stellata</i> - <i>Quercus marilandica</i> / <i>Schizachyrium scoparium</i> - <i>Silphium terebinthinaceum</i> Wooded Herbaceous Vegetation
CEGL007119	<i>Pinus virginiana</i> - <i>Pinus (rigida, echinata)</i> - (<i>Quercus prinus</i>) / <i>Vaccinium pallidum</i> Forest
CEGL007814	<i>Quercus stellata</i> - (<i>Pinus echinata</i>) / <i>Vaccinium arboreum</i> / <i>Andropogon gerardii</i> - <i>Symphyotrichum patens</i> var. <i>patentissimum</i> Wooded Herbaceous Vegetation
CEGL007824	(<i>Quercus stellata</i> , <i>Ulmus alata</i>) / <i>Schizachyrium scoparium</i> - <i>Symphyotrichum patens</i> var. <i>patentissimum</i> Wooded Herbaceous Vegetation

Central Tallgrass Prairie (CES205.683)

This system is found primarily in the Central Tallgrass Prairie ecoregion ranging from eastern Kansas and Nebraska to northwestern Indiana. This system differs from other prairie systems to the north and south by being the most mesic with primarily deep, rich Mollisol soils. These soils are usually greater than 1 meter deep. This system is dominated by tallgrass species such as *Andropogon gerardii*, *Sorghastrum nutans*, and *Panicum virgatum*. These species typically grow to 1-2 m tall in the rich soils found in this system. Other mid- and shortgrass species, such as *Bouteloua curtipendula*, *Hesperostipa spartea*, and *Schizachyrium scoparium*, are usually present and can be common or locally dominant on patches of this system, particularly slopes or other areas with drier habitats. Several forb species are also associated with this system making it one of the most diverse grassland systems. As many as 300 herbaceous plant species could occur in this system across its range. The environment and habitat of this system do not prevent invasion by shrubs and trees. High-quality examples of this system have trees and shrubs widely scattered or clustered in areas that are wetter and/or more sheltered from fire than the surrounding grassland. Fire, drought, and grazing are the primary natural dynamics influencing this system and help prevent woody species from invading. However, conversion to agriculture has been the prime disturbance since post-European settlement. The rich soils and long growing season make this an ideal location for farming row crops, and as a result very few examples of this system remain.

Component Associations	
Association Unique ID	Association Name
CEGL002024	<i>Andropogon gerardii</i> - <i>Panicum virgatum</i> - <i>Helianthus grosseserratus</i> Herbaceous Vegetation
CEGL002025	<i>Andropogon gerardii</i> - <i>Sorghastrum nutans</i> - <i>Hesperostipa spartea</i> Loess Hills Herbaceous Vegetation
CEGL002035	<i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> - <i>Bouteloua hirsuta</i> - (<i>Yucca glauca</i>) Herbaceous Vegetation
CEGL002203	<i>Andropogon gerardii</i> - <i>Sorghastrum nutans</i> - (<i>Sporobolus heterolepis</i>) - <i>Liatris</i> spp. - <i>Ratibida pinnata</i> Herbaceous Vegetation
CEGL002214	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Bouteloua curtipendula</i> Herbaceous Vegetation
CEGL002249	<i>Schizachyrium scoparium</i> - <i>Bouteloua curtipendula</i> - <i>Agrostis hyemalis</i> - <i>Eleocharis</i> spp. Hardpan Herbaceous Vegetation
CEGL003628	<i>Juniperus virginiana</i> var. <i>virginiana</i> / <i>Schizachyrium scoparium</i> Forest
CEGL005179	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Clinopodium arkansanum</i> Alkaline Herbaceous Vegetation
CEGL005183	<i>Schizachyrium scoparium</i> - <i>Sorghastrum nutans</i> - <i>Bouteloua curtipendula</i> Hill Herbaceous Vegetation
CEGL005219	<i>Cornus drummondii</i> - (<i>Rhus glabra</i> , <i>Prunus</i> spp.) Shrubland
CEGL005231	<i>Andropogon gerardii</i> - <i>Panicum virgatum</i> - <i>Schizachyrium scoparium</i> - (<i>Tradescantia tharpaii</i>) Herbaceous Vegetation

Eastern Great Plains Wet Meadow, Prairie and Marsh (CES205.687)

