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Plant Communities of the LaCrosse Area In Western Wisconsin

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Plant Communities of the LaCrosse Area In Western Wisconsin[1]

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Abstract. Following an areal description, sixteen plant communities of the LaCrosse Area of western Wisconsin are described, and lists of characteristic or otherwise interesting vascular plants are presented for each. These lists include 807 different species of vascular plants. The habitats and numbers of species listed for each are as follows: lakes, ponds, sloughs, rivers, streams, shorelines and marshes, 151; alluvial woods, 35; low, sandy woods, 17; tamarack bogs, 62; seepage bogs, 19; sandy spaghnum meadow, 26; sedge meadows, 32; dry, loamy, upland woods, 59; dry, sandy, upland woods, 65; moist, north- and east-facing, wooded slopes and ravines, 116; dry, sandy prairies, plains and blowouts, 119; steep, west- and south-facing, loamy prairies, 45; dry, limestone ledges and ridges, 8; dry, sandstone ledges and talus, 14; moist, shaded, sandstone ledges, 13; weeds of roadsides, railroads, waste place, fields, yards, etc., 143.

In 1956 this writer made a survey of the vascular plants of the LaCrosse Area (Figure 1) in western Wisconsin. That study was done as a preliminary investigation of the flora of the "Driftless Area." A more extensive study of the entire "Driftless Area" is being made by the author at the present time.

The major field exploration was started in May, 1956, and continued until October, 1956. Over 3,300 collections, representing 1,071 species of vascular plants, were made during that summer afield. The entire first set of these vouchers is deposited in the herbarium of the State University of Iowa and a nearly complete second set in the herbarium of the University of Wisconsin. Since 1956 the author has collected an additional forty-nine species in the LaCrosse Area bringing the total number of species collected to 1,120. Several of these additional species are included in this paper and vouchers will be deposited in the herbarium of the State University of Iowa.

This study was done under the direction of Dr. Robert F. Thorne of the State University of Iowa, whose valuable assistance and advice are gratefully acknowledged here. Thanks are also extended to the author's father, Dr. Richard T. Hartley of the Wisconsin State College at LaCrosse and Mr. Alvin M. Peterson of Onalaska, Wisconsin, for pointing out some excellent areas for study; to Dr.

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Norman H. Russell of Arizona State University, who identified the author's collections of the genus *Viola;* and to Dr. Tom S. Cooperrider of Kent State University, who checked the author's identifications of the Pteridophytes.

The author is also grateful for funds supplied by the National Science Foundation which alleviated much of the expense of the field work.

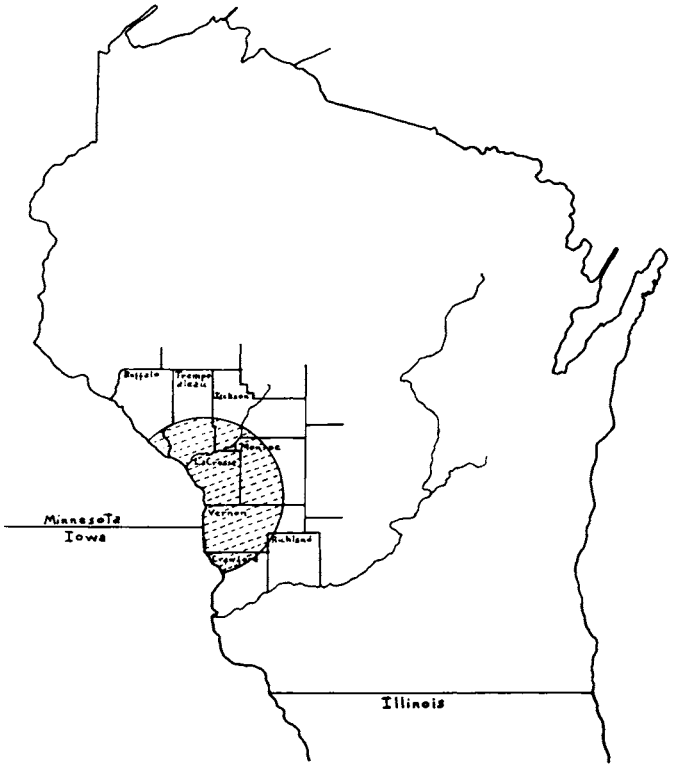

Figure 1. Outline map of Wisconsin. The shaded portion indicates the area considered in this study. It is within a forty mile radius of the city of LaCrosse.

Topography and Geology. The area considered in this study, besides being entirely within the "Driftless Area," is located in the geographical province of Wisconsin known as the Western Upland. As the name indicates, this is a highland region. In many ways it resembles parts of the rugged Allegheny Plateau of eastern United States.

This portion of the Western Upland is a part of a cuesta which is dissected into a maze of ridges and coulees. (The French name coulee is the local designation for valley.) Dissection is very deep

because of the close proximity of the deep gorge of the Mississippi River and the consequent low base level of its tributaries. This cuesta, known as the Lower Magnesian Cuesta, is formed by Prairie du Chien (Lower Magnesian) limestone. In general, it lies parallel to the Mississippi and has an east-facing escarpment. There is a general decrease in elevation from north to south, the highest elevation being 1,403 feet above sea level at Wadels Hill in LaCrosse County. The elevation of the Mississippi floodplain is 649 feet at Trempealeau in the north and 617 feet at DeSoto in the south.

