VASCULAR PLANTS OF “KAUKAMO SPRUCES,”
A 20-ACRE TRACT IN THE LAKE SUPERIOR LOWLANDS
OF BAYFIELD COUNTY, WISCONSIN

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In the “Flora of Butternut Pines” (Judziewicz 2004) I pointed out that “microfloras” are a useful way of sampling floristic and vegetational diversity on a regional scale. A grid of, say, 100 “microflora plots” positioned statewide (and not just clustered around the well-known “usual suspects”: universities and university field stations), thoroughly re-surveyed every ten or twenty years, would go a long way towards this goal.

Presented here are the results of a floristic survey of a remote eight hectare (20-acre) tract bordering the Iron River in extreme northwestern Bayfield County in the Lake Superior lowlands of far northwestern Wisconsin, about midway between the cities of Superior and Ashland. Purchased by Wyat D. Judziewicz and his wife Elaine Ruzycki in January 1993 as a residence, “Kaukamo Spruces” is a narrow strip of land 330 feet wide and 2640 feet long extending (much like a gigantic transect) from plateau-top abandoned farmland down (eastward) to the steep-sided, densely-wooded valley of the Iron River (Fig. 1). The location is as follows: Lat. 46°41′N, Long. 91°28′W, Town of Ori-enta, T49N, R9W, Section 34, on Kaukamo Road about 13 km by air north-northwest of the village of Iron River. The elevation ranges from 765–855 feet above sea level, or 165–255 feet above Lake Superior, which is 8 km to the north-northwest.

METHODS

In 1993 I made 410 collections at Kaukamo Spruces. All are deposited at WIS (the Department of Botany Herbarium, University of Wisconsin-Madison) except for a few deposited at a small herbarium in a Wisconsin Department of Natural Resources ranger station in Brule. The 1993 collections were made on the following dates: 22 May (10105–10164); 19 June (10206–10328); 10 July (10329-10404); 31 July (10406–10487); 22 August (10488–10529); and 4 September (10530-10541). A few more collections were made from 1994-2001. An asterisk (*) denotes species considered alien (introduced) to this part of Bayfield County.

GEOLOGY, GEOGRAPHY, AND SOILS

The western three-quarters of the tract consists of a nearly flat, slightly hummocky, rather poorly-drained plateau of glacial lake till (Miller Creek formation)
FIGURE 1. Steep, east-facing slope above Iron River, 6 August 2001, with large white pines (*Pinus strobus*) and an understory of balsam fir (*Abies balsamea*).
deposited during the high stages of Lake Superior, during and immediately follow- ing the last stages of Wisconsin glaciation (Clayton, 1984). The East Fork of Resch Creek bisects the tract; it is a tiny intermittent stream that flows north into the Iron River. The steep sides of the Iron River were cut post-glacially, with attendant slope wash and mass-movement of the very clayey soil. The rather turbid Iron River has wide seasonal variations in flow rate; the bottomland has thick deposits of post-glacial stream sediment and, on the west side, a swam py, abandoned river channel that dries up in most summers except for a puddle or slough near the southeast border. The glacial till is underlain by pre-Cambrian Orienta formation sandstone which outcrops along the Iron River several miles north of the tract, particularly at Orienta Falls. The tract has three soils types (U.S. Department of Agriculture, 1961): alluvial soils in the Iron River floodplain; “steep land of Ontonagon materials” along the slopes overlooking the river; and on the plateau-top, “fine-textured soils of the lake plain,” of the Ontonagon-Pickford association. The latter type is common along the Lake Superior plains and consists of red clays and pink sands.

CLIMATE

The tract has a rigorous climate, with cool summers and long, cold, snowy winters. Occasionally, during violent fall storms, the waves of Lake Superior can actually be heard from the tract, five miles inland. However the climate is ameliorated somewhat by the lake’s proximity: it is warmer in the winter, cooler in the summer, snowier, and with a longer growing season than higher areas farther inland.

VEGETATION

Finley (1976) maps the tract as on the boundary between boreal forest (dominated by white spruce, balsam-fir, and paper birch) and white and red pine forests. Logging probably removed all forest cover early in this century, and farming followed (Wisconsin Department of Agriculture and Markets, 1929). Following the abandonment of farms during the Depression in the 1930s, young forests dominated by paper birch and quaking aspen have reclaimed about one-half of the tract. The following discussion of the present vegetation proceeds from west to east, from the lake plain plateau down to the Iron River.

1) West end swampy woods. The westernmost four acres of the tract are a level, poorly-drained woods dominated by pole-sized quaking aspen (*Populus tremuloides*) and with considerable tag alder (*Alnus incana* subsp. *rugosa*) and winterberry holly (*Ilex verticillata*) in the understory. Mixed with the aspen are scattered small trees of black and green ash (*Fraxinus nigra* and *F. pennsylvania*), red maple (*Acer rubrum* var. *rubrum*), balsam-fir (*Abies balsamea*), white birch (*Betula papyrifera*), and one or two large white pines (*Pinus strobus*). A
few herbs are restricted to this stand, including Carex disperma (a sedge), golden
ragwort (Packera aurea), purple-stemmed aster (Aster puniceus), tearthumb
(Polygonum sagittatum), crested wood fern (Dryopteris cristata), and dwarf
raspberry (Rubus pubescens).