This system is found along creeks and streams from Nebraska and Iowa to Illinois, and from Minnesota to Texas. It is also found in depressions and along lake borders, especially in the northern extension of its range into Minnesota. It is often adjacent to a floodplain system but is devoid of trees and riparian vegetation. It is also distinguished from upland prairie systems by having more hydrology, especially associated with silty, dense clay soils that are often hydric, classified as Vertic Haplaquolls. The landform is usually floodplain or poorly drained, relatively level land. The vegetation is dominated by *Spartina pectinata*, *Tripsacum dactyloides*, numerous large sedges, such as *Carex frankii* and *Carex hyalinolepis*, and in wetter areas, *Eleocharis* spp. Other emergent marsh species such as *Typha* spp. can be associated with this system. Forbs can include *Helianthus grosseserratus*, *Vernonia fasciculata*, and *Physostegia virginiana*. Some parts of this system may be saline and have species such as *Distichlis spicata* and *Schoenoplectus maritimus*. Fire has been the primary influence in keeping these wet areas free of trees. Other dynamic processes include grazing and flooding (often in late spring). Many areas have been converted to agricultural, but this usually requires some sort of drainage.

Component Associations	
Association Unique ID	Association Name
CEGL002026	<i>Schoenoplectus tabernaemontani</i> - <i>Typha</i> spp. - (<i>Sparganium</i> spp., <i>Juncus</i> spp.) Herbaceous Vegetation
CEGL002027	<i>Spartina pectinata</i> - <i>Calamagrostis stricta</i> - <i>Carex</i> spp. Herbaceous Vegetation
CEGL002032	<i>Typha</i> (<i>angustifolia</i> , <i>domingensis</i> , <i>latifolia</i>) - <i>Schoenoplectus americanus</i> Herbaceous Vegetation
CEGL002043	<i>Distichlis spicata</i> - <i>Schoenoplectus maritimus</i> - <i>Salicornia rubra</i> Herbaceous Vegetation
CEGL002186	<i>Cornus sericea</i> - <i>Salix</i> spp. - (<i>Rosa palustris</i>) Shrubland
CEGL002187	<i>Cornus sericea</i> - <i>Salix</i> (<i>bebbiana</i> , <i>discolor</i> , <i>petiolaris</i>) / <i>Calamagrostis stricta</i> Shrubland
CEGL002220	<i>Carex atherodes</i> Herbaceous Vegetation
CEGL002221	<i>Schoenoplectus fluviatilis</i> - <i>Schoenoplectus</i> spp. Herbaceous Vegetation
CEGL002223	<i>Spartina pectinata</i> - <i>Eleocharis</i> spp. - <i>Carex</i> spp. Herbaceous Vegetation
CEGL002224	<i>Spartina pectinata</i> - <i>Carex</i> spp. - <i>Calamagrostis canadensis</i> - <i>Lythrum alatum</i> - (<i>Oxypolis rigidior</i>) Herbaceous Vegetation
CEGL002225	<i>Schoenoplectus acutus</i> - (<i>Schoenoplectus fluviatilis</i>) Freshwater Herbaceous Vegetation
CEGL002229	<i>Typha</i> spp. - <i>Schoenoplectus acutus</i> - Mixed Herbs Midwest Herbaceous Vegetation
CEGL002233	<i>Typha</i> spp. Midwest Herbaceous Vegetation
CEGL002254	<i>Carex pellita</i> - <i>Calamagrostis stricta</i> Herbaceous Vegetation
CEGL002255	<i>Calamagrostis stricta</i> - <i>Carex sartwellii</i> - <i>Carex praegracilis</i> - <i>Plantago eriopoda</i> Saline Herbaceous Vegetation