To the north of LaCrosse the streams have long since cut through the more resistant limestone and have intrenched themselves in the weaker Cambrian sandstone. Also, most of the limestone has been eroded from the summits of the ridges. These valleys are often two or so miles wide and are usually separated by broad sandstone ridges.

To the south of LaCrosse, stream erosion has not progressed so far. Although all the valleys have cut through the Prairie du Chien limestone and into the Cambrian sandstone, they are relatively narrow and are separated by steep-sided ridges capped by limestone.

The tremendous gorge cut by the Mississippi River is the most prominent surface feature of this region. Bordered by steep, rugged bluffs, this gorge ranges from three to almost seven miles in width. The broad, flat floodplain and braided pattern of the river channels indicate maturity, whereas the steep cliffs on the bluffs indicate the younger aspect of the river. The fact that the Mississippi River gorge was partly filled with fluvioglacial deposits during the last period of glacial activity of the Pleistocene accounts for the mature nature of the floodplain in an otherwise youthful gorge. The steep river bluffs reach their greatest development near Trempealeau in the northern part of the region. Here they rise 611 feet above the river floodplain and are exceedingly steep, descending more than 500 feet within a horizontal distance of 800 feet (Martin, 1932).

Because of the absence of continental glaciation during the Pleistocene, many of the land forms of this area show the effects of millions of years of undisturbed weathering and erosion. The most prominent of these are the picturesque crags, pinnacles, and rock towers. These structures, formed by weathering and wind erosion, are generally absent in glaciated regions. They are common features of the Mississippi River bluffs where columns of rock have been separated from adjacent cliffs. Solitary rock towers, rising above otherwise quite level land are rather common features of the upland regions of sandstone. Monument Rock, in Vernon County, is a rock tower of this sort. It is about forty feet high and twice as wide at the top as at the base (Martin, 1932).

Climatic conditions may have been such that the vegetational cover of this area was greatly reduced during Pleistocene glacial periods. Consequent to this, erosion may have progressed at a greatly accelerated rate, especially in areas of sandy soil. There are several areas of active dunes in the upland regions to the north of LaCrosse which may have formed by accumulation of windblown sands during these times.

The silt-like, windblown loess which mantles the bluffs bordering the Mississippi River is considered glacial in origin. This material is thought to have been distributed over these bluffs during and immediately following glacial periods. Intermediate in fineness between clay and sand, the source of much of the loess may have been the finer portions of the fluvioglacial deposits of the Mississippi.

The extensive, bench-like terraces along the Mississippi are also indirectly glacial in origin. During glacial periods of the Pleistocene epoch this river aggraded its valley more than 200 feet with fluvioglacial materials. Subsequent meandering of the river upon this sandy plain has cut a series of terraces. The city of LaCrosse is built on such a structure.

The bedrock of this region was formed over 400 million years ago during the early part of the Paleozoic era. The oldest formation is the Upper Cambrian sandstone. Underlying the entire region, this rock is exposed at the surface over most of the area north of the city of LaCrosse and in the valleys to the south of LaCrosse. Prairie du Chien limestone is the next oldest rock of the area. Formed during the Ordovician period, this more resistant rock is prevalent south of LaCrosse where it overlies the Cambrian sandstone on practically every ridge and hill. The most recent rock formation is St. Peter sandstone. Also formed during the Ordovician, this rock is found to the south of LaCrosse in central Vernon County. Here it overlies the Ordovician limestone in the higher upland regions.

Drainage. In accordance with the maturely-dissected topography of this region, drainage is accomplished by a dendritic pattern of rivers and streams. Entirely within the Mississippi River system, the area studied is drained by four secondary river systems—the Trempealeau River, Black River, LaCrosse River, and the Wisconsin River. The northern and central regions are drained by the Trempealeau, Black, and LaCrosse rivers and their tributaries. The southeastern part of the area is drained by the Kickapoo River, a tributary of the Wisconsin River. In the southwest, drainage is effected by several small streams which flow directly into the Mississippi.

The only natural lakes in this region are of the ox-bow type and are located along the rivers.

Climatological Data. The approximate position of this region is between 43° 15′ and 44° 15′ north latitude. Because of its position, about 1,000 miles from both the Atlantic Ocean and the Gulf of Mexico, it has a continental climate expressed by very cold winters and rather hot summers.

The average January temperature along the Mississippi River at LaCrosse is 16.1° F. and the July average is 72.8° F. Approximately fifty miles to the east at Hillsboro (Vernon County) the average January temperature is 14° F. and the July average is 69.6° F. These averages are based on a forty year period of observation. The extreme range for the area is from 109° F. to –51° F.

The average annual precipitation ranges from 31.19 inches at Blaire (Trempealeau County) to 33.19 inches at Viroqua (Vernon County). About half of this comes in May, June, July, and August. Most of the winter precipitation comes in the form of snow, the average annual snowfall being about 40 inches. The overall annual precipitation is sufficient to supply all but the smallest streams of the area with water the year round. Also it supports sufficient vegetation so that the run-off is well regulated except in areas that have been generally modified by settlement.

Records kept at LaCrosse for a period of forty years indicate that the average growing season is 163 days free from killing frost. The average date of the first killing frost in the fall is October 9 and that of the last killing frost in the spring is April 29. Similar records kept at Hillsboro, to the east, indicate a shorter growing season of 129 days with the average date of the first killing frost in the fall September 23 and that of the last killing frost in the spring May 17.