2) Old fields. Between the swampy aspen stand and Kaukamo Road are about
ten acres of old fields. The fields are dissected by the East Fork of Resch Creek
and by several ditchlike swales (probably dug for drainage), these serving as cor-
ridors for the invasion of many trees and shrubs such as quaking aspen, white
birch, willows (Salix bebbiana and S. petiolaris), juneberry (Amelanchier spicata),
and hawthorn (Crataegus chrysocarpa). The commonest herbs in the fields them-
selves (excluding the wet swales) are: redtop (Agrostis gigantea), the sedges Carex
castanea, C. gracillima and C. tenera var. tenera, ox-eye daisy (Leucanthemum
vulgare), wild strawberry (Fragaria virginiana), hawkweeds (Hieracium auranti-
acum, H. kalmbii, and H. piloselloides), Kentucky bluegrass (Poa pratensis),
common cinquefoil (Potentilla simplex), common buttercup (Ranunculus acris),
Canada goldenrod (Solidago canadensis), and barren-strawberry (Waldsteinia fra-
garioides). The driest, most well-drained parts of the fields occur near the south
fenceline and have populations of such species as pearly everlasting (Anaphalis
margaritacea), poverty oatgrass (Danthonia spicata), ticklegrass (Agrostis hye-
malis var. scabra), gray goldenrod (Solidago nemoralis), and gray dogwood (Cor-
nus racemosa). Springy swales in the old fields boast a sedge meadow component
including marsh-marigold (Caltha palustris), the sedges Carex crinita, C. pellita,
and C. stipata), spotted cowbane (Cicuta maculata), swamp thistle (Cirsium mu-
ticum), joe-pye-weed (Eupatorium maculatum), water avens (Geum rivale), pur-
ple-fringed orchid (Platanthera psycodes), swap buttercup (Ranunculus hispidus),
and swamp saxifrage (Saxifraga pensylvanica).

4) Resch Creek bottomlands. The muddy bottom of this intermittent stream
has a semi-aquatic flora that includes water-plantain (Alisma triviale), bur-reed
(Sparganium emersum), cat-tail (Typha latifolia), water-parsnip (Sium suave),
water-starwort (Callitriche palustris), ditch-stonecrop (Penthorum sedoides),
and marsh-speedwell (Veronica scutellata). The banks, which are fringed with
scattered trees of bur oak (Quercus macrocarpa var. macrocarpa) and American
elm (Ulmus americana), have a colorful flora that includes blue flag (Iris versi-
color), boneset (Eupatorium perfoliatum var. perfoliatum), skullcap (Scutellaria
lateriflora), Canada anemone (Anemone canadensis), rough bedstraw (Galium
asprellum), hedge-nettle (Stachys tenuiflora var. tenuiflora), turtlehead (Chelone
glabra), and monkeyflower (Mimulus ringens); many of these species are found
nowhere else on the tract, not even along the Iron River.

5) Roadside, driveway, and house clearing lawn. These developed areas have
many exotics; the commonest are bird’s-foot trefoil (Lotus corniculatus), com-
mon dandelion (Taraxacum officinale), and clovers (Trifolium spp.).

6) Boreal forest. This forest type, which extends from Kaukamo Road east to
the edge of the Iron River floodplain, is dominated by balsam-fir, white birch,
quaking aspen, red maple, and bur oak with scattered large individuals of white spruce (Picea glauca) and white pine. Associated trees and shrubs include occasional sugar maples (Acer saccharum var. saccharum) and hop-hornbeam (Ostrya virginiana), beaked hazelnut (Corylus cornuta), bush-honeysuckle (Diervilla lonicera), and arrow-wood viburnum (Viburnum rafinesquianum). The herb and sub-shrub flora is diverse and only a few of the more characteristic species may be mentioned here: wild sarsaparilla (Aralia nudicaulis), big-leaved aster (Aster macrophyllus), corn-lily (Clintonia borealis), bunchberry (Cornus canadensis), northern comfrey (Cynoglossum boreale), spinulose wood fern (Dryopteris carthusiana), Canada mayflower (Maianthemum canadense), sweet coltsfoot (Petasites frigidus subsp. palmatus), and bracken fern (Pteridium aquilinum subsp. latiusculum).

The base of the slope just above (west of) the Iron River floodplain forest has a well-drained floodplain terrace and is the most species-rich area of the tract (in the checklist it is referred to as the “base of the boreal slope”). In addition to many of the species mentioned above, the following predominantly mesic species are found here, often present only as a few individuals: mountain maple (Acer spicatum), maidenhair fern (Adiantum pedatum), wild leek (Allium tricoccum var. tricoccum), spikenard (Aralia racemosa), wild ginger (Asarum canadense), honewort (Cryptotaenia canadensis), dutchman’s-breeches (Dicentra cucullaria), yellow trout-lily (Erythronium americanum), nodding fescue (Festuca subverticillata), miterworts (Mitella diphylla and M. nuda), thimbleberry (Rubus parviflorus), bloodroot (Sanguinaria canadensis), zigzag goldenrod (Solidago flexicaulis), and nodding trillium (Trillium cernuum).

7) Bottomland forest. The floodplain of the Iron River supports a somewhat disturbed bottomland forest with moderately large trees of black ash, basswood (Tilia americana), balsam-poplar (Populus balsamifera), and especially boxelder (Acer negundo var. negundo); long-dead trunks of American elm (Ulmus americana) also persist (Fig. 2). Shrubs include nannyberry (Viburnum lentago) and pasture gooseberry (Ribes cynosbati). The dominant understory herbs are large and coarse: cow parsnip (Heracleum lanatum), ostrich fern (Matteuccia struthiopteris var. pensylvanica), Virginia wild-rye (Elymus virginicus), wood-nettle (Laportea canadensis), stinging nettle (Urtica dioica subsp. gracilis), smooth sweet cicely (Osmorhiza longistylis), and green-headed coneflower (Rudbeckia laciniata). Where the soil is better-drained several species of the mesophytic species listed in the previous section are found, plus enchanter’s-nightshade (Circaea lutetiana subsp. canadensis), marsh blue violet (Viola cucullata), starry false Solomon’s-seal (Smilacina stellata), Carex sprengelii, blue cohosh (Caulophyllum thalictroides), turk’s-cap lily (Lilium michiganense), and the vines hairy carrion-flower (Smilax herbacea subsp. lasioneura) and Virginia creeper (Parthenocissus vitacea).

8) Bottomland slough. An ancient river channel occurs at the base of the boreal slope; it is generally flooded in the spring, and near the south border sometimes retains a stagnant pool all summer. Species found here include arrowhead (Sagittaria latifolia var. latifolia), several sedges (Carex alopecoidea,

FIGURE 3. East Fork of Resch Creek, a tributary of the Iron River, 15 July 2001, with old fields and forest of white birch (*Betula papyrifera*) and quaking aspen (*Populus tremuloides*) visible beyond.
C. bromoides, C. retrorsa and C. tuckermanii), fowl manna-grass (Glyceria striata), beggar-ticks (Bidens frondosus), spotted touch-me-not (Impatiens capensis), forget-me-not (Myosotis scorpioides), northern bugleweed (Lycopus uniflorus), and marsh bedstraw (Galium tinctorium).