Component Associations	
Association Unique ID	Association Name
CEGL002256	<i>Carex lacustris</i> Herbaceous Vegetation
CEGL002257	<i>Carex (rostrata, utriculata) - Carex lacustris - (Carex vesicaria)</i> Herbaceous Vegetation
CEGL002258	<i>Carex stricta - Carex spp.</i> Herbaceous Vegetation
CEGL002262	<i>Carex aquatilis - Carex spp.</i> Herbaceous Vegetation
CEGL002282	<i>Potamogeton spp. - Ceratophyllum spp.</i> Midwest Herbaceous Vegetation
CEGL002386	<i>Nuphar advena - Nymphaea odorata</i> Herbaceous Vegetation
CEGL002387	<i>Impatiens pallida - Cystopteris bulbifera - Adoxa moschatellina - (Chrysosplenium iowense, Aconitum noveboracense)</i> Herbaceous Vegetation
CEGL002430	<i>Polygonum spp.</i> - Mixed Forbs Herbaceous Vegetation
CEGL004525	<i>Sagittaria cuneata - Sagittaria longiloba</i> Herbaceous Vegetation
CEGL004526	<i>Typha latifolia - Thalia dealbata</i> Herbaceous Vegetation
CEGL004528	<i>Ceratophyllum demersum - Stuckenia pectinata</i> Herbaceous Vegetation
CEGL004529	<i>Potamogeton nodosus</i> Herbaceous Vegetation
CEGL004699	<i>Polygonum amphibium - (Polygonum hydropiperoides)</i> Seasonally Flooded Herbaceous Vegetation
CEGL005069	<i>Spiraea tomentosa - Salix humilis / Andropogon gerardii - Panicum virgatum</i> Shrubland
CEGL005111	<i>Schoenoplectus maritimus - Atriplex patula - Eleocharis parvula</i> Herbaceous Vegetation
CEGL005174	<i>Calamagrostis canadensis - Eupatorium maculatum</i> Herbaceous Vegetation
CEGL005178	<i>Spartina pectinata - Carex spp. - Calamagrostis canadensis</i> Sand Herbaceous Vegetation
CEGL005240	<i>Sagittaria latifolia - Leersia oryzoides</i> Herbaceous Vegetation

North-Central Interior Dry Oak Forest and Woodland (CES202.047)

This system is found throughout the glaciated regions of the Midwest, typically in gently rolling to flat landscapes. It can occur on uplands within the prairie matrix or within the context of dry-mesic oak-hickory forests and oak savannas. These are common on rolling glacial moraines and outwash plains. Soils are typically well-drained to excessively drained Mollisols or Alfisols that range from sand to sandy loam in texture. Historically, this type was quite extensive in Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, and Minnesota. It is distinguished from other forested systems within the region by a dry edaphic condition that is transitional between dry prairies, oak barrens, or savannas and dry-mesic oak-hickory forests and woodlands. Forest cover can range from dense to moderately open canopy. Fire-resistant oak species, in particular *Quercus velutina*, *Quercus macrocarpa*, *Quercus coccinea*, and *Quercus ellipsoidalis*, dominate the overstory. *Carya glabra*, *Prunus serotina*, and *Sassafras albidum* are also common in portions of the range of this system. Depending on range of distribution and overstory canopy density, the understory may include species such as *Gaylussacia baccata* (in MI, WI, and MN), *Vaccinium angustifolium*, and *Rhus aromatica*, and/or a mixture of woodland and grassland species, including *Schizachyrium scoparium*, *Deschampsia flexuosa*, and *Carex pensylvanica*. Extreme drought, along with periodic ground and crown fire events, constitute the main natural processes for this type and likely maintained a more open canopy structure that supported oak regeneration. In fact, many current examples of this type have resulted from long-term fire suppression and conversion of oak barrens to these forests and woodlands. Fire suppression may also account for examples of this system with the more dry-mesic understory. It likely has allowed for other associates such as *Quercus rubra* and *Fraxinus americana* to become more prevalent. Extensive conversion for agriculture in the surrounding landscape with more productive soils has fragmented and isolated examples of this system. It is found primarily within the "corn belt" of the United States, and remaining large areas of this system are likely under considerable pressure due to conversion to pastureland and urban development.

Component Associations	
Association Unique ID	Association Name
CEGL002076	<i>Quercus velutina</i> - <i>Quercus alba</i> - <i>Carya (glabra, ovata)</i> Forest
CEGL002077	<i>Quercus ellipsoidalis</i> - (<i>Quercus macrocarpa</i>) Forest
CEGL002078	<i>Quercus velutina</i> / <i>Carex pensylvanica</i> Forest
CEGL005029	<i>Quercus velutina</i> - (<i>Quercus ellipsoidalis</i>) - <i>Quercus alba</i> / <i>Deschampsia flexuosa</i> Woodland
CEGL005030	<i>Quercus velutina</i> - <i>Quercus alba</i> / <i>Vaccinium (angustifolium, pallidum)</i> / <i>Carex pensylvanica</i> Forest