Soils. Pedologists recognize sixteen soil types in this region. A discussion of the nature and distribution of these types, however, is not considered essential to this paper. Rather, the general soil types will be treated here in two categories, transported and residual, and discussed briefly.

Transported soils of this area include those that were carried by winds and by running water. The major portion of the mantle of loess that covers nearly all of the upland to the south and east of LaCrosse was wind-transported. It is extremely silty at the surface with the clay content gradually increasing as the underlying limestone is reached. Covering much of the region to a depth of ten feet or more, this soil is of considerable agricultural value except on the steep slopes. The sandy dunes found in the northern part of the region are also composed of wind-blown material. Agriculturally, these dune areas are wastelands. Their origin was discussed in connection with the geology of this region. The river terraces,

all of which are above the present flood plain, are composed of stream-transported materials ranging from fine sandy loam to gravelly sandy loam. They provide some of the finest agricultural land of this region. The present flood plains of these rivers and streams, many areas of which are subject to periodical overflow, possess soil of a mixed nature. Usually too wet to be cultivated, most of these areas are characterized by alluvial forests, marshes, and open meadows.

Most of the residual soil of this area is found where the rapidly-weathering sandstone is at the surface. This soil ranges from very sandy, sterile soil to a sandy loam of relatively high agricultural value. Soil classed as peat may also be treated here as residual. Found in a few low-lying areas, this soil consists of vegetable matter in various stages of decomposition. Because of its wet nature and acidity it is of little use agriculturally.

Plant Communities

The topography and geology of this region is such that there are a number of noteworthy botanical areas. Each of these areas, or habitats, is characterized by various species of plants which make up a particular plant community. Following are descriptions of these various habitats with lists of characteristic or otherwise interesting plants of each. In order to show an over-all picture of the LaCrosse Area flora, composite lists of plants are presented for each habitat. For example, the list of species given as characteristic of tamarack bogs was derived from collection and observation data obtained in the study of six different bogs of the region. Inasmuch as all the vascular plants listed in this paper were collected by the author in 1956 or since, they are representative of the extant flora of the LaCrosse Area.

The nomenclature used is largely that of *Gray's Manual of Botany, 8th Edition,* and the *New Britton and Brown Illustrated Flora.* Species not native to this area are indicated by an asterisk. Although the family names are not listed, the species are listed by families in Englerian sequence.

1. Lakes, ponds, sloughs, rivers, streams, shorelines and marshes. The Mississippi River, with its associated sloughs and marshes, provides habitats for a large number of marsh, shoreline, and aquatic plants. Lake Onalaska, a large impoundment of the Mississippi and Black rivers backed up behind U. S. Dam and Lock Number 7, probably yields the largest number of these plants in the LaCrosse Area. Covering about sixteen square miles, this lake is rather shallow, has numerous islands, and is bordered on the north and east by extensive marshes and alluvial woods.

Equistum fluviatile
Onoclea sensibilis
Thelypteris palustris
Azolla mexicana
Typha latifolia
Sparganium americanum
(incl. *S. androcladum*)
Sparganium chlorocarpum
Sparganium eurycarpum
Potamogeton amplifolius
**Potamogeton crispus*
Potamogeton diversifolius
Potamogeton epihydrus
Potamogeton foliosus
Potamogeton nodosus
Potamogeton pectinatus
Potamogeton pusillus
Potamogeton richardsonii
Potamogeton vaseyi
Potamogeton zosteriformis
Zannichellia palustris
Najas flexilis
Alisma subcordatum
Sagittaria cristata
Sagittaria cuneata
Sagittaria engelmanniana
Sagittaria latifolia
Sagittaria montevidensis
Sagittaria rigida
Elodea canadensis
Elodea nuttallii
Vallisneria americana
Echinochloa pungens
Echinochloa walteri
Eragrostis hypnoides
Glyceria borealis
Glyceria canadensis
Glyceria pallida
Leersia lenticularis
Leersia oryzoides
Panicum philadelphicum
Phalaris arundinacea
Phragmites communis
Spartina pectinata
Zizania aquatica
Carex cephalantha
Carex comosa
Carex cristatella
Carex hystricina
Carex lacustris
Carex laeviconica
Carex lurida
Carex rostrata
Carex vulpinoidea
Cyperus inflexus
Cyperus rivularis
Cyperus strigosus
Dulichium arundinaceum
Elecocharis acicularis
Eleocharis calva
Eleocharis obtusa
Eleocharis ovata
Eleocharis palustris
Hemicarpha micrantha
Scirpus atrovirens
Scirpus cyperinus
Scirpus fluviatilis
Scirpus pedicellatus
Scirpus validus
(inc. *S. acutus*)
Acorus calamus
Juncus brevicaudatus
Juncus dudleyi
Juncus effusus
Juncus nodosus
Lemna minor
Lemna trisulca
Spirodela polyrhiza
Wolffia columbiana
Wolffia punctata
Heteranthera dubia
Pontederia cordata
Iris virginica
var. *shrevei*
Salix amygdaloides
Salix discolor
Salix gracilis
Salix interior
Salix nigra
Polygonum amphibium
Polygonum arifolium
Polygonum coccineum
Polygonum hydropiperoides
Polygonum lapathifolium
Polygonum punctatum
Polygonum sagittatum
Rumex verticillatus
Amaranthus tamaricinus
Amaranthus tuberculatus
Ceratophyllum demersum
Nelumbo lutea
Nuphar advena
Nymphaea tuberosa
Ranunculus aquatilis
Ranunculus flabellaris
Ranunculus pensylvanicus
Ranunculus sceleratus
**Nasturtium officinale*
Rorippa islandica
Potentilla palustris
Rosa palustris
Amorpha fruticosa
Callitriche palustris
**Callitriche stagnalis*
Hypericum boreale
Hypericum majus
Hypericum virginicum
Ludwigia palustris
Ludwigia polycarpa
Myriophyllum exalbescens
Cicuta bulbifera
Cicuta maculata
Sium suave
Cuscuta gronovii
**Myosotis scorpioides*
Lycopus americana
Mentha arvensis
**Mentha cardiaca*
**Mentha spicata*
Physostegia parviflora
Scutellaria epilobiifolia
Scutellaria lateriflora
Stachys hispida
Stachys tenuifolia
Gerardia tenuifolia
Gratiola neglecta
Lindernia anagallidea
Lindernia dubia
Mimulus glabratus
Mimulus ringens
Veronica americana
Veronica scutellata
Utricularia intermedia
Utricularia vulgaris
Cephalanthus occidentalis
Galuim trifidum
Campanula aparinoides
Bidens cernua
Bidens discoidea
Bidens frondosa
Bidens tripartita
Bidens vulgata
Eupatorium maculatum
Eupatorium perfoliatum

