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ENDANGERED AND THREATENED VASCULAR PLANTS IN WISCONSIN

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ERRATA - TECHNICAL BULLETIN #92

Page 2, Column 2, Line 10 - For Morely, substitute Morley

Page 15, 4th Entry - For Carex meadia, substitute Carex media*

Page 30, Oryzopsis canadensis is one entry out of alphabetical order

Page 35, 5th Entry - For Ribes oxycanthoides, substitute Ribes oxyacanthoides**

* Also on Page 54- under Cliffs, Rock Crevices (Southwest)

** Also on Pages 53, 54, under Cliffs, Rock Crevices (Northwest, Northeast)

COVER ILLUSTRATION: Lapland rosebay *(Rhododendron lapponicum),* from *Pflanzenfamilien* iv.I.36 (1889). In Wisconsin, Lapland rosebay is found only at the Dells of the Wisconsin River, far removed from its arctic-alpine habitats of Canada and New England.

ABSTRACT

As an effort of the Department of Natural Resources' Endangered Species Program and the Scientific Areas Preservation Council, this publication alphabetically lists — with annotations, map references, and status designations — native, vascular plants believed to be endangered, threatened, or extirpated in Wisconsin. The list was drawn up with the help of many botanists in the state, especially those of the University of Wisconsin, Madison, herbarium.

Two hundred sixty-eight taxa are included in the list, 120 as endangered, 106 as threatened, 28 as status unknown but probably extirpated, and 14 as extirpated. The state status designations at this time are advisory only and carry no legislative force. However, certain plants in this publication are listed under the provisions of the U.S. Endangered Species Law, and similar protective legislation is now pending in Wisconsin.

In an appendix, all listed plants are grouped by broad habitat association and by geographic region of the state. This appendix is designed to help resource managers identify possible endangered species habitats in their region of the state. Another appendix lists taxa considered but not included in the final list.

The introductory material presents information on the history of the Wisconsin Endangered Species Program, concepts of plant rarity and endangerment, and patterns of plant distribution in Wisconsin. Illustrations of particular species and uncommon plant community types (potential scientific areas) are scattered throughout the text.

ENDANGERED AND THREATENED VASCULAR PLANTS IN WISCONSIN

By
Robert H. Read

(With the collaboration of the
University of Wisconsin Herbarium)

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INTRODUCTION

WISCONSIN'S ENDANGERED SPECIES PROGRAM

Concern for the welfare of endangered and threatened species has grown dramatically in the last few years, not surprisingly coinciding with a period of general increase in the awareness of mankind's influence on the environment. Modern man, especially technological man, is recognized as having altered much of the earth's surface so completely as to endanger entire species of plants and animals. Such a complete dominance over the earth by man is believed to have accelerated the extinction rate, a natural process which has gradually changed the composition of the planet's biota since life began some two billion years ago.

A feeling of responsibility for the plight of many animals and plants has led to research and protective legislation on the international, federal and state levels. In Wisconsin, work to protect endangered species was begun by the Department of Natural Resources (DNR) in 1971 through a review of the status of all native animals. This effort took on new urgency with the passage in April 1972 of state legislation which required a list of endangered species and supported special action to further protect them. The Wisconsin Law (Chap. 29.415, Wis. Stats.) strengthened the protection of endangered species by prohibiting the sale, processing and distribution of fish and wildlife designated as endangered by the DNR, and also fish and wildlife on the U.S. list of endangered, native and foreign species. The law further urged the preservation of the few remaining whole plant-animal communities in the state which represent the best havens for native species.

Initial efforts at all levels have been directed mainly to the preservation of endangered and threatened vertebrate animals (mammals, birds, reptiles and fish). However, the passage of the U.S. Endangered Species Act of 1973 (Public Law 93-205) provided special impetus for the protection of endangered and threatened plants as well as animals. Recently a national list of endangered and threatened plant taxa of the U.S. has been published (House Document 94-51, 1975) as required by Section 12 of the Endangered Species Act. This represents the first effort to compile a list of higher plants believed to be threatened or endangered in the 50 states. The initial list, which contains about 10 percent (2,099 entries) of the native flora in the nation, is now under constant refinement by staff of the Office of Endangered Species, Fish and Wildlife Service, U.S. Department of the Interior.

Such comprehensive legislation at the national level has encouraged many states, including Wisconsin, to update their legislation protecting native endangered and threatened species. In Wisconsin, the DNR has recently introduced a bill (The Nongame and Endangered Species Conservation Act, AB 864) to repeal and recreate the current law (Chap. 29.415, Wis. Stats.) pertaining to endangered and threatened species.

The list of plants in this publication is the first detailed attempt to identify and document native, higher plants in Wisconsin believed to be threatened, endangered, or extirpated. It is an in-depth examination of the status of plants as they are known to occur or have occurred in Wisconsin, regardless (but not ignorant) of a particular species' rarity or commonness in other states and the nation. In essence, it is a refinement of the national effort and follows similar lists prepared for other states — e.g., New Jersey (Fairbrothers and Hough 1973), Missouri (Holt et al. 1974), and Minnesota (Morely 1972).

PREPARATION OF THE WISCONSIN LIST

Nativeness and rarity have been two major criteria used for determining which plants have been placed on the Wisconsin endangered and threatened species list. Taxa which possess highly restricted ranges (**endemics**) confined totally or mostly within the Midwest have been considered as an auxillary criterion, even though several such plants are not especially rare in certain places at the present time.

Whether a plant is **native** to Wisconsin can usually be inferred by such evidence as old herbarium or historical records, presence in unaltered, intact native habitats and the undeniably exotic origin of particular species. In some cases difficulty arises in determining nativeness, especially where plants are part of a transitory community (such as river sand bars), or where there are only recent collections. Inclusion of such questionably native plants into the endangered and threatened species list has been based on a comparison of status in adjacent states and a judgment of nativeness reflected by non-aggressive tendencies in its community of most frequent occurrence.

Rare is a term meaning "found very infrequently within a given area." As such it is a relative term dependent on the size of the area of concern, which in this publication is the state. Factors which contribute to statewide rarity are (1) disjunction (where a taxon exists in a small number of outlying stations distantly removed from its central range), (2) destruction of habitats prone to conversion for human use (e.g., prairies, Great Lakes beaches and dunes), (3) depletion due to intensive harvesting or collecting, (4) inherent or apparent rarity (e.g., plants exhibiting a spotty distribution throughout their range or at least in the Wisconsin portion of their range), and (5) peripheral range (where a taxon reaches its natural and continuous range limit near a border of the state). The limitations of using rarity as a criterion for determining the endangered or threatened status of organisms are discussed in the section "Concepts of Plant Rarity and Endangerment."

Generally omitted were plants that are considered unstable hybrids (i.e., not capable of reproduction past the first generation), and taxa which are known only from old, vague, and not recently substantiated records.

Preparation of a detailed endangered and threatened plant list for Wisconsin began on a part-time basis in mid-1972 as part of the Department of Natural Resources'

Endangered Species Program. By May 1973, a preliminary list had been formulated using as a data source records kept in the University of Wisconsin-Madison herbarium (the major depository for plant records in the state) and pertinent floristic literature, mainly found in the Preliminary Reports on the Flora of Wisconsin series published intermittently since 1929 in the Transactions of the Wisconsin Academy of Sciences, Arts and Letters.

The first draft of the endangered and threatened plant list was drawn up using the nativeness and endemic criteria along with all rarity factors except that of peripheral range. This initial list was distributed to botanists throughout the state for comment; those who responded are acknowledged on the back inside cover of this report.

On the basis of these outside contributions and criticisms the final list was solidified. Not all of the suggested additions were included in the final list, but most of these excluded species are included in Appendix I. Many of those plants suggested but not included are locally rare or uncommon in one portion of the state but common in another (e.g., *Calla palustris, Bidens beckii, Silphium laciniatum, Silphium terebinthinaceum*), thus they were necessarily left off a statewide list.

The basic change made in the content of the final list from the draft copy was to include peripheral species. It was decided that this change — which substantially enlarged the final list — was necessary, both because of the frequent inability to decide whether a species is peripheral rather than disjunct, generally rare, etc., and also because the basic purpose of the list is to provide information on the status of native plants in Wisconsin. If, for example, a particular species is known from only one station in southern Wisconsin, destruction of that station would likely effectively extirpate the species from this state. Whether the plant was truly peripheral or disjunct, the final result is the same: the species is eliminated from the state's flora.

The final list required assignment of status category (extirpated, endangered, or threatened) to give perspective to each entry. Based on the number of stations known from herbarium records and an estimate of present distribution, assignment of a category was given to each plant, in consultation with Professor Hugh H. Iltis, Director of the Herbarium, University of Wisconsin, Madison. Others contributing to category assignment during these meetings were herbarium staff members and graduate students: T. S. Cochrane, B. Hansen, M. Nee and W. E. Tans, all knowledgeable in Wisconsin floristics.

In most cases, herbarium and publication records represent only a sample of the total population of a particular species. Personal knowledge on the absolute status of all species in the state is impossible for any one person or group of persons. Therefore, it is anticipated that this list will change in content over time, since new knowledge will allow for a more critical evaluation of a species' status. Some plants hopefully can be removed from the list while others may need to be added based on updated information.

CONCEPTS OF PLANT RARITY AND ENDANGERMENT

The question of why particular organisms are common while others are rare has always been an intriguing subject to biologists. While the present list of extirpated, endangered and threatened plants is based on species' status within Wisconsin — not necessarily on biological endangerment — different ideas of why particular species may be or appear to be rare over their entire or partial range are discussed here in order to provide perspective to the Wisconsin list. For additional reading, selected papers on species rarity are presented at the end of this discussion.

It must be emphasized that rarity may not always be equated with endangerment. While endangered and threatened lists of animals sometimes contain species not especially rare at the present time — due to the often extensive knowledge into the life histories of certain animals — such lists of plants (such as Wisconsin's) must rely heavily on the rarity criterion because of less complete life history data on most plants. As will be seen in the following paragraphs, rarity alone *may* be a very imperfect criterion for determining endangered or threatened status, but it is the best clue botanists have at the present time.

Some species may appear near extinction as evidenced by their rarity, although in reality, they are very successful and far from danger. For example, various organisms have evolved a highly inconspicuous life strategy, either in time or place. A type of the former strategy is the species which may exist in a resting stage for most of the year, becomes conspicuous for only a short time (often for reproduction and food production purposes) and then disappears again for the remainder of the year. Many spring ephemerals fall into this category.

An example of a successful species which may appear rare in place is the organism which spends much of its life in an inconspicuous habitat, such as a submersed aquatic habitat or a subterranean environment. Because the species rarely comes in contact with humans, it may appear as an endangered species when this is in fact not the case.

The small size of a plant or animal has often been suggested as contributing to the apparent rarity of a species. Many organisms are quite minute and may be overlooked by field biologists, yet be quite widespread and numerous.

Detailed information on the life history of most organisms is not known; thus it becomes very difficult to decide whether a rare species is in fact endangered or only appears so due to a particular life strategy. Genuine endangerment, however, can often be inferred by indirect evidence, such as a decrease in the number of herbarium collections over the years (assuming a more or less constant collecting effort over time) and the obvious destruction of vital habitat for particular species.

In Wisconsin, habitat degradation and destruction are probably the most important factors threatening particular species. Some presettlement habitats (e.g., deep-soil prairies) have been nearly exterminated by their wholesale conversion to agricultural lands. Insidious changes, such as large drops in the water table, are suspected of eliminating particular species dependent on precise soil and moisture conditions. Most critically, habitat destruction and degradation may threaten disjunct and endemic plants disproportionately because of their small number of stations.

Ironically some species may have become endangered and threatened because of the cessation of natural maintenance processes with the coming of settlement. Certain plants which are now rare are ecologically transitional, dependent on periodic disturbance (often fire) for maintenance of necessary growth conditions. These pioneer species of narrow ecological amplitude have succumbed to certain modern climax and disclimax communities which have proliferated since settlement.

Finally, the introduction — both purposeful and accidental — of aggressive competitors has been a contributing factor in the disappearance of native species. Particular, mostly exotic plants have been selected for forage, ornamental or soil-holding qualities (monotype sod-formers). In most cases, these species have been genetically manipulated and selected for fast growth rates, resistance to disease, herbicides and pollution, and strong competitive abilities. A large number of non-native weeds have evolved with similar "qualities". Many native species do not have such properties and fall victim to either herbicide application or directly lose their place in the sun and soil to better competitors.

Selected References on Rare Species

Dingell, John D. 1974. Why protect endangered species? Congressional Rec., April 24, 1974. E2511-E2512.

Drury, William H. 1974. Rare species. Biol. Conserv. 6:162-169.

DuMond, David M. 1973. A guide for the selection of rare, unique and endangered plants. Castanea 38:387-395.

Fernald, Merritt L. 1939. The problem of conserving rare native plants. Smithsonian Rep. for 1939:375-391.

Griggs, Robert F. 1940. The ecology of rare plants. Bull. Torr. Bot. Club 67:575-594.

Meijer, Willem. 1973. Endangered plant life. Biol. Conserv. 5:163-167.

Stebbins, G. Ledyard, Jr. 1942. The genetic approach to problems of rare and endemic species. Madroño 6:241-272.

Zimmerman, James H. and Hugh H. Iltis. 1961. Conservation of rare plants and animals. Wis. Acad. Rev. (Winter):7-11.

PATTERNS OF PLANT DISTRIBUTION IN WISCONSIN

The present landscape of Wisconsin has been molded by diverse geological events extending over extremely long periods of time: volcanic action, ancient seas (depositing both sand and limestone substances), uplift and weathering, and most importantly, glacial activity. Several periods of glaciation, the last of which ended 10-12,000 years ago, had a major influence in shaping the topography of present-day Wisconsin. Moraines, outwash plains and glacial lake beds are dominant features of the state's surface.

The complex geological history and the state's position at the confluence of three major North American vegetation types (eastern deciduous forest, prairie, and boreal forest) have contributed to the development of a diverse native flora. Many species present on the Wisconsin threatened and endangered plant list are those which reach their natural, contiguous range limits at the borders of the state. Often their occurrence here depends both on the number of available habitats remaining in the state and the habitat preference of each species.

So pronounced are particular repeating migrational patterns of species occurring on the Wisconsin threatened and endangered plant list that they may be generalized (Fig. 1). The floristic patterns and representative species, many of which are on the Wisconsin list, are as follows:

Boreal Pattern

Taxa belonging to this pattern concentrate mainly in the northwestern portion of the state (often with plants confined within the Lake Superior watershed), and the pattern is composed of many species having a circumpolar distribution (i.e., found around the top of the globe in North America, Europe and Asia). Plants of this pattern are often restricted to one of the two habitats, bogs or rock crevices (igneous or sandstone). Plants of interest which follow this pattern and are largely restricted to habitats in the extreme northern portion of the state include:

Arenaria macrophylla
Caltha natans
Carex exilis
Carex michauxiana
Carex pallescens var. *neogaea*
Listera auriculata
Listera convallarioides
Lonicera involucrata
**Mertensia paniculata*
Pinguicula vulgaris
Polystichum braunii
Pyrola minor
Rhynchospora fusca
Selaginella selaginoides (also Door County)
Trisetum spicatum
Vaccinium vitis-idaea var. *minus*

*Indicates taxa not considered threatened or endangered in Wisconsin.

A few rare species possessing a boreal distribution are found disjunctly in more southern portions of the state. A few of these are restricted to unglaciated areas of Wisconsin but many are found elsewhere. Among the more southerly ranging boreal elements which are threatened or endangered in Wisconsin are:

Adoxa moschatellina Found mainly in the Driftless Area on wet cliffs.

Primula mistassinica Found in rock crevices and on cliffs in the Driftless Area, St. Croix Falls (Polk County), Lake Superior shoreline, and on the Door Peninsula and adjacent islands.

Rhododendron lapponicum Found on sandstone ledges at the Wisconsin Dells, Columbia County.

Astragalus alpinus Found on sandy shores of two lakes in Bayfield and Waushara Counties.

Viburnum edule Found on talus slopes in the Barron Hills, Rusk County.

Carex media Found on wooded talus slopes, Grant County.

Arenaria stricta ssp. dawsonensis Found on cliff tops and dry prairies south to La Crosse and Waupaca Counties.

Epilobium palustre Found in swamp woods south to Lincoln County.

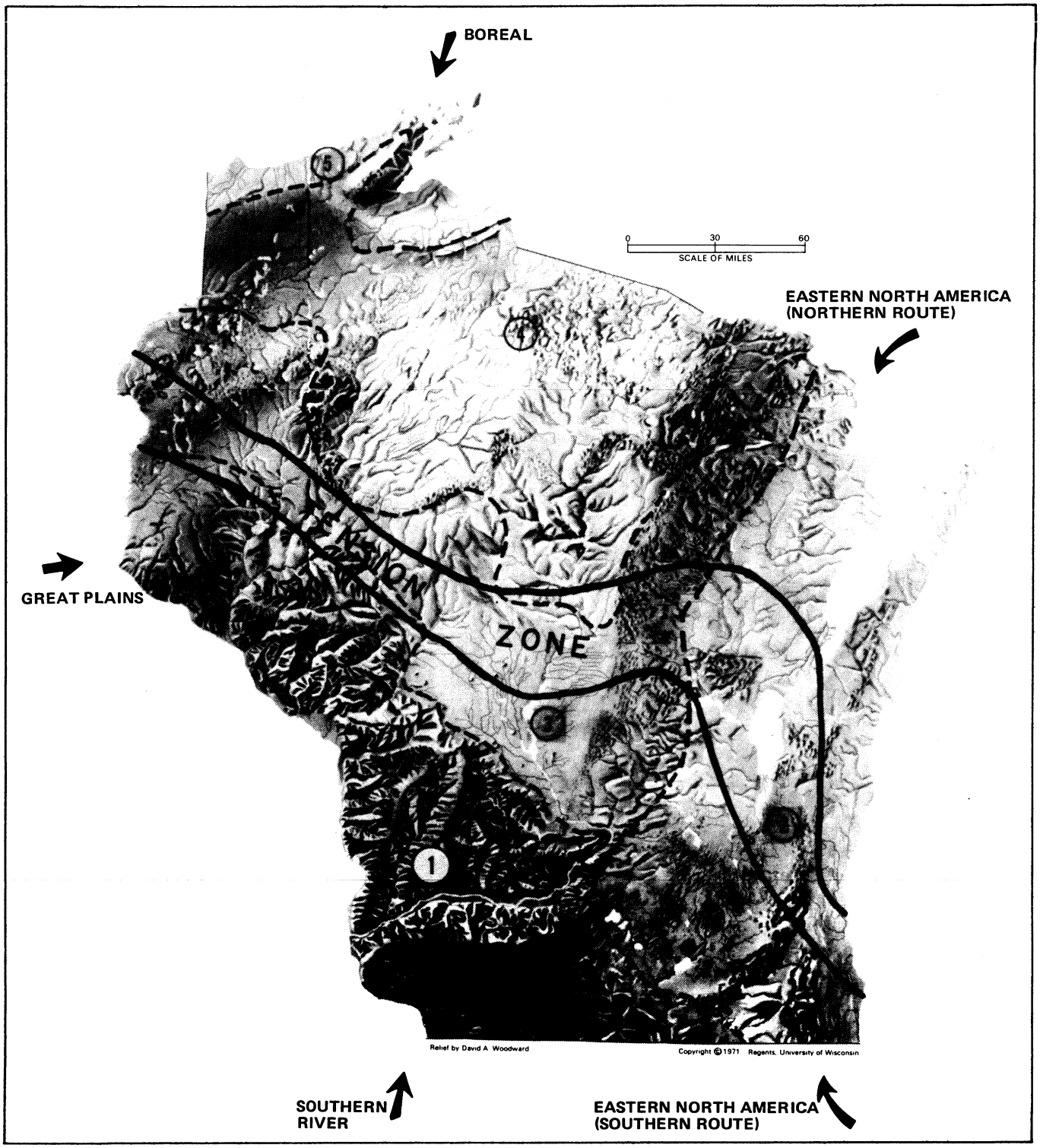


FIGURE 1. Major migrational patterns of vascular plant species occurring in Wisconsin. Certain plants belonging to one of these patterns, which reach their range limits within the state, are on the endangered or threatened plant list. Numbers refer to the five geographical provinces of Wisconsin: (1) Western Upland (composed mostly of the Driftless Area); (2) Eastern Ridges and Lowlands; (3) Central Plain; (4) Northern Highland; (5) Lake Superior Lowland. Map used by courtesy of Wisconsin Geological and Natural History Survey.

Great Plains Pattern

Some species of interest have their central distribution in the prairies of the Great Plains, and reach Wisconsin only in its western portions. To this group of prairie and barrens plants belong the rare Wisconsin species:

Anemone caroliniana
Astragalus crassicarpus
Liatris punctata
**Muhlenbergia cuspidata*
Petalostemum villosum
Psoralea esculenta
Psoralea argophylla

*Indicates taxa not considered endangered or threatened in Wisconsin.

While many of the species with this distribution are associated with prairie, a few are found in other habitats:

Carex torreyi Found in sedge meadows of extreme western counties.
Catabrosa aquatica Found in springs in the Driftless Area.
Glycyrrhiza lepidota Found on rocky, shaded shores of Lake St. Croix.

Southern River Pattern

A surprisingly large number of plants with southern North American affinities appear to enter Wisconsin either from around the southern tip of the lake or around the northern end through the Upper Peninsula of Michigan. Interestingly, most species follow either one of these migration routes but not both.

By far, more species have entered the state via the southern route than by the northern route. These southern migrants are mostly restricted to the southeastern counties of Wisconsin and are usually associated with either wet-to-mesic deciduous woodland, or damp, often calcareous prairie and fens. Woodland species possessing this distribution pattern include:

Aster furcatus
Carex lupuliformis
Erigenia bulbosa
Fraxinus quadrangulata
Solidago caesia
Viburnum prunifolium

Disjunct Patterns

In the Central Sand Plain, and especially in the bed of glacial Lake Wisconsin (located in portions of Sauk, Juneau, Adams, Jackson, Portage, and Wood Cos.) a number of plants naturally occur which have their main range along the Atlantic Coastal Plain. Other locations for Atlantic Coastal disjuncts in the Midwest occur in similar habitats in southwestern Michigan and northwestern Indiana, although not all the same disjuncts are common to all three locations. It is likely that these outlying populations were established by waterfowl dispersal during spring migrations. Species belonging to this group of disjuncts, most of which grow in seasonally damp, sandy, open habitats mainly in the Wisconsin Central Sand Plain include:

Aletris farinosa
Carex longii
**Carex emmonsii*
Carex straminea
Eleocharis wolfii
Juncus militaris
Polygala cruciata
Psilocarya scirpodes
Rhexia virginica
Scleria reticularis
**Xyris torta*

*Indicates species not included on endangered or threatened list.

A second case of multiple disjuncts occupying a common area should be mentioned — that of western mountain species disjunct in the upper Great Lakes region. Probably the most well-known disjunct in this group is the devil's club, *Oplopanax horridus* (Araliaceae), a western coast species also known from several stations on the Isle Royale archipelago and the nearby Sibley Peninsula of Ontario. Species belonging to this same disjunct pattern which occur in Wisconsin include:

Festuca occidentalis
Melica smithii
Osmorhiza chilensis
**Corallorhiza striata*
**Goodyera oblongifolia*

*Indicates species not considered endangered or threatened in Wisconsin.

Some of the most spectacular disjuncts occurring in Wisconsin are ferns. Undoubtedly disseminated by minute spores that are easily wind-dispersed, several ferns are found in the state hundreds of miles from nearest known stations. Two such ferns are especially worthy of mention — *Asplenium pinnatifidum* (lobed or pinnatifid spleenwort; on Iowa County dry cliffs about 400 miles from its closest stations in southern Illinois) and *Thelypteris simulata* (Massachusetts fern; disjunct in Jackson County low sandy woods from West Virginia).

GUIDE TO THE USE OF THE LIST

The main body of this publication is a list of vascular plants (ferns, fern allies, and seed plants) which are believed to be threatened, endangered or extirpated in the state of Wisconsin. It is based on the best information available on the status of native plants in Wisconsin — plant records, unpublished manuscripts and distribution maps, kept in the University of Wisconsin Herbarium; literature references; and personal field knowledge of many of the state's botanists.

Arranged alphabetically by scientific names and commonly used vernaculars (where such exist), the list is designed for use by botanists and nonbotanists alike. Under the accepted scientific name entry, information is given on the distribution of the plant, its principal habitat(s) and a reason for inclusion on the list. Most entries give at least one literature reference, selected to show the Wisconsin and/or total distribution of the species. A certain amount of caution should be exercised in interpreting distribution maps since they represent a cumulative record of a plant's distribution and are not always indicative of present range or frequency.

Each entry has been given a status to comply with categories covered under proposed endangered species legislation. A status is applied to each entry as an indicator of the degree to which a species is endangered or threatened. At the present time the categories are advisory only and carry no legislative force. Definitions of categories are as follows:

THREATENED - Rare native species which are known from more than three stations in the state, but of very limited distribution in Wisconsin so as to cause concern of future endangerment.

ENDANGERED - Native plants with three or less stations known to exist in the state are automatically included in this category. Some species with more than three stations have been included where it is believed that a substantial number of the stations are destroyed or actively threatened. It should be noted that species are included in this category even if the only station is protected, as in the case of plants on state scientific areas.

UNKNOWN, PROBABLY EXTIRPATED - Native species for which no recent collections have substantiated its present existence in the state, but for which there is insufficient information to conclude that the plant is extirpated.

EXTIRPATED - Species thought to be originally native (based on old records and habitat data) but no longer believed to exist in the state.

Appendix I lists plants alphabetically by scientific name. These plants were recommended and considered for inclusion in the main list, but for various reasons (e.g., questionable nativeness, lack of statewide rarity) were not included at the present time.

Appendix II organizes extirpated, possibly extirpated, endangered, and threatened species into general habitat groupings by geographical region. These groupings should be especially useful to people wishing to know which plants *may* occur in a particular habitat under investigation in their part of the state without looking through the entire list.

CATALOGUE OF ENDANGERED, THREATENED AND EXTIRPATED VASCULAR PLANTS OF WISCONSIN

		END	THR	UNK	EXT
Aconitum noveboracense **Gray** incl. var. *quasiciliatum* Fassett RANUNCULACEAE	MONKSHOOD. This is a plant of shaded, damp cliffs in the Driftless Area of Wisconsin and Iowa, formerly (presently?) also found in New York and Ohio. In Wisconsin there are eight stations, six which are extant. Four of the six present populations (two of which contain probably the largest populations in the world) are currently threatened by a U.S. Army Corps of Engineer flood control structure on the Kickapoo River. *References:* Almon (1930:208; map, p. 206; Fassett (1931); Hardin (1964:80-94); Zimmerman and Iltis (1961:7-11, maps).	●			
Adder's mouth, white	See *Malaxis monophyllos.*				
Adder's tongue fern	See *Ophioglossum vulgatum.*				
Adlumia fungosa **(Ait) Greene** FUMARIACEAE	ALLEGHENY-VINE. A handsome, occasionally cultivated plant, but very rare as a spontaneous, native plant in the state. It is sporadic in Wisconsin, with most of the stations occurring in Brown and Door Counties. Allegheny-vine is found in rocky and burned-over habitats where competition is not severe.		●		
Adoxa moschatellina **L.** ADOXACEAE	MOSCHATEL. *Adoxa* is a circumpolar species known in Wisconsin from six stations in or near the Driftless Area. It has been found numerous times in Minnesota near Duluth and is to be expected in adjacent Douglas County, Wisconsin. The preferred habitat of this diminutive plant is shaded, damp to dripping cliffs. *References:* Cochrane and Salamun (1974:247-252); Hulten (1970:map 104).	●			
Agastache nepetoides **(L.) Kuntze** LABIATAE	YELLOW GIANT-HYSSOP. Found largely in oak woodland and on woodland edges, yellow giant-hyssop is known only sparingly in the southern two tiers of counties in Wisconsin. *Reference:* Koeppen (1957:123; map, p. 122).		●		
Agoseris cuspidata **(Pursh) Raf.** *Microseris cuspidata* (Pursh) Schultz-Bip. COMPOSITAE	PRAIRIE DANDELION. This dry prairie plant is fast disappearing in adjacent states as well as in Wisconsin, where its range is restricted to seven southern and one (Pierce County) northwestern counties. Today it is most commonly found in sand prairies of the Wisconsin River Valley. *Reference:* Johnson and Iltis (1963:332; map p. 331, as *Microseris cuspidata*).		●		
Agropyron dasystachyum **(Hooker) Scribner var.** ***psammophilum*** **(Gillett & Senn) E. Voss** *Agropyron psammophilum* GRAMINEAE	This plant is a well-defined Great Lakes endemic restricted to the beach-strand community which is rapidly disappearing due to human development of shoreline habitats. *Reference:* Gillett and Senn (1961:1169-1175).		●		
Allegheny-vine	See *Adlumia fungosa.*				
Anemone caroliniana **Walt.** RANUNCULACEAE	CAROLINA ANEMONE. In this section of its range, this plant is rare on dry prairies and barrens. Alteration of these has caused a further decrease of this species in the state. *Reference:* Tans and Read (1975:132-133).		●		

END = Endangered THR = Threatened UNK = Unknown, probably extirpated EXT = Extirpated

	END	THR	UNK	EXT
Anemone multifida **Poir. var.** ***hudsoniana*** **D.C.** RANUNCULACEAE — Known from only two collections in the state (Sheboygan and Adams Counties), this plant of dry, sandy or limestone habitats has very likely been extirpated. It is likewise rare in states adjacent to Wisconsin. *Reference:* Hartley (1966:124).			●	
Arenaria macrophylla **Hooker** CARYOPHYLLACEAE — Both collections in the state of this arctic species are from igneous rock of the Penokee Range in Iron and Ashland Counties. Though searched for, it has not been collected in recent years. *References:* Fernald (1925:239-342); Maguire (1951:493-511); Schlising and Iltis (1961:108-109, map p. 111).			●	
Arenaria stricta **Michx. ssp.** ***dawsonensis*** **(Britton) Maguire** CARYOPHYLLACEAE — NORTHERN ROCK SANDWORT. This distinct subspecies is known from five stations in the state where the plant reaches the southeastern limit of its range which extends into the Alaskan Arctic. *Reference:* Schlising and Iltis (1961:110; map, p. 111).		●		
Arethusa bulbosa **L.** ORCHIDACEAE — DRAGON'S MOUTH. Fernald, in the 8th edition of Gray's Manual, states that this orchid is rapidly becoming extinct. In Wisconsin, it is one of the rarer orchids, though it may be locally common in sphagnum bogs of the northern counties. *References:* Case (1964:77-78; map p. 125); Fuller (1933:107; map, p. 106).		●		
Armoracia aquatica **(A. Eaton) Wieg.** CRUCIFERAE — LAKE CRESS. This hydrophyte is generally rare throughout its range, and in Wisconsin it has been collected from only three stations, the last time in 1921. *Reference:* Patman and Iltis (1961:52; map, p. 53).				●
Arrow-grass — See *Triglochin* spp.				
Artemisia dracunculus **L.** (not the Eurasian taxon) *A. glauca; A. dracunculoides* COMPOSITAE — DRAGON SAGEWORT. As a native plant (or rarely established in disturbed habitats), this species is restricted to dry, sandy prairies. In Wisconsin it is at its eastern range limit. *Reference:* Mickelson and Iltis (1966:210-211, as *Artemisia dracunculoides;* map, p. 212, as same).		●		
Artemisia frigida **Willd.** COMPOSITAE — PRAIRIE SAGEWORT. This species is restricted as a native plant to the sandy terraces and rocky bluff prairies along the Mississippi River where the plant is at its eastern range limit. The threatened status does not apply to those plants found in obviously disturbed habitats elsewhere in the state. *Reference:* Mickelson and Iltis (1966:207, 209; map, p. 208).		●		

kshood Read
nitum noveboracense

Prairie Dandelion K. Kohout
Agoseris cuspidata

Carolina Anemone K. Kohout
Anemone caroliniana

Dragon's Mouth Kohout
Arethusa bulbosa

		END	THR	UNK	EXT
Asclepias lanuginosa **Nutt.** ASCLEPIADACEAE	WOOLLY MILKWEED. This small prairie plant occurs in dry localities (sandy to gravelly hillside prairies) which are now very much reduced because of habitat destruction. Field observations suggest that individuals rarely set seed, thus contributing to the species' apparent demise. *References:* Noamesi and Iltis (1957:107-114; Wis. map, p. 112); Woodson (1954: map, p. 176, as *A. nuttalliana*).		●		
Asclepias meadii **Torr.** ASCLEPIADACEAE	MEAD'S MILKWEED. This midwestern prairie endemic is now very rare throughout its entire range. In Wisconsin it has been collected once (twice?) and is now presumed extirpated, not having been found since 1879. *References:* Noamesi and Iltis (1957:111; map, p. 112); Woodson (1954:map, p. 110).				●
Asclepias purpurascens **L.** ASCLEPIADACEAE	PURPLE MILKWEED. This is a species of deep soil mesic to moist prairies, now practically extirpated due to destruction and degradation of its habitat in Wisconsin as well as the Midwest. *References:* Noamesi and Iltis (1957:113; map, p. 112); Woodson (1954:map, p. 119).	●			
Asclepias sullivantii **Engelm.** ASCLEPIADACEAE	PRAIRIE MILKWEED. Due to the nearly complete destruction of mesic prairies, this plant is very rare in Wisconsin. Several stations for this species are protected in the Wisconsin Scientific Areas system. *References:* Noamesi and Iltis (1957:111, 113; map, p. 112); Woodson (1954:map, p. 116).	●			
Ash, blue	See *Fraxinus quadrangulata*				
Asphodel, false	See *Tofieldia glutinosa*				
Asplenium pinnatifidum **Nutt.** POLYPODIACEAE	PINNATIFID SPLEENWORT. This fern has been discovered in the last 20 years on several cliffs within the Driftless Area in Iowa County. These stations of undoubtedly spontaneous plants are remarkably disjunct, being at least 400 miles from the nearest stations in southern Illinois and central Indiana. *References:* Wagner (1968:map, p. 125); Hanson (1970:1-2).	●			
Asplenium trichomanes **L.** POLYPODIACEAE	MAIDENHAIR SPLEENWORT. Due to its habitat requirements (sandstone, limestone or quartzite rocks), this species is known sparingly from only three areas of the state. *Reference:* Tryon et al. (1953:33-34; map, p. 34).		●		
Asplenium viride **Hudson** POLYPODIACEAE	GREEN SPLEENWORT. This arctic species is known in Wisconsin only from Washington Island, Door County, where it was collected in 1926 on a moist shady limestone outcrop. *References:* Hultén (1964:100; map 92); Tryon et al. (1953:33; map, p. 34).			●	
Aster furcatus **Burgess** COMPOSITAE	FORKED ASTER. This well-defined midwestern endemic has a limited range: southern Indiana to southern Missouri and north to eastern Wisconsin, where it prefers to grow in oak woods. Its most recently discovered station in Wisconsin is threatened with recreational home development. *Reference:* Tans and Read (1975:133-134).	●			
Astragalus alpinus **L.** LEGUMINOSAE	ALPINE MILK-VETCH. This arctic and alpine species is known in Wisconsin from one disjunct station in Bayfield County, first collected there in 1926 and still known to exist. According to Professor Neil Harriman (University of Wisconsin-Oshkosh) it was reported to be abundant on the north shore of Pigeon Lake in June, 1973. *References:* Barneby (1964:103-111; map, pp. 106-107); Fassett (1939:67-71; map, p. 71); Hultén (1970:map 42).	●			
Astragalus crassicarpus **Nutt.** *A. caryocarpus* Ker LEGUMINOSAE	GROUND-PLUM. Due to conversion of the prairie habitat of extreme western Wisconsin in which this plant thrives, it is becoming extremely uncommon. In the 1974 field season, three stations of this species were seen in Pierce County. *References:* Barneby (1964:756-758; map, p. 757); Fassett (1939:65-66; maps, pp. 66-67, as *A. caryocarpus*).		●		

		END	THR	UNK	EXT
Astragalus neglectus (T. & G.) Sheldon *A. cooperi* LEGUMINOSAE	COOPER MILK-VETCH. This species, local throughout its range (New York west to eastern North and South Dakota), in Wisconsin is restricted to the extreme eastern part of the state. Preferred habitats are open woods, beach edges and calcareous prairie remnants. *References:* Barneby (1964:593-596; map, p. 594); Fassett (1939:66-67; map, p. 66).	●			
Athyrium pycnocarpon (Spreng.) Tidestr. POLYPODIACEAE	NARROW-LEAVED SPLEENWORT. This is a species of rich mesic woods, which are becoming increasingly rare due to degradation of remnant woodlots. *Reference:* Tryon et al. (1953:37; map, p. 39).		●		
Avens, large-leaved	See *Geum macrophyllum*				
Baptisia tinctoria (L.) R Br. LEGUMINOSAE	WILD INDIGO. Known in Wisconsin from only one recently collected station in Columbia County, this species is included because of the spontaneous nature of the site where the plant exists, and also because of its sporadic occurrence in neighboring states. It is, for example, nearly extirpated in Illinois.	●			
Bartonia virginica (L.) BSP. GENTIANACEAE	SCREW-STEM. An Atlantic Coastal Plain element in the Wisconsin flora, this diminutive plant is rare in damp sandy soil especially in the Central Sand Plain of the state. Due to its small size it may well be more common than the collecting record suggests. *References:* Gillett (1959: map, p. 51); Mason and Iltis (1965:298, map, p. 301).		●		
Beak-rush	See *Rhynchospora* sp.				
Beard tongue, hairy	See *Penstemon hirsutus*				
pale	See *P. pallidus*				
Bilberry dwarf	See *Vaccinium cespitosum*				
Bladderwort	See *Utricularia* spp.				
Blackhaw	See *Viburnum prunifolium*				
Blazing star, dotted	See *Liatris punctata*				
spiked	See *L. spicata*				
Blue-eyed Mary	See *Collinsia verna*				
Bluegrass, bog	See *Poa paludigena*				
Bluets	See *Houstonia caerulea*				
Boneset, upland	See *Eupatorium sessilifolium*				
Botrychium lanceolatum (Gmel.) Rupr. var. *angustisegmentum* Pease & Moore OPHIOGLOSSACEAE	LANCE-LEAVED GRAPE FERN. This small fern has been found in more stations (about 16) than are shown in Tryon et al. (1953). Like other tiny grape ferns and moonworts, this species of northern deciduous woodland may be more overlooked than rare. *References:* Hultén (1958:256; map, p. 237); Tryon et al. (1953:105; map, p. 106).		●		
Botrychium lunaria (L.) Sw. incl. var. *minganense (B. minganense)* OPHIOGLOSSACEAE	MOONWORT. This diminutive fern has been found only several times in Wisconsin, near the Lake Superior shore in Bayfield County and from Cana Island, Door County (by J. T. Curtis, 1952). It grows either in mixed woodland or in stable sand under conifers. *Reference:* Tryon et al. (1953:103; map, p. 102).			●	
Botrychium oneidense (Gilbert) House OPHIOGLOSSACEAE	Found in moist woodland in widely distant parts of the state (Baraboo Hills in Sauk County, Douglas to Ashland Counties), this species is closely related to the much more common *B. multifidum* and *B. dissectum* var. *obliquum.*		●		

		END	THR	UNK	EXT
Botrychium simplex **E. Hitchc.** incl. var. *laxifolium* and var. *tenebrosum* OPHIOGLOSSACEAE	SMALL GRAPE FERN. Apparently rather rare in Wisconsin and neighboring states, although because of its small size it may be frequently overlooked. The plant is found in a variety of habitats, from damp meadows to woods, but prefers shaded open sand where there is a lack of competition. *References:* Hultén (1958:212; map, p. 193); Tryon et al. (1953:101-102; map, p. 101).	●			
Broom-rape, clustered	See *Orobanche fasciculata*				
one-flowered	See *O. uniflora*				
Buckthorn, lance-leaved	See *Rhamnus lanceolata*				
Bush-clover, prairie	See *Lespedeza leptostachya*				
slender	See *L. virginica*				
violet	See *L. violacea*				
Butterwort	See *Pinguicula vulgaris*				
Buttonweed	See *Diodia teres*				
Cacalia muhlenbergii **(Schultz-Bip.) Fern.** COMPOSITAE	GREAT INDIAN-PLANTAIN. This southern woodland species, generally rare in this part of its range, has been made rarer in recent years due to continuing habitat destruction. The plant is sometimes found in disturbed habitats such as old pastures.	●			
Cacalia tuberosa **Nutt.** COMPOSITAE	PRAIRIE INDIAN-PLANTAIN. Due to the nearly total destruction of the deep-soil mesic and moist prairies, this species has become progressively rarer. It is restricted to prairie remnants in the southern two tiers of counties in Wisconsin.		●		
Cactus	See *Opuntia fragilis*				
Cakile edentula **(Bigel.) Hook.** incl. var. *edentula* and var. *lacustris* CRUCIFERAE	SEA ROCKET. Sea rocket is restricted to the beach-strand of Lake Michigan where undeveloped habitats are becoming scarcer. The variety, *lacustris,* may indeed be a distinct species endemic to the Great Lakes while the more uncommon typical variety may represent naturalized material introduced from the Atlantic coast. *References:* Patman and Iltis (1961:34-35; map, p. 36); Rodman (1974:map, p. 120).		●		

K. Kohout

Sea Rocket
Cakile edentula

K. Kohout

Poppy Mallow
Callirhoë triangulata

K. Kohout

Calypso
Calypso bulbosa

K. Kohout

Wild-hya
Camassia scill

		END	THR	UNK	EXT
Calamintha glabella	See *Satureja glabella* var. *angustifolia*				
Calamovilfa longifolia **(Hooker) Scribn.** and its var. *magna* Scribn. & Merrill GRAMINEAE	SAND-REED. The typical variety is found as a native plant in Wisconsin only on sandy barrens and prairies in the extreme northwest. The variety, *magna,* is restricted to dunes and stabilized beaches of Lake Michigan, two increasingly uncommon plant communities in the state. This distinctive variety is an endemic of the shorelines of Lakes Michigan and Huron. *References:* Fassett (1951:50; map, p. 52); Johnson and Iltis (1963:291); Thieret (1960).		●		
Callirhoë triangulata **(Leavenw.) Gray** MALVACEAE	POPPY MALLOW. This strikingly handsome species is restricted in Wisconsin to sandy prairies in the valleys of the Wisconsin and Mississippi Rivers. Though infrequent, in suitable habitats it may be locally common. *Reference:* Utech (1970:316; map, p. 313).		●		
Callitriche hermaphroditica **L.** *C. autumnalis* CALLITRICHACEAE	WATER STARWORT. This diminutive, often sterile, aquatic plant occurs in Wisconsin south to Lincoln County. Known from about six stations, it is easily overlooked and therefore may be undercollected. *Reference:* Hultén (1970:110, 346; map 102).		●		
Callitriche heterophylla **Pursh** CALLITRICHACEAE	WATER STARWORT. Although widespread throughout North America, this species is seemingly very rare here, with only about 7 locations known in Wisconsin. It is apparently equally rare in adjacent states.		●		
Caltha natans **Pall.** RANUNCULACEAE	MARSH-MARIGOLD. Known in Wisconsin from one station in Douglas County, this locality has long been known and reportedly is the southernmost colony in the Western Hemisphere for this circumboreal aquatic plant.	●			
Calypso bulbosa **(L.) Oakes** ORCHIDACEAE	CALYPSO ORCHID. A common orchid in the Pacific Northwest and Canada, this beautiful flower is rare and sporadic everywhere in the Great Lakes region, occurring here in cold coniferous forests and old bogs. *References:* Case (1964:100-101; map, p. 133); Hultén (1964:80; map 71); Fuller (1933:131-132; map, p. 133).		●		
Camassia scilloides **(Raf.) Cory** LILIACEAE	WILD-HYACINTH. Wild-hyacinth is restricted in Wisconsin to damp prairie soil in the southern counties. Intense agricultural utilization has endangered its continued existence in the state. It is believed to be extirpated in Rock County. *Reference:* McIntosh (1950:221; map, p. 225).	●			
Campion, white or snowy	See *Silene nivea*				
Cancer-root	See *Orobanche uniflora*				
Cardamine pratensis **L. var.** ***palustris*** **Wimm. & Grab.** CRUCIFERAE	CUCKOO FLOWER. This is a circumpolar species of bogs and swamps with a continuous range south through eastern Wisconsin but has apparently been extirpated in our southern counties. *References:* Hultén (1970:335; map 72); Patman and Iltis (1961:59, map, p. 60).		●		
Carex artitecta **Mack.** CYPERACEAE	This sedge whose range centers in the eastern United States occurs northwestward to northeastern Illinois and western Michigan. In Wisconsin it is very rare, known disjunctly only from dry woods in Sauk County (Devil's Lake State Park).	●			
Carex assiniboinensis **Boott** CYPERACEAE	This species of the western Great Plains is known from about five sites in northern Wisconsin. Here it is at its eastern range limit where it grows in forests, as in river bottomland, Ashland County, and pine-hardwood forest, Chippewa County.		●		

		END	THR	UNK	EXT
Carex backii **Boott** CYPERACEAE	Very rarely found in Wisconsin in the southwestern quarter of the state and in Door County, this sedge is known from only five collections since 1900. The habitat in which the species is typically found is dry, either rocky or sandy open woodland. *Reference:* Hartley (1959:60).		●		
Carex capillaris **L.** incl. var. *major* Blytt CYPERACEAE	This species belongs to a circumpolar complex. Its range reaches Wisconsin in fir or cedar woods and other boreal habitats. The plant is known from several stations in Bayfield County and Door County (near Bailey's Harbor and North Bay) *Reference:* Hultén (1964:54; map 47).	●			
Carex careyana **Dewey** CYPERACEAE	Moist, deciduous woods in La Crosse and Vernon Counties are the only known sites for this plant in Wisconsin. These localities of this eastern species are disjunct from the closest stations in northwestern Indiana.	●			
Carex concinna **R. Br.** CYPERACEAE	In the upper Great Lakes region this boreal sedge is known only from a few counties around the Straits of Mackinac and Garden Peninsula of Michigan, and from two localities in Door County, both in limestone in the shade of white cedar and balsam fir.	●			
Carex crawei **Dewey** CYPERACEAE	This sedge, mainly restricted to the Lake Michigan shoreline in Door County (calcareous beach swales and limestone flats), is also known from Waushara County (Plainfield Lake), Jefferson County (wet-mesic prairie) and Racine County (clay banks, now probably destroyed).		●		
Carex crus-corvi **Kunze** CYPERACEAE	Only one collection is known of this southern-ranging sedge from Wisconsin, made in Milwaukee County in 1853 by I. Lapham. The plant usually grows in low riverine woodlands.				●
Carex cumulata **(Bailey) Fern.** CYPERACEAE	This sedge is known in Wisconsin only from Clark, Jackson and La Crosse Counties, where it is disjunct from its closest stations in northeastern Illinois and the Upper Peninsula of Michigan. It typically grows in moist sand in burned-over areas.	●			
Carex exilis **Dewey** CYPERACEAE	Only recently recognized as part of Wisconsin's native flora, this sedge is known only from the large bog at Big Bay State Park, Ashland County. In 1974, when first collected by W. Tans, this boreal species was abundant in the open bog mat.	●			
Carex folliculata **L.** CYPERACEAE	In the Great Lakes states, this sedge is very uncommon. Wisconsin's collections all come from Clark, Jackson, Monroe and Juneau Counties, where it grows in wet woods. *Reference:* Tans and Read (1975:136).		●		
Carex formosa **Dewey** CYPERACEAE	This species is known in Wisconsin only from Brown County and Outagamie County (near Appleton). A species of rich mesic woods, it is here at the western edge of its range, somewhat disjunct from the closest stations in central Michigan.	●			
Carex garberi **Fern.** CYPERACEAE	A plant of calcareous beach sands along Lake Michigan, it is now restricted to Door County (it once grew also in Racine County). While not uncommon at a particular station, the species is endangered by the dramatic decrease in undeveloped habitat in Door County.	●			
Carex gracilescens **Steudel** CYPERACEAE	This species reaches its northwestern range limit in the Wisconsin Counties of Jefferson, Waukesha and Milwaukee, growing in deciduous (more or less mesic) woodland.		●		
Carex gynocrates **Drejer** CYPERACEAE	This small, but distinctive sedge is found in cedar swamps and coastal beach swales in the northeastern portion of the state. It may be more common than indicated by collection records.		●		
Carex laevivaginata **(Kuek.) Mack.** CYPERACEAE	The only collections of this species in Wisconsin, the western edge of its range, are from Dane County (2 collections, the last in 1958) and eastern Iowa County (1932). The habitat of this plant is wet woods.	●			

		END	THR	UNK	EXT
Carex livida **(Wahl.) Willd. var.** ***radicaulis*** **Paine** *C. grayana* CYPERACEAE	This circumpolar taxon reaches Wisconsin in Bayfield and Rock Counties, the latter a very disjunct collection made in 1969 from a sphagnum bog, a typical habitat for the species. *References:* Hultén (1958:214; map 196); Musselman et al. (1971).	●			
Carex longii **Mack.** CYPERACEAE	This sedge has a disjunct distribution throughout its midwestern range. In Wisconsin it is known only from sandy sedge meadows in La Crosse County.	●			
Carex lupuliformis **Dewey** CYPERACEAE	Until recently, this species was known in Wisconsin solely from old Milwaukee County collections. The plant grows in low, mainly alluvial, woodland. In 1975, this species was found in such a habitat in Columbia County by J. H. Zimmerman.	●			
Carex meadia **R. Br.** CYPERACEAE	Though the only verified collection of this circumpolar species in Wisconsin is from a cliff near Glenhaven in Grant County, Dr. James Zimmerman reports its occurrence on a cold cliff along the Yellow River in Iowa. The plant has been again collected from near Glenhaven by Dr. Paul Sorenson in 1975. These stations, both within the Driftless Area, are quite disjunct from the closest stations in upper Michigan, Minnesota and Canada. *Reference:* Hultén (1964:36; map, p. 29—the origin of the dot near Ashland is not known).	●			
Carex michauxiana **Boeckl.** CYPERACEAE	All the Wisconsin collections for this boreal sedge are from near the Lake Superior shoreline of the Bayfield Peninsula and Apostle Islands (Stockton and Madeline), where it grows in sphagnum bogs. *Reference:* Tans and Read (1975:136-137).	●			
Carex pallescens **L. var.** ***neogaea*** **Fern.** CYPERACEAE	An arctic sedge which extends south into Wisconsin only in the extreme north, it is thus far known only from a collection on Madeline Island, Ashland County. It usually grows in cedar swamps.	●			
Carex prasina **Wahl.** CYPERACEAE	An eastern North American species of rich deciduous woods, this species has a disjunct population in the Baraboo Hills of Sauk County in and near Devil's Lake State Park.	●			
Carex richardsonii **R. Br.** CYPERACEAE	This species has a very limited flowering and fruiting period in spring or early summer which may partially account for the rarity of its records. It grows in dry prairie (especially on bluff and sand prairie), and on wooded edges of prairies.		●		
Carex schweinitzii **Schw.** CYPERACEAE	This sedge is known in Wisconsin only from a collection made by Dr. James Zimmerman in Iowa County. This station is at the western edge of its main range, where it is always a very localized species of cold, springy areas.	●			
Carex straminea **Willd.** CYPERACEAE	An Atlantic Coastal Plain species, this plant is disjunct in Wisconsin in Jackson and La Crosse Counties within the Driftless Area, where it grows in sedge meadows and on swamp borders.	●			
Carex suberecta **(Olney) Britton** CYPERACEAE	This plant of sedge meadows reaches its northern limits in the southern Wisconsin Counties of Jefferson, Rock and Walworth, where it is known from one station in each of these counties.	●			
Carex swanii **(Fern.) Mack.** CYPERACEAE	At the extreme northwestern edge of its natural range, this species is known in Wisconsin only from sandy, open woodland in Kenosha and Racine Counties, from where no collections have been made since 1900.			●	
Carex sychnocephala **Carey** CYPERACEAE	This peculiar sedge's rarity may be largely due to its ecological restriction to sandy or mucky, drying lake or river shores. It is known in only a few stations in Wisconsin, mostly in the northern half of the state. *Reference:* Hartley (1959:61).		●		

		END	THR	UNK	EXT
Carex tenuiflora **Wahl.** CYPERACEAE	This small plant grows in sphagnum bogs and wet woods. Though ranging south to Racine, Ozaukee and Milwaukee Counties, it is found generally north of the Tension Zone.		●		
Carex torreyi **Tuckerm.** CYPERACEAE	A species of western North America, *C. torreyi* reaches its eastern limits in sedge meadows of extreme western Wisconsin, with only two known collections, one each from Trempealeau and St. Croix Counties.	●			
Carex vaginata **Tausch** CYPERACEAE	This circumpolar species reaches its southern range limit in northern Wisconsin where it is known from stations in Oneida and Florence Counties in mossy, conifer swamplands. *Reference:* Hultén (1964:88, map 79).	●			
Cassia marilandica **L.** *C. medsgeri* LEGUMINOSAE	WILD-SENNA. This species had its northern range limit in southernmost Wisconsin where it was last collected in 1911 in Grant County. It was also reported from near Avoca, Iowa County (cf. Fassett) where the similar *C. hebecarpa*—a more common species—has also been collected. *References:* Fassett (1939:26, as *C. medsgeri;* map, p. 23, mapped as *C. medsgeri;* total range map, p. 23, mapped as *C. medsgeri*).			●	
Catabrosa aquatica **(L.) Beauv.** GRAMINEAE	BROOK GRASS. A western and northern North American species, brook grass reaches its southeastern range limit in Wisconsin, where it is known from cold springs in St. Croix (1934) and Adams (1963) Counties. *References:* Fassett (1951:28; map, p. 31); Hitchcock (1951:169-170; map, p. 169).	●			
Chaerophyllum procumbens **(L.) Crantz** UMBELLIFERAE	WILD CHERVIL. To those people familiar with this species' commonness to the south of Wisconsin, it may be hard to think that wild chervil would be threatened anywhere. Yet, in Wisconsin, this plant is known only from alluvial forests along the Sugar River (Rock County) and Platte River (Grant County). *References:* Fassett (1941:5;map 5); Tans and Read (1975:137).		●		
Chervil, wild	See *Chaerophyllum procumbens*				
Cirsium hillii **(Canby) Fern.** *C. pumilum* (Nutt.) Spreng. ssp. *hillii* (Canby) Moore & Frankton COMPOSITAE	HILL'S THISTLE. Like many other associated species, the destruction and degradation of prairies in Wisconsin has contributed to a drastic decline of this plant. *References:* Johnson and Iltis (1963:285-286; map, p. 287); Mickelson and Iltis (1966:range map, p. 216).		●		
Cirsium pitcheri **(Torr.) T. & G.** COMPOSITAE	DUNE THISTLE. A magnificent Great Lakes endemic with an appearance unlike any other thistle in Wisconsin, is here restricted to sand dunes and stabilized beaches, a rare Wisconsin community along the Lake Michigan coast. *References:* Johnson and Iltis (1963:290-292; range map, p. 291; Wisconsin map, p. 293); Guire and Voss (1963:101-102; map, p. 102).	●			
Cliff-brake, purple	See *Pellaea atropupurea*				
Clover, villous prairie-	See *Petalostemum villosum*				
Collinsia verna **Nutt.** SCROPHULARIACEAE	BLUE-EYED MARY. This plant in Wisconsin is at the northern edge of its range. Collected in 1931 at Janesville, Rock County, it has not been collected since. The habitat of blue-eyed Mary is rich woods. *References:* Musselman et al. (1971:185); Pennell, (1935:293-297; map, p. 295).			●	
Collinsonia canadensis **L.** LABIATAE	STONEROOT. This eastern North American species, at the western edge of its range in Wisconsin, is known from two collections, the last made in 1940 in a rich deciduous woods in Walworth County. *Reference:* Koeppen (1957:139; map, p. 138).			●	

	END	THR	UNK	EXT
Comandra, northern See *Geocaulon lividum*				
***Commelina erecta* L. var. *deamiana* Fern.** COMMELINACEAE — NARROW-LEAVED DAY FLOWER. All Wisconsin collections of this plant occur in Sauk County on sandy ledges, and on and below cliffs where competition is sparse. In Sauk County it is considerably disjunct from its nearest stations in northeastern Illinois.	●			
Cone flower, purple See *Echinacea pallida*				
***Conioselinum chinense* (L.) BSP.** UMBELLIFERAE — HEMLOCK-PARSLEY. This species, part of a circumpolar complex, is an extremely rare native member of our flora despite its specific epithet. The last Wisconsin collection was made in Milwaukee County (1939 in an old tamarack swamp), with earlier collections from Walworth County, and from Waukesha County on the edge of a marly pool. *Reference:* Hultén (1970:126, 350; map 117 as *Conioselinum tataricum*).			●	
***Corallorhiza odontorhiza* (Willd.) Nutt.** ORCHIDACEAE — FALL CORAL-ROOT. An orchid of spotty distribution in the Great Lakes region, it is found in the southern portion of the state especially in dry-mesic woodlands. *References:* Case (1964:105; map, p. 135); Fuller (1933:139; map, p. 141).		●		
Coral-root, fall See *Corallorhiza odontorhiza*				
***Coreopsis lanceolata* L. var. *lanceolata* L.** COMPOSITAE — SAND COREOPSIS. While some varieties and cultivars are commonly planted in Wisconsin, this species in its native habitat—sand prairie and ridges primarily along the Lake Michigan shore—has become very local due to habitat destruction. *Reference:* Melchert (1960: map 38).		●		
Cowberry See *Vaccinium vitis-idaea*				
Cranberry, mountain See *Vaccinium vitis-idaea*				
Cress, lake See *Armoracia aquatica*				
Crowfoot, seaside See *Ranunculus cymbalaria*				
Yellow water See *R. gmelinii*				
Cubelium See *Hybanthus*				

l Chervil K. Kohout
erophyllum procumbens

Dune Thistle Schulenberg
Cirsium pitcheri

Stoneroot Schulenberg
Collinsonia canadensis

White Lady's Slipper K. Kohout
Cypripedium candidum

		END	THR	UNK	EXT
Cucumber-root, Indian	See *Medeola virginiana*				
Cuckoo flower	See *Cardamine pratensis*				
Cudweed	See *Gnaphalium*				
Currant, northern black	See *Ribes hudsonianum*				
Cypripedium arietinum **R. Br.** ORCHIDACEAE	RAM'S-HEAD LADY'S-SLIPPER. Usually found in cold conifer swamps, open alkaline sedge swales with white cedar and on loose sand under pines such as on the back side of sand dunes, this species is very rare in Wisconsin, having been found in a few counties principally in the northeastern portion of the state. Status in U.S.: Threatened. *References:* Case (1964:41-42; map, p. 111); Fuller (1933:62-63; map, p. 71).	●			
Cypripedium calceolus ***L. var. parviflorum*** **(Salisb.) Fern.** ORCHIDACEAE	SMALL YELLOW LADY'S-SLIPPER. Much less common than the large flowered variety (var. *pubescens*), this orchid is found in open calcareous swales, bogs and wet woods mostly in the southeastern and northwestern quarters of the state. Suitable habitats, especially in the fast developing southeastern part of the state, are disappearing. *References:* Case (1964:43-44; map. p. 112); Fuller (1933:67-68; map, p. 69); Hulten (1958:280; map 261).		●		
Cypripedium candidum Muhl. ORCHIDACEAE	WHITE LADY'S SLIPPER. Although sometimes locally abundant where found, the total number of stations for this fen or calcareous wet prairie plant is decreasing due to habitat drainage, plowing and grazing. It is found primarily in the southern half of the state. Status in U.S.: Threatened. *References:* Case (1964:44-45, map, p. 113); Fuller (1933:70, 72; map, p. 71).	●			
Cypripedium reginae **Walt.** ORCHIDACEAE	SHOWY LADY'S-SLIPPER. Widespread in conifer swamps and bogs (often alkaline ones associated with white cedar), this species has the largest and perhaps most attractive flower of any orchid in Wisconsin, hence is overly susceptible to picking and digging. *References:* Case (1964:45-46; map, p. 113); Fuller (1933:74,76; map, p. 75).		●		
Dandelion, prairie	See *Agoseris cuspidata*				
Dasistoma macrophylla **(Nutt.) Raf.** *Seymeria macrophylla* SCROPHULARIACEAE	MULLEIN FOXGLOVE. Mullein foxglove is known in Wisconsin only from dry wooded slopes along the Mississippi River in Grant County, where it is known from only four stations. It is at its northernmost limit of its range. *References:* Pennell (1935:405-407; map, p. 384); Salamun (1951:134; map, p. 35).	●			
Day flower	See *Commelina*				
Dentaria maxima **Nutt.** CRUCIFERAE	TOOTHWORT. In Wisconsin this taxon is known only from one population in Ashland County where it was reported abundant in 1961 (see Patman and Iltis, 1961). The plant is probably a stabilized hybrid between *Dentaria diphylla* and *D. laciniata. References:* Patman and Iltis (1961:55-57; map, p. 60); Montgomery (1955: map, p. 165).			●	
Deschampsia cespitosa **(L.) Beauv.** incl. all native varieties GRAMINEAE	HAIR GRASS. Rocky or sandy shores of lakes and rivers and along cold springs are the primary habitats of this circumboreal grass in the state. It is rarely encountered, however. *Reference:* Fassett (1951:43; map, p. 49).		●		

		END	THR	UNK	EXT
Deschampsia flexuosa **(L.) Beauv.** GRAMINEAE	HAIR GRASS. This circumpolar complex enters Wisconsin only in the region of Lake Superior and Green Bay, where it is found on limestone shores, on sandy beaches, in thin woodland, and sometimes in pine barrens. Recent field observations in the northwestern part of the state suggest that this species may be more common than Fassett (1951) or herbarium records indicate, but threatened status still seems appropriate at this time. *References:* Fassett (1951:43; map, p. 44); Hultén (1958:250; map 232).		●		
Diarrhena americana **Beauv.** GRAMINEAE	BEAK GRASS. This grass is known from only three localities in the state in Rock, Monroe and Lafayette Counties where, in rich low woods, it is near its northern range limit. *References:* Hitchcock (1951:171; map, p. 172); Iltis et al. (1960:200).	●			
Didiplis diandra **(Nutt.) Wood.** *Peplis diandra* LYTHRACEAE	WATER-PURSLANE. A diminutive aquatic, this species is restricted in Wisconsin to shallow, muddy to sandy habitats in the Driftless Area. It is known from about a dozen stations, mostly along the Mississippi River and northern Juneau County. *Reference:* Ugent (1962:90; map, p. 89).		●		
Diodia teres **Walt. var.** ***setifera*** **Fern & Grisc.** RUBIACEAE	BUTTONWEED. The only naturally occurring and persistent station in Wisconsin for this common southern U.S. plant is on open sands north and west of Arena, Iowa County. Since first collected there already in 1925, it is presumably native several hundred miles disjunct from its continuous range limit in Illinois. *Reference:* Urban and Iltis (1957:94; map, p. 92).	●			
Dodecatheon amethystinum **(Fassett) Fassett** *D. radicatum* Greene, in part PRIMULACEAE	JEWELLED SHOOTING STAR. This species in Wisconsin is totally restricted to shaded, damp, limy, sandstone cliffs of the Driftless Area along the Mississippi River. The closest stations outside the Driftless Area of closely related taxa are widely disjunct both to the Rocky Mountains and to Pennsylvania (see Iltis and Shaughnessy, 1960, for discussion). Reports of *D. frenchii* from Wisconsin are based on misidentifications. *Reference:* Iltis and Shaughnessy (1960:119-123; map, p. 120).		●		
Draba arabisans **Michx.** CRUCIFERAE	This species is restricted to crevices and ledges in dry limestone cliffs along the Niagara escarpment in eastern Wisconsin, where it is known from three stations. *References:* Hultén (1970:64, 327; map 56); Patman and Iltis (1961:22; map, p. 25).	●			
Draba lanceolata **Royle** CRUCIFERAE	This species has been collected only once in Wisconsin, from a limestone cliff at Fish Creek, Door County, in 1933. *Reference:* Patman and Iltis (1961:23; map, p. 25).			●	
Dragon's mouth	See *Arethusa bulbosa*				
Drosera anglica **Huds.** DROSERACEAE	SUNDEW. This circumpolar species is known in this state from only three stations in northernmost Wisconsin near Lake Superior. The last collection was made in 1923. One of the stations is the gigantic Kakogan Slough, Ashland County, where plants may still exist. *References:* Hultén (1970:106; map 97); Wynne (1944:172-173; map, p. 167); Livergood (1932:235; map, p. 236).			●	
Drosera linearis **Goldie** DROSERACEAE	SUNDEW. This bog species is known in Wisconsin from a few pre-1900 collections near Lake Superior, the St. Croix River, Columbia County, Jefferson County, and the most recent collection from Cedarburg Bog (Ozaukee County) in 1937. It is known to still grow in Cedarburg Bog Scientific Area. *References:* Livergood (1932:235; map, p. 236); Wynne (1944:172; map, p. 167).	●			
Dryopteris fragrans **(L.) Schott var.** ***remotiuscula*** **Komorov** POLYPODIACEAE	FRAGRANT FERN. A circumpolar plant, it occurs in six stations in Wisconsin on sandstone (e.g., at the Dells of the Wisconsin River) and igneous rocks (e.g., at St. Croix Falls). *References:* Hultén (1964:34; map 27); Tryon et al. (1953:50-52; map, p. 47).	●			

		END	THR	UNK	EXT
Dryopteris hexagonoptera	See *Thelypteris hexagonoptera*				
Dryopteris robertianum	See *Gymnocarpium robertianum*				
Dryopteris simulata	See *Thelypteris simulata*				
Echinacea pallida **Nutt.** COMPOSITAE	PURPLE CONE FLOWER. A species of mesic to dry prairies, this attractive plant has become increasingly rare with the extermination of this community. It is known as native from Dane, Green, Rock and Grant Counties.		●		
Eclipta alba **(L.) Hassk.** COMPOSITAE	YERBA DE TAJO. A widespread pantropical to pantemperate weed, in Wisconsin it is a sporadic native in lowland forests and sloughs along the Mississippi River, with only three collections known, one from Grant County (1915) and two from Crawford County (1933 and 1940).	●			
Elatine triandra **Schk.** ELATINACEAE	WATERWORT. This obscure aquatic plant is known from scattered locations throughout the state. Circumpolar in distribution, as with many water plants, its stations around the globe are often widely disjunct. *Reference:* Hultén (1970:144, 362; map 136).	●			
Eleocharis engelmannii **Steudel** CYPERACEAE	SPIKE-RUSH. Most of the records for this species in the state come from moist sand (such as drying lake beds) in the southwestern quarter of the state, especially in the sandy counties of Juneau and Adams. While it has a widespread range across the continent, *E. engelmannii* is very uncommon in the western Great Lakes states. *Reference:* Greene (1953:62; map, p. 56).	●			
Eleocharis equisetoides **(Ell.) Torr.** CYPERACEAE	KNOTTED SPIKE-RUSH. This species is known in Wisconsin only from Lake Wingra, Dane County, from collections made in 1893. It is primarily an Atlantic Coastal Plain taxon. *Reference:* Greene (1953:52).				●
Eleocharis olivacea **Torr.** CYPERACEAE	SPIKE-RUSH. Chiefly a plant of the Atlantic Coastal Plain, its range inland to the Great Lakes is local. In Wisconsin this spike-rush is found on shallow lakeshores and in bogs, and it is known from less than ten stations scattered throughout the state. *Reference:* Greene (1953:62; map, p. 56).		●		

Diemer

Amethyst Shooting-star
Dodecatheon amethystinum

Read

Linear-leaved Sundew
Drosera linearis

Halama

Purple Coneflower
Echinacea pallida

K. Kohout

Yerba de Ta
Eclipta al

		END	THR	UNK	EXT
Eleocharis pauciflora **(Lightf.) Link var.** ***fernaldii*** **Svenson** CYPERACEAE	SPIKE-RUSH. This species is found mainly on calcareous sand or marly shores and flats but has also been found in bogs. It is restricted to the eastern half of the state, west to Waushara County. *Reference:* Greene (1953:52, map, p. 56).		●		
Eleocharis quadrangulata **(Michx.) R. & S.** CYPERACEAE	SPIKE-RUSH. Known from three stations, one each in Kenosha, Walworth and Adams Counties, this spike-rush of shallow lake beds is probably extirpated in Wisconsin. A thorough investigation of the Adams County station by W. E. Tans and K. Lange in 1974 failed to reconfirm the plant's former occurrence. *Reference:* Greene (1953:52; map, p. 55).			●	
Eleocharis robbinsii **Oakes** CYPERACEAE	SPIKE-RUSH. A species of shallow water and damp shorelines, this plant has been found primarily in the northern half of the state. *Reference:* Greene (1953:52; map, p. 55).		●		
Eleocharis rostellata **Torr.** CYPERACEAE	BEAKED SPIKE-RUSH. This interesting species is restricted in Wisconsin to highly calcareous sites, such as marl flats, in its southeastern portions. It has been found in four stations, one each in Kenosha, Racine, Walworth, and Waukesha Counties. *Reference:* Tans and Read (1975:137-138).	●			
Eleocharis wolfii **Gray** CYPERACEAE	A very local plant throughout its range, this species has been found twice, in wet, acidic sand in Juneau County in 1930 and 1950. *Reference:* Greene (1953:62, map, p. 56).			●	
Epilobium palustre **L.** ONAGRACEAE	WILLOW-HERB. This is a circumpolar complex which extends south to the Tension Zone of the state. Collections have been made in recent years from wet conifer woods and bogs. *References:* Hultén (1970:124; map 115); Ugent (1962:99; map, p. 95).	●			
Epilobium strictum **Muhl.** ONAGRACEAE	WILLOW-HERB. This species is found scattered throughout the state in a variety of wet habitats: marshes, bogs, fens, lakeshores. *Reference:* Ugent (1962:98; map, p. 95).		●		
Equisetum palustre **L.** EQUISETACEAE	MARSH HORSETAIL. This is a circumpolar species ranging as far south as the extreme northwest portion of the state and along Lake Michigan (also Trempealeau County). Its preferred habitat is along shores of rivers and lakes. *References:* Hauke (1965:338, 340; map, p. 339); Hultén (1964:98; map 89).		●		
Equisetum variegatum **Schleich.** EQUISETACEAE	VARIEGATED HORSETAIL. In Wisconsin this plant is restricted to wet, sandy (often calcareous) habitats near the shores of Lake Michigan and Lake Superior. Suitable habitats for this circumpolar species in this state are decreasing due to shoreline development. A hybrid between *E. variegatum* and *E. laevigatum,* known from four southeastern counties, is *E. nelsonii* (*E. variegatum* var. *nelsonii*). *References:* Hauke (1965:344-345; map, p. 343); Hultén (1964:52; map 45).		●		
Erigenia bulbosa **(Michx.) Nutt.** UMBELLIFERAE	HARBINGER-OF-SPRING. This plant once reached its northern range limit in southeastern Wisconsin north to Fond du Lac County, in rich, mesic woods. Harbinger-of-Spring now occurs only in Milwaukee County, its rarity largely due to the destruction of suitable habitats. *Reference:* Fassett (1941:5; map 5).	●			
Eupatorium sessilifolium **L. var.** ***brittonianum*** **Porter** COMPOSITAE	UPLAND BONESET. Upland boneset is a species of well-drained woods (usually somewhat open) and is restricted in Wisconsin to counties south of Vernon, Sauk and Jefferson. The plant is becoming increasingly rare due to habitat destruction. *Reference:* Johnson and Iltis (1963:266; map, p. 265).		●		
Euphorbia commutata **Engelm.** EUPHORBIACEAE	TINTED SPURGE. This spurge has been known from one station in Rock County (Big Hill Park) since 1861, where it grows in mesic woods. The species still exists there but is reportedly now threatened with residential development. *References:* Fassett (1933:184); Musselman et al. (1971:177).	●			

		END	THR	UNK	EXT
Euphorbia obtusata **Pursh** EUPHORBIACEAE	BLUNT-LEAVED SPURGE. This species is known in Wisconsin only from the Sugar River bottomland, Rock County, where it was first collected in 1957. *Reference:* Musselman et al. (1971:177).	●			
Euphorbia polygonifolia **L.** EUPHORBIACEAE	SEASIDE SPURGE. Seaside spurge is found in Wisconsin only on sand beaches of Lake Michigan, a rare habitat here on the west side of the lake. *References:* Fassett (1933:181; map, p. 183); Guire and Voss (1963:106; map, p. 108).		●		
Evening-primrose, toothed-leaved	See *Oenothera serrulata*				
Fern	See *Asplenium* spp., *Athyrium* sp., *Botrychium* sp., *Dryopteris* sp., *Gymnocarpium* sp., *Ophioglossum* sp., *Pellaea* sp., *Polysticum* spp., *Thelypteris* spp., *Woodsia* sp.				
Fescue	See *Festuca* spp.				
Festuca occidentalis **Hooker** GRAMINEAE	WESTERN FESCUE. This is a species of western North America with disjunct populations in the upper Great Lakes region. In Wisconsin this grass is known only from Door County where it has been collected several times on wooded shores near Lake Michigan. *References:* Fassett (1951:18; map, p. 19); Tans and Read (1975:136).	●			
Festuca paradoxa **Desv.** *F. shortii* GRAMINEAE	This grass of the southern United States is known in Wisconsin from sedge meadows along the Wisconsin River in Iowa and Dane Counties. It was last collected in the state in 1947. *References:* Fassett (1951:16; map, p. 19); Hitchcock (1951:69-70; map, p. 70).			●	
Fimbristylis puberula **(Michx.) Vahl** *F. drummondii* CYPERACEAE	In Kenosha County, at the Chiwaukee Prairie Scientific Area and environs, this species reaches its northern range limit. It is the only place in the state in which *F. puberula* has been found. *Reference:* Kral (1971:map, p. 266, does not show Wisconsin collection, but does show total range of species).	●			
Fleabane, marsh-	See *Senecio congestus*				
Foamflower	See *Tiarella cordifolia*				
Forget-me-not, small	See *Myosotis laxa*				
Foxglove, eared false	See *Tomanthera auriculata*				
mullein	See *Dasistoma macrophylla*				
pale false	See *Gerardia skinneriana*				
round-stemmed false	See *Gerardia gattingeri*				
Fraxinus quadrangulata **Michx.** OLEACEAE	BLUE ASH. This small tree reaches its northern range limit in mesic woods of southern Wisconsin. The only known extant station, within a Waukesha County park, has been designated a state scientific area. *Reference:* Little (1971:map 128-E; not exactly accurate for Wisconsin distribution).	●			
Gentian, narrow-leaved	See *Gentiana procera*				
white prairie	See *G. alba*				
Gentiana alba **Muhl.** *G. flavida* **Gray** GENTIANACEAE	WHITE PRAIRIE GENTIAN. Due to the habitat destruction of deep-soil prairies in the southern half of Wisconsin where this species once prospered, the white prairie gentian is becoming progressively rarer. In addition, gentians, being conspicuous in flower, are susceptible to picking which destroys not only their reproductive capabilities, but the vitality of the individual plant itself. *Reference:* Mason and Iltis (1965:300, 302-303; map, p. 301).		●		

		END	THR	UNK	EXT
***Gentiana procera* Holm** *Gentianopsis procera* GENTIANACEAE	NARROW-LEAVED FRINGED GENTIAN. Though this beautiful species may be locally common at certain stations in the limestone region of eastern Wisconsin (growing in wet, calcareous prairies, fens, and in swales of beach ridges), it has become rather restricted due largely to habitat degradation. An annual or biennial, it does not tolerate picking. This species is also local in states neighboring Wisconsin. *Reference:* Mason and Iltis (1965:313-314 as *Gentianopsis procera*; map, p. 310).		●		
***Geocaulon lividum* (Richards.) Fern.** *Comandra livida* SANTALACEAE	NORTHERN COMANDRA. This interesting northern plant is restricted in Wisconsin to Door County, at Bailey's Harbor and Jackson Harbor, where it grows on shaded to semi-shaded sand beach ridges.	●			
Gerardia	See also *Tomanthera*				
***Gerardia gattingeri* Small** SCROPHULARIACEAE	ROUND-STEMMED FALSE FOXGLOVE. A rare plant of open dry woodlands and dry prairies, but also of calcareous wet prairies, this has been collected less than six times this century. It is known presently to grow in Devil's Lake State Park and on Chiwaukee Prairie Scientific Area, Kenosha County. *References:* Pennell (1935:473-475; map, p. 474); Salamun (1951:136; map, p. 126).		●		
***Gerardia skinneriana* Wood** SCROPHULARIACEAE	PALE FALSE FOXGLOVE. This is a rare plant throughout its range, found in dry and calcareous prairies. In Wisconsin, habitat destruction especially endangers this species. *References:* Pennell (1935:468-470; map, p. 469); Salamun (1951:136; map, p. 127).	●			
***Geum macrophyllum* Willd.** **var. *perincisum* (Rydb.) Rauˆ** ROSACEAE	LARGE-LEAVED AVENS. This northern and western species has been found as a presumably native plant only once, in 1929 by Fassett in Washburn County. *Reference:* Mason and Iltis (1958:84).			●	
Giant-hyssop, yellow	See *Agastache nepetoides*				
Ginseng	See *Panax quinquefolius*				
***Glycyrrhiza lepidota* (Nutt.) Pursh** LEGUMINOSAE	LICORICE. This species of the western United States reaches its natural eastern range limit in extreme western Wisconsin where it grows on shaded, sandy to stony lakeshores (e.g., Lake St. Croix, Lake Pepin). *Reference:* Fassett (1939:79-80; map, p. 79).		●		
***Gnaphalium obtusifolium* L. var. *saxicola* (Fassett) Cronq.** COMPOSITAE	CUDWEED. This variety (considered a distinct species by Fassett) is known solely from dry, sandstone cliff ledges in the Wisconsin Dells area. Dr. H. H. Iltis (pers. comm.) suggests that it may be only a cliff ecotype. Status in U.S.: Endangered. *Reference:* Beals and Peters (1966:240-241; map, p. 238).	●			
Goldenrod, blue-stemmed	See *Solidago caesia*				
cliff	See *S. sciaphila*				
dune	See *S. spathulata*				
Ohio	See *S. ohioensis*				
Golden seal	See *Hydrastis canadensis*				
Grape fern, lanced-leaved	See *Botrychium lanceolatum*				
small	See *Botrychium simplex*				
Grass (true)	See *Agropyron* sp., *Calamovilfa* sp., *Catabrosa* sp., *Deschampsia* spp., *Diarrhena* sp., *Festuca* spp., *Melica* spp., *Oryzopsis* sp., *Poa* sp., *Trisetum* sp.				

		END	THR	UNK	EXT
Grass-of-parnassus	See *Parnassia* spp.				
Ground-plum	See *Astragalus crassicarpus*				
Gymnocarpium robertianum **(Hoffm.) Newm.** *Dryopteris robertiana* POLYPODICEAE	NORTHERN OAK FERN. This boreal forest fern occurs in Wisconsin in Door County, and in Bayfield County near Lake Superior on shaded sandstone outcrops as well as in conifer swampland. The last collection was made in 1940, but it likely still occurs in the state since it closely resembles the common *G. disjuncta,* and is therefore probably not often collected. *References:* Tryon et al. (1953:70-71; map, p. 70, as *Dryopteris robertiana*); Wagner (1966:map, p. 124).	●			
Gymnocladus dioica **(L.) K. Koch** LEGUMINOSAE	KENTUCKY COFFEE-TREE. This tree, at the northwestern edge of its natural range in southern Wisconsin, is presumed native in mesic to wet-mesic deciduous woods (even though its large, hard seeds may have been introduced by aboriginal Indians). The species has been used as an ornamental shade tree in the state and such specimens are not covered by the threatened status. *References:* Curtis (1959:463); Fassett (1939:21; map, p. 21).		●		
Habenaria dilatata **(Pursh) Hook.** ORCHIDACEAE	TALL WHITE BOG ORCHID. This is an orchid of swales, bogs and wet woods, widely distributed but very rare in some parts of its range, as in Wisconsin where it is found scattered throughout. Tall white bog orchid is very similar to the common *Habernaria hyperborea* and is often confused with it. *References:* Case (1964:55-56; map, p. 116); Fuller (1933:86-89; map, p. 87).	●			
Habenaria flava **(L.) Sprengel var.** ***herbiola*** **(R. Br.) Ames & Correll** ORCHIDACEAE	TUBERCULED ORCHID. In our area this plant is found most often in wet prairies and meadows, and in alder thickets. Most of the stations are in the southern half of the state. Status in U.S.: Threatened (as *Platanthera flava*). *References:* Case (1964:56-57; map, p. 117); Fuller (1933:84-85; map, p. 87).		●		
Habenaria hookeri **Torr.** ORCHIDACEAE	HOOKER'S ORCHID. Hooker's orchid is found scattered throughout the state in undisturbed woodland (mesic to wet, but sometimes dry woods). Degradation and destruction of suitable habitats in the state have undoubtedly contributed to its rarity. *References:* Case (1964:57-58; map, p. 117); Fuller (1933:92-93; map, p. 93).		●		
Habenaria leucophaea **(Nutt.) Gray** ORCHIDACEAE	PRAIRIE WHITE-FRINGED ORCHID. This is a very rare orchid in Wisconsin as well as in adjacent states, largely due to the systematic and nearly total destruction of its habitat—the prairie. Preservation of this plant in the state is insured by populations in several state scientific areas. Status in U.S.: Threatened (as *Platanthera leucophaea*). *References:* Case (1964:60-61; map, p. 119); Fuller (1933:96; map, p. 97).	●			
Habenaria orbiculata **(Pursh) Torr.** ORCHIDACEAE	ROUND-LEAVED ORCHID. This orchid of moist to fairly dry (mainly coniferous) woodland has distinct eastern and western North American ranges. In the eastern range, the species is found but sporadically, as in Wisconsin where stations are scattered mainly north of the Tension Zone. *References:* Case (1964:62-63; map, p. 120); Fuller (1933:94-95; map, p. 93).		●		
Hair grass	See *Deschampsia* spp.				
Harbinger-of-Spring	See *Erigenia bulbosa*				
Haw, black	See *Viburnum prunifolium*				
Hemlock-parsley	See *Conioselinum chinense*				

		END	THR	UNK	EXT
Hibiscus palustris **L.** *Hibiscus moscheutos* **ssp.** *palustris* **(L.) Clausen** MALVACEAE	SWAMP ROSE-MALLOW. Primarily a species of the Atlantic Coastal Plain and Mississippi Embayment, it ranges inland in marshes. Swamp rose-mallow is known in Wisconsin from only one 1889 Rock County collection, and is probably also extirpated as a native plant in Illinois. *Reference:* Utech (1970:320).				●
Holly fern, Braun's	See *Polystichum braunii* var. *purshii*				
Honeysuckle, fly	See *Lonicera involucrata*				
Hop-tree	See *Ptelea trifoliata*				
Horsetail	See *Equisetum* spp.				
Houstonia caerulea **L.** RUBIACEAE	BLUETS. It is hard to believe that this ubiquitous southern species should be considered endangered anywhere. However in southern Wisconsin the species reaches its range limit in damp meadows and open woods, and is very rare due to habitat degradation. *Reference:* Urban and Iltis (1957:93; map, p. 92).	●			
Hyacinth, wild-	See *Camassia scilloides*				
Hybanthus concolor **(T. F. Forst.) Spreng.** *Cubelium concolor* VIOLACEAE	GREEN VIOLET. This plant has been known in Wisconsin from a single station in Grant County as late as the 1960's. The rich mesic woods in which it grew has been heavily grazed, and a recent search for the plant failed to find it. The closest natural populations of this plant occur in central Illinois and northwestern Indiana.			●	
Hydrastis canadensis **L.** RANUNCULACEAE	GOLDEN SEAL. A plant of rich mesic woods, this species has been greatly reduced because of habitat degradation and depletion due to its intense gathering by herb collectors for its folk medicinal uses.		●		
Hypericum sphaerocarpum **Michx.** HYPERICACEAE	ROUND-FRUITED ST. JOHN'S WORT. In Wisconsin this species is known only from wet prairies along or near the Rock and Sugar Rivers in Rock and Green Counties. It has more recently been collected from railroad ballast, but such obvious introductions are not included under threatened status. *Reference:* Utech and Iltis (1970:336; map, p. 330).		●		
Hyssop, yellow giant-	See *Agastache nepetoides*				
Indian-plantain, great **prairie**	See *Cacalia muhlenbergii* See *C. tuberosa*				
Indigo, wild	See *Baptisia tinctoria*				
Iris lacustris **Nutt.** *Iris cristata* ssp. *lacustris* (Nutt.) Iltis IRIDACEAE	DWARF LAKE IRIS. A beautiful small iris closely related to the southern calciphile *Iris cristata,* it is endemic to the shorelines of upper Lakes Michigan and Huron. In Wisconsin the plant is now found only in Door County on sandy beach ridges and under conifers in thin humus over dolomite. It often grows in large colonies, and it is hard to believe that it would have such a limited total range. The species apparently grew in Milwaukee County but has long since been extirpated there. Status in U.S.: Threatened. *References:* Guire and Voss (1963:100-101; map, p. 101); Mason and Iltis (1965:322, footnote).	●			
Jeffersonia diphylla **(L.) Pers.** BERBERIDACEAE	TWINLEAF. A species of rich woods, it reaches its northern range limit in forests mainly south of the Tension Zone. Probably never common in the state, stations for existing populations of twinleaf have been greatly reduced due to habitat destruction and degradation. *Reference:* Fassett (1946:207; map, p. 194).	●			
Juncus vaseyi **Engelm.** JUNCACEAE	VASEY'S RUSH. Vasey's rush is widespread but rare in Wisconsin, with collections from Douglas, Juneau, Shawano, Green and Columbia Counties. However, none of these counties contains more than two known stations. The plant grows chiefly in damp sandy soil but is also known from clay and black soil prairie remnants.	●			

		END	THR	UNK	EXT
Lady's slipper	See *Cypripedium arietinum*				
ram's head					
showy	See *C. reginae*				
small yellow	See *C. calceolus* var. *parviflorum*				
white	See *C. candidum*				
Lespedeza leptostachya **Engelm.** LEGUMINOSAE	PRAIRIE BUSH-CLOVER. This species is a regional endemic (northern Illinois, northern Iowa, southern Wisconsin, eastern Minnesota) of dry prairies. Long believed extirpated from the state since 1880, it has been recently found in Rock, Dane, and Sauk counties. Status in U.S.: Endangered. *References:* (Fassett (1939:107, 109; map, p. 104); Musselman et al. (1971:176); Mickelson and Iltis (1966:map, p. 217); Tans and Read (1975:138).	●			
Lespedeza violacea **(L.) Pers.** LEGUMINOSAE	VIOLET BUSH-CLOVER. This species reaches into Wisconsin as a native species the Mississippi and Wisconsin River valleys, where it has been found in dry woodlands as far north as Columbia County. It is a widespread species in the South. *Reference:* Fassett (1939:109-110; range map, p. 107; state map, p. 104).		●		
Lespedeza virginica **(L.) Britton** LEGUMINOSAE	SLENDER BUSH-CLOVER. While this plant is widely distributed to the south of Wisconsin, the long-known (since 1893) population of it at Devil's Lake State Park (Sauk County) and the 1951 collection in a cedar glade on Observatory Hill in Marquette County represent the only sites for this species in the state. *Reference:* Fassett (1939:109; map, p. 107).	●			
Lettuce, great white	See *Prenanthes crepidinea*				
rough white	See *P. aspera*				
Liatris punctata **Hook. var.** ***nebraskana*** **Gaiser** COMPOSITAE	DOTTED BLAZING STAR. In northwestern Wisconsin (St. Croix and Pierce Counties), this Great Plains species reaches its eastern range limit on sandy prairies and terraces along the St. Croix and Mississippi Rivers. *Reference:* Johnson and Iltis (1963:276; map, p. 278).	●			
Liatris spicata **(L.) Willd.** COMPOSITAE	SPIKED BLAZING STAR. Reaching its natural range limit in southeastern Wisconsin (Waukesha, Walworth, Milwaukee, Racine and Kenosha Counties) where it is found in wet to wet-mesic prairies, this attractive southeastern U.S. species is here becoming increasingly rare due to habitat destruction by housing developments and agriculture. *Reference:* Johnson and Iltis (1963:271; map, p. 272).		●		

Kohout

Round-leaved Orchid
Habenaria orbiculata

K. Kohout

Golden Seal
Hydrastis canadensis

K. Kohout

Twinleaf
Jeffersonia diphylla

K. Kohout

Spike Blazing St
Liatris spica

		END	THR	UNK	EXT
Licorice	See *Glycyrrhiza lepidota*				
Lingonberry	See *Vaccinium vitis-idaea*				
***Listera auriculata* Wieg.** ORCHIDACEAE	AURICLED TWAYBLADE. A plant of the far north, this orchid has been found in only a few stations on the south side of Lake Superior, three (from old collections) which are in Bayfield County. The habitat preference of this species is specific according to Case (1964): "...raw, alluvial sand along rivers." Status in U.S.: Threatened. *References:* Case (1964:68; map, p. 122); Fuller (1933:100-101; map, p. 99).	●			
***Listera convallarioides* (Sw.) Torr.** ORCHIDACEAE	BROAD-LEAVED TWAYBLADE. This transcontinental orchid of the coniferous forests reaches south into the Lake Superior border counties of Iron, Ashland and Bayfield, where it is found in cold, seepy, muddy conifer swamps, and in low, maple-birch-aspen-balsam fir woods. *References:* Case (1964:69; map, p. 122); Fuller (1933:101-102; map, p. 99).		●		
***Lithospermum latifolium* Michx.** BORAGINACEAE	BROAD-LEAVED PUCCOON. Also called American gromwell, this species is found in ungrazed, rich dry-mesic deciduous woods south of the Tension Zone, but has become increasingly rare due to habitat destruction and degradation such as overgrazing.		●		
***Littorella americana* Fern.** *L. uniflora* var. *americana* PLANTAGINACEAE	A hydrophyte known from highly oligotrophic lakes in five northern Wisconsin counties (Douglas, Sawyer, Vilas, Langlade and Shawano), *Littorella* is not a well understood plant. Fassett (1934) described it as "...a characteristic and abundant plant in many lakes of northern Wisconsin," while Fernald (1950) described it as local. My experience in investigating plants of northern Wisconsin lakes suggests that, rather than abundant, it is at best highly local. *References:* Fassett (1934:349-352); Fernald (1950:1318); Tessene (1968:289-291; map, p. 309); Tans and Read (1975:138-139).		●		
***Lonicera involucrata* (Richards.) Banks** CAPRIFOLIACEAE	FLY HONEYSUCKLE. Recent concerted efforts to relocate this species from its only known Wisconsin location (near Port Wing, Bayfield County in 1897) have failed and this plant of cold northern shrub communities is presumed extirpated.				●
***Malaxis monophylla* (L.) Sw. var. *brachypoda* (Gray) Morris** ORCHIDACEAE	WHITE ADDER'S-MOUTH. The Wisconsin collections of this very small orchid, found around the top of the globe, all belong to the variety *brachypoda,* sometimes considered as a distinct species. Here as well as elsewhere, the plant is local, occurring mostly in cedar-balsam-spruce calcareous swamps. *References:* Case (1964:94-95; map, p. 130); Hulten (1964:164; map 155); Fuller (1933:124, 126; map, p. 125).		●		
Mallow, glade	See *Napaea dioica*				
poppy	See *Callirhoë triangulata*				
Marbleseed	See *Onosmodium molle*				
Marsh-marigold	See *Caltha natans*				
Meadow-beauty	See *Rhexia virginica*				
Meadow-rue, waxy	See *Thalictrum revolutum*				
***Medeola virginiana* L.** LILIACEAE	INDIAN CUCUMBER-ROOT. Indian cucumber-root is here restricted to rich beech-sugar maple woods in the eastern portion of the state. Habitat degradation, especially grazing, has undoubtedly contributed to the increasing rarity of the plant in Wisconsin. *Reference:* McIntosh (1950:221-222; map, p. 226).		●		

		END	THR	UNK	EXT
Melica nitens **Nutt.** GRAMINEAE	TALL MELIC GRASS. This grass of the east-central United States is known in Wisconsin only from Rock and Iowa Counties. While in its native habitat it occupies mesic to dry woods, it is known from a railroad ballast collection in Rock County as a waif. *References:* Hitchcock (1951:201); Musselman et al. (1971:162).		●		
Melica smithii **(Porter) Vasey** GRAMINEAE	SMITH MELIC GRASS. While only recently found in Ashland County (near Mellen), this species is as undoubtedly native here as in northern Michigan. The mainly western North American grass has an interesting distribution with a disjunct range in the upper Great Lakes region (Michigan, Ontario, Wisconsin) where it often occurs in sugar maple woodland. *Reference:* Hitchcock (1951:193-194).	●			
Microseris	See *Agoseris cuspidata*				
Milk-vetch, alpine	See *Astragalus alpinus*				
Cooper	See *A. neglectus*				
Milkweed, Mead's	See *Asclepias meadii*				
prairie	See *A. sullivantii*				
purple	See *A. purpurascens*				
woolly	See *A. lanuginosa*				
Milkwort, cross	See *Polygala cruciata*				
pink	See *P. incarnata*				
Monkshood	See *Aconitum noveboracense*				
Moonwort	See *Botrychium lunaria*				
Moschatel	See *Adoxa moschatellina*				
Myosotis laxa **Lehm.** BORAGINACEAE	SMALL FORGET-ME-NOT. In Wisconsin this species is mainly restricted to shaded wet places in the valley of the Wisconsin River north to Wisconsin Dells, but is also known from one Chippewa County collection. These stations are considerably disjunct from other populations in its range. *References:* Kruschke (1944:280; map, p. 282); Cochrane (1975:120).		●		
Myriophyllum farwellii **Morong** HALORAGIDACEAE	WATER-MILFOIL. A rare plant throughout its range, this delicate hydrophyte is known from only three Wisconsin stations in Jackson and Monroe Counties.	●			
Napaea dioica **L.** MALVACEAE	GLADE MALLOW. This interesting plant is a regional endemic species—in fact the only endemic genus in the northcentral United States (Iltis, 1963; Utech, 1970)—ranging from eastern Ohio across Indiana and Illinois to eastern Iowa and Minnesota. In Wisconsin glade mallow is found in wet prairies and meadows, along damp railroad rights-of-way, and along streams and rivers. It may be locally common, but in some counties in southern Wisconsin, it is threatened with eradication by habitat degradation and herbicide use. *References:* Iltis (1963:map, p. 92); Mickelson and Iltis (1966:map, p. 216); Utech (1970:317-318; map, p. 313).		●		
Nut-rush, low	See *Scleria verticillata*				
netted	See *S. reticularis*				
tall	See *S. triglomerata*				
Oenothera serrulata **Nutt.** ONAGRACEAE	TOOTHED-LEAVED EVENING PRIMROSE. Like so many species endemic to the Great Plains, this species reaches its natural eastern range limit in the sandy and dry bluff prairies in northwestern Wisconsin (St. Croix, Pierce, Pepin and Buffalo Counties). Only plants in native habitats (not obvious introductions as along roads, railroads, etc.) are considered under threatened status. *Reference:* Ugent (1962:120; map, p. 121).		●		

	END	THR	UNK	EXT

Onosmodium molle **Michx.**
incl. var. *hispidissimum* and var. *occidentale*
BORAGINACEAE

MARBLESEED. This species (both varieties) is found on dry prairie remnants scattered in the southern part of the state, especially in the western counties. It has been collected in Wisconsin more often than the published record (Kruschke, 1944) suggests. Only plants found in native habitats are included under threatened status. *Reference:* Cochrane (1975:122; map, p. 121).

Ophioglossum vulgatum **L.**
incl. var. *pseudopodum* (Blake) Farwell
OPHIOGLOSSACEAE

ADDER'S TONGUE FERN. A small fern of circumpolar distribution, the adder's tongue fern is found in marshes and wet meadows as well as on damp sandy lakeshores, mainly in the northwestern and southeastern portions of the state. *References:* Hulten (1964:100; map 91); Tryon et al. (1953:100; map, p. 101); Wagner (1971:map, p. 72).

Opuntia fragilis **(Nutt.) Haw.**
CACTACEAE

BRITTLE PRICKLY PEAR. This large-flowered but diminutive cactus is found in portions of the western and southern half of the state, where it grows in crevices and soil pockets of rock (especially rhyolite) outcrops and on dry sand prairies and barrens. While a characteristic plant of the arid Great Plains, collections by cactus fanciers especially threaten the plant in Wisconsin. *Reference:* Ugent (1962:132; map, p. 131).

Orchid

See *Arethusa* sp., *Calypso* sp., *Corallorhiza* sp., *Cypripedium* spp., *Habenaria* spp., *Listera* spp., *Malaxis* sp., *Orchis* sp., *Triphora* sp.

Orchis rotundifolia **Pursh**
ORCHIDACEAE

SMALL ROUND-LEAVED ORCHIS. A plant of the far north, this orchid reaches its southern range limit in the northern and eastern portions of the state where it is very rare in cold fir-spruce-cedar swamps and bogs. It is known from four localities in four counties (Forest, Door, Sheboygan and Ozaukee). *References:* Case (1964:47-48; map, p. 114); Fuller (1933:78, 80; map, p. 79).

Orobanche fasciculata **Nutt.**
OROBANCHACEAE

CLUSTERED BROOM-RAPE. This exceedingly rare holoparasite in Wisconsin is found chiefly along the Lake Michigan coast in loose sand, victimizing *Artemisia caudata.* It is also known from Iowa and Green Counties where it is found in sandy prairies.

Orobanche uniflora **L.**
OROBANCHACEAE

ONE-FLOWERED BROOM-RAPE, CANCER-ROOT. An interesting parasite, mainly a forest plant in eastern North America, cancer-root is found very sparingly throughout the southern half and eastern portions of the state in a variety of habitats: dry prairie (as in Dane County); sandy, stable beaches (as in Door County); coastal prairie; and oak woods (as in Green and Sauk Counties).

Glade Mallow Read
Napaea dioica

Brittle Prickly Pear Read
Opuntia fragilis

One-flowered Broom-rape K. Kohout
Orobanche uniflora

Wild Quinine K. Kohout
Parthenium integrifolium

		END	THR	UNK	EXT
Osmorhiza chilensis **H. & A.** *O. divaricata* UMBELLIFERAE	CHILEAN SWEET CICELY. This plant of western North American mountains, as well as temperate forest regions of Chile in South America, has a naturally occurring range extension into the upper Great Lakes region and eastern Canada. In Wisconsin, this plant is known from mixed deciduous woodlands in the Lake Superior region (especially Apostle Islands) and from Washington Island, Door County. The closely resembling *O. obtusa* (*O. depauperata*), a species with an almost identical world distribution, has not been collected in the state but probably occurs here in the same regions as *O. chilensis*. *References:* Fassett (1941:6, map 7); Constance and Shan (1948:map, p. 136).		●		
Oxytropis campestris **L. var.** *chartacea* **(Fassett) Barneby** *O. chartacea* Fassett LEGUMINOSAE	Considered a distinct species by some botanists, this taxon is endemic to Wisconsin, where it is known from four locations in two counties (Bayfield and Waushara). It grows on the shores of sandy lakes. Status in U.S.: Threatened. *References:* Fassett (1939:74-79; map, p. 74); Barneby (1952:269; map, p. 265).	●			
Oryzopsis canadensis **(Poiret) Torrey** GRAMINEAE	CANADIAN RICE-GRASS. This northern grass ranges south into central Wisconsin (to Clark, Adams, and Jackson Counties). It is found in dry, sandy, pine woods. *References:* Fassett (1951:64; map, p. 65); Hartley (1959:59).	●			
Panax quinquefolius **L.** (also spelled *P. quinquefolium)* ARALIACEAE	GINSENG. Due to the popularity of this plant for various folk-medicine uses, ginseng has been severely depleted in Wisconsin and elsewhere. Destruction and degradation of rich woodlands in which the plant grows has also contributed to its decrease. Bona-fide commercially grown plants—such as those grown in plantations at Hamburg (Marathon County)—are not covered by the threatened status. *Reference:* Fassett and Elser (1950:85; map, p. 84).		●		
Parnassia palustris **L.** SAXIFRAGACEAE	GRASS-OF-PARNASSUS. This species is known in Wisconsin only from Douglas County where it was collected as late as 1944. No habitat data are available but the collections were undoubtedly made in marshes or calcareous bogs. *References:* Fassett (1932:238; map, p. 243 as *P. multiseta*); Hultén (1970:76, 330; map 68).			●	
Parnassia parviflora **DC.** SAXIFRAGACEAE	GRASS-OF-PARNASSUS. This species is known in Wisconsin only from Door County, where it has not been collected for many years. Its preferred habitat is in damp calcareous habitats such as limestone cracks and on sandy ridges along Lake Michigan. *Reference:* Fassett (1932:238; map, p. 243).			●	
Parsley, hemlock	See *Conioselinum chinense*				
Parsley, prairie-	See *Polytaenia nuttallii*				
Parsnip, meadow	See *Thaspium* spp.				
Parthenium integrifolium **L.** COMPOSITAE	WILD-QUININE. This species is an integral part of the deep-soil mesic prairie which has been almost totally destroyed in Wisconsin as well as elsewhere for agricultural purposes. Hence, the plant is becoming increasingly rare in our southern counties where mesic prairie-savanna dominated the presettlement landscape. *Reference:* Melchert (1960:map 46).	●			
Pellaea atropurpurea **(L.) Link** POLYPODIACEAE	PURPLE CLIFF-BRAKE. With the closest stations outside the Driftless Area being in central Illinois, the presence of this species in the Driftless Area in several locations represents a substantial disjunction. Its preferred habitat is exposed, calcareous, sandstone cliffs. *References:* Tryon et al. (1953:25); Hartley (1966:27).	●			

		END	THR	UNK	EXT
Penstemon hirsutus **(L.) Willd.** SCROPHULARIACEAE	HAIRY BEARD TONGUE. In Wisconsin this beard tongue is at the western edge of its range, and here it occurs in prairie and open woods. The plant is sometimes an opportunist in fields and on roadsides where disturbance has reduced competition; only plants growing in natural or near-natural habitats are considered threatened. *References:* Pennell (1935:239-243; map, p. 240); Salamun (1951:119; map, p. 121).		●		
Penstemon pallidus **Small** SCROPHULARIACEAE	PALE BEARD TONGUE. Like the preceding species, this plant sometimes occurs in disturbed places, thus only plants growing in natural habitats are considered threatened. The preferred habitats for this species, in Wisconsin near the northwestern edge of its range, are dry to dry-mesic prairies and open woods. *References:* Pennell (1935:223-225; map, p. 226).		●		
Peplis diandra	See *Didiplis diandra*				
Petalostemum villosum **Nutt.** LEGUMINOSAE	VILLOUS PRAIRIE-CLOVER. A typical Great Plains prairie species, villous prairie-clover reaches its eastern range limit in the sandy prairies and barrens of extreme western Wisconsin. *Reference:* Fassett (1939:57; map, p. 53).		●		
Petunia, wild-	See *Ruellia humilis*				
Phlox bifida **Beck** POLEMONIACEAE	CLEFT PHLOX. Often cultivated, this species is known from at least one native location (Rock County, a 1946 collection from sandy woods). Cleft phlox is an Ozarkian element reaching its northern natural range limit in extreme southern Wisconsin. *Reference:* Smith and Levin (1966:250; map, p. 248).			●	
Phlox glaberrima **L. ssp.** ***interior*** **Wherry** POLEMONIACEAE	SMOOTH PHLOX. This magenta-flowered species is known from wet to wet-mesic calcareous prairies in Kenosha and Racine Counties, where the plant reaches its northern natural range limit. Though protected in Chiwaukee Prairie Scientific Area, other stations for the plant are succumbing to rapid urbanization in these two counties. *Reference:* Smith and Levin (1966:249-250; map, p. 248).	●			
Pine-drops	See *Pterospora andromedea*				
Pinguicula vulgaris **L.** LENTIBULARIACEAE	BUTTERWORT. This boreal insectivorous species reaches its southern range limit on the Apostle Islands where it has been found in two stations (for the first time in 1956), in semi-shaded, wet sandstone crevices. *Reference:* Hultén (1958:230; map 211).	●			
Plantago cordata **Lam.** PLANTAGINACEAE	HEART-LEAVED PLANTAIN. Very rare throughout its range in Wisconsin this enigmatic plantain was known primarily from sites in the southeastern quarter of the state (Milwaukee, Racine and Kenosha Counties), but also from Brown, Outagamie and Pierce Counties. It was last collected here in 1938 in Milwaukee County. The species is very likely extirpated in Wisconsin. It prefers cold, calcareous, shaded stream banks. *References:* Tessene (1968:291-293; map, p. 309); Tessene (1969:map, p. 89).				●
Plantain, heart-leaved	See *Plantago cordata*				
Platanthera	See *Habenaria*				
Platanus occidentalis **L.** PLATANACEAE	SYCAMORE. A very common lowland forest tree in the eastern and southern United States, it may be hard to believe that this species would be in a threatened plant category. Nevertheless, sycamore is at the northwestern edge of its range in southern Wisconsin, where it is known from a few stations along the Rock, Sugar and lower Wisconsin Rivers. *Reference:* Fowells (1965:map, p. 489).		●		

		END	THR	UNK	EXT
***Poa paludigena* Fern. & Wieg.** GRAMINEAE	BOG BLUEGRASS. Bog bluegrass is seemingly rare throughout its range. In Wisconsin it has been found in wet, mossy woods as well as along springs and in tamarack bogs. Today it is found mainly in northern and central Wisconsin. Status in U.S.: Threatened. *References:* Fassett (1951:25; map, p. 27); Hitchcock (1951:121; map, p. 123).	●			
Pogonia, nodding	See *Triphora trianthophora*				
***Polygala cruciata* L.** POLYGALACEAE	CROSS MILKWORT. Very old collections (Dane County, 1838; St. Croix County, 1861) establish this southern and Atlantic Coastal Plain species as a native element. Most of the recent collections of cross milkwort come from the central Wisconsin sand plain where it grows in wet sand, often in dried-out lake beds.		●		
***Polygala incarnata* L.** POLYGALACEAE	PINK MILKWORT. This species is widespread in the eastern United States, but where it grew in prairie, as in Wisconsin, it is now exceedingly rare. One of the only remaining stations known in this state is on the Chiwaukee Prairie Scientific Area, Kenosha County.	●			
***Polystichum acrostichoides* (Michx.) Schott.** POLYPODIACEAE	CHRISTMAS FERN. Christmas fern is at its northwestern range limit in Wisconsin's southeastern counties. It grows in rich deciduous woodland, most often on protected slopes. *Reference:* Tryon et al. (1953:43).	●			
***Polystichum braunii* (Spenner) Fée var. *purshii* Fern.** POLYPODIACEAE	BRAUN'S HOLLY FERN. Reaching westward into Iron and Ashland Counties, this northeastern North American fern is found mainly on protected slopes in rich deciduous woodland. *Reference:* Tryon et al. (1953:46; map, p. 43).	●			
***Polytaenia nuttallii* DC.** UMBELLIFERAE	PRAIRIE-PARSLEY. Although this species of prairies was not formerly rare in Wisconsin, the almost total destruction of this community has drastically reduced the plant's numbers in the state. Fortunately, the plant is known to grow in a number of protected natural areas. *Reference:* Fassett (1941:9; map 16).	●			
Pomme de prairie	See *Psoralea esculenta*				
Pondweed	See *Potamogeton* spp.				

K. Kohout **Marsh Phlox** *Phlox glaberrima* var. *interior*

K. Kohout **Sycamore** *Platanus occidentalis*

K. Kohout **Christmas Fern** *Polystichum acrostichoides*

K. Kohout **Prairie Parsley** *Polytaenia nuttalli*

		END	THR	UNK	EXT
Potamogeton confervoides **Reichenb.** ZOSTERACEAE	This distinctive species of acidic lakes and bogs has been collected only twice in Wisconsin, in Langlade (1932) and Lincoln (1952) Counties. *References:* Fassett (1934); Ross and Calhoun (1951:99-100; map, p. 102).				●
Potamogeton pulcher **Tuckerman** ZOSTERACEAE	SPOTTED PONDWEED. Chiefly a pondweed of the Atlantic Coastal Plain, this species is found very sparingly in the midwest from Arkansas to Minnesota and eastward to Michigan. Most of the collections of this species in Wisconsin are from the 1940's and 1950's. *Reference:* Ross and Calhoun (1951:108; map, p. 105).	●			
Potamogeton vaginatus **Turcz.** ZOSTERACEAE	In Wisconsin this species has been collected in two stations, one in Dane County (Lake Mendota) the other in Marquette County. The first Lake Mendota collection was in 1861 (by T. J. Hale), and it has been subsequently collected at least eight times from this station. It has not been seen in the lake since 1947. *Reference:* Ross and Calhoun (1951:99; map, p. 102).			●	
Potamogeton vaseyi **Robbins** ZOSTERACEAE	VASEY'S PONDWEED. This distinctive pondweed has a rather sporadic distribution in its total range as well as in Wisconsin. While it is sometimes common in a particular location, it has been found in only a few lakes scattered throughout the state (e.g., Oneida, Lincoln, La Crosse, Juneau and Portage Counties). *References:* Ross and Calhoun (1951:101; map, p. 103); Hartley (1959:58).		●		
Prairie dandelion	See *Agoseris cuspidata*				
Prairie-clover, villous	See *Petalostemum villosum*				
Prenanthes aspera **Michx.** COMPOSITAE	ROUGH WHITE LETTUCE. This plant of prairies has become exceedingly rare due to destruction and degradation of suitable habitats. It has been collected in widely scattered stations in southern Wisconsin north into Dane County. *Reference:* Johnson and Iltis (1963:306-307; map, p. 304).	●			
Prenanthes crepidinea **Michx.** COMPOSITAE	GREAT WHITE LETTUCE. A southern species of wet-mesic prairie to woodland borders, this robust herb has been collected only twice in Wisconsin, once in Crawford (1915) and once in Green County (1956). It is undoubtedly native to Wisconsin but is very locally distributed in this portion of its range. *Reference:* Johnson and Iltis (1963:306; map, p. 304).			●	
Prickly pear, brittle	See *Opuntia fragilis*				
Primula mistassinica **Michx.** incl. var. *noveboracensis*; *P. intercedens* PRIMULACEAE	BIRD'S-EYE PRIMROSE. Bird's-eye primrose is restricted in this state to three distinct localities. The typical variety is found along the Lake Michigan shoreline (mainly on the Door Peninsula on dolomite or in wet sand) and along the Lake Superior coast especially on the Apostle Islands. The much rarer variety, *noveboracensis,* is restricted to several locations in the Driftless Area, as along the Kickapoo River (Vernon County), and along the St. Croix River in St. Croix County (where it is found on shaded, damp sandstone cliffs). A particular station may contain many plants, such as at the Ridges Sanctuary, Door County. *Reference:* Iltis and Shaughnessy (1960:116-117; map, p. 120).		●		
Primrose, bird's-eye	See *Primula mistassinica*				
Psilocarya scirpoides **Torrey** CYPERACEAE	BALD-RUSH. An Atlantic Coastal Plain species with disjunct stations in Michigan, Indiana and central Wisconsin, it is restricted here to the central sand plains where it is rare on lakeshores and dried-up lake beds. *Reference:* Greene (1953:67; map, p. 61).	●			

	END	THR	UNK	EXT
Psoralea argophylla **Pursh** LEGUMINOSAE	This species of the Great Plains prairies, in Wisconsin at its eastern limit, was known as a native plant from St. Croix and Polk Counties where it was last collected in 1861. Various efforts to relocate plants in these counties have failed. *Reference:* Fassett (1939:42-43; map, p. 42).			●
Psoralea esculenta **Pursh** LEGUMINOSAE	POMME DE PRAIRIE. Pomme de prairie reaches its eastern range limit in western Wisconsin (especially in northwestern and southwestern portions of the state) where it grows on dry to mesic hill prairies. Due to habitat degradation (especially by grazing or plowing) and harvesting by natural food enthusiasts, this species is becoming progressively rarer in Wisconsin. *Reference:* Fassett (1939:43, 46-47; maps, pp. 42, 46).	●		
Ptelea trifoliata **L.** RUTACEAE	HOP-TREE. As a native plant this species is becoming increasingly rare in southeastern Wisconsin where it reaches its northern range limit chiefly along major rivers. It occurs in lowland forests and rarely in wooded ravines along Lake Michigan. Recent observations and collections of this plant are becoming scarce.	●		
Pterospora andromedea **Nutt.** PYROLACEAE	PINE-DROPS. Pine-drops is a root parasite found mainly in mountainous regions of western North America but with scattered populations in the eastern glaciated parts of the continent. It is an unusual plant which has been found in two stations in Wisconsin, one of which is a protected natural area in Ozaukee County. *Reference:* Throne (1931).	●		
Puccoon, broad-leaved	See *Lithospermum latifolium*			
Purslane, water-	See *Didiplis diandra*			
Pyrola minor **L.** PYROLACEAE	SMALL SHINLEAF. This small but distinctive plant has been collected only once, in Bayfield County in 1897. It is a circumboreal species reaching its southern range limit here along the Lake Superior shoreline in coniferous woods. *Reference:* Hultén (1970:100, map 91).			●
Quinine, wild-	See *Parthenium integrifolium*			
Ragwort	See *Senecio* spp.			
Raisin, wild-	See *Viburnum cassinoides*			
Ranunculus cymbalaria **Pursh** RANUNCULACEAE	SEASIDE CROWFOOT. Both adventive (as in Central Park, Superior, Douglas County) and native (as along Lake Michigan and in Walworth County) populations are known from the state. As a native, the species is rare, being most often found in sandy to muddy wet areas. *References:* Fassett (1946:202); Hultén (1958:264; map 245).	●		
Ranunculus gmelinii **DC. var.** *hookeri* **(D. Don) Benson** *R. purshii* RANUNCULACEAE	YELLOW WATER-CROWFOOT. This aquatic species has been found widely scattered in northern Wisconsin from Door County to Bayfield County. Part of a circumpolar complex, it reaches its southern range limit in northern and eastern Wisconsin, but has not been collected here since 1938. *References:* Fassett (1946:202-203; map, p. 194); Hultén (1970:343-344; map 84).		●	
Rhamnus lanceolata **Pursh var.** *glabrata* RHAMNACEAE	LANCE-LEAVED BUCKTHORN. Although at the northern edge of its range in Wisconsin, this buckthorn is native in our southwestern counties (Grant to Rock to Richland) where it is found on limestone ledges and hillsides. It is interesting to note that in northeastern Illinois, the plant grows in a strikingly different habitat—calcareous fens. *Reference:* Pohl (1941:107; map, p. 108).	●		
Rhexia virginica **L.** MELASTOMATACEAE	MEADOW-BEAUTY. Most of the stations in Wisconsin of this widespread southern species are in the bed of Glacial Lake Wisconsin. The conspicuous meadow-beauty is rarely encountered even in suitable habitats: wet, sandy flats and drying lake borders. *References:* Kral and Bostick (1969:407-408; map, p. 438); Ugent (1962:93; map, p. 95).	●		

		END	THR	UNK	EXT
Rhododendron lapponicum **(L.) Wahlenb.** ERICACEAE	LAPLAND ROSEBAY. The native population of this species at the Wisconsin Dells (first collected there in 1898) is far disjunct from its more northern range. The occurrence of this plant at this popular tourist area is one of the best known disjunctions in midwestern phytogeography. *Reference:* Hultén (1958:200; map 181).	●			
Rhus aromatica **Ait.** ANACARDIACEAE	FRAGRANT SUMAC. One of Wisconsin's rarest native shrubs, this species has been collected from about five stations in the southern portion of the state (Rock to Grant, north to Columbia and Richland Counties). It grows on dry, often sandy slopes. Only one collection (in 1861 by Hale) existed at the time of the 1940 Preliminary Report, but more thorough recent collecting has brought more stations to light. A station in Dane County on limestone cliffs at the Shorewood swimming beach on Lake Mendota may be adventive. *Reference:* Fassett (1940:105; map, p. 104).	●			
Rhynchospora fusca **(L.) Ait. f.** CYPERACEAE	BEAK-RUSH. This species of bogs has been found in this state only in the vicinity of Lake Superior where it reaches its southern range limit. *Reference:* Hultén (1958:56; map 37).	●			
Ribes hudsonianum **Richards.** SAXIFRAGACEAE	NORTHERN BLACK CURRANT. Northern black currant is a boreal species which reaches its southern range limit in Wisconsin's northern counties where it grows in low, cold often coniferous woods. *Reference:* Fassett (1932:map, p. 245).		●		
Ribes oxycantholdes **L.** SAXIFRAGACEAE	Most, if not all, of the collections of this species were made in the 1920's (Door County) and 1930's (Douglas and Barron Counties). The boreal plant is at its southeastern edge of its range in the upper Great Lakes. It has been found growing in moist (probably sandy) cold ground, in quartzite talus, and in calcareous soil. *Reference:* Fassett (1932:242).			●	
Rice-grass, Canada	See *Oryzopsis canadensis*				
Rosebay, Lapland	See *Rhododendron lapponicum*				
Rose-mallow, swamp	See *Hibiscus palustris*				
Ruellia humilis **Nutt.** ACANTHACEAE	HAIRY RUELLIA, WILD-PETUNIA. This species of dry prairie soil reaches its northern range limit in our southern counties. It was last collected in Wisconsin in 1940 on a dry hillside in Walworth County.			●	
Rush, bald-	See *Psilocarya scirpoides*				
Sagewort, dragon	See *Artemisia dracunculus*				
prairie	See *A. frigida*				
St. John's-wort, round-fruited	See *Hypericum sphaerocarpum*				
St. John's-wort	Also see *Triadenum virginicum*				
Salix cordata **Michx. incl.** *S. syrticola; S. adenophylla* SALICACEAE	HEART-LEAVED WILLOW, DUNE WILLOW. Taken in the strict sense (i.e., as the distinct species, *S. syrticola*), this taxon is a Great Lakes endemic occurring on sand dunes and beaches. Since well developed dunes are rare along Wisconsin's Lake Michigan shore, so is this willow; it is known only from collections from Two Rivers, Manitowoc County. *Reference:* Argus and Goff (1964:250,252; map, p. 248, as *S. syrticola*).	●			
Salix sericea **Marsh.** SALICACEAE	SILKY WILLOW. A willow closely allied to the common *S. petiolaris,* this much rarer species is found in wet soil (peaty and sandy) along major rivers in the state. *Reference:* Argus and Goff (1964:264-265; map, p. 248).	●			

		END	THR	UNK	EXT
Sand-reed	See *Calamovilfa longifolia*				
Sandwort, northern rock	See *Arenaria stricta* ssp. *dawsoniensis*				
Satureja glabella **(Michx.) Briquet var.** ***angustifolia*** **(Torr.) Svenson** *Calamintha glabella* *Satureja arkansana* LABIATAE	Low Calamint. In Wisconsin this fragrant plant has been found only along the Lake Michigan coast (Door, Kenosha, formerly Racine Counties) and in Vernon County (now believed destroyed). Low calamint is found in damp, calcareous sand and on limestone, and though it may be locally abundant in existing stations (such as Chiwaukee Prairie, Kenosha County), the total number of stations is very small. *Reference:* Koeppen (1957:133; map, p. 132 as *Calamintha glabella*).	●			
Saxifraga forbesii **Vasey** SAXIFRAGACEAE	Saxifrage. This species is nearly a Driftless Area endemic, with populations outside this physiographic feature reported only from southern Illinois to central Missouri (Gleason and Cronquist 1963:357). Unlike the closely related bog species, *S. pensylvanica,* it occurs on damp, shaded sandstone cliffs. The plant was not yet recognized as occurring in the state in Fassett's (1932) Wisconsin Preliminary Report on the Saxifragaceae. *Reference:* Burns (1942:map, p. 129).		●		
Scirpus cespitosus **L. var.** ***callosus*** **Bigelow** CYPERACEAE	This common arctic species is known in Wisconsin only from alkaline sedge meadows near Madison (Dane County). A 1973 collection of this plant from an undisturbed sedge meadow north of Madison leaves little doubt that it is a spontaneous member of the native flora, here at the southern edge of its range. *Reference:* Hultén (1964:42; map 35, as *Trichophorum caespitosum*).	●			
Scleria reticularis **Michx.** CYPERACEAE	Netted Nut-rush. This plant of the Atlantic Coastal Plain was first collected in Wisconsin in 1958 from a receding, muddy lakeshore in Adams County, occurring there with many other unusual and rare Coastal Plain plant species. There can be no doubt that the species there are native and were not introduced deliberately. *Reference:* Hartley (1959:61).	●			
Scleria triglomerata **Michx.** CYPERACEAE	Tall Nut-rush. In Wisconsin this interesting species is found primarily in sand prairie where it may be locally common (as on Avoca Prairie, Iowa County). The continued destruction of remnant prairies for agricultural uses threatens the future existence of this species in the state.		●		
Scleria verticillata **Muhl.** CYPERACEAE	Low Nut-rush. Low nut-rush, primarily an Atlantic Coastal Plain element occurring as far south as the tropics, is now known from more stations in the southeastern quarter of the state than the one in Walworth County cited by H. Greene in his 1953 Preliminary Report on the Cyperaceae. This small species of calcareous fens and wet, calcareous prairies is still quite rare due largely to the reduced number of suitable habitats remaining in the state.		●		
Screw-stem	See *Bartonia virginica*				
Scutellaria parvula **Michx. var.** ***parvula*** LABIATAE	Small Skullcap. Small skullcap is nearly always restricted to dry prairies (but one collection is from a stream side) usually near limestone in Rock, Pierce and St. Croix Counties. As a native plant in the disappearing prairie remnants, it is very rare at the northern edge of its range. *References:* Koeppen (1957:121; map, p. 120); Epling (1942:range map, p. 23).	●			
Sedge	See *Carex* spp.				

		END	THR	UNK	EXT
Selaginella selaginoides **(L.), Link** SELAGINELLACEAE	NORTHERN SPIKEMOSS. Reaching its southern range limit in northern and eastern Wisconsin, this moss-like plant of wide boreal distribution is known in our state only from the shores of Lake Superior (Iron County) and Lake Michigan (Door County at Bailey's Harbor). At Bailey's Harbor, it is found in wet swales between the sand ridges. *Reference:* Hultén (1958:240; map 222).	●			
Senecio congestus **(R. Br.) DC. var. *tonsus* Fern.** COMPOSITAE	MARSH-FLEABANE. This circumpolar species ranges south into northern Wisconsin where it occurs widely scattered in the northwestern portion of the state and in Door County. It is found in a variety of wet habitats. *References:* Barkley (1963:345; map, p. 347); Hultén (1970:96; map 87).	●			
Senecio indecorus **Greene** COMPOSITAE	NORTHERN SQUAW-WEED. This boreal plant is known in Wisconsin only from North Twin Island in the Apostle Islands where it was collected in 1955 by Lane. *Reference:* Barkley (1963:352; map, p. 347).	●			
Senna, wild-	See *Cassia marilandica*				
Seymeria macrophylla	See *Dasistoma macrophylla*				
Shinleaf, small	See *Pyrola minor*				
Shooting star, jewelled	See *Dodecatheon amethystinum*				
Skullcap, small	See *Scutellaria parvula*				
Silene nivea **(Nutt.) Otth.** CARYOPHYLLACEAE	WHITE OR SNOWY CAMPION. This species is local throughout its range, especially in the midwestern section of Illinois and Wisconsin. It is found in low or mesic rich woods, most notably in the Mississippi River Valley north to Pepin County. *Reference:* Schlising and Iltis (1961:131; map, p. 132).		●		
Solidago caesia **L.** COMPOSITAE	BLUE-STEMMED GOLDENROD. Continued destruction and grazing of rich woodlands in the southeastern portion of the state (Milwaukee, Racine and Kenosha Counties) where this species is restricted in Wisconsin threatens this plant. It is a species of eastern North American mesic forests at the very western limit of its range here. *Reference:* Salamun (1963:358, 360; map, p. 359).		●		
Solidago ohioensis **Riddell** COMPOSITAE	OHIO GOLDENROD. A plant of low, calcareous marshes, fens and beach ridges, Ohio goldenrod is restricted to southeastern Wisconsin (Jefferson, Waukesha, Milwaukee, Racine, Kenosha and Walworth Counties) and to Door County. *Reference:* Salamun (1963:377; map, p. 375).		●		
Solidago sciaphila **Steele** COMPOSITAE	CLIFF GOLDENROD. While not particularly uncommon in suitable habitats—exposed sandstone cliffs—the species is endemic to the Driftless Area, and is practically unknown outside this region of Wisconsin and adjacent Illinois, Iowa and Minnesota. *Reference:* Salamun (1963:361; map, p. 359).		●		
Solidago spathulata **DC. var. *gillmani* (Gray) Cron.** *S. racemosa* var. *gillmani* COMPOSITAE	DUNE GOLDENROD. The habitat of this goldenrod of western North American alliance is very uncommon in Wisconsin: swales, sand dunes and ridges along the Lake Michigan shore, and hence the plant is likewise rare. In Wisconsin it is known only from Door County. The variety, *gillmani,* appears to be endemic to shorelines of Lake Michigan and western Lake Huron. *Reference:* Salamun (1963:363, 365; map, p. 364).	●			
Spikemoss, northern	See *Selaginella selaginoides*				
Spike-rush	See *Eleocharis* spp.				

		END	THR	UNK	EXT
Spleenwort, green	See *Asplenium viride*				
maidenhair	See *A. trichomanes*				
narrow-leaved	See *Athyrium pycnocarpon*				
pinnatifid	See *Asplenium pinnatifidum*				
Spurge, blunt-leaved	See *Euphorbia obtusata*				
seaside	See *E. polygonifolia*				
tinted	See *E. commutata*				
Squashberry	See *Viburnum edule*				
Squaw-weed, northern	See *Senecio indecorus*				
Starwort, water	See *Callitriche* spp.				
Stoneroot	See *Collinsonia canadensis*				
Sullivantia renifolia **Rosendahl** SAXIFRAGACEAE	SULLIVANTIA. Except for a few stations in central Missouri, this species is nearly a Driftless Area endemic, occurring on damp, often shaded, sandstone cliffs where it may be locally common. The number of cliffs on which it grows in Wisconsin is limited, but number more than what is shown on Fassett's map (1932). Status in U.S.: Threatened. *References:* Fassett (1932:237; map, p. 239); Rosendahl (1927:410-412; map, p. 413); Iltis (1957).		●		
Sumac, fragrant	See *Rhus aromatica*				
Sundew	See *Drosera* spp.				
Sycamore	See *Platanus occidentalis*				
Sweet cicely, Chilean	See *Osmorhiza chilensis*				
Tanacetum huronense **Nutt.** COMPOSITAE	LAKE HURON TANSY. In Wisconsin this interesting species has only been found in upper Door County on sandy beaches, dunes, and cracks of limestone pavement along the Lake Michigan shoreline. The Great Lakes specimens, strictly interpreted, belong to a Great Lakes endemic segregate (Guire and Voss, 1963), but in the broader sense the species occurs into the boreal regions of North America. *References:* Guire and Voss (1963:103-104; map, p. 104); Mickelson and Iltis (1966:200-203; maps, pp. 199, 203).	●			
Tansy, Lake Huron	See *Tanacetum huronense*				
Thalictrum confine **Fern.** *T. turneri* Boivin RANUNCULACEAE	This species is known in Wisconsin only from a 1942 collection in the sandy soil of Wisconsin Point, Douglas County. It is at its southern range limit here. *Reference:* Boivin (1944; Wisconsin material not seen by Boivin).			●	
Thalictrum revolutum DC. incl. var. *glandulosior* Boivin RANUNCULACEAE	WAXY MEADOW-RUE. Common to the southeast of Wisconsin, this species enters the state only in the southeastern counties of Waukesha, Walworth, Milwaukee, Racine and Kenosha. It grows in wet grass meadows (low prairie) and sedge meadows. *Reference:* Boivin (1944).		●		
Thaspium barbinode **(Michx.) Nutt.** UMBELLIFERAE	HAIRY MEADOW PARSNIP. All collections of this plant are from the vicinity of Prairie du Chien (Crawford County). It is a species of low, wet woods, and sandy open ground, here at the very western edge of its range. The last known collection was made in 1965. *Reference:* Fassett (1941:9; map 15).			●	

		END	THR	UNK	EXT
Thaspium trifoliatum **(L.) Gray var. *flavum* Blake** UMBELLIFERAE	MEADOW PARSNIP. In Wisconsin this plant is found in the southern two tiers of counties in prairie and on woodland edges. Reduction in habitat in these agricultural counties threatens this species. The variety, *flavum,* may often be misidentified for *Zizia aurea,* a much more common species. *Reference:* Fassett (1941:9; map 15).		●		
Thelypteris hexagonoptera **(Michx.) Weatherby** *Dryopteris hexagonoptera* POLYPODIACEAE	BROAD BEECH FERN. The preferred habitat for this rare fern, rich deciduous woods in the southern half of the state, is becoming increasingly scarce. *References:* Hulten (1964:116; map 107); Tryon et al. (1953:67; map, p. 68, as *Dryopteris hexagonoptera*).		●		
Thelypteris simulata **(Davenp.) Nieuwl.** POLYPODIACEAE	MASSACHUSETTS FERN. Massachusetts fern was first collected in Wisconsin in 1947, but was not recognized as a new and highly disjunct member of our flora until much later. It is known from four stations in Jackson County. The closest portion of its main range is in middle Pennsylvania. The habitat of the fern, swampy-peaty-sandy woods and thickets far away from habitations, leaves little doubt as to its native occurrence in Jackson County. *References:* Hartley (1965:map, p. 401); Tryon and Tryon (1973:map, p. 66).	●			
Thistle, dune	See *Cirsium pitcheri*				
hills	See *C. hillii*				
Three birds orchid	See *Triphora trianthophora*				
Tiarella cordifolia **L.** SAXIFRAGACEAE	FOAMFLOWER. This beautiful herbaceous Appalachian and Northern Hardwoods endemic enters Wisconsin only in the northeastern portion of the state (in Florence and Door Counties). It grows in rich deciduous and hemlock-hardwood forests. *References:* Lakela (1937:map, p. 346); Maycock (1954).	●			
Tofieldia glutinosa **(Michx.) Pers.** LILIACEAE	FALSE ASPHODEL. This plant is restricted in Wisconsin to the eastern part of the state (west to Waushara County) where it is found only in alkaline habitats such as fens and wet beach swales (Door County). *Reference:* McIntosh (1950:220; map, p. 225).	●			
Tomanthera auriculata **(Michx.) Raf.** *Gerardia auriculata* SCROPHULARIACEAE	EARED FALSE FOXGLOVE. A prairie and prairie-border plant, this species is presumed extirpated in Wisconsin. It was known from three stations in Dane, Lafayette and Racine Counties. *References:* Salamun (1951:137; map, p. 127); Pennell (1935:416-417; map, p. 418).				●
Toothwort	See *Dentaria maxima*				
Tree	See *Fraxinus quadrangulata, Gymnocladus dioica, Platanus occidentalis, Ptelea trifoliata*				
Tree, Kentucky coffee-	See *Gymnocladus dioica*				
Triadenum virginicum **(L.) Raf.** *Hypericum virginicum* L. HYPERICACEAE	MARSH ST. JOHN'S-WORT. The Wisconsin stations, all from the central Wisconsin sand plains in damp to dry sand and peat soil, are very disjunct from the Atlantic Coastal Plain's main range of the species. The closest stations are in northwestern Indiana and northeastern Illinois, and these are also disjunct from the main range. All our collections are post-1937. *Reference:* Utech and Iltis (1970:349; map, p. 348).	●			
Triglochin maritimum **L.** JUNCAGINACEAE	COMMON BOG ARROW-GRASS. This is a plant of damp habitats, either notably acidic or notably alkaline: acid bogs, wet sandy or marly shores, and fens. The species ranges throughout the state with the exception of the southwestern quarter. *Reference:* Hultén (1964:120, 248; map 112).		●		

		END	THR	UNK	EXT
***Triglochin palustre* L.** JUNCAGINACEAE	SLENDER BOG ARROW-GRASS. This species prefers calcareous sites, either marly (such as in fens) or sandy (such as in beach swales and on wet prairie). In Wisconsin it is restricted to a few counties in eastern Wisconsin (especially Kenosha, Racine and Door Counties). It is much less common than *T. maritimum. Reference:* Hultén (1964:112; map 104—not quite accurate for Wisconsin range).	●			
***Trillium nivale* Riddell** LILIACEAE	SNOW TRILLIUM. Snow trillium is a species of rich mesic woods associated closely with limestone outcrop areas of the state (extreme eastern Wisconsin, and Pierce and St. Croix Counties). Habitat destruction and degradation have contributed to the demise of this naturally uncommon plant in the midwest. *Reference:* McIntosh (1950:222; map, p. 226).	●			
***Trillium recurvatum* Beck** LILIACEAE	RED TRILLIUM, WAKE-ROBIN. The distinctive red flowered trillium, a common species to the south, is found in rich woodlands (though it is not indicative of undisturbed woodlands) in the southern two tiers of counties where it reaches its northern range limit. *References:* McIntosh (1950:222; map, p. 226); Freeman (1975:6-7; map, p. 8).		●		
***Triphora trianthophora* (Sw.) Rydb.** ORCHIDACEAE	NODDING POGONIA, THREE BIRDS ORCHID. This is one of the rarer orchids of the Great Lakes region, in Wisconsin occurring in the southern half of the state (especially the southwestern quarter) in the deep humus of rich mesic woods and low spots in drier woods. Apparently, it may remain underground as a saprophyte for years only to surface as a green plant when conditions are favorable to it. *References:* Case (1964:72-73; map, p. 124); Fuller (1933:104-105; map, p. 103).	●			
***Trisetum melicoides* (Michx.) Scribn.** GRAMINEAE	This grass is apparently local throughout its range, being very rare in Wisconsin. In Door County where it has been consistently found over the years, it grows in gravel, sand and in limestone cracks near the Lake Michigan shore. *References:* Fassett (1951:42; map, p. 44); Hitchcock (1951:287-288; map, p. 287).	●			
Trisetum spicatum* (L.) Richter var. *pilosiglume* and var. *molle GRAMINEAE	This is an arctic and alpine grass which reaches its southern range limit along the southern shore of Lake Superior. It is known in Wisconsin from the Apostle Islands and adjacent mainland coast. Here it is found on exposed sand and in sandstone cracks. *References:* Hitchcock (1951:289; map, p. 290); Hultén (1964:60; map 53); Fassett (1951:42; map, p. 44).	●			
Twayblade, auricled **broad-leaved**	See *Listera auriculata* See *L. convallarioides*				
Twinleaf	See *Jeffersonia diphylla*				
***Utricularia geminiscapa* Benj.** LENTIBULARIACEAE	BLADDERWORT. While this species may be common at a particular station, the number of lakes in which it is known to exist in northern Wisconsin is few. The plant is very rare in the upper midwest states in general; Wisconsin's first collection was made in 1916 in Vilas County. *Reference:* Thomson (1940:89; map, p. 88).		●		
***Utricularia purpurea* Walt.** LENTIBULARIACEAE	PURPLE BLADDERWORT. This aquatic plant is very rare in the midwest, being completely absent in several adjacent states. The first known Wisconsin collection was made in 1931, and it has now been found at approximately six other stations. *Reference:* Thomson (1940:89; map, p. 88).	●			
***Utricularia resupinata* B. D. Greene** LENTIBULARIACEAE	SMALL PURPLE BLADDERWORT. Known from about six collections in Wisconsin, this species is local to very rare throughout its range. The first known Wisconsin collection in the early 1930's, and most subsequent ones have been made in the northwestern quarter of the state. *Reference:* Thomson (1940:89; map, p. 88).	●			

		END	THR	UNK	EXT
Vaccinium cespitosum **Michx.** ERICACEAE	DWARF BILBERRY. Dwarf bilberry is a boreal species ranging as far south in Wisconsin as the Wisconsin Dells. It is known from less than six sites in the state, growing mainly in rock crevices.	●			
Vaccinium vitis-idaea **L. var.** *minus* **Lodd.** ERICACEAE	MOUNTAIN-CRANBERRY, COWBERRY, LINGONBERRY. A distinctive and well-known circumboreal species which reaches the southern shore of Lake Superior in Michigan and Wisconsin, it has been collected only twice in Wisconsin, in 1926 and 1930 in Douglas County. No subsequent collections are known. It is common in Canada and Europe in bogs and on exposed rocks. *Reference:* Hultén (1970:78; map 69).				●
Valeriana uliginosa **(T. & G.) Rydb.** *V. sitchensis* ssp. *uliginosa* VALERIANACEAE	MARSH VALERIAN. In eastern Wisconsin this species is at the western edge of its range. It has been collected from four localities in the state, in slightly calcareous swamps and marshes. *Reference:* Meyer (1951:399-401; map, p. 395, as *V. sitchensis* var. *uliginosa;* Wisconsin material not seen by Meyer).	●			
Viburnum cassinoides **L.** CAPRIFOLIACEAE	WITHE-ROD, WILD-RAISIN. This shrub is at the western edge of its natural range in northeastern Wisconsin. It has been collected from three marshland localities in Marinette and Oconto Counties. Mr. LeRoy Lintereur, Department of Natural Resources Area Game Manager in Marinette, reports the species as being fairly common in the lower part of Peshtigo Township, Marinette County, on lacustrine deposits. *Reference:* Wade and Wade (1940:99; map, p. 98).	●			
Viburnum edule **(Michx.) Raf.** *V. pauciflorum* CAPRIFOLIACEAE	SQUASHBERRY. The only collection of this northern plant in Wisconsin was made in 1933 in Barron County. It occurs to the north of Wisconsin in rocky ground and is a favored browse species for the moose there. *Reference:* Wade and Wade (1940:97, 99; map, p. 98).				●
Viburnum prunifolium **L.** CAPRIFOLIACEAE	BLACK HAW. Black haw has been found in moist, open woods and thickets in Milwaukee, Racine and Kenosha Counties where the species is at its western range limit. Several stations in these counties are known to exist at the present time. The plant is now extremely rare in our state, though it is locally common to the southeast of Wisconsin in suitable habitats. *Reference:* Wade and Wade (1940:100; map, p. 92).	●			
Vine, Allegheny-	See *Adlumia fungosa*				

Wild Petunia K. Kohout
Ruellia humilis

Snow Trillium Jirak
Trillium nivale

Mountain-cranberry K. Kohout
Vaccinium vitis-idaea

Long-spurred Violet K. Kohout
Viola rostrata

		END	THR	UNK	EXT
Viola fimbriatula **J. E. Smith** VIOLACEAE	There is only one collection of this species from Wisconsin, from eastern Jackson County in 1947. This violet of dry, sandy woods ranges as far west as western Michigan and the single Wisconsin collection is disjunct from other stations. *Reference:* Russell (1965:30-31).			●	
Viola novae-angliae **House** VIOLACEAE	This violet is rather rare throughout its U.S. range (except in northeastern Minnesota where reportedly it is frequent). In Wisconsin it is known from only four stations in four counties (Rusk, Chippewa, Lincoln and Outagamie) where it grows in damp areas near cold streams. The species occurs disjunctly in Maine. According to Iltis (pers. comm.) it is one of the very few species which has a range restricted to glaciated territory. *Reference:* Russell (1965:44).			●	
Viola rostrata **Pursh** VIOLACEAE	LONG-SPURRED VIOLET. In Wisconsin this violet is at the very western edge of its range. It is restricted to several counties on Lake Michigan (especially Door County) where it is found in rich mesic woods, usually if not always associating with beech trees. *Reference:* Russell (1965:14).		●		
Viola septentrionalis **Greene** VIOLACEAE	A plant of sporadic but wide-spread distribution in the eastern U.S., this violet is found in rich moist woods in the southern half of the state. The only Great Lakes states it occurs in are southern Michigan and Wisconsin. *Reference:* Russell (1965:58).		●		
Viola striata **Ait.** VIOLACEAE	CREAM VIOLET. The only collection of this violet in Wisconsin, here at the northwestern edge of its range was made in a mesic woods in eastern Rock County in 1895. *References:* Musselman et al. (1971:180); Russell (1965:16).				●
Violet, green	See *Hybanthus concolor*				
Violet	See *Viola* spp.				
Wake-robin	See *Trillium recurvatum*				
Water-milfoil	See *Myriophyllum farwellii*				
Water-purslane	See *Didiplis diandra*				
Water starwort	See *Callitriche* spp.				
Waterwort	See *Elatine triandra*				
White lettuce, great	See *Prenanthes crepidinea*				
rough	See *P. aspera*				
Willow, dune	See *Salix cordata*				
heart-leaved	See *S. cordata*				
silky	See *S. sericea*				
Willow-herb	See *Epilobium* spp.				
Withe-rod	See *Viburnum cassinoides*				
Woodsia abbeae **Butters** POLYPODIACEAE	WOODSIA. It appears that all *Woodsia scopulina* collected in Wisconsin (cf. Tryon et al., 1953) has been re-identified by several specialists as this rare hybrid between *Woodsia ilvensis* and *W. oregana.* The plant is known to grow only at Pattison State Park, Douglas County, on igneous rock. Status in U.S.: Endangered.	●			
Woodsia oregana **D. C. Eaton** incl. *W. cathcartiana* POLYPODIACEAE	OREGON WOODSIA. Specimens identified as *Woodsia oregana* and its closely allied variety *cathcartiana* have been collected from igneous rock crevices at St. Croix Falls (Polk County) and Manitou Falls (Douglas County). *Reference:* Tryon et al. (1953:87-88; map, p. 89).	●			
Yerba de tajo	See *Eclipta alba*				

APPENDIX I: OTHER SPECIES CONSIDERED

Species considered, but not given, protective status. Entries are doubtfully native, too common in at least a part of their Wisconsin range, insufficient information to judge status, etc.

Acalypha gracilens
Acer pensylvanicum—no authentic records
Aletris farinosa
Alisma gramineum—doubtfully native (see Fassett, N. C. 1929. Trans. Wis. Acad. Sci., Arts and Letters 24:249-256)
Allium cernuum
Allium stellatum
Amelanchier bartramiana
Androsace occidentalis
Aplectrum hyemale
Arabis shortii—widespread, sometimes weedy
Artemisia serrulata
Asclepias hirtella
Asclepias ovalifolia
Asplenium platyneuron—frequency of collections in southern Wisconsin is increasing (8 collections from different stations in 4 counties since 1967)
Aster amethystinus—a hybrid between *A. ericoides* and *A. novae-angliae*
Aster finkii—an apparent hybrid between *A. cordifolius* and *A. shortii*
Azolla mexicana

Berula pusilla (B. erecta)
Besseya bullii (Wulfenia bullii; Synthyris bullii)
Blephilia ciliata
Blephilia hirsuta

Calamagrostis inexpansa (var. *brevior*)
Calamagrostis stricta (C. neglecta)—taxonomic status uncertain
Callitriche deflexa—doubtfully native
Callitriche stagnalis—doubtfully native
Cardamine parviflora var. *arenicola*
Carex davisii
Carex emmonsii
Carex hirsutella
Carex jamesii
Carex leavenworthii
Carex lenticularis
Carex merritt-fernaldii
Carex nigra
Carex novae-angliae—doubtfully native (two collections, one from a campsite, Ashland Co.)
Carex praegracilis
Cassia hebecarpa
Castanea dentata—not native
Circaea canadensis
Clematis verticillaris
Corallorhiza striata
Corydalis aurea—doubtfully native. See Ownbey, G. B. 1947. Monograph of the North American species of *Corydalis* Ann. Mo. Bot. Gard. 34:187-260 (range map, p. 232)
Corydalis micrantha—doubtfully native; often in disturbed habitats. See Ownbey, G. B. 1947. (range map, p. 221)
Crotalaria sagittalis—doubtfully native
Croton glandulosus var. *septentrionalis*—the number of collections of this plant has increased in recent years, many from disturbed habitats (roadsides, etc.)
Crataegus acuctiserrata Kruschke
Crataegus basilica Beadle
Crataegus beata Sargent
Crataegus crus-galli Linnaeus
Crataegus disperma Ashe
Crataegus dissona Sargent
Crataegus distincta Kruschke
Crataegus douglasii Lindley
Crataegus fulleriana Sargent
Crataegus grayana Eggleston
Crataegus irrasa Sargent
Crataegus jesupii Sargent
Crataegus margaretta Ashe
Crataegus nitidula var. *macrocarpa* Kruschke
Crataegus pennsylvanica Ashe
Crataegus prona Ashe
Crataegus shinnersii Kruschke
Crataegus wisconsinensis Kruschke

Dioscorea quaternata (Walt.) Gmel. var. *alternifolia* T. Clayton—incl. under *D. villosa* sen. lat.
Draba nemorosa—doubtfully native
Dryopteris goldiana

Eleocharis ovata
Erigeron divaricata—doubtfully native
Erigeron glabellus—native in northwestern Wisconsin but often appearing in disturbed conditions as a weed (e.g., roadsides)
Eupatorium altissimum
Euphorbia geyeri

Filipendula rubra—doubtfully native (see comment in Mason and Iltis 1958:80)
Floerkea proserpinacoides

Geranium robertianum
Geum vernum—doubtfully native; recently increasing
Goodyera oblongifolia
Goodyera repens var. *ophioides*
Gratiola aurea (and *forma pusilla*)
Gymnocarpium heterosporum W. H. Wagner—an apomictic species of hybrid origin (*G. robertianum* X *G. disjuncta*); see Wagner, 1966.

Hackelia americana

Halenia deflexa
Hypericum prolificum—doubtfully native
Juncus acuminatus—apparently increasing; often in disturbed habitats
Juncus articulatus
Juncus marginatus

Lemna perpusilla
Lespedeza procumbens—doubtfully native
Lespedeza repens—doubtfully native
Linum medium—doubtfully native
Listera cordata
Lonicera oblongifolia
Lonicera villosa
Lycopodium porofilum
Lycopodium selago (incl. all varieties)—numerous recent collections from different stations suggest that this small plant is not as rare as previously thought

Mertensia paniculata—more or less common in suitable sites in northwestern Wisconsin
Mertensia virginica
Mimulus glabratus var. *fremontii*—restricted to cold springs and wet cliffs, more or less statewide
Morus rubra—fairly common along the Mississippi and Wisconsin Rivers
Myriophyllum heterophyllum

Najas gracillima—doubtfully native, apparently increasing
Najas guadalupensis
Najas marina—first collected in 1941, apparently increasing
Najas olivacea—taxonomic status uncertain (probably *N. guadalupensis*)
Nelumbo lutea
Nyssa sylvatica—doubtfully native

Plantago virginica—doubtfully native
Poa glauca—taxonomic status uncertain
Poa wolfii—taxonomic status uncertain
Potamogeton capillaceus
Potamogeton diversifolius—taxonomic status uncertain
Potamogeton filiformis
Potamogeton oakesianus
Potamogeton obtusifolius
Prenanthes racemosa

Quercus muhlenbergii

Ratibida columnifera—doubtfully native
Rorippa sessiliflora
Rotala ramosior
Rudbeckia subtomentosa
Rudbeckia triloba—while supposedly native, it is often found in disturbed habitats; sometimes planted
Ruppia occidentalis (*R. maritima* var. *occidentalis* and var. *rostrata*)— doubtfully native; first collection, 1952, presently increasing

Sagina procumbens—doubtfully native
Sagittaria montevidensis—doubtfully native
Salvia reflexa
Samolus parviflorus—doubtfully native
Sanicula canadensis
Sanicula trifoliata
Sassafras albidum—no authentic records
Scirpus clintonii
Scirpus georgianus
Scirpus hallii—doubtfully native
Scirpus heterochaetus—see Fassett, N. C. 1930. Notes from the herbarium of the University of Wisconsin V. Rhodora 32:57-59
Scirpus pallidus—here considered under *S. atrovirens*
Scirpus smithii
Scirpus subterminalis
Scutellaria ovata var. *versicolor*
Selaginella apoda—small and not that uncommon in calcareous wetlands and sand in eastern Wisconsin
Silene virginica—no authentic records
Smilax herbacea var. *herbacea*—probably erroneously included in our flora
Solidago gymnospermoides
Solidago patula
Sparganium fluctuans
Sparganium minimum
Stellaria calycantha
Streptopus amplexifolius
Strophostyles helvola
Strophostyles leiosperma

Talinum rugospermum
Thalictrum venulosum—doubtfully native
Tradescantia bracteata
Tradescantia occidentalis

Utricularia gibba
Utricularia minor

Veronica americana
Viola missouriensis—see Russell, 1965. Sometimes in disturbed habitats, common to the south of Wisconsin
Viola papilionacea—see Russell, 1965

Woodsia cathcartiana—see *Woodsia oregana*
Woodsia scopulina—Wisconsin collections (Tryon et al., 1953) have been reidentified as *W. abbeae*

Xyris montana—see Kral, R. 1966. Xyris (*Xyridaceae*) of the continental United States and Canada. Sida 2:177-260
Xyris torta—see Kral, R. 1966

Zigadenus elegans (incl. var. *glaucus* and var. *elegans*)
Zizia aptera

APPENDIX II: HABITAT AFFINITY GROUPINGS BY STATE GEOGRAPHICAL QUADRATS

Plants on the Threatened or Endangered Species List have been grouped into general habitat categories as they occur in one or more of the chosen state quadrats (Fig. 2). These quadrats are irregular in size but were chosen to reflect certain distributional or migrational patterns in the state.

The purpose of these geographically arranged habitat groupings is to enable non-botanists to more accurately estimate what plants might be encountered in a particular habitat in a certain part of the state. These habitat groupings are very general and are based on herbarium and/or publication records, so they are only meant as a general guide. As knowledge accumulates on the Wisconsin flora, plants will undoubtedly turn up in counties and parts of the state not listed in this appendix.

General habitat groupings do not necessarily reflect associational relationships in the field; therefore, the listings should not be used as such. Neither should the listings be used to predict a threatened or endangered plant's presence in a particular habitat under study.

Symbols in parentheses after a plant's scientific name indicate an estimated range of preferred habitats in a particular habitat complex. Most habitat symbols used are consistent with Curtis (1959). Since many of the species were not encountered by Curtis and his students in their studies of Wisconsin's plant communities, habitat preference is estimated from habitat descriptions on labels, in literature and personal field knowledge. For those species included in **The Vegetation of Wisconsin** (and not obvious errors) an asterisk (*) indicates Curtis' determined modality within a particular habitat complex.

When a plant is believed restricted to one county within a particular quadrat, that county is listed after habitats within the parentheses following the scientific name. Likewise if a species is known from a particular region within a quadrat, a directional aid is given.

COMMUNITY SYMBOL EXPLANATION

BEA	Lake Beach	OB	Oak Barrens
BEAR	Beach Ridges and Swales	OO	Oak Opening
		PB	Pine Barrens
BF	Boreal Forest	PD	Dry Prairie
BOG	Bog	PDM	Dry Mesic Prairie
CG	Cedar Glade	PM	Mesic Prairie
DUN	Lake Dune	PW	Wet Prairie
E	Exposed Cliff	PWM	Wet Mesic Prairie
FN	Fen	S	Shaded Cliff
ND	Northern Dry Forest	SB	Sand Barrens
NDM	Northern Dry Mesic Forest	SC	Shrub Carr
		SD	Southern Dry Forest
NM	Northern Mesic Forest	SDM	Southern Dry Mesic Forest
NS	Northern Sedge Meadow	SM	Southern Mesic Forest
		SS	Southern Sedge Meadow
NW	Northern Wet Forest	SW	Southern Wet Forest
NWM	Northern Wet-Mesic Forest	SWM	Southern Wet Mesic Forest

AQUATICS

Northwest

Armoracia aquatica
Callitriche hermaphroditica
Callitriche heterophylla
Caltha natans (Douglas)
Catabrosa aquatica (springs; St. Croix)
Elatine triandra
Eleocharis robbinsii
Littorella americana
Myriophyllum farwellii
Plantago cordata (streams; Pierce)
Potamogeton confervoides
Potamogeton pulcher
Potamogeton vaseyi
Ranunculus gmelinii var. *hookeri*

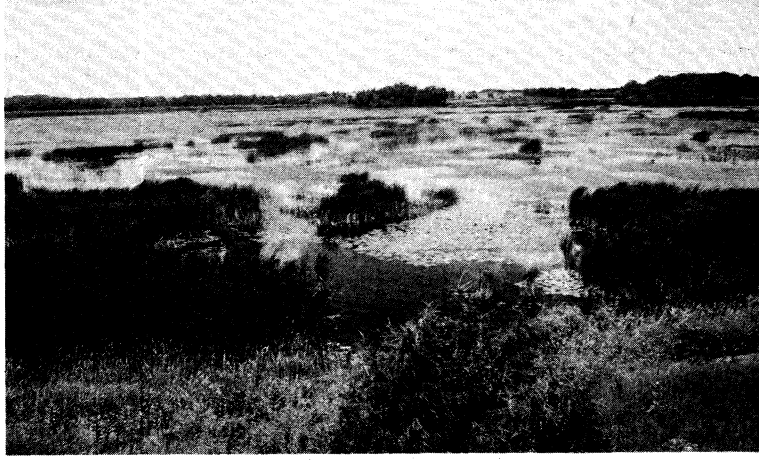
Utricularia geminiscapa
Utricularia purpurea
Utricularia resupinata

Northeast

Armoracia aquatica
Callitriche hermaphroditica
Eleocharis robbinsii
Littorella americana
Plantago cordata (streams; southern counties)
Potamogeton confervoides (Langlade)
Ranunculus gmelinii var. *hookeri*
Utricularia geminiscapa
Utricularia resupinata (Oconto)

Southwest

Armoracia aquatica (Green Lake)
Callitriche heterophylla
Catabrosa aquatica (springs; Adams)
Didiplis diandra
Elatine triandra
Eleocharis equisetoides
Eleocharis quadrangulata



Vogt

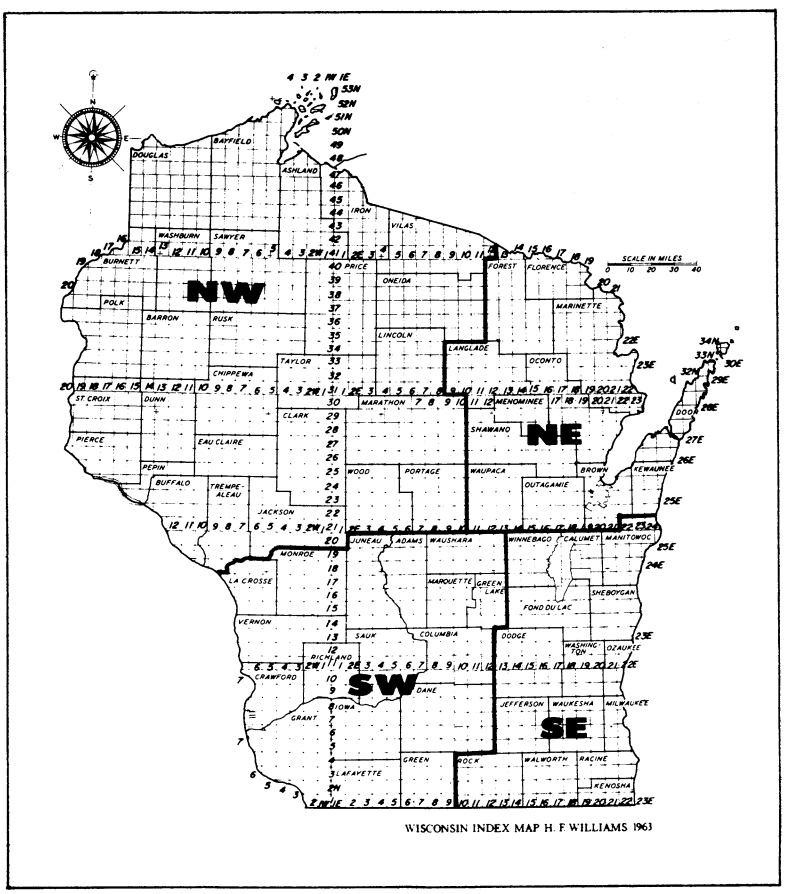
EMERGENT AND SUBMERGENT AQUATICS — Interspersed emergent vegetation in shallow, fertile lake (Red Cedar Lake, Jefferson Co.)

Myostis laxa
Myriophyllum farwellii (Monroe)
Potamogeton pulcher
Potamogeton vaginatus
Potamogeton vaseyi
Utricularia geminiscapa
Utricularia purpurea (Waushara)

Southeast

Eleocharis quadrangulata
Plantago cordata (streams)
Utricularia resupinata (Walworth)

Figure 2. County outline map of Wisconsin showing congressional township grid and the boundaries of the four quadrats used in Appendix II (geographical habitat affinity lists).



INLAND SHORELINE HABITATS

(including wet sand, marl or mud flats; dessicated lake and river shores)

Northwest

Astragalus alpinus
Bartonia virginica
Botrychium simplex
Carex sychnocephala
Deschampsia cespitosa
Deschampsia flexuosa
Elatine triandra
Eleocharis olivacea
Eleocharis robbinsii
Epilobium strictum
Equisetum palustre
Glycyrrhiza lepidota
Habenaria dilatata
Juncus vaseyi
Listera auriculata (river sands; Bayfield)
Myosotis laxa (Chippewa)

SHORELINE HABITAT — Receding sandy lakeshores in central Wisconsin often harbor Atlantic Coastal Plain plants (Small lake southwest of Friendship, Adams Co.)

Read

Ophioglossum vulgatum var. *pseudopodum*
Oxytropis campestris var. *chartacea* (Bayfield)
Polygala cruciata
Rhexia virginica (Jackson)
Salix sericea
Triglochin maritimum
Triglochin palustre
Viola novae-angliae

Northeast

Astragalus neglectus
Bartonia virginica
Botrychium simplex
Carex sychnocephala (Oconto)
Deschampsia flexuosa
Eleocharis olivacea
Eleocharis pauciflora var. *fernaldii*
Eleocharis robbinsii
Epilobium strictum
Habenaria dilatata
Juncus vaseyi
Ophioglossum vulgatum var. *pseudopodum* (rarely)
Psilocarya scirpoides (Waupaca)
Triglochin maritimum
Triglochin palustre
Trisetum melicoides
Viburnum cassinoides
Viola novae-angliae (Outagamie)

Southwest

Bartonia virginica
Carex crawei (Waushara)
Carex synchocephala (Waushara)
Deschampsia cespitosa
Didiplis diandra
Elatine triandra
Eleocharis engelmannii
Eleocharis olivacea
Eleocharis pauciflora var. *fernaldii* (Waushara)
Eleocharis wolfii (Juneau)
Epilobium strictum (rarely)
Equisetem palustre (Sauk)
Habenaria dilatata
Juncus vaseyi
Ophioglossum vulgatum var. *pseudopodum* (rarely)
Oxytropis campestris var. *chartacea* (Waushara)
Polygala cruciata
Psilocarya scirpoides (Marquette)
Rhexia virginica
Salix sericea
Scleria reticularis (Adams)
Triglochin maritimum (Dane)

Southeast

Botrychium simplex
Carex synchocephala (Waukesha)
Conioselinum chinense
Deschampsia cespitosa
Eleocharis olivacea
Eleocharis pauciflora var. *fernaldii*
Eleocharis rostellata
Epilobium strictum
Equisetum palustre
Habenaria dilatata
Ophioglossum vulgatum var. *pseudopodum*
Polygala cruciata
Ranunculus cymbalaria
Salix sericea (Rock)
Triglochin maritimum
Triglochin palustre
Trisetum melicoides

MARSH (incl. slough)—Sedge Meadow (SS, NS), Shrub Carr (SC)

Northwest

Cardamine pratensis var. *palustris* (Polk)
Carex exilis (Ashland)
Carex straminea (Jackson)
Carex torreyi (SS)
Cypripedium calceolus var. *parviflorum* (SC*)
Drosera anglica
Epilobium strictum
Habenaria flava var. *herbiola* (NS, SS, SC, often under alder)
Ophioglossum vulgatum var. *pseudopodum*
Parnassia palustris (Douglas)

Tans **SOUTHERN SEDGE MEADOW — Waubesa Wetland Scientific Area (Dane Co.)**

Salix sericea (SS-SC; southern counties)
Selaginella selaginoides (NS*; Iron)
Senecio congestus
Senecio indecorus (Ashland; Apostle Islands)
Silene nivea (SC*-SS; southern counties)
Triadenum virginicum (marshes; southeastern counties)
Utricularia geminiscapa (wet marshes)
Valeriana uliginosa (marshes; Portage)

Northeast

Cardamine pratensis var. *palustris*
Cypripedium candidum (Outagamie)
Epilobium strictum
Gentiana procera (FN*, SS)
Habenaria flava var. *herbiola* (SS-SC, often under alders; Brown)
Ophioglossum vulgatum var. *pseudopodum* (rarely)
Selaginella selaginoides (NS*; Door)
Senecio congestus (Door)
Valeriana uliginosa (marshes; southern counties)
Viburnum cassinoides

Southwest

Cardamine pratensis var. *palustris* (rarely)
Carex longii (La Crosse)
Carex straminea (La Crosse)
Cypripedium calceolus var. *parviflorum* (SC*)
Cypripedium candidum
Epilobium strictum (rarely)
Festuca paradoxa (SS; Wisconsin River Valley)
Gentiana procera (FN*, SS)
Habenaria flava var. *herbiola* (SS-SC, often under alder)
Houstonia caerulea
Myosotis laxa (sloughs, marshes, Wisconsin River)
Napaea dioica (PWM*, marshes-SS, often along streams)
Ophioglossum vulgatum var. *pseudopodum* (rarely)
Rhexia virginica (SS*)
Salix sericea (SS-SC)
Scirpus cespitosus var. *callosus* (SS, FN; Dane)
Silene nivea (SC*, SS)

Southeast

Cardamine pratensis var. *palustris*
Carex suberecta (SS)
Cypripedium calceolus var. *parviflorum* (SC*)
Cypripedium candidum
Epilobium strictum
Gentiana procera (FN*, SS)
Habenaria flava var. *herbiola* (SS-SC, often under alder)
Hibiscus palustris (Rock)
Houstonia caerulea
Napaea dioica (PWM*, marshes-SS, often along streams; Rock)
Ophioglossum vulgatum var. *pseudopodum*
Salix sericea (Rock)
Scleria verticillata (FN, SS)
Silene nivea (SC*, SS)
Solidago ohioensis (PW-PWM, FN, SS)
Thalictrum revolutum (SS, PW)
Triglochin palustre (SS)
Utricularia resupinata (marshes; Walworth)
Valeriana uliginosa (marshes; Sheboygan)

BOG—Northern Wet Forest (NW)

Northwest

Arethusa bulbosa (BOG*)
Calypso bulbosa
Cardamine pratensis var. *palustris* (Polk)
Carex capillaris var. *major*

Tans **BOG — Lake Superior coastal bogs often contain unusual boreal plants (Siskiwit Bay, Bayfield Co.)**

Carex exilis (Ashland)
Carex livida (BOG)
Carex michauxiana (BOG)
Carex pallescens var. *neogaea* (NW)
Carex tenuiflora (NW)
Carex vaginata (NW; Oneida)
Cypripedium arietinum (NW; Ashland)
Cypripedium reginae (NWM*, NW)
Drosera anglica (BOG)
Drosera linearis (BOG)
Eleocharis olivacea (BOG)
Epilobium palustre
Epilobium strictum
Gymnocarpium robertianum (NW)
Habenaria dilatata (BOG*)
Habenaria hookeri (NW)
Habenaria orbiculata (NW)
Lonicera involucrata (NW; Bayfield)
Malaxis monophylla var. *brachypoda* (NW)
Poa paludigena
Rynchospora fusca (BOG)
Ribes hudsonianum (NW)
Senecio congestus (NW)
Triadenum virginicum (BOG; southeastern counties)
Triglochin maritimum (BOG*)
Vaccinium vitis-idaea var. *minus* (BOG; Douglas)

Northeast

Calypso bulbosa
Cardamine pratensis var. *palustris*
Carex gynocrates
Carex tenuiflora (NW; Oconto)
Carex vaginata (NW; Florence)
Cypripedium arietinum (NW)
Cypripedium reginae (NWM*, NW)
Eleocharis olivacea (BOG)
Eleocharis pauciflora var. *fernaldii* (BOG)
Epilobium strictum
Gymnocarpium robertianum (NW)
Habenaria dilatata (BOG*)
Habenaria hookeri
Habenaria orbiculata
Malaxis monophylla var. *brachypoda* (NW)
Orchis rotundifolia
Poa paludigena
Ribes hudsonianum (NW, BF)
Senecio congestus (NW)
Triglochin maritimum (BOG*)

Southwest

Arethusa bulbosa (BOG; rarely)
Cardamine pratensis var. *palustris* (rarely)
Cypripedium reginae (NWM*, NW, BOG)
Eleocharis olivacea (BOG)
Eleocharis pauciflora var. *fernaldii* (BOG; Waushara)
Epilobium strictum (rarely)
Habenaria dilatata
Habenaria hookeri
Malaxis monophylla var. *brachypoda* (NW; Waushara)

Southeast

Arethusa bulbosa (BOG*)
Cardamine pratensis var. *palustris*
Carex livida (BOG; Rock)
Carex tenuiflora (NW)
Conioselinum chinense (tamarack swamps)
Cypripedium arietinum (NW)
Cypripedium reginae (NWM*, NW)
Drosera linearis (BOG)
Eleocharis olivacea (BOG)
Eleocharis pauciflora var. *fernaldii* (BOG)
Epilobium strictum
Habenaria dilatata (BOG*)
Habenaria hookeri
Habenaria orbiculata
Malaxis monophylla var. *brachypoda* (NW)
Orchis rotundifolia
Triglochin maritimum (BOG*)

BOREAL FOREST (BF)

Northwest

Carex capillaris var. *major* (Bayfield)
Pyrola minor (Bayfield)
Ribes hudsonianum

Northeast

Carex capillaris var. *major* (Door)
Carex concinna (Door)
Tiarella cordifolia (BF*)

SOUTHERN LOWLAND FOREST SW (some SWM)

Northwest

Carex folliculata
Carex straminea (Jackson)
Dentaria maxima (Ashland)
Gymnocladus dioica (Mississippi River Valley only)
Silene nivea
Thelypteris simulata (SW, SWM; Jackson)

Northeast

Gymnocladus dioica

Southwest

Carex folliculata (Monroe)
Carex laevivaginata
Carex lupuliformis (Columbia)
Carex straminea (La Crosse)
Cassia marilandica
Chaerophyllum procumbens (SW-SWM*; Grant)
Diarrhena americana
Eclipta alba
Gymnocladus dioica
Platanus occidentalis (SW-SWM*)
Ptelea trifoliata
Silene nivea
Thaspium barbinode (Crawford)

Southeast

Carex crus-corvi (Milwaukee)
Carex lupuliformis (Milwaukee)
Chaerophyllum procumbens (SW-SWM*; Rock)
Diarrhena americana (Rock)
Euphorbia obtusata (Rock)
Gymnocladus dioica
Platanus occidentalis (SW-SWM*; Rock)
Ptelea trifoliata
Silene nivea (Rock)
Viburnum prunifolium (SW-SM)

Germain

SOUTHERN DRY-MESIC FOREST — Old-growth oak hickory woods in eastern Waukesha Co.

Read

SOUTHERN WET FOREST — Lowland forest along Wisconsin River near Wauzeka (Crawford Co.)

UPLAND WOODS
(SWM, SM, SDM, SD, ND, NDM, NM, NWM, NW of Curtis)

Northwest

Athyrium pycnocarpon (SM*; southern counties)
Botrychium lanceolatum var. *angustisegmentum* (NM*)
Botrychium lunaria (ND-DM, often sandy coniferous woods)
Botrychium oneidense (NWM-NDM)
Botrychium simplex (NWM-ND)
Cacalia muhlenbergii (SD-SM; southern counties)
Carex assiniboinensis (NW-NDM)
Deschampsia flexuosa (ND, PB, often rocky or sandy)
Gymnocladus dioica (SW-SM*; along Mississippi River)
Habenaria hookeri (NWM-ND*)
Habenaria orbiculata (NM*)
Lithospermum latifolium (SD*-SDM, southern counties)
Melica smithii (NDM-ND; Ashland)
Oryzopsis canadensis (ND)

Osmorhiza chilensis (NDM-NM)
Panax quinquefolius (SDM*-SM)
Polystichum braunii var. *purshii* (NWM-NM; northern counties)
Thelypteris hexagonoptera (SWM-SM)
Thelypteris simulata (SWM, SW; Jackson)
Trillium nivale (SM; Pierce)

Northeast

Aster furcatus (SD-SM; Kewaunee)
Athyrium pycnocarpon (SM*; southern counties)
Botrychium lanceolatum var. *angustisegmentum* (NM*)
Botrychium lunaria (ND-NM, often sandy coniferous woods)
Botrychium simplex (NWM-ND)
Carex assiniboinensis (NW-NDM; Shawano)
Carex backii (SD-SDM)
Carex formosa (SM)
Deschampsia flexuosa (ND, PB, often sandy or rocky)
Gymnocladus dioica (SW-SM*; southern counties)
Habenaria hookeri (ND*-NWM)
Habenaria orbiculata (NDM*)
Hydrastis canadensis (SM*; Outagamie)
Lithospermum latifolium (SD-SDM*; southern counties)
Medeola virginiana (NDM*)
Osmorhiza chilensis (NDM-NM; Door)
Panax quinquefolius (SDM*-SM)
Pterospora andromedea (NDM; Door)
Thelypteris hexagonoptera (SWM-SM; Outagamie)
Tiarella cordifolia (NWM-NM, BF*)
Trillium nivale (SM)
Viola rostrata (NWM-NM)

Southeast

Agastache nepetoides (SD-SM)
Aster furcatus (SD-SDM)
Astragalus neglectus (SD-SDM, open woods)
Athyrium pycnocarpon (SM*)
Botrychium simplex (NWM-ND)
Cacalia muhlenbergii (SD-SM)
Carex gracilescens (SM)
Carex swanii (SD)
Collinsia verna (SDM-SM; Rock)
Collinsonia canadensis (SDM-SM; Walworth)
Corallorhiza odontorhiza (SDM*)
Erigenia bulbosa (SWM-SM)
Eupatorium sessilifolium var. *brittonianum* (SD-SDM)
Euphorbia commutata (SM; Rock)
Fraxinus quadrangulata (SM*; Waukesha)
Gerardia gattingeri (SD)
Gymnocladus dioica (SW-SM*)
Habenaria hookeri (NWM-ND*)
Habenaria orbiculata (NDM*)
Hydrastis canadensis (SM*)
Jeffersonia diphylla (SM)
Lithospermum latifolium (SD*-SDM)
Medeola virginiana (NDM*)
Melica nitens (SD; Rock)
Orobanche uniflora (SD; OO*)
Panax quinquefolius (SDM*-SM)
Penstemon hirsutus (SD, OO)
Phlox bifida (SD, sandy; Rock)
Polystichum acrostichoides (SM-SDM)
Pterospora andromedea (SD-SDM)
Solidago caesia (SM-SDM)
Thelypteris hexagonoptera (SWM-SM)
Trillium nivale (SM)
Trillium recurvatum (SWM-SM*; southern counties)
Triphora trianthophora (SWM-SM; Jefferson)
Viburnum prunifolium (SW-SM)
Viola rostrata (SWM-SM; northern counties)
Viola septentrionalis (SWM-SM)
Viola striata (SM; Rock)

Southwest

Agastache nepetoides (SD-SM)
Athyrium pycnocarpon (SM*)
Baptisia tinctoria (SD, sandy; Columbia)
Botrychium oneidense (NM-NWM; Sauk)
Cacalia muhlenbergii (SD-SM)
Carex artitecta (SDM; Sauk)
Carex backii (SD-SDM)
Carex careyana (SM)
Carex prasina (SM)
Collinsonia canadensis (SDM-SM; Sauk)
Corallorhiza odontorhiza (SDM*)
Dasistoma macrophylla (SD-SDM; Grant)
Eupatorium sessilifolium var. *brittonium* (SD-SDM)
Gerardia gattingeri (ND*, SD)
Gymnocladus dioica (SW-SM*)
Habenaria hookeri (NWM-ND*)
Hybanthus concolor (SM; Grant)
Hydrastis canadensis (SM*)
Jeffersonia diphylla (SM)
Lespedeza violacea (SD-SDM)
Lithospermum latifolium (SD*-SDM)
Melica nitens (SD; Iowa)
Orobanche uniflora (SD, OO*)
Panax quinquefolius (SDM*-SM)
Penstemon hirsutus (SD, OO)
Polystichum acrostichoides (SM-SDM; Columbia)
Rhus aromatica (SD, edges)
Thelypteris hexagonoptera (SWM-SM)
Trillium recurvatum (SWM-SM*; southern counties)
Triphora trianthophora (SWM-SM)
Viola septentrionalis (SWM-SM)

PRAIRIES (INCLUDING SOME FEN PLANTS)

Northwest

Agoseris cuspidata (PDM*; Pierce)

Anemone caroliniana (PD)
Artemisia dracunculus (PD)
Artemisia frigida (PD-PDM*)
Asclepias lanuginosa (PD-PDM; Wood)
Asclepias purpurascens (PWM*-PM; Taylor)
Astragalus crassicarpus (PD-PDM*)
Calamovilfa longifolia var. *longifolia* (PD-PDM)
Callirhoë triangulata (PDM*, sand; Trempealeau)
Cirsium hillii (PDM*)
Gentiana alba (PWM-PM*)
Liatris punctata (PDM*; western)
Oenothera serrulata (PD; western)
Opuntia fragilis (PD, sand)
Onosmodium molle (PD; Buffalo)
Petalostemum villosum (PD)
Prenanthes aspera (PWM-PDM; Dunn)
Psoralea argophylla (PM*-PD)
Psoralea esculenta (PD*-PDM)
Scleria triglomerata (PW*-PWM)
Scutellaria parvula (PD-PDM)
Triglochin maritimum (FN)

Northeast

Asclepias purpurascens (PWM*-PM; Marinette)
Carex richardsonii (PD-PDM; Brown)
Cirsium hillii (PDM*; Marinette)
Cypripedium candidum (PW-PWM; FN*; Outagamie)
Gentiana alba (PWM-PM*)
Gentiana procera (PW-PWM; FN*)
Onosmodium molle (PD; southern)
Triglochin maritimum (FN)

Southwest

Agoseris cuspidata (PDM*, sand)

Read

WET-MESIC PRAIRIE — Rich prairie remnant northeast of Princeton (Green Lake County)

Arenaria stricta ssp. *dawsonensis* (PD)
Artemisia dracunculus (PD)
Asclepias lanuginosa (PD, sand)
Asclepias meadii (PD-PDM; Grant)
Asclepias purpurascens (PWM*)
Asclepias sullivantii (PM, FN*)
Cacalia tuberosa (PWM*-PM)
Callirhoë triangulata (PDM*, sand)
Camassia scilloides (PWM*)
Carex richardsonii (PD-PDM)
Cirsium hillii (PDM*)
Cypripedium candidum (PW-PWM, FN*)
Echinacea pallida (PD-PM*)
Gentiana alba (PWM-PM*)
Gentiana procera (PW-PWM, FN*)
Gerardia gattingeri (PWM)
Gerardia skinneriana (PD)
Habenaria flava var. *herbiola* (PWM*)
Habenaria leucophaea (PWM*)
Houstonia caerulea (PW*)
Hypericum sphaerocarpum (PW; Green)
Gerardia skinneriana (PWM-PD)
Juncus vaseyi (PM-PD)
Lespedeza leptostachya (PD)
Napaea dioica (PW-PWM*)
Onosmodium molle (PD)
Opuntia fragilis (PD, sand)
Orobanche fasciculata (PDM*)
Orobanche uniflora (PD, 00*)
Parthenium integrifolium (PWM*-PM)
Penstemon hirsutus (PD-PDM, sand; rarely)
Polygala incarnata (PWM-PDM)
Polytaenia nuttallii (PWM*-PD)
Prenanthes aspera (PWM*-PDM)
Prenanthes crepidinea (PW-PWM*)
Psoralea esculenta (PD*-PDM)
Satureja glabella var. *angustifolia* (PD; Vernon)
Scleria triglomerata (PW*-PDM)
Thaspium trifoliatum var. *flavum* (PWM-PM*, DM, 0(
Tofieldia glutinosa (PW*, FN)
Tomanthera auriculata (PM-PDM)
Triglochin maritimum (FN; Dane)

Southeast

Agoseris cuspidata (PDM*; Rock)
Artemisia dracunculus (PD)
Asclepias lanuginosa (PD-PDM)
Asclepias purpurascens (PWM*-PM)
Asclepias sullivantii (PM, FN*)
Astragalus neglectus (PWM-PM)
Cacalia tuberosa (PWM*-PM)
Camassia scilloides (PWM*)
Carex crawei (PWM, rarely)
Carex richardsonii (PD-PDM)
Cirsium hillii (PDM*)
Coreopsis lanceolata (PWM, sand)
Cypripedium candidum (PW-PWM, FN*)
Echinacea pallida (PD-PM*; Rock)
Fimbristylis puberula (PWM; Kenosha)
Gentiana alba (PWM-PM*)
Gentiana procera (PW-PWM, FN*)
Gerardia gattingeri (PWM)
Gerardia skinneriana (PWM-PD; Kenosha)

Habenaria flava var. *herbiola* (PWM*)
Habenaria leucophaea (PWM*)
Houstonia caerulea (PW*)
Hypericum sphaerocarpum (PW; Rock)
Lespedeza leptostachya (PD)
Liatris spicata (PWM-PM*)
Napaea dioica (PW-PWM*, Rock)
Onosmodium molle (PD)
Parthenium integrifolium (PWM*-PM)
Penstemon hirsutus (PD-PDM, sand)
Phlox glaberrima ssp. *interior* (PW-PWM, 00*)
Polygala incarnata (PWM-PM)
Polytaenia nuttallii (PWM*-PD)
Prenanthes aspera (PWM*-PDM)
Ruellia humilis (PD-PDM, 00)
Satureja glabella var. *angustifolia* (PW-PWM; coastal)
Scleria triglomerata (PW*-PWM)
Scleria verticillata (PW, FN)
Scutellaria parvula (PD-PDM; Rock)
Solidago ohioensis (PW*-PWM, FN)
Thalictrum revolutum (PW, SM)
Thaspium trifoliatum var. *flavum* (PWM-PM*, PDM, 00)
Tofieldia glutinosa (PW*, FN)
Tomanthera auriculata (PM-PDM; Racine)
Triglochin maritimum (FN)
Triglochin palustre (PW, FN)

SAND BARRENS (including sand terraces)—Pine Barrens (PB), Oak Barrens (OB)

Northwest

Anemone caroliniana
Artemisia dracunculus

OAK BARRENS — Dry prairie with scattered oaks along St. Croix River in western Polk Co. Tans

Calamovilfa longifolia var. *longifolia*
Callirhoe triangulata (Trempealeau)
Cirsium hillii
Deschampsia flexuosa (Bayfield)
Liatris punctata (southwestern counties)
Oenothera serrulata (southwestern counties)
Oryzopsis canadensis (PB)
Petalostemum villosum
Viola fimbriatula (PB, Jackson)

Northeast

Cirsium hillii (Marinette)

Southwest

Agoseris cuspidata
Artemisia dracunculus
Callirhoe triangulata
Cirsium hillii
Diodia teres var. *setifera* (Iowa)
Thaspium barbinode (Crawford)

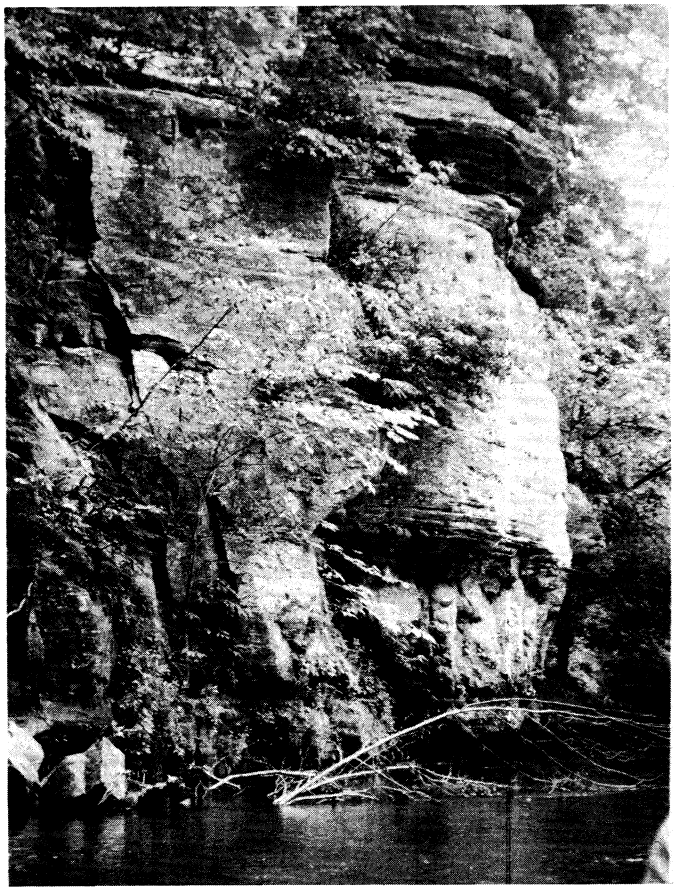
Southeast

Artemisia dracunculus

CLIFFS, ROCK CREVICES (S = shaded, damp; E = exposed)

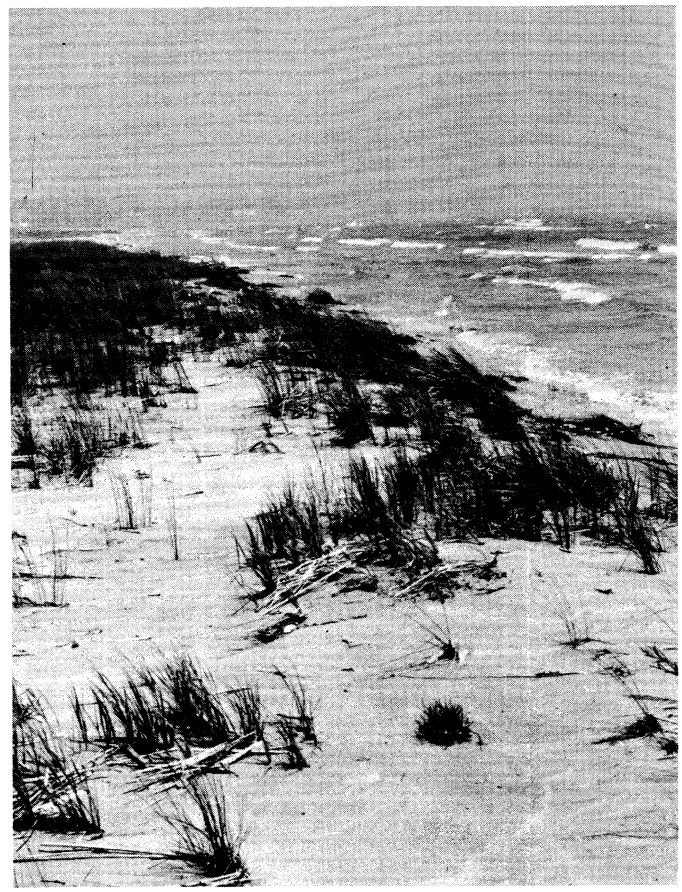
Northwest

Arenaria macrophylla
Arenaria stricta ssp. *dawsonensis* (E)
Asplenium trichomanes
Dodecatheon amethystinum (S; far southern counties only)
Dryopteris fragrans var *remotuiscula* (S*)
Gymnocarpium robertianum (S)
Myosotis laxa (Chippewa)
Pinguicula vulgaris (S; Apostle Islands only)
Primula mistassinica (S)
Ribes oxycanthoides (talus slopes)
Solidago sciaphila (S*, E; extreme southern counties)
Sullivantia renifolia (S*; southern counties)
Trisetum spicatum (Lake Superior region)
Vaccinium cespitosum (crevices)
Vaccinium vitis-idaea var. *minus* (Douglas)
Viburnum edule (talus slopes; Barron)
Woodsia abbeae (igneous rocks; Douglas County)
Woodsia oregana (igneous rock crevices)



Germain

EXPOSED CLIFF (SANDSTONE) — Precipitous sandstone cliffs along Kickapoo River (Vernon Co.)



Hine

GREAT LAKES BEACH — Sandy beaches along Lakes Michigan and Superior support unusual plants (Sheboygan Co.)

Northeast

Adlumia fungosa
Arenaria stricta ssp. *dawsonensis* (E)
Asplenium trichomanes
Asplenium viride (Door)
Draba arabisans (Door)
Draba lanceolata (Door)
Ribes oxycanthoides (Door)
Trillium nivale (S)

Southwest

Aconitum noveboracense (S)
Adoxa moschatellina (S)
Anemone multifida var. *hudsoniana* (E)
Arenaria stricta ssp. *dawsonensis*
Asplenium pinnatifidum (E; Iowa)
Asplenium trichomanes
Carex meadia (S)
Commelina erecta var. *deamiana* (E; Sauk)
Dodecatheon amethystinum (S)
Dryopteris fragrans var. *remotuiscula* (S*; Dells of Wisconsin River)
Gnaphalium obtusifolium var. *saxicola*
Lespedeza violacea (E*)
Lespedeza virginica (E)
Pellaea atropurpurea
Primula mistassinica var. *noveboracensis* (S)
Rhamnus lanceolata
Rhododendron lapponicum (Wisconsin Dells)
Saxifraga forbesii
Solidago sciaphila (S*, E)
Sullivantia renifolia (S*)
Vaccinium cespitosum (crevices; Wisconsin Dells)

Southeast

Adoxa moschatellina (Rock)
Anemone multifida var. *hudsoniana* (E)
Draba arabisans (S; Fond du Lac)
Trillium nivale (S)

GREAT LAKES—Dunes (DUN), Beach (BEA), Beach Ridges (BEAR)

Northwest (Lake Superior)

Equisetum variegatum (DUN*)

Selaginella selaginoides (BEAR; Iron)
Thalictrum confine (DUN; Douglas)
Trisetum spicatum

Northeast (Lake Michigan and Green Bay)

Agropyron dasystachyum var. *psammophilum*
Cakile edentula (BEA*)
Calamovilfa longifolia var. *magna* (DUN*)
Carex crawei
Carex garberi
Carex gynocrates
Cirsium pitcheri (BEA*, DUN; Door)
Coreopsis lanceolata (DUN*)
Equisetum variegatum (DUN*)
Euphorbia polygonifolia (DUN*)
Gentiana procera (FN*, BEAR)
Geocaulon lividum (BEAR; Door)
Iris lacustris (DUN*, BEAR; Door)
Orobanche uniflora (BEA; Door)
Parnassia parviflora (BEA; Door)
Primula mistassinica (BEA*, BEAR)
Satureja glabella var. *angustifolia* (BEA*, BEAR)
Selaginella selaginoides (BEAR; Door)
Solidago ohioensis (BEAR; Door)
Solidago spathulata var. *gilmani* (DUN*; Door)
Tanacetum huronense (BEA, DUN; Door)
Tofieldia glutinosa (BEAR; Door)
Triglochin palustre (BEA*, BEAR; Door)

Southeast (Lake Michigan)

Agropyron dasystachyum var. *psammophilum*
Cakile edentula (BEA*)
Calamovilfa longifolia var. *magna* (DUN*)
Carex crawei (clay banks; Racine)
Carex garberi (Racine—extirpated?)
Cirsium pitcheri (BEA*, DUN)
Coreopsis lanceolata (DUN*)
Equisetum variegatum (DUN*)
Euphorbia polygonifolia (DUN*)
Gentiana procera (FN*, BEAR)
Iris lacustris (DUN*; Milwaukee—extirpated)
Orobanche fasciculata (BEA)
Salix cordata (DUN*, BEA; Manitowoc)
Satureja glabella var. *angustifolia* (BEA*, BEAR)
Triglochin palustre (BEA*)

MISCELLANEOUS HABITATS

Northwest

Carex cumulata (burned-over, moist sand)
Cypripedium arietinum (open, loose sand under conifers)
Geum macrophyllum (moist ground; Washburn)

Northeast

Adlumia fungosa (burned-over deciduous woods)
Cypripedium arietinum (open, loose sand under conifers)

Southwest

Carex cumulata (burned-over, moist sand)
Carex schweinitzii (cold, spring seeps; Iowa)
Lespedeza virginica (CG)
Opuntia fragilis (CG*)
Rhamnus lanceolata (dry hillsides)
Rhus aromatica (dry hillsides)

Southeast

Cypripedium arietinum (open, loose sand under conifers)
Opuntia fragilis (CG*; Waupaca)

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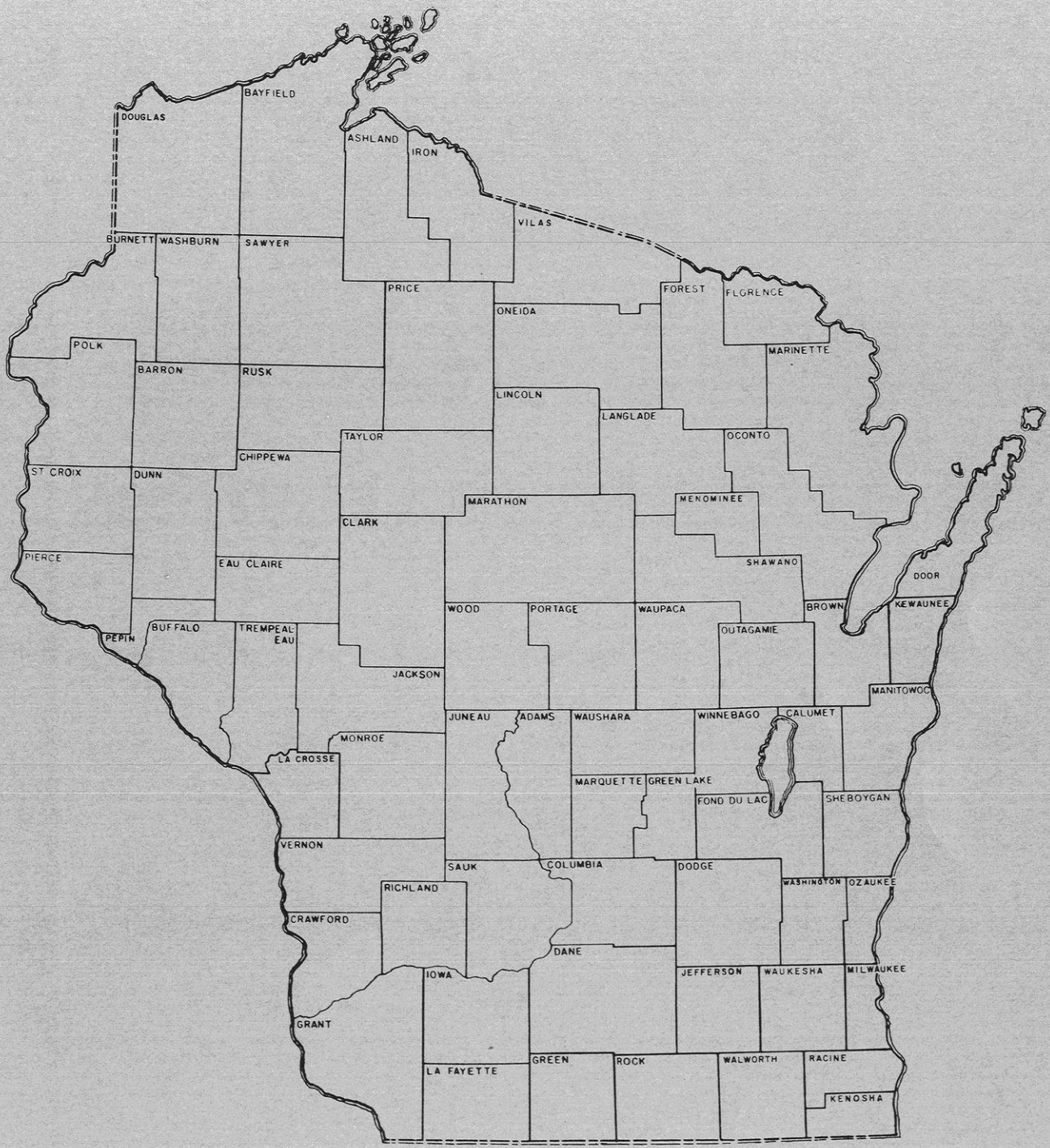
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