North-Central Interior Dry-Mesic Oak Forest and Woodland (CES202.046)

This system is found throughout the glaciated regions of the Midwest, typically in gently rolling landscapes. It can occur on uplands within the prairie matrix and near floodplains, or on rolling glacial moraines and among kettle-kame topography. Soils are typically well-drained Mollisols or Alfisols that range from loamy to sandy loam in texture. Historically, this type was quite extensive in Michigan, Indiana, Illinois, Missouri, Iowa, Wisconsin, and Minnesota. Well over 700,000 hectares likely occurred in southern Michigan alone (ca. 1800). It is distinguished from other forested systems within the region by a dry-mesic edaphic condition that is transitional between dry oak forests and woodlands and mesic hardwood forests, such as maple-basswood forests. Forest cover can range from a dense to moderately open canopy and there is commonly a dense shrub layer. Fire-resistant oak species, in particular *Quercus macrocarpa*, *Quercus rubra*, and/or *Quercus alba*, dominate the overstory. *Carya* spp., including *Carya ovata*, *Carya cordiformis*, and *Carya alba* (= *Carya tomentosa*), are diagnostic in portions of the range of this system. Depending on site location and overstory canopy density, the understory may include species such as *Corylus americana*, *Amelanchier* spp., *Maianthemum stellatum*, *Caulophyllum thalictroides*, *Laportea canadensis*, *Trillium grandiflorum*, *Aralia nudicaulis*, and *Urtica dioica*. Occasionally, prairie grasses such as *Andropogon gerardii* and *Panicum virgatum* may be present. Fire constitutes the main natural process for this type and likely maintained a more open canopy structure to support oak regeneration. Historic fire frequency was likely highest in the prairie-forest border areas. Fire suppression may account for the more closed oak forest examples of this system with the more mesic understory. It likely has allowed for other associates, such as *Acer saccharum*, *Celtis occidentalis*, *Liriodendron tulipifera*, *Ostrya virginiana*, and *Juglans nigra*, to become more prevalent, especially in upland areas along floodplains. Periodic drought, intensified by local conditions, such as slope, southern exposure, or sandy soil, also inhibit growth of mesophytic trees. Extensive conversion for agriculture has fragmented this system. Continued fire suppression has also resulted in succession to mesic hardwoods, such that in many locations, no oak species are regenerating. Remaining large areas of this system are likely under considerable pressure due to conversion to agriculture, pastureland, and urban development.

Component Associations	
Association Unique ID	Association Name
CEGL000556	<i>Quercus macrocarpa</i> / <i>Corylus americana</i> - <i>Amelanchier alnifolia</i> Woodland
CEGL002011	<i>Quercus alba</i> - (<i>Quercus velutina</i>) - <i>Carya ovata</i> / <i>Ostrya virginiana</i> Forest
CEGL002052	<i>Quercus macrocarpa</i> / <i>Andropogon gerardii</i> - <i>Panicum virgatum</i> Woodland
CEGL002058	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Acer saccharum</i> - <i>Carya cordiformis</i> / <i>Lindera benzoin</i> Forest
CEGL002068	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Carya ovata</i> Glaciated Forest
CEGL002072	<i>Quercus macrocarpa</i> / (<i>Amelanchier alnifolia</i> , <i>Cornus drummondii</i>) / <i>Aralia nudicaulis</i> Forest
CEGL002134	<i>Quercus alba</i> - (<i>Carya ovata</i>) / <i>Carex pensylvanica</i> Glaciated Woodland
CEGL002142	<i>Quercus alba</i> - <i>Quercus macrocarpa</i> - <i>Quercus rubra</i> / <i>Corylus</i>

Component Associations	
Association Unique ID	Association Name
	<i>americana</i> Woodland
CEGL002462	<i>Quercus rubra</i> - <i>Quercus alba</i> - (<i>Quercus velutina</i> , <i>Acer rubrum</i>) / <i>Viburnum acerifolium</i> Forest
CEGL005010	<i>Acer saccharum</i> - <i>Quercus muehlenbergii</i> Forest
CEGL005181	<i>Quercus bicolor</i> - (<i>Quercus macrocarpa</i> , <i>Quercus stellata</i>) Woodland

North-Central Interior Floodplain (CES202.694)