2. Alluvial woods. Bordering the rivers and larger streams of this region, these lowland forests are subject to periodic overflow from the river and are characterized by stream-transported soil

known as alluvium. Very close to the level of the water table, they are generally moist and occasionally swampy. Interesting and extensive woodlands of this type are located along the Black River in Caledonia Township of southern Trempealeau County in an area known locally as the McGilvray Bottoms.

Calamagrostis canadensis
Cinna arundinacea
Carex cephaloidea
Carex crinita
Carex davisii
Carex grayii
Carex grisea
Carex intumescens
Carex lupulina
Carex lurida
Carex muskingumensis
Carex tribuloides
(incl. *C. projecta*)
Carex tuckermani
Carex typhina
Carex vesicaria
Arisaema dracontium
Populus deltoides
Betula nigra
Quercus bicoclor
Ulmus americana
Laportea canadensis
Silene nivea
Isopyrum biternatum
Ranunculus septentrionalis
Gymnocladus dioica
Callitriche deflexa
Euonymus atropurpureus
Acer saccharinum
**Lysimachia nummularia*
Fraxinus nigra
Fraxinus pennsylvanica
Phlox divaricata
**Galeopsis tetrahit*
Galium obtusum
Lobelia cardinalis

3. Low, sandy woods. Often abounding with spagnum, these moist woods are found along small streams in the sandy northern part of this region. In many cases they represent old meander scars of the streams in otherwise dry, sandy woods. Good examples of this type of habitat may be found along the north fork of the La-Crosse River in the Camp McCoy Military Reservation in Monroe County and along Robinson Creek in Manchester Township, Jackson County.

Osmunda cinnamomea
Osmunda regalis
Dryopteris cristata
Dryopteris spinulosa
Cinna latifolia
Carex canescens
Carex crinita
Carex debilis
Carex intumescens
Cypripedium acaule
Habernaria psycodes
Rubus hispidus
Ilex verticillata
Acer rubrum
Panax trifolius
Hydrocotyle americana
Aster puniceus

4. Tamarack bogs. Tamarack bogs are located in this area along streams in the depressions of old ox-bow lakes or near the headwaters of streams where lakes were once formed as a result of the Mississippi River valley filling with glacial debris during glacial periods. Some of them are quite extensive and have remained relatively undisturbed even in densely settled areas. They provide one of the more interesting aspects of the flora. Such bogs may be found along Tamarack Creek in Arcadia Township, Trempealeau County, and along the LaCrosse River in Barre Township, LaCrosse County.

Sphagnum spp.
Equisetum palustre
Equisetum sylvaticum
Osmunda cinnamomea
Osmunda regalis
Dryopteris cristata
Dryopteris spinulosa
Thelypteris palustris
Taxus canadensis
Woodwardia virginica
Larix laricina
Juniperus communis
Bromus ciliatus
(incl. *B. dudleyi*)
Muhlenbergia mexicana
Carex disperma
Carex comosa
Carex interior
Carex lacustris
Carex leptalea

Carex tetanica
Calla palustris
Symplocarpus foetidus
Clintonia borealis
Mianthemum canadense
Polygonatum pubescens
Cypripedium reginae
Habenaria hyperborea
Liparis loeselii
Salix candida
Salix pedicellaris
Alnus rugosa
Betula lutea
Betula pumila
Caltha palustris
Coptis groenlandica
Mitella nuda
Ribes hirtellum
Saxifraga pensylvanica
Geum rivale
Pyrus decora
Pyrus melanocarpa
Rubus pubescens
Rhus vernix
Ilex verticillata
Nemopanthus mucronata
Acer rubrum
Rhamnus alnifolia
Viola conspersa
Viola incognita
Viola macloskeyi
Viola nephrophylla
Cornus canadensis
Pyrola asarifolia
Lysimachia thyrsiflora
Trientalis borealis
Galium labradoricum
Linnaea borealis
Aster junciformis
Aster lucidulus
Aster puniceus
Cacalia suaveolens
Cirsium muticum
Solidago uliginosa

5. **Seepage bogs.** Seepage bogs are generally found in this region at poorly-drained bases of sandy, wooded slopes where there is seepage of cold spring water down through the sandy soil. Good examples of this habitat are located along the base of a wooded bluff bordering the Black River in Section 9, Holland Township, LaCrosse County.