9) Riverside thicket. The Iron River is characterized by widely varying flow levels that preclude both full development of trees along some of its banks, and also the development of an aquatic flora; the only true aquatic in the river part of the tract was a small colony of waterweed (Elodea canadensis) (Fig. 3). The riverside has a light thicket of sandbar and shining willows (Salix exigua subsp. interior and S. lucida subsp. lucida), the vines wild-cucumber (Echinocystis lobata), hops (Humulus lupulus), virgin’s-bower (Clematis virginiana), hedgebindweed (Calystegia sepium), and the following herbs (as well as many species found in the west field swale and Resch Creek wetlands): the sedges Carex hystericina, C. stricta and C. trichocarpa, a spikerush (Eleocharis erythropoda), a rush (Juncus nodosus), rice cut-grass (Leersia oryzoides), giant chickweed (Stellaria aquatica), blue vervain (Verbena hastata), and, unfortunately, large and spreading thickets of reed canary grass (Phalaris arundinacea).

DISCUSSION

Kaukamo Spruces has a relatively rich flora for a tract of its size and location. This is probably due to the diverse habitats associated with the Iron River and its rather deeply incised valley, and the fact that the steep valley slopes support remnant coniferous boreal forest. For example, the flora of 352 vascular plant species greatly exceeds that of Oak Island (308 species), even though the latter is 250 times as large (5,029 acres) (Judziewicz & Koch 1993). The tract shares 314 species in common with the Apostle Islands (803 species; Judziewicz & Koch 1993), yielding a similarity index of 55%.

Compared with the 40-acre “Butternut Pines” tract in Oconto County, Wisconsin (Judziewicz 2004; 525 species), Kaukamo Spruces is more depauperate floristically, even allowing for the difference in size. This is probably due to Butternut Pines’ combination of greater habitat diversity, better-drained soils, more temperate climate, and more southerly location (in general, biodiversity is inversely correlated with latitude). The two tracts have 280 species in common, thus a similarity index of 64%. Butternut Pines is richer in several families with acidic soil preferences and/or associated mycorrhizal symbionts: The Lycopodiaceae, Ophioglossaceae, Orchidaceae, Pyrolaceae, and Ericaceae total 31 species for Butternut Pines versus only 8 species for Kaukamo Spruces (17 or 18 species could be expected from size alone).

There is one species classified as of “Special Concern” by the Wisconsin DNR on the tract. Vasey’s rush (Juncus vaseyi) is known from only a few dozen locations in the states of Minnesota, Wisconsin, and Michigan. In far northern Wisconsin, it is now known to be locally common in and around the city of Superior. Buffaloberry (Shepherdia canadensis Nutt.), a calciphilic shrub charac-
teristic of the clay plain and clay bluffs of Lake Superior in this part of Wisconsin, is found south (inland) to within 1 km of the tract (Judziewicz 10746).

Not surprisingly given its northern location, Kaukamo Spruces marks or nearly marks the northern range limits of a dozen or more vascular plant species in Wisconsin. Most of these are mesophytes growing in rich, protected soil on the lower slopes, infrequently flooding floodplain terrace, or floodplain proper of the Iron River. These species include wild leek (*Allium tricoccum* var. *tricoccum*), hog-peanut (*Amphicarpaea bracteata*), Canada brome (*Bromus pubescens*), several sedges (*Carex bromoides* var. *bromoides* and *C. sprengelii*), turtlehead (*Chelone glabra*), broad-leaved enchanter’s-nightshade (*Circaea lutetiana* subsp. *canadensis*), Virginia spring-beauty (*Claytonia virginica* var. *virginica*), gray dogwood (*Cornus racemosa*), dutchman’s-breeches (*Dicentra cucullaria*), wild cucumber (*Echinocystis lobata*), great St. John’s-wort (*Hypericum pyramidalum*), monkey-flower (*Mimulus ringens*), muhly-grass (*Muhlenbergia mexicana*), bishop’s-cap (*Mitella diphylla*), ditch-stonecrop (*Penthorum sedoides*), bur oak, green-headed coneflower (*Rudbeckia laciniata*), bloodroot (*San-guiniaria canadensis*), zigzag goldenrod (*Solidago flexicaulis*), prairie cordgrass (*Spartina pectinata*), and large-flowered bellwort (*Uvularia grandiflora*).

Of particular interest are two wetland sedges that are significantly disjunct north of their main range in Wisconsin. *Carex alopecoidea* was previously known in Wisconsin north only to St. Croix and Shawano Counties, while *C. trichocarpa* generally only occurs north to Barron County but does have an outlying station along the Bad River in Ashland County. However, the Minnesota ranges of these species (*Ownbey & Morley 1991*) and others such as bur oak and broad-leaved enchanter’s-nightshade extend northwards in that state to Lake of the Woods and even the Manitoba border. Hence, the “disjunctions” of Kaukamo Spruces sites are not exceptionally “out-of-range” if we consider them in a broader geographic context.

**CHECKLIST OF VASCULAR PLANTS**

The following checklist is alphabetical by family, genus, and species within each major group (pteridophytes, conifers, monocots, and dicots). Scientific nomenclature follows Wetter et al. (2001), while common names follow the same source or Peterson & McKenny (1968). The following list includes 74 families, 211 genera, and 352 species of vascular plants; 68 (19%) are alien. There are 12 species of pteridophytes, 4 conifers, 98 monocots, and 238 dicots. The largest families are the Asteraceae (45 species), Poaceae (35), Cyperaceae (32), and Rosaceae (23). *Carex* (27 species) is the largest genus.

**PTERIDOPHYTES**

*Equisetaceae* (Horsetail Family)


OPHIOGLOSSACEAE (Adder’s-tongue Family)

Botrychium virginianum (L.) Sw., rattlesnake fern. Rare, boreal slope. 10327.

OSMUNDACEAE (Flowering fern Family)

Osmunda claytoniana L., interrupted fern. Fairly common, moist openings in woods. 10243.

DENNSTAEDTIACEAE (Bracken Family)

Pteridium aquilinum (L.) Kuhn var. latiusculum (Desv.) A. Heller, bracken fern. Occasional, woods. 10210.