This system is found along rivers across the glaciated Midwest. It occurs from river's edge across the floodplain or to where it meets a wet meadow system. It can have a variety of soil types found within the floodplain from very well-drained sandy substrates to very dense clays. It is this variety of substrates and flooding that creates the mix of vegetation that includes *Acer saccharinum*, *Populus deltoides*, willows, especially *Salix nigra* in the wettest areas, and *Fraxinus pennsylvanica*, *Ulmus americana*, and *Quercus macrocarpa* in more well-drained areas. Within this system are oxbows that may support *Nelumbo lutea* and *Typha latifolia*. Understory species are mixed, but include shrubs, such as *Cornus drummondii* and *Asimina triloba* (in Kansas), sedges and grasses, which sometimes help form savanna vegetation. Flooding is the primary dynamic process, but drought, grazing, and fire have all had historical influence on this system. Federal reservoirs have had a serious and negative effect on this system, along with agriculture that has converted much of this system to drained agricultural land.

Component Associations	
Association Unique ID	Association Name
CEGL000658	<i>Populus deltoides</i> - <i>Fraxinus pennsylvanica</i> Forest
CEGL002014	<i>Fraxinus pennsylvanica</i> - <i>Ulmus</i> spp. - <i>Celtis occidentalis</i> Forest
CEGL002017	<i>Populus deltoides</i> - (<i>Salix nigra</i>) / <i>Spartina pectinata</i> - <i>Carex</i> spp. Woodland
CEGL002018	<i>Populus deltoides</i> - <i>Salix nigra</i> Forest
CEGL002026	<i>Schoenoplectus tabernaemontani</i> - <i>Typha</i> spp. - (<i>Sparganium</i> spp., <i>Juncus</i> spp.) Herbaceous Vegetation
CEGL002041	<i>Carex pellita</i> - <i>Carex</i> spp. - <i>Schoenoplectus tabernaemontani</i> Fen Herbaceous Vegetation
CEGL002049	Riverine Sand Flats - Bars Sparse Vegetation
CEGL002081	<i>Fraxinus pennsylvanica</i> - <i>Celtis occidentalis</i> - <i>Tilia americana</i> - (<i>Quercus macrocarpa</i>) Forest
CEGL002086	<i>Betula nigra</i> - <i>Platanus occidentalis</i> Forest
CEGL002087	<i>Carya illinoensis</i> - <i>Celtis laevigata</i> Forest
CEGL002088	<i>Fraxinus pennsylvanica</i> - (<i>Ulmus americana</i>) / <i>Symphoricarpos occidentalis</i> Forest
CEGL002089	<i>Fraxinus pennsylvanica</i> - <i>Ulmus americana</i> - (<i>Acer negundo</i> , <i>Tilia americana</i>) Northern Forest
CEGL002095	<i>Populus deltoides</i> - <i>Platanus occidentalis</i> Forest
CEGL002098	<i>Quercus macrocarpa</i> - <i>Quercus bicolor</i> - <i>Carya laciniosa</i> / <i>Leersia</i> spp. - <i>Cinna</i> spp. Forest
CEGL002103	<i>Salix nigra</i> Forest
CEGL002190	<i>Cephalanthus occidentalis</i> / <i>Carex</i> spp. Northern Shrubland
CEGL002191	<i>Cephalanthus occidentalis</i> / <i>Carex</i> spp. - <i>Lemna</i> spp. Southern Shrubland
CEGL002221	<i>Schoenoplectus fluviatilis</i> - <i>Schoenoplectus</i> spp. Herbaceous Vegetation
CEGL002233	<i>Typha</i> spp. Midwest Herbaceous Vegetation