Osmunda cinnamomea
Dryopteris cristata
Dryopteris spinulosa
Poa alsodes
Carex bromoides
Symplocarpus foetidus
Lilium michiganense
Alnus rugosa
Laportea canadensis
Caltha palustris
Cardamine bulbosa
Cardamine pensylvanica
Chrysosplenium americanum
Floerkea proserpinacoides
Impatiens pallida
Viola cucullata
Viola macloskeyi
Viola nephrophylla
Senecio aureus

6. **Sandy sphagnum meadow.** This type of habitat is rather characteristic of the sandy bed of old Glacial Lake Wisconsin of west-central Wisconsin. The only such meadow known to the author in the LaCrosse Area is near County Trunk A, Section 9, Farmington Township, LaCrosse County. It is characterized by a rather shallow mat of sphagnum that covers approximately ten acres. Bordering the meadow are active sand dunes and sandy, jack pine-jack oak woods. Since this habitat is rare in the region, many of its species of plants are likewise rare. Thus it provides several interesting additions to the flora.

Sphagnum spp.
Equisetum sylvaticum
Osmunda regalis
Carex longii
Eriophorum virginicum
Rhynchospora capitellata
Scleria triglomerata
Juncus canadensis
Juncus greenei
Aletris farinosa
Calopogon pulchellus
Habenaria lacera
Spiranthes cernua
Salix bebbiana
Salix gracilis
Salix tristis
Betula pumila
XBetula sandbergi
Spiraea tomentosa
Polygala cruciata
Hypericum kalmianum
Viola lanceolata
Chamaedaphne calyculata
Vaccinium macrocarpon
Bartonia virginica
Aster umbellatus
Bidens coronata

7. **Sedge meadows.** Less acid than the sandy sphagnum meadow described above, this habitat is found bordering the tamarack bogs

and in other open, poorly-drained areas. The extensive meadow bordering the Tamarack Creek bog in Arcadia Township, Trempealeau County, is a good example.

Carex emoryi
Carex haydenii
Carex lasiocarpa
(incl. *C. lanuginosa*)
Carex prairea
Carex vesicaria
Scirpus atrovirens
Scirpus cyperinus
Allium canadense
Lilium michiganense
Cypripedium calceolus
var. *parviflorum*
Habenaria flava
Salix bebbiana
Salix discolor
Salix gracilis
Salix lucida
Salix sericea
Stellaria longifolia
Geum aleppicum
Spiraea alba
Oenothera perennis
Angelica atropurpurea
Oxypolis rigidior
Cornus stolonifera
Gentiana andrewsii
Pedicularis lanceolata
Galium asprellum
Campanula aparinoides
Campanula uliginosa
Aster umbellatus
Bidens coronata
Eupatorium perfoliatum
Prenanthes racemosa

8. Dry, loamy, upland woods. This type of woodland, dominated by hardwoods, is prevalent in upland regions to the south and east of LaCrosse. These are, for the most part, areas where the covering of loess still remains and where the underlying rock is limestone. The Bohemian Valley region, Section 25, Washington Township, LaCrosse County, and Koethe's Woods, Section 3, Hamburg Township, Vernon County, are good examples of this type of habitat.

Botrychium virginianum
Pteridium aquilinum
Brachyelytrum erectum
Bromus purgans
Elymus villosus
Hystrix patula
Panicum latifolium
Carex cephalophora
Carex pensylvanica
Uvularia grandiflora
Goodyera pubescens
Populus grandidentata
Populus tremuloides
Carya cordiformis
Carya ovata
Corylus americana
Betula papyrifera
Quercus alba
Quercus macrocarpa
Quercus rubra
Quercus velutina
Ulmus rubra
Anemone quinquefolia
Anemone virginiana
(incl. *A. riparia*)
Anemonella thalictroides
Podophyllum peltatum
Arabis canadensis
Prunus serotina
Prunus virginiana
Amphicarpa bracteata
Astragalus canadensis
Desmodium cuspidatum
Desmodium glutinosum
Desmodium nudiflorum
Geranium maculatum
Polygala senega
Celastrus scandens
Ceanothus americanus
Vitis aestivalis
Osmorhiza claytoni
Sanicula marilandica
Sanicula canadensis
Fraxinus americana
Gentiana flavida
Gentiana quinquefolia
Conopholis americana
Phryma leptostachya
Galium boreale
Galium circaezans
Triosteum aurantiacum
Triosteum perfoliatum
Lobelia inflata
Antennaria neglecta
Antennaria plantaginifolia
Aster cordifolius
Aster drummondii
Aster sagittifolius
Erigeron pulchellus
Solidago ulmifolia

9. Dry, sandy, upland woods. Woodlands of this type are found in the sandy regions to the north and northeast of LaCrosse. They are characterized by jack pine (*Pinus banksiana*) and jack oak (*Quercus ellipsoidalis*) and are strikingly different from the loamy woods to the south. Good examples of this type of habitat may be found in the Camp McCoy Military Reservation in Monroe County.