DRYOPTERIDACEAE (Wood fern Family)


Dryopteris carthusiana (Vill.) H. P. Fuchs, spinulose wood fern. Occasional, boreal slope. 10266.

D. cristata (L.) A. Gray, crested wood fern. Rare, swampy woods, west end. 10340.


Onoclea sensibilis L., sensitive fern. Fairly common, bottomland and swales. 10125.

PTERIDACEAE (Maidenhair fern Family)

Adiantum pedatum L., maidenhair fern. Rare, base of boreal slope. 10325.

GYMNOSPERMS

PINACEAE (Pine Family)


Picea glauca (Moench) Voss, white spruce. Scattered large trees on boreal slope. 10160.

Pinus resinosa Aiton, red pine. Rare, a few small trees in fields west of Kaukamo Road. 10129.

Pinus strobus L., white pine. Occasional large trees on boreal slope. 10130.

MONOCOTYLEDONS

ALISMATACEAE (Water-plantain Family)

Alisma triviale Pursh, water-plantain. Common, Resch Creek; also bottomland slough. 10420, 11579 (Brule).

Sagittaria latifolia L. var. latifolia, arrowhead, duck-potato. Local, bottomland slough. 10458.

ARACEAE (Arum Family)

Arisaema triphyllum (L.) Schott var. triphyllum, jack-in-the-pulpit. Occasional, bottomland and base of boreal slope. 10157.

CYPERACEAE (Sedge Family)

Carex alopecoidea Tuck. Rare, bottomland slough edge. 10395. Northernmost state site; nearest Wisconsin counties are St. Croix and Shawano.

C. arctata Hook. Uncommon, boreal forest. 10521.

C. aurea Nutt. Rare, south fence line west of Resch Creek. 10538.

C. bromoides Willd. subsp. bromoides. Occasional, bottomland; swales in west fields. 10293.

Northernmost state site.


C. castanea Wahlenb. Abundant, fields. 10112.

C. crimina Lam. Fairly common, wet margins. 10283.

C. deweyana Schwein. var. deweyana Occasional, boreal slope. 10211.

C. disperma Dewey. Rare, swampy woods, west end. 10341.

C. gracillima Schwein. Abundant, fields. 10250, 11363.

C. hystericina Willd. Uncommon, riverside. 10466.

C. intumescens Rudge. Fairly common, swales. 10225.
C. xknieskernii Dewey (C. arctata × C. castanea). Rare, south fence line near west border. 10304. One of only four Wisconsin sites.

C. pedunculata Willd. Occasional, boreal forest. 10133.

C. pellita Willd. Occasional, swales in west fields. 10288.

C. peckii Howe. Fairly common, boreal slope. 10121.

C. projecta Mack. Boreal slope and margin of bottomland slough. 10390, 10451, 10457, 11364.


C. retrorsa Schwein. Occasional, slough and swales. 10397.

C. scoparia Willd. Local, west fields. 10354, 10533.


C. stipata Willd. Fairly common, swales and ditches. 10282.

C. stricta Lam. Local, riverside. 10337.

C. tenera Dewey var. tenera. Common, fields. 10305, 10345, 10393.

C. trichocarpa Willd. Rare, riverside. 10276. Northernmost state site; along with a station in Ashland County, this is disjunct north from the main range of the species (Barron County and south).

C. tuckermanii Dewey. Uncommon; bottomland slough and swale west of Resch Creek. 10396, 10534.

C. vulpinoidea Michx. Occasional, roadside ditches. 10473, 11461, 11580 (Brule).

Eleocharis erythropoda Steud., spikerush. Rare, riverside mud. 10502.

E. obtusa (Willd.) Schult., spikerush. Local, roadside and garden. 10353, 10492.

Schoenoplectus tabernaemontani (C. C. Gmel.) Palla, soft-stemmed bulrush. Rare in riverside mud in 1995. 11387.

Scirpus cyperinus (L.) Kunth, wool-grass. Common, swales and ditches. 10343, 10485.


HYDROCHARITACEAE (Frog’s-bit Family)

Elodea canadensis Michx., waterweed. Rare, submersed in river, northeast corner. 10505.

IRIDACEAE (Iris Family)

Iris versicolor L., blue flag. Occasional, swales and stream sides. 10297.

JUNCACEAE (Rush Family)

Juncus arcticus Willd. subsp. littoralis (Engelm.) Hultén. Common, swales in old fields. 11389.


J. effusus L., common rush. Occasional, swales and ditches. 10240, 11362.

J. nodosus L. Rare, riverside mud. 10468, 11467.


J. vaseyi Engelm. Rare; colony in swale in old field about 50 meters northwest of where Resch Creek enters the tract. 10481. Species of special concern, Wisconsin D.N.R. Noted in 1993 and 1996, not relocated in 2000-2001. Only Bayfield County site.

Luzula acuminata Raf. var. acuminata, wood-rush. Uncommon, boreal slope, west fields. 10111.

LEMNACEAE (Duckweed Family)

Lemma minor L., common duckweed. Locally common, bottomland slough. 10149.

LILIACEAE (Lily Family)

Allium tricoccum Aiton var. tricoccum, wild leek. Rare, base of boreal slope. 10400.

Clintonia borealis (Aiton) Raf., bluebead; corn-lily. Fairly common, boreal forest. 10316.

Erythronium americanum Ker Gawler, yellow trout-lily. Occasional, base of boreal slope. 10139.

Lilium michiganense Farw., turk’s-cap lily. Occasional, streamsides and bottomland. 10336, 11456.

Maianthemum canadense Desf., Canada mayflower. Common, woods. 10226.