Component Associations	
Association Unique ID	Association Name
CEGL002255	<i>Calamagrostis stricta</i> - <i>Carex sartwellii</i> - <i>Carex praegracilis</i> - <i>Plantago eriopoda</i> Saline Herbaceous Vegetation
CEGL002257	<i>Carex (rostrata, utriculata)</i> - <i>Carex lacustris</i> - (<i>Carex vesicaria</i>) Herbaceous Vegetation
CEGL002282	<i>Potamogeton</i> spp. - <i>Ceratophyllum</i> spp. Midwest Herbaceous Vegetation
CEGL002314	River Mudflats Sparse Vegetation
CEGL002386	<i>Nuphar advena</i> - <i>Nymphaea odorata</i> Herbaceous Vegetation
CEGL002410	<i>Fraxinus pennsylvanica</i> - <i>Celtis</i> spp. - <i>Quercus</i> spp. - <i>Platanus occidentalis</i> Bottomland Forest
CEGL002431	<i>Acer saccharinum</i> - <i>Celtis laevigata</i> - <i>Carya illinoensis</i> Forest
CEGL002586	<i>Acer saccharinum</i> - <i>Ulmus americana</i> Forest
CEGL004323	<i>Nelumbo lutea</i> Herbaceous Vegetation
CEGL004527	<i>Brasenia schreberi</i> Herbaceous Vegetation
CEGL005014	<i>Fagus grandifolia</i> - <i>Quercus</i> spp. - <i>Acer rubrum</i> - <i>Juglans nigra</i> Forest
CEGL005035	<i>Acer saccharum</i> - <i>Carya cordiformis</i> / <i>Asimina triloba</i> Floodplain Forest
CEGL005175	<i>Salix</i> spp. / <i>Andropogon gerardii</i> - <i>Sorghastrum nutans</i> Gravel Wash Herbaceous Vegetation
CEGL005240	<i>Sagittaria latifolia</i> - <i>Leersia oryzoides</i> Herbaceous Vegetation
CEGL005272	<i>Carex</i> spp. - (<i>Carex pellita</i> , <i>Carex vulpinoidea</i>) Herbaceous Vegetation
CEGL006044	<i>Phalaris arundinacea</i> Eastern Herbaceous Vegetation
CEGL008562	<i>Salix interior</i> Temporarily Flooded Shrubland

North-Central Interior Maple-Basswood Forest (CES202.696)

This system is primarily found in the prairie forest border region of Minnesota, Wisconsin, and Iowa, but it can range north into northern Minnesota and Wisconsin and south to central Illinois, central Missouri, and eastern Kansas. This forest system is distinguished by underlying mesic soils and the predominance of mesic deciduous species forming a moderately dense to dense canopy. Examples of this system occur on valley slopes and bottoms often with northern or eastern aspects. Soils are moderately well-drained, fertile, and medium to deep loams that have developed from glacial till or loess parent material. *Acer saccharum* typifies this system, with *Tilia americana*, *Quercus rubra*, and *Ostrya virginiana* as common associates. The dense canopy allows for a rich mixture of shrub and herbaceous species in the understory. Examples of common herbaceous species include *Anemone quinquefolia*, *Adiantum pedatum*, *Arisaema triphyllum*, and *Sanicula* spp. Dynamic processes such as wind and fire can impact this system over long return cycles; however, the most immediate threats to remaining examples of this system are grazing and conversion to agriculture.

Component Associations	
Association Unique ID	Association Name
CEGL002061	<i>Acer saccharum</i> - <i>Acer nigrum</i> - <i>Tilia americana</i> - <i>Quercus rubra</i> / <i>Ostrya virginiana</i> Forest
CEGL002062	<i>Acer saccharum</i> - <i>Tilia americana</i> / <i>Ostrya virginiana</i> - <i>Carpinus caroliniana</i> Forest
CEGL005017	<i>Quercus rubra</i> - (<i>Acer saccharum</i> , <i>Quercus alba</i>) Forest

North-Central Interior Oak Savanna (CES202.698)

This system is found primarily in the northern glaciated regions of the Midwest with the largest concentration in the prairie-forest border ecoregion. It is typically found on rolling outwash plains, hills and ridges. Soils are typically moderately well- to well-drained deep loams. This system is typified by scattered trees over a continual tallgrass prairie. *Quercus macrocarpa* is the most common tree species and can range from 10-60% cover. The understory is dominated by tallgrass prairie species such as *Andropogon gerardii* and *Schizachyrium scoparium* associated with several forb species. Historically, frequent fires maintained this savanna system within its range and would have restricted tree canopies to 10-30%. Fire suppression in the region has allowed trees to establish more dense canopies. Periodic, strong wind disturbances and browsing also impact this system. Much of this system has also been converted to agriculture, and thus its range has decreased considerably.

Component Associations	
Association Unique ID	Association Name
CEGL002020	<i>Quercus macrocarpa</i> - (<i>Quercus alba</i> , <i>Quercus velutina</i>) / <i>Andropogon gerardii</i> Wooded Herbaceous Vegetation
CEGL002142	<i>Quercus alba</i> - <i>Quercus macrocarpa</i> - <i>Quercus rubra</i> / <i>Corylus americana</i> Woodland
CEGL002158	<i>Quercus macrocarpa</i> Northern Tallgrass Wooded Herbaceous Vegetation
CEGL002159	<i>Quercus macrocarpa</i> - (<i>Quercus alba</i> , <i>Quercus stellata</i>) / <i>Andropogon gerardii</i> Wooded Herbaceous Vegetation
CEGL005120	<i>Quercus macrocarpa</i> - <i>Quercus palustris</i> - <i>Quercus bicolor</i> / <i>Calamagrostis canadensis</i> Wooded Herbaceous Vegetation
CEGL005121	<i>Quercus alba</i> - <i>Quercus macrocarpa</i> / <i>Andropogon gerardii</i> Wooded Herbaceous Vegetation

Ozark-Ouachita Dry Oak Woodland (CES202.707)

This system occurs in the Ozark and Ouachita Highlands and far western portions of the Interior Low Plateau regions along gentle to steep slopes and over bluff escarpments with southerly to westerly aspects. Parent material can range from calcareous to acidic with very shallow, well- to excessively well-drained soils, sometimes with a fragipan that causes "xero-hydric" moisture conditions. This system was historically woodland in structure, composition, and process but now includes areas of more closed canopy. Oak species such as *Quercus stellata*, *Quercus marilandica*, and *Quercus coccinea* dominate this system with an understory of grassland species such as *Schizachyrium scoparium* and shrub species such as *Vaccinium arboreum*. Drought stress is the major dynamic influencing and maintaining this system. On flatwoods with fragipans, *Quercus stellata* is the major dominant. *Quercus alba*, *Quercus falcata*, and/or *Carya texana* may be present in some stands.

Component Associations	
Association Unique ID	Association Name
CEGL002075	<i>Quercus stellata</i> - <i>Quercus marilandica</i> - <i>Carya (glabra, texana)</i> / <i>Vaccinium arboreum</i> Forest
CEGL002149	<i>Quercus stellata</i> - <i>Quercus marilandica</i> - <i>Quercus velutina</i> - <i>Carya texana</i> / <i>Schizachyrium scoparium</i> Woodland
CEGL002150	<i>Quercus alba</i> - <i>Quercus stellata</i> - <i>Quercus velutina</i> / <i>Schizachyrium scoparium</i> Woodland
CEGL002399	<i>Quercus velutina</i> - <i>Quercus coccinea</i> - <i>Carya texana</i> Ozark Forest
CEGL002405	<i>Quercus stellata</i> / <i>Cinna arundinacea</i> Flatwoods Forest
CEGL002425	<i>Quercus marilandica</i> / <i>Vaccinium arboreum</i> / <i>Danthonia spicata</i> Scrub Woodland
CEGL004987	<i>Quercus velutina</i> - <i>Carya (alba, glabra)</i> / <i>Vaccinium arboreum</i> Forest
CEGL005018	<i>Quercus falcata</i> - <i>Quercus alba</i> - <i>Quercus stellata</i> - <i>Quercus velutina</i> Forest

Ozark-Ouachita Dry-Mesic Oak Forest (CES202.708)

This system is found throughout the Ozark and Ouachita Highlands ranging to the western edge of the Interior Low Plateau. It is the matrix system of this region and occurs on dry-mesic to mesic, gentle to moderately steep slopes. Soils are typically moderately to well-drained and more fertile than those associated with oak woodlands. A closed canopy of oak species (*Quercus rubra* and *Quercus alba*) often associated with hickory species (*Carya* spp.) typifies this system. *Acer saccharum* (or *Acer barbatum* to the south) may occur on more mesic examples of this system. Wind, drought, lightning, and occasional fires can influence this system.

Component Associations	
Association Unique ID	Association Name
CEGL002066	<i>Quercus alba</i> / <i>Cornus florida</i> Unglaciated Forest
CEGL002067	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Carya (alba, ovata)</i> / <i>Cornus florida</i> Acidic Forest
CEGL002070	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Quercus muehlenbergii</i> / <i>Cercis canadensis</i> Forest
CEGL002076	<i>Quercus velutina</i> - <i>Quercus alba</i> - <i>Carya (glabra, ovata)</i> Forest
CEGL003890	<i>Vitis aestivalis</i> Vine-Shrubland
CEGL004270	<i>Quercus alba</i> - <i>Quercus velutina</i> - <i>Carya alba</i> / <i>Desmodium nudiflorum</i> Ozark Forest
CEGL004543	<i>Quercus falcata</i> - <i>Carya alba</i> - <i>Carya ovata</i> Forest
CEGL004602	<i>Quercus muehlenbergii</i> - <i>Quercus shumardii</i> Forest
CEGL004795	<i>Acer saccharum</i> - <i>Quercus muehlenbergii</i> / <i>Cotinus obovatus</i> Forest
CEGL004796	<i>Quercus rubra</i> - <i>Quercus shumardii</i> Forest
CEGL004803	<i>Juniperus virginiana</i> - <i>Quercus (alba, stellata)</i> - <i>Carya texana</i> Forest
CEGL005022	<i>Quercus prinus</i> / <i>Smilax</i> spp. Forest
CEGL007217	<i>Liquidambar styraciflua</i> - <i>Quercus (alba, falcata)</i> Forest
CEGL007818	<i>Quercus alba</i> - <i>Carya alba</i> / <i>Ostrya virginiana</i> / <i>Carex pensylvanica</i> - <i>Schizachyrium scoparium</i> Forest

Ozark-Ouachita Mesic Hardwood Forest (CES202.043)

This system is found on lower slopes, toeslopes and valley bottoms within the Ozark and Ouachita regions, as well as on north slopes. In the Ozarks, *Quercus rubra* increases in abundance compared to dry-mesic habitats, and *Acer saccharum* is sometimes a leading dominant. On more alkaline moist soils, *Quercus muehlenbergii*, *Tilia americana*, and *Cercis canadensis* may be common. In the Boston Mountains, mesic forests may also be common on protected slopes and terraces next to streams. Here, *Fagus grandifolia* may be the leading dominant, with codominants of *Acer saccharum*, *Liquidambar styraciflua*, *Tilia americana*, *Magnolia acuminata*, *Magnolia tripetala*, and others. Similar habitats occur in the western Ouachita Mountains.

Component Associations	
Association Unique ID	Association Name
CEGL002058	<i>Quercus alba</i> - <i>Quercus rubra</i> - <i>Acer saccharum</i> - <i>Carya cordiformis</i> / <i>Lindera benzoin</i> Forest
CEGL002060	<i>Acer (saccharum, barbatum)</i> - <i>Quercus rubra</i> - <i>Carya cordiformis</i> / <i>Asimina triloba</i> Forest
CEGL002411	<i>Fagus grandifolia</i> - <i>Acer saccharum</i> - <i>Liriodendron tulipifera</i> Unglaciaded Forest
CEGL004662	<i>Quercus muehlenbergii</i> - <i>Acer saccharum</i> Southeastern Oklahoma Forest
CEGL007811	<i>Acer (barbatum, saccharum)</i> - <i>Juglans nigra</i> - <i>Fraxinus americana</i> / <i>Hybanthus concolor</i> Forest
CEGL007823	<i>Fagus grandifolia</i> - <i>Quercus rubra</i> - <i>Tilia americana</i> var. <i>caroliniana</i> / <i>Magnolia tripetala</i> / <i>Podophyllum peltatum</i> Forest

South-Central Interior / Upper Coastal Plain Flatwoods (CES203.479)

This system represents hardwood-dominated "xerohydric flatwoods" of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky, as well as in the nearby Shawnee Hills in the western Interior Low Plateau. The core of the area from which this system was initially described is referred to as the Jackson Purchase or "Jackson Plain," where these areas have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). There is some local variability in the expression of this system along a hydrologic/microtopographic gradient. The elevated ridges are composed of somewhat coarser-textured soils and retain less moisture than do the lower areas, although both occur in a tight local mosaic. The soils appear to have well-developed subsurface hardpans, the impermeability of which contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest (not due to overbank flooding). Thus, soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to as xerohydric (Evans 1991). Fire was an important natural process in this system, and well-burned examples tend to be relatively open-canopied with well-developed herbaceous layers (M. Evans pers. comm.).

Component Associations	
Association Unique ID	Association Name
CEGL002405	<i>Quercus stellata</i> / <i>Cinna arundinacea</i> Flatwoods Forest
CEGL005057	<i>Quercus stellata</i> / (<i>Danthonia spicata</i> , <i>Croton willdenowii</i>) Woodland