Lycopodium clavatum
Lycpodium complanatum
Lycopodium tristachyum
Lycopodium obscurum

Selaginella rupestris
Botrychium dissectum
Botrychium multifidum
Botrychium virginianum
Pteridium aquilinum
Pinus banksiana
Pinus resinosa
Agrostis scabra
Danthonia spicata
Panicum depauperatum
Schizachne purpurescens
Carex backii
Carex pensylvanica
Luzula campestris
Lilium philadelphicum
Goodyera pubescens
Populus grandidentata
Populus tremuloides
Salix humilis
Comptonia peregrina
Corylus americana
Quercus ellipsoidalis
Quercus macrocarpa
Quercus velutina
Quercus rubra
Paronychia canadensis
Paronychia fastigiata
Arabis lyrata
Prunus serotina
Prunus virginiana
Baptisia leucophaea
Lathyrus ochroleucus
Lathyrus venosus
Lupinus perennis
Celastrus scandens
Ceanothus americanus
Helianthemum bicknellii
Helianthemum canadense
Lechea stricta
Arctostaphylos uva-ursi
Chimaphila umbellata
Epigaea repens
Gaultheria procumbens
Gaylussacia baccata
Monotropa hypopithys
Vaccinium angustifolium
Vaccinium myrtilloides
Convolvulus spithamaeus
Gerardia pedicularia
Galium boreale
Houstonia longifolia
Mitchella repens
Antennaria neglecta
Antennaria plantaginifolia
Aster macrophyllus
Aster sagittifolius
Hieracium canadense
Hieracium scabrum
Krigia biflora
Solidago hispida
Solidago ulmifolia

10. Moist, north- and east-facing, wooded slopes and ravines. Since sandstone underlies this entire region, the deep stream dissection that produces steep slopes and ravines exposes a sandy substrate. This ranges from a rather sandy loam, characteristic of areas where limestone and loess remain on adjacent ridges, to rather sterile sand found in regions where the limestone and loess have long since been eroded away. Somewhat loamy, wooded slopes may be found in Perrot State Park in Trempealeau County; Bohemian Valley, Section 24, Washington Township, LaCrosse County; and Koethe's Woods, Section 3, Hamburg Township, Vernon County. Wooded slopes characterized by very sandy soil may be found bordering Robinson Creek, Section 24, Manchester Township, Jackson County; and bordering the Black River in Holland Township, LaCrosse County.

Listed below are vascular plants typical of the rather loamy, wooded slopes and ravines of this region.

Equisetum scirpoides
Athyrium pycnocarpon
Dryopteris goldiana
Thelypteris hexagonoptera
Taxus canadensis
Brachyelytrum erectum
Milium effusum
Oryzopsis racemosa
Poa sylvestris
Carex albursina
Carex careyana
Carex communis
Carex digitalis
Carex jamesii
Carex pedunculata
Carex plantaginea
Carex scabrata
Carex sparganioides
Carex sprengelii
Carex woodii
Allium tricoccum
Erythronium americanum
Habernaria hookeri
Orchis spectabilis
Ulmus thomasi
Actaea pachypoda
Hepatica acutiloba
Dicentra canadensis
Arabis canadensis
Arabis laevigata
Dentaria laciniata
Staphylea trifolia
Acer saccharum
Tilia americana
Viola pubescens
Dirca palustris
Panax quinquefolius
Sanicula trifoliata
Asclepias exaltata
Hydrophyllum appendiculatum
Hydrophyllum virginianum
Blephilia hirsuta
Viburnum opulus
Polymnia canadensis

The following are vascular plants most characteristic of the very sandy, wooded slopes and ravines of this region.

Equisetum pratense
Lycopodium clavatum
Lycopodium lucidulum
Pinus strobus
Tsuga canadensis
Oryzopsis pungens
Clintonia borealis
Mianthemum canadense
Streptopus roseus
Uvularia sessilifolia
Cypripedium acaule
Malaxis unifolia
Clematis verticillaris
Hepatica americana
Corydalis sempervirens
Vicia caroliniana
Cornus canadensis
Pyrola rotundifolia
Lysimachia quadrifolia
Viburnum acerifolium
Aster macrophyllus

The following are species that occur on both sandy and rather loamy, wooded slopes and ravines in this region.

Osmunda claytoniana
Adiantum pedatum
Athyrium felix-femina
Athyrium thelypterioides
Cystopteris bulbifera
Cystopteris fragilis
Matteuccia struthiopteris
Festuca obtusa
Oryzopsis asperifolia
Carex blanda
Carex rosea
Arisaema triphyllum
Luzula acuminata
Erythronium albidum
Polygonatum canaliculatum
Polygonatum pubescens
Smilacina racemosa
Trillium flexipes
Trillium grandiflorum
Uvularia grandiflora
Cypripedium calceolus
var. *pubescens*
Liparis liliifolia
Carya cordiformis
Juglans cinerea
Betula lutea
Carpinus caroliniana
Ostrya virginiana
Corylus cornuta
Asarum canadense
Claytonia virginica
Actaea rubra
Anemone quinquefolia
Anemonella thalictroides
Ranunculus recurvatus
Thalictrum dioicum
Caulophyllum thalictroides
Dicentra cucullaria
Sanguinaria canadensis
Mitella diphylla
Hamamelis virginiana
Geranium maculatum
Euonymus atropurpureus
Acer spicatum
Aralia nudicaulis
Aralia racemosa
Osmorhiza longistylis
Sanicula gregaria
Sanicula marilandica
Cornus alternifolia
Cornus rugosa
Monotropa uniflora
Pyrola elliptica
Fraxinus nigra
Diervilla lonicera
Sambucus pubens
Viburnum rafinesquianum
Solidago flexicaulis

11. Dry sandy prairies, plains and blowouts. The dry, open sands of the Mississippi River terraces and the upland regions to the north and northeast of LaCrosse support a distinctive sand flora. An excellent sandy prairie is the Midway Prairie State Scientific Area located one-half mile south of the town of Midway, Section 30, Onalaska Township, LaCrosse County. Interesting sandy plains and blowouts are found on the Mississippi River terrace on French Island near the city of LaCrosse; bordering Wisconsin Highway 108, Section 31, Melrose Township, Jackson County; and along County Trunk A, Section 9, Farmington Township, LaCrosse County.

Equisetum laevigatum
Selaginella rupestris
Agrostis hyemalis
Andropogon gerardi
Andropogon scoparius
Aristida basiramea
Aristida intermedia
Aristida oligantha
Aristida tuberculosa
Bouteloua curtipendula
Bouteloua hirsuta
Calamovilfa longifolia
Cenchrus longispinus
Eragrostis spectabilis
Festuca octoflora
Koeleria cristata
Leptoloma cognatum
Panicum commonsianum
Panicum oligosanthes
Panicum perlongum
Paspalum ciliatifolium
Sorghastrum nutans

Sporobolus cryptandrus
Sporobolus heterolepis
Stipa spartea
Bulbostylis capillaris
Carex abdita
Carex annectens
Carex bicknellii
Carex brevior
Carex festucacea
Carex foenea
Carex meadii
Carex muhlenbergii
Carex pensylvanica
Carex tonsa
Cyperus filiculmis
Cyperus schweinitzii
Tradescantia ohiensis
Hypoxis hirsuta
Polygonella articulata
Polygonum tenue
**Rumex acetosella*
Cycloloma atriplicifolium
Froelichia floridana
Mirabilis hirsuta
Talinum rugospermum
**Schleranthus annuus*
Silene antirrhina
Anemone patens
Delphinium virescens
Ranunculus fascicularis
Ranunculus rhomboideus
Corydalis micrantha
Draba nemorosa
Draba reptans
Erysimum inconspicuum
Potentilla arguta
Prunus pumila
Amorpha canescens
Baptisia leucantha
Baptisia leucophaea
Crotalaria sagittalis
Glycyrrhiza lepidota
Lespedeza capitata
Lupinus perennis
Petalostemon candidus
Petalostemon purpureus
Petalostemon villosus
Strophostyles helvola
Strophostyles leiosperma
Tephrosia virginiana
Linum sulcatum
Oxalis violacea
Polygala polygama
Euphorbia corollata
Euphorbia geyeri
Ceanothus ovatus
Callirhoe triangulata
Hypericum gentianoides
Helianthemum bicknellii
Helianthemum canadense
Hudsonia tomentosa
Lechea stricta
Lechea tenuifolia
Viola pedata
Viola pedatifida
Opuntia humifusa
Oenothera rhombipetala
Asclepias amplexicaulis
Asclepias hirtella
Asclepias viridiflora
Lithospermum canescens
Lithospermum croceum
Hedeoma hispida
Monarda punctata
Scutellaria parvula
Physalis heterophylla
Physalis virginiana
Linaria canadensis
Penstemon digitalis
Penstemon gracilis
Penstemon grandiflorus
Plantago aristata
Plantago purshii
Houstonia longifolia
Triodanis perfoliata
Ambrosia psilostachya
Artemisia ludoviciana
Aster azureus
Aster ericoides
Aster sericeus
Coreopsis palmata
Erigeron strigosus
Helianthus occidentalis
**Hieracium aurantiacum*
Hieracium longipilum
Kuhnia eupatorioides
Liatris aspera
Solidago rigida

12. Steep, west- and south-facing loamy prairies. Steep, rocky prairies are characteristic features of the Mississippi River bluffs of this region. Locally known as "goat prairies," they are extremely dry because of the angle of the sun's rays and the prevailing winds. Two of the better examples are the prairie on Brady Bluff in Perrot State Park, Trempealeau County (a State Scientific Area) and the prairie on a Mississippi River bluff one mile south of the town of Victory in Wheatland Township, Vernon County.

Andropogon gerardi
Andropogon scoparius
Bouteloua curtipendula
Bouteloua hirsuta
Bromus kalmii
Eragrostis capillaris
Muhlenbergia cuspidata
Muhlenbergia racemosa
Panicum leibergii
Panicum perlongum
Panicum wilcoxianum
Sporobolus heterolepis
Sporobolus neglectus
Zigadenus elegans
Spiranthes cernua
Salix humilis
Geum triflorum
Potentilla arguta
Amorpha canescens
Petalostemon candidus
Petalostemon purpureus
Linum sulcatum
Viola pedata
Viola pedatifida
Gentiana puberula
Asclepias viridiflora
Lithospermum incisum
Pycnanthemum virginianum
Scutellaria parvula
Castilleja sessiliflora
Gerardia aspera
Artemisia caudata
Artemisia dracunculus
Aster ericoides
Aster oblongifolius
Aster ptarmicoides

Aster sericeus
Cirsium hillii
Erigeron strigosus
Kuhnia eupatorioides
Liatris aspera
Liatris cylindracea
Ratibida pinnata
Silphium laciniatum
Solidago rigida

13. Dry, limestone ledges and ridges. Exposed limestone forms the "rimrock" on most of the Mississippi River bluffs in Vernon and Crawford counties. Especially good outcrops are found on the bluff one mile south of Victory in Vernon County.

Cheilanthes feei
Pellaea glabella
Woodsia oregana
Juniperus communis
Juniperus virginiana
Carex eburnea
Potentilla fruticosa
Parietaria pensylvanica

14. Dry, sandstone ledges and talus. Good examples of this type of habitat are on Brady Bluff and Trempeleau Mountain in Perrot State Park, Trempealeau County.

Selaginella rupestris
Asplenium platyneuron
Polypodium vulgare
Woodsia ilvensis
Woodsia obtusa
Juniperus communis
Juniperus virginiana
Pellaea atropurpurea
Pellaea glabella
Arenaria stricta
Arabis lyrata
Symphoricarpos albus
Campanula rotundifolia
Solidago sciaphila

15. Moist, shaded, sandstone ledges. Good examples of this habitat are located in Perrot State Park, Trempealeau County, and along the Kickapoo River in Wildcat Mountain State Park, Vernon County.

Lycopodium selago var. *patens*
Camptosorus rhizophyllus
Cryptogramma stelleri
Cystopteris bulbifera
Cystopteris fragilis
Gymnocarpium dryopteris
Polypodium vulgare
Thelypteris phegopteris
Saxifraga forbesii
Sullivantia renifolia
Circaea alpina
Dodecatheon radicatum
Adoxa moschatellina

16. Weeds of roadsides, railroads, waste places, fields, yards, etc.

Equisetum arvense
**Carex spicata*
**Agropyron desertorum*
**Agropyron repens*
**Agrostis alba*
**Bromus inermis*
**Bromus tectorum*
**Buchloe dactyloides*
Cenchrus longispinus
**Dactylis glomerata*
**Digitaria ischaemum*
**Digitaria sanguinalis*
**Distichlis stricta*
Elymus canadensis
**Eragrostis cilianensis*
Eragrostis pectinacea
Hordeum jubatum
**Lolium multiflorum*
**Lolium perenne*
Panicum capillare
Panicum dichotomiflorum
**Phleum pratense*
**Poa pratensis*
**Setaria lutescens*
**Setaria viridis*
**Commelina communis*
**Asparagus officinalis*
**Cannabis sativa*
Urtica dioica
**Polygonum aviculare*
**Polygonum convolvulus*
Polygonum pensylvanicum
**Polygonum persicaria*
Rumex altissimus
**Rumex crispus*
**Rumex patientia*
**Chenopodium album*
Chenopodium gigantospermum
**Kochia scoparia*
**Salsola kali*
**Amaranthus albus*
**Amaranthus graecizans*
**Amaranthus retroflexus*
Mirabilis nyctaginea
**Mollugo verticillata*
**Portulaca oleracea*
**Lychnis alba*
**Saponaria officinalis*
**Silene armeria*
**Silene cserei*
**Silene noctiflora*
**Stellaria media*
**Barbarea vulgaris*
**Berteroa incana*
**Brassica juncea*
**Brassica kaber*
**Brassica nigra*
**Capsella bursa-pastoris*
Descurainia pinnata
**Descurainia sophia*

*Lepidium densiflorum
Lepidium virginicum
*Raphanus raphanistrum
*Sisymbrium altissimum
*Sisymbrium officinale
*Thlaspi arvense
*Potentilla argentea
*Potentilla recta
*Medicago lupulina
*Medicago sativa
*Melilotus alba
*Melilotus officinalis
*Trifolium agaricum
*Trifolium arvense
*Trifolium hybridum
*Trifolium pratense
*Trifolium procumbens
*Trifolium repens
*Vicia angustifolia
*Vicia villosa
*Euphorbia cyparissias
Euphorbia dentata
*Euphorbia esula
Euphorbia maculata
*Euphorbia marginata
Euphorbia supina
*Abutilon theophrasti
*Hibiscus trionum
*Malva neglecta
*Carum carvi
*Daucus carota
*Pastinaca sativa
*Convolvulus arvensis
Convolvulus sepium
*Ipomoea purpurea
*Phlox paniculata
Verbena bracteata
Verbena stricta
Verbena urticifolia
*Leonurus cardiaca
*Datura stramonium
Physalis pruinosa
Solanum carolinense
*Solanum dulcamara
*Solanum nigrum
(incl. S. americanum)
*Solanum rostratum
*Chaenorrhinum minus
*Linaria vulgaris
*Verbascum thapsus
*Plantago lanceolata
*Plantago major
*Plantago media
Plantago rugelii
*Campanula rapunculoides
*Achillea millefolium
Ambrosia artemisiifolia
Ambrosia trifida
*Anthemis cotula
*Arctium minus
*Artemisia biennis
*Artemisia frigida
Aster novae-angliae
*Chrysanthemum leucanthemum
*Cichorium intybus
*Cirsium arvense
Erigeron canadensis
*Galinsoga ciliata
*Grindelia squarrosa
*Helianthus annuus
*Iva xanthifolia
*Lactuca scariola
*Matricaria matricarioides
Solidago altissima
Solidago canadensis
*Sonchus asper
*Sonchus oleraceus
*Sonchus uliginosus
*Tanacetum vulgare
*Taraxacum erythrospermum
*Taraxacum officinale
*Tragopogon dubius
*Tragopogon pratensis
*Xanthium strumarium

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