A Vascular Flora Of The Swaledale Railroad Prairie In North Central Iowa

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"Railroad prairies" are remnant native grasslands that grow along railroad right-of-ways. The Swaledale railroad prairie, which is in north central Iowa, occurs along the Chicago and Northwestern Railroad Company right-of-way in Cerro Gordo County.

The railroad right-of-way and an abandoned sand pit, which lies adjacent to the railroad embankment, harbor a collection of tallgrass prairie remnants. The sand pit supplied earthen fill which was used to elevate the original railroad embankment, circa 1887. It is noteworthy that the method of excavation for fill material helped to preserve earthen knolls that are covered with original tallgrass prairie. Plant collections were acquired from the Swaledale railroad prairie from 1976 to 1986. A total of 247 vascular plants, mainly prairie species, were identified from 64 families. Voucher specimens are housed at the University of Wisconsin-Oshkosh Herbarium (OSH). Some duplicate vouchers were donated to the University of Northern Iowa Herbarium (ISTC).

Based on collections and observations it was discovered that two Iowa threatened species, Valeriana adulis Nutt. and Equisetum fluviatile L., and one endangered species, Salix pallissardii Pursh, grow on the Swaledale railroad prairie.

To illustrate the impact that late 19th century railroad technology had on settlement and the eventual destruction of the prairie ecosystem, a history of the railroad prairie is presented. Sources used to trace a history of the vegetation from pre-settlement times, circa 1850, to the present include the original land survey records, old newspaper articles, library references and personal interviews.

INDEX DESCRIPTORS: railroad prairie, vascular flora, prairie remnants, vegetation

In 1887 the Mason City and Fort Dodge Railroad was built through the township and a station possessing the euphonious name of "Swaledale" was established within the borders of Pleasant Valley.

From the History of Cerro Gordo County Iowa (1910) by J.H. Wheeler

"Railroad prairies" are remnant native grasslands that grow along railroad right-of-ways. The prairie flora inhabiting the ditches along a railroad embankment is inadvertently protected because the right-of-way ditches are generally unavailable for use that would significantly alter the natural habitat.

The railroad system in Iowa aided land development during the period after 1865 when railroads made use of financial assistance provided by the United States government (Houlerte, 1970). Establishment of the railroad hastened the demise of Iowa's prairie ecosystem by destroying the natural vegetation cover where tracks were laid and dividing the unbroken expanses of tallgrass prairie. Nineteenth century railroad technology readily facilitated widespread settlement with concomitant farming and prairie destruction.

Ironically, an important part of Iowa's botanical heritage has been preserved by the railway system. In north central Iowa a collection of prairie remnants occupies the right-of-way ditches north of Swaledale. In addition to a rich flora that is represented in part by rare threatened and endangered species, the Swaledale railroad prairie supports a diverse fauna, including a small population of Blanding's turtle, Emydidae blandingi, an Iowa threatened species.

METHODS

The principal feature of this report is a catalog of vascular plants, mainly prairie species, which grow without cultivation along the Swaledale railroad right-of-way. Included in the catalog are common weeds, which are labeled as such, and cultivated species which may have escaped and are reproducing spontaneously. Voucher specimens for some plants were not collected because they are exceedingly common and occur throughout the region.

Plant records for the study site are based upon specimens that I observed or collected from 1976 to 1986. Previous records of plants collected from the Swaledale railroad prairie originate from a private collection that were obtained for a 4-H project between 1967 and 1972 by Carol Ames Witt. Although I've collected vouchers for those species which are part of the 4-H collection, the label WITT and the collection dates appear in the catalog to illustrate which species had been previously collected.

Two plants reportedly observed on the Swaledale railroad prairie between 1972 and 1974 are the white lady slipper, Cypripedium candidum Muhl., and hepatica, Hepatica acutiloba DC. These records are not listed in the catalog of species for lack of vouchers.

Collection sites were made at numerous points in the ditches of the right-of-way through various times of the growing season. Many plants were photographed with 35mm color slide film to further document their presence on the railroad prairie.

Voucher specimens are housed in the University of Wisconsin-Oshkosh Herbarium (OSH). Duplicate vouchers for some species were donated to the University of Northern Iowa (ISTC) through the courtesy of Neil Harriman, curator of OSH.

Nomenclature for scientific binomials follows Gleason and Cronquist (1963) except where names do not conform to the International Code of Botanical Nomenclature or new evidence presents a convincing argument that different names are appropriate. The Cyperaceae, Gramineae and Juncaceae follow Voss (1972); Equisetum follows Mickel (1979) and Salix follows Argus (1964).

The catalog of species is organized into the Poeridophytes, Gymnosperms, Monocotyledons and Dicotyledons. Plant families within these groups are alphabetized, as are the genera and species within a family. Each species is recorded with its scientific name and authority.

Roosa and Eilers (1978) were consulted to ascertain which species are part of Iowa's threatened and endangered flora.

A second objective of this report is to discuss the changes in vegetation since pre-settlement times for the area surrounding the railroad prairie. "Presettlement" in this context is circa 1850, when the original land surveys were conducted for the area that includes the study site. Transcript copies of the original land surveys were obtained from the State Archives of Iowa, Iowa State Historical Department, Des Moines, Iowa.

Library references, old newspaper articles and personal interviews with local residents, in addition to the survey records, were used to trace a history of the vegetation for the Swaledale railroad prairie from pre-settlement times to the present.
LOCATION, GEOLOGY, WATER RESOURCES AND SOILS

The Swaledale railroad prairie is located in the southwestern quarter of Cerro Gordo County in Pleasant Valley and Mt. Vernon townships. The site, which extends north and south, is approximately 16 kilometers south of Mason City and lies parallel to the Chicago and Northwestern Railroad tracks between section 3, T94N, R21W of the 5th Prime Meridian and section 34, T95N, R21W. The railroad prairie can be entered from the north on a county gravel road in section 34 or from section 3 off County Trunk B-60 where the road and tracks intersect at the small city of Swaledale.

The study site is approximately 2.4 kilometers long and 20 meters wide, or roughly 4.8 hectares. In addition to the railroad right-of-way, an abandoned sand pit was included as part of the study area. The sand pit, which is approximately four hectares, is adjacent to the right-of-way, occupying the middle of section 34.

The Swaledale railroad prairie is located on the northeastern fringe of the Des Moines Lobe. This landform region corresponds to the extension of Late Wisconsinan ice into central and north central Iowa (Prior, 1976). The underlying glacial till and alluvium that mantles the Upper Devonian bedrock were deposited since the Woodfordian glacial period, 12,500 to 14,000 years before the present.

The northern boundary of the Swaledale railroad prairie is on an alluvial bench, while the southern boundary marks an upland outwash plain. In