**S. stellata** (L.) Desf., starry false Solomon’s-seal. Rare, rich bottomland woods. 10281.

**Streptopus roseus** Michx. var. longipes (Fernald) Fassett, rosy twisted-stalk. Occasional, boreal forest. 10258.


**Uvularia grandiflora** Sm., large-flowered bellwort. Uncommon, boreal slope. 10138. Northernmost state site.

**U. sessilifolia** L., wild oats. Uncommon, boreal slope. 10132.

**ORCHIDACEAE (Orchid Family)**

**Platanthera huronensis** (Nutt.) Lindl., tall northern bog orchid. Uncommon, boreal slopes. 10366.

**P. lacera** (Michx.) G. Don, ragged fringed orchid. Rare, moist west field swale. 10425.

**P. psycodes** (L.) Lindl., purple fringed orchid. Fairly common, west field swales. 10329.

**POACEAE (Grass Family)**

**Agrostis hyemalis** (Walter) Britton, Sterns & Poggenb. var. scabra (Willd.) Blomq., ticklegrass. Occasional, fields. 10430.

**A. gigantea** Roth, redtop. Fairly common, fields. 10542, 11453.

**Alopecurus pratensis** L., meadow foxtail. Uncommon, field. 10309.

**Brachyelytrum aristosum** (Michx.) Trel., slender wedge grass. Fairly common, boreal forest. 10391.

**Bromus ciliatus** L., fringed brome. Occasional, woods. 10427, 11458.

**B. pubescens** Willd., Canada brome. Local, base of boreal slope. 10384. Northernmost state site; disjunct ca. 50 miles north from other Wisconsin stations.

**Calamagrostis canadensis** (Michx.) P. Beauv., bluejoint. Common, wet areas. 10335, 11361.

**Dactylis glomerata** L., orchard grass. Local, near house. 10244, 10309.

**Danthonia spicata** (L.) P. Beauv., poverty oat-grass. Occasional, driest parts of fields. 10334.

**Echinochloa muricata** L. (P. Beauv.) Fernald, barnyardgrass. Fairly common, driveway and garden. 10441, 11578 (Brule).

**Elymus hystrix** L., bottle-brush grass. Local, base of boreal slope. 10383.

**E. virginicus** L., Virginia wild-rye. Fairly common, bottomland and riverside. 10417, 11462 (Brule).

**Elytrigia repens** (L.) B. D. Jacks., quackgrass. Fairly common, fields and roadsides. 10311.

**Eragrostis pectinacea** (Michx.) Steud., love grass. Common garden weed. 10411.

**Festuca pratensis** Huds, meadow fescue. Local, near house. 10251, 10317.

**Glyceria grandis** S. Watson, tall manna-grass. Fairly common, ditches and Resch Creek. 10392.

**G. striata** (Lam.) Hitchc., fowl manna-grass. Local, bottomland slough. 10377.

**Leersia oryzoides** (L.) Sw., rice cut-grass. Local, riverside mud in northeast corner. 10504.

**Lolium perenne** L., ryegrass. Garden weed. 10407.

**Muhlenbergia mexicana** (L.) Trin., muhly-grass. Rare, roadside. 10520. At northern range limit.

**Oryzopsis asperifolia** Michx., rice-grass. Common, boreal forest. 10144.

**Panicum capillare** L., witch grass. Common garden and driveway weed. 10848.

**Pennisetum glaucum** (L.) R. Br., yellow foxtail. Uncommon lawn weed. 10535.

**Phalaris arundinacea** L., reed canary grass. Local, riverside. 10346.

**Phleum pratense** L., timothy. Occasional, fields.

**Poa annua** L., annual bluegrass. Common, driveway. 10136, 10234.

**P. compressa** L., Canada bluegrass. Uncommon, driest part of west fields. 10330.

**P. palustris** L., fowl meadow-grass. Occasional, swales and bottomland. 10294, 10394.

**Spartina pectinata** Link, prairie cord grass. A large clone along east side of Kaukamo Road. 11577 (Brule). Northernmost state site.
Sphenopholis intermedia (Rydb.) Rydb., wedge grass. Occasional in mud along Iron River. 11468, 11623.

SMILACEAE (Cat-brier Family)

Smilax herbacea L. var. lasioneuron (Hook.) A.DC., hairy carrion-flower. Occasional, bottomland and boreal forest. 10252. Northernmost state site.

SPARGANIACEAE (Bur-reed Family)

Sparganium emersum Rehmann, bur-reed. Common in mud of Resch Creek. 10429, 11454.

TYPHACEAE (Cat-tail Family)

Typha latifolia L., common cat-tail. Rare, Resch Creek. 10431.

DICOTYLEDONS

ACERACEAE (Maple Family)

A. saccharum Marshall var. saccharum, sugar maple. Occasional, saplings in boreal forest. 10280.
A. spicatum Lam., mountain maple. Rare, base of boreal slope. 10262.

AIZOACEAE (Carpetweed Family)


AMARANTHACEAE (Amaranth Family)


ANACARDIACEAE (Cashew Family)

Rhus hirta (L.) Sudw., staghorn sumac. Rare, a few along Kaukamo Road. 10541.
Toxicodendron rydbergii (Rydb.) Greene, poison-ivy. Common, woods near house. 10213.

APIACEAE (Parsley Family)

Cicuta maculata L., spotted water-hemlock. Fairly common, swales and streamsides. 10357.
Cryptotaenia canadensis (L.) DC., honewort. Rare, base of boreal slope. 10399.
Heracleum lanatum Michx., cow-parsnip. Abundant, bottomland forest. 10388.
Osmorhiza longistylis (Torr.) DC., smooth sweet cicely. Fairly common, bottomland forest. 10275, 14426.
Sanicula marilandica L., black snakeroot. Common, boreal forest and edges. 10235.
Sium suave Walter, water-parsnip. Locally common, Resch Creek. 10414.
Zizia aurea (L.) W.D.J. Koch, golden Alexander occasional, openings in boreal forest slopes. 14424.

APOCYNACEAE (Dogbane Family)


AQUIFOLIACEAE (Holly Family)

Ilex verticillata (L.) A. Gray, winterberry holly. Fairly common, swampy woods, especially at west end of tract. 10208.

ARALIACEAE (Ginseng Family)

Aralia nudicaulis L., wild sarsaparilla. Common, boreal forest. 10274.
A. racemosa L., spikenard. Rare, base of boreal slope. 10279.
Panax trifolius L., dwarf ginseng. Occasional, boreal forest around house. 10315.

ARISTOLOCHIACEAE (Birthwort Family)

Asarum canadense L., wild ginger. Occasional, base of boreal slope. 10143.

ASCLEPIADACEAE (Milkweed Family)

Asclepias syriaca L., common milkweed. Local, riverside thicket. 10382.

ASTERACEAE (Composite Family)

Achillea millefolium L., yarrow. Common, fields. 10344.
Anaphalis margaritacea (L.) Benth. & Hook., pearly everlasting. Uncommon, driest parts of west field. 10532.

Antennaria howellii Greene subsp. neodioica (Greene) R.J. Bayer, field pussy-toes. Occasional, driest part of west field (along south fenceline). 10122.

*Arctium minus* Bernh., burdock. Rare, base of boreal slope; also near house. 10322.

*A. minus* (L.) Bernh., burdock. Rare, base of boreal slope; also near house. 10322.


*A. ciliolatus* Lindl., panicled aster. Fairly common, swales, ditches, and streambanks. 10517.

*A. lanceolatus* Willd., panicled aster. Fairly common, swales, ditches, and streambanks. 10509.

*A. lateriflorus* (L.) Britton, calico aster. Common, woods and fields. 10496.

*A. macrophyllus* L., large-leaved aster. Abundant, woods. 10433.

*A. puniceus* L., purple-stemmed aster. Occasional, swampy woods at west end. 10516.

*A. umbellatus* Mill., flat-topped aster. Fairly common, swales, ditches, and streambanks. 10517.

Bidens frondosus L., beggar-ticks. Uncommon, bottomland slough, along Resch Creek. 10498.

*Cirsium arvense* (L.) Scop., Canada thistle. Fairly common, edge of driveway and lawn. 10495.

*C. muticum* Michx., swamp thistle. Occasional, wet swales in west fields. 10428.

*C. vulgare* (Savi) Tenore, bull thistle. Uncommon, near house. 10360.

Conyza canadensis (L.) Cronq. var. canadensis, horseweed. Uncommon, driveway and roadside. 10519.

*Crepis tectorum* L., hawk’s beard. Rare weed in driveway parking lot. 10356, 10480, 11309.

*Erigeron annuus* L., daisy fleabane. Occasional, fields and riversides. 10460, 10474.

*E. philadelphicus* L., common fleabane. Uncommon, riverside and roadside ditch. 10277, 10456.


Eupatorium maculatum L., joe-pye weed. Fairly common, swales, streamside, ditches. 10463.

*E. perfoliatum* L. var. perfoliatum, boneset. Rare, bank of Resch Creek. 10543.


*Hieracium aurantiacum* L., orange hawkweed. Fairly common, fields. 10242.

*H. kalmii* L., Canada hawkweed. Common, fields. 10497, 14428.

*H. piloselloides* Villars, king devil. Fairly common, fields. 10406.

*Lactuca canadensis* L., wild lettuce. Occasional, fields and roadsides. 10369.


*M. discoides* DC., pineapple-weed. Occasional driveway weed. 10372.

Packera aurea (L.) A. Löve & D. Löve, golden ragwort. Common, west field swales and west end woods. 10301.

Petasites frigidus (L.) Fr. subsp. palmatus (Aiton) Cronquist, sweet coltsfoot. Occasional, boreal forest. 10124.

Prenanthes alba L., white lettuce. Occasional, swales in west fields; open slope east of house. 10507.

Rudbeckia hirta L. var. pulcherrima Farw., black-eyed susan. Common, fields. 10413.

*R. laciniata* L., green-headed coneflower. Local, bottomland slough edge. 10506. Except for a Rocky Island collection that may be an escape from cultivation, this is the northernmost state site.

Solidago canadensis L., Canada goldenrod. Common, fields. 10515.

*S. flexicaulis* L., zigzag goldenrod. Rare, base of boreal slope. 10524.

*S. gigantea* Aiton, late goldenrod. Common, fields. 10417, 10422, 10493, 10510.

*S. juncea* Aiton, early goldenrod. Occasional, fields. 10487.

*S. nemoralis* Aiton, gray goldenrod. Local, dry parts of field along Kaukamo Road. 10479.

*S. uliginosa* Nutt., bog goldenrod. Common, swales in west fields. 10510.

*Sonchus arvensis* L., common sow-thistle. Edge of lawn northwest of house. 10525.

*Tanacetum vulgare* L., common tansy. Junction of driveway with Kaukamo Road. 10437.
BALSAMINACEAE (Touch-me-not Family)

*Impatiens capensis* Meerb., spotted touch-me-not. Uncommon, wet areas; Resch Creek and bottomland slough. 10514.

BERBERIDACEAE (Barberry Family)

*Caulophyllum thalictroides* (L.) Michx., blue cohosh. Uncommon, rich bottomland woods in southeast corner. 10156.

BETULACEAE (Birch Family)


BORAGINACEAE (Borage Family)

*Myosotis scorpioides* L., forget-me-not. Locally common, edge of bottomland slough. 10385.

*Barbarea vulgaris* R. Br., yellow rocket. Occasional, fields and roadsides. 10108.

*Erysimum cheiranthoides* L., wormseed-mustard. Fairly common garden weed. 10359.


CALLITRICHACEAE (Water Starwort Family)

*Callitriche palustris* L., water starwort. Occasional, in mud of Resch Creek, Iron River. 10415.

CAPRIFOLIACEAE (Honeysuckle Family)

*Diervilla lonicera* Mill., northern bush-honeysuckle. Occasional, boreal forest. 10350.


*L. hirsuta* Eaton, hairy honeysuckle. Occasional, boreal forest. 10256, 10364.


*V. rafinesquianum* Schult., arrow-wood viburnum. Fairly common, woods and edges. 10253.

*V. trilobum* Marshall, highbush-cranberry. Occasional, bottomland and along Resch Creek. 10146.

CARYOPHYLLACEAE (Pink Family)

*Cerastium fontanum* Baumg. subsp. *vulgare* (Hartm.) Greuter & Burdet, mouse-ear chickweed. Fairly common, roadsides and fields. 10230.


*Stellaria aquatica* (L.) Scop., giant chickweed. Rare, riverside mud. 10462.

*S. longifolia* Willd., stitchwort. Local, opening in boreal slope. 10207.

CHENOPODIACEAE (Goosefoot Family)

*Chenopodium album* L., lamb’s-quarters. Occasional garden weed. 10314.

*C. glaucum* L., oak-leaved goosefoot. Occasional garden weed. 10361.

CONVOLVULACEAE (Morning-glory Family)

*Calystegia sepium* (L.) R.Br., hedge-bindweed. Local, riverside thicket. 10499.
CORNACEAE (Dogwood Family)
- *Cornus alternifolia* L.f., pagoda dogwood. Rare, boreal forest west of house. 10368.
- *C. canadensis* L., bunchberry. Occasional, boreal forest. 10303.
- *C. racemosa* Lam., gray dogwood. Local, south border of west fields. 10289, 11360.
- *C. rugosa* Lam., round-leaved dogwood. Rare, base of boreal slope. 10259.

CUCURBITACEAE (Cucumber Family)
- *Echinocystis lobata* (Michx.) Torr. & A. Gray, wild cucumber. Fairly common, riverside thicket. 10471. Along with a city of Superior collection, the northernmost state site.

ERICACEAE (Heath Family)
- *Vaccinium angustifolium* Aiton, early blueberry. Rare, swampy west end woods. 10483.

FABACEAE (Legume Family)
- *Amphicarpa bracteata* (L.) Fernald, hog-peanut. Fairly common, open slope east of house. 10257.
- *L. palustris* L., marsh vetchling. Local, edge of lawn. 10219, 10367.
- *M. officinalis* (L.) Pall., yellow sweet clover. Occasional weed of riverside and fields. 10379.

FAGACEAE (Beech Family)

FUMARIACEAE (Fumitory Family)

GROSSULARIACEAE (Gooseberry Family)

HYPERICACEAE (St. John’s-wort Family)

LAMIACEAE (Mint Family)
- *Galeopsis tetrahit* L., hedge-nettle. Rare weed at edge of house clearing. 10438.
- *L. uniflorus* Michx., northern bugleweed. Rare, edge of bottomland slough. 10452.
- *Mentha arvensis* L. var. *canadensis* (L.) Kuntze, field-mint. Wet swales near house, also riverside thickets. 10450.
- *Physostegia virginiana* (L.) Benth. subsp. *virginiana*, false dragonhead. Rare, riverside. 10501.
*Prunella vulgaris* L., heal-all. Common, fields and openings. 10220.

*Scutellaria lateriflora* L., side-flowered skullcap. Uncommon, swampy west end woods and near Resch Creek. 10416.

*Stachys palustris* L., marsh hedge-nettle. Uncommon, riverbank. 10453.

*S. tenuiflora* Willd. var. *tenuifolia*, rough hedge-nettle. Fairly common, riverine and banks of Resch Creek. 10347, 11459.

**LOBELIACEAE** (Lobelia Family)

*Lobelia inflata* L., Indian-tobacco. Rare, driveway sand and in west fields. 10436.

**MORACEAE** (Mulberry Family)

*Humulus lupulus* L., hops. Uncommon, streamside edge of bottomland forest. 10278.

**OLEACEAE** (Olive Family)


*F. pennsylvanica* Marshall, green ash. Occasional, west end forest; rare elsewhere. 10284.

**ONAGRACEAE** (Evening-primrose Family)


*E. leptophyllum* Raf., narrow-leaved willow-herb. Rare, wet swale on south border 200 meters west of Resch Creek. 10486, 11624.

*Oenothera parviflora* L., evening-primrose. Uncommon, waste ground near house. 10435.

*O. perennis* L., sundrops. Common, fields. 10349.

**OXALIDACEAE** (Wood-sorrel Family)

*Oxalis stricta* L., yellow wood-sorrel. Rare doorstep weed. 10530.

**PAPAVERACEAE** (Poppy Family)


**PLANTAGINACEAE** (Plantain Family)

*Plantago lanceolata* L., ribgrass. Fairly common lawn weed. 10406.

*P. major* L., common plantain. Common weed. 10375.

**POLYGONACEAE** (Buckwheat Family)


*P. aviculare* L., common knotweed. Common driveway weed. 10374.

*P. convolvulus* L., black bindweed. Local roadside weed. 10527.

*P. hydropiper* L., water-pepper. Rare garden weed. 10363.


*P. lapathifolium* L., nodding smartweed. Local, driveway weed. 10478.

*P. pensylvanicum* L., pinkweed. Fairly common, around house and riverside. 10494, 10500.

*P. sagittatum* L., tearthumb. Rare, swampy west end woods. 10539.

*Rumex acetosella* L., sheep sorrel. Occasional, fields. 10241.

*R. crispus* L., curled dock. Occasional weed, wet edges of lawn and driveway. 10310.

*R. obtusifolius* L., bitter dock. Uncommon, riverside thicket. 10469.

*R. orbiculatus* A. Gray, great water dock. Occasional, streambeds, sloughs, and swales. 10484.

**PORTULACEAE** (Purslane Family)


*Portulaca oleracea* L., purslane. Uncommon garden weed. 10445.

**PRIMULACEAE** (Primrose Family)

*Lysimachia ciliata* L., fringed loosestrife. Fairly common, fields and edges. 10403.

PYROLACEAE (Wintergreen Family)

P. ellipitca Nutt., shinleaf. Uncommon, boreal forest slope. 10376.

RANUNCULACEAE (Buttercup Family)

Anemone americana (DC.) A. Hara, round-lobed hepatica. Common, boreal forest. 10141.
A. canadensis L., Canada anemone. Local, boreal slope and banks of Resch Creek. 10295, 11460.
A. quinquefolia L. var. quinquefolia, wood anemone. Common, woods. 10113.
A. riparia Fernald, thimbleweed. Rare, roadside. 10351.
Caltha palustris L., marsh-marigold. Occasional, swales west of Resch Creek. 10116.
Clematis virginiana L., virgin’s-bower. Occasional, riverside and roadside ditch. 10461.
Coptis trifolia (L.) Salisb., goldthread. Uncommon, boreal slope. 10142.
*Ranunculus acris L., common buttercup. Common, fields. 10246.
R. hispidus Michx., swamp buttercup. Fairly common, swales in fields. 10224.5.
*R. sceleratus L., cursed crowfoot. Rare garden weed. 10489.

ROSACEAE (Rose Family)

Agrimonia gryposepala Wallr., agrimony. Common, fields. 10402.
Amelanchier arborea (Michx. f.) Fern., juneberry. Rare. 10307.
Crataegus chrysocarpa Ashe, hawthorn. Fairly common small tree of fields and edges. 10223, 10536.
Fragaria vesca L. subsp. americana (Porter) Staudt, wood strawberry. Rare garden weed. 10528.
F. virginiana Duchesne, wild strawberry. Fairly common, fields. 10107.
G. rivale L., water-avens. Locally common, wet swales in west fields. 10300, 11457.
*Malus pumila Mill., apple. Rare; deer-chewed saplings in west field. 10482.
*Potentilla norvegica L., rough cinquefoil. Rare driveway weed. 10312.
*P. simplex Michx., common cinquefoil. Common, fields. 10298.
Prunus pensylvanica L.f., pin cherry. Occasional, edges, as near house. 10526.
P. virginiana L. var. virginiana, choke cherry. Occasional, edges, as near house. 10218.
Rosa acicularis Lindl., bristly rose. Fairly common, fields and openings. 10248.
Rubus canadensis L., smooth blackberry. Occasional, fields and edges. 10291.
R. hispidus L., bristly dewberry. Local, banks of Resch Creek. 10333.
R. parviflorus Nutt., thimbleberry. A patch at base of boreal slope east of house. 10268.
R. pubescens Raf., dwarf raspberry. Fairly common, swales and swampy woods. 10118.
R. idaeus L. var. strigosus (Michx.) Maxim., red raspberry. Occasional, fields and edges. 10245.
Spiraea alba Du Roi, meadowsweet. Occasional; edge of west end woods, also riverside. 10342.
Waldsteinia fragarioides (Michx.) Tratt. subsp. fragarioides, barren-strawberry. Abundant, fields and clearings. 10110.

RUBIACEAE (Madder Family)

Galium asprellum Michx., rough bedstraw. Locally common, banks of Resch Creek. 10296, 11455.
G. boreale L., northern bedstraw. Invading the south fields from the north. 11388.
G. tinctorium L., swamp bedstraw. Occasional, west end and bottomland woods. 10338, 10455.
G. triflorum Michx., sweet-scented bedstraw. Rare, base of boreal slope. 10261.
Mitchella repens L., partridge-berry. Uncommon, boreal forest. 10255.

SALICACEAE (Willow Family)
Populus balsamifera L. subsp. balsamifera, balsam-poplar. Common along river, occasional on uplands. 10161.
S. exigua Nutt. subsp. interior (Rowlee) Cronquist, sandbar willow. Occasional, riverside. 10380.
S. lucida Muhl. subsp. lucida, shining willow. Uncommon, riverside. 10378.
S. petiolaris Small, slender willow. Common, swales in fields. 10106.

SAXIFRAGACEAE (Saxifrage Family)
M. nuda L., naked miterwort. Occasional, boreal slope. 10272.
Penthorum sedoides L., ditch-stonecrop. Locally common in mud of Resch Creek. 10512.
Second northernmost state site (after one on Madeline Island).
Saxifraga pensylvanica L., swamp saxifrage. Occasional, moist boreal slopes and swales in west fields. 10123.

SCROPHULARIACEAE (Figwort Family)
Chelone glabra L., turtlehead. Rare, Resch Creek. 10513.
Gratiola neglecta Torr., hedge-hyssop. Common garden weed; also riverbank mud. 10410, 11465.
Mimulus ringens L., monkey flower. Rare, Resch Creek. 10421, 11463.
Scrophularia lanceolata Pursh, figwort. Rare, riverside thicket. 10464.
Veronica americana Benth., American brooklime. Local in mud along the Iron River. 11470.
V. scutellata L., marsh-speedwell. Locally common in mud, Resch Creek. 10419, 10518.

TILIACEAE (Basswood Family)
Tilia americana L., basswood. Fairly common, bottomland; occasional, boreal forest. 10224.

ULMACEAE (Elm Family)
Ulmus americana L., American elm. Occasional small tree, bottomland and boreal slope. 10232.

URTICACEAE (Nettle Family)
Laportea canadensis (L.) Wedd., wood nettle. Fairly common, bottomland. 10386.

VALERIANACEAE (Valerian Family)
*Valeriana officinalis L., garden heliotrope. Rare weed; opening at base of boreal slope. 10321.

VERBENACEAE (Vervain Family)
Verbena hastata L., blue vervain. Local, riverside thicket. 10470.

VIOLACEAE (Violet Family)
Viola cucullata Aiton, marsh blue violet. Occasional, bottomlands. 10323.
V. labradorica Schrank, dog violet. Fairly common, fields. 10119.
V. pubescens Aiton, yellow violet. Fairly common, boreal forest. 10115.
V. renifolia A. Gray. Rare, south fenceline west of Kaukamo Road. 10164.5.

VITACEAE (Grape Family)
Parthenocissus vitacea (Kerner) Hitchc., Virginia creeper. Occasional, bottomland. 10271.
ACKNOWLEDGMENTS

I thank my brother Wyat D. Judziewicz, his wife Elaine Ruzycki, and their daughter Helen Elizabeth Judziewicz for their hospitality during my visits to this most peaceful corner of Wisconsin. Theodore S. Cochrane kindly confirmed my determinations of *Juncus vaseyi* and several carices.

LITERATURE CITED


Wisconsin Department of Agriculture and Markets. 1929. Land Economic Inventory of Northern Wisconsin: Bayfield County. Bulletin Number 100. 93 pp.

BOOK REVIEW


The envelope was big in my departmental mailbox. When I opened it I was greeted with the magnificent color image of two large inflorescences of pink *Lupinus*. What is this, I said to myself, as I turned the paper bound book over in my hands.

The authors call this book a full color photographic atlas to all plant groups seen in a general botany laboratory. It is designed to accompany the normal college botany text and gives the student color images of the plant groups, morphological parts, and structures. They say “it provides a balanced visual representation” of what the student should see clearly and accurately with matching terminology used to fit most common college-level texts.

I call this atlas a perfect book for the amateur botanist who wants to learn about the major groups of plants “by osmosis and looking at pretty pictures.” Most of our Michigan Botanical Club members are people who wish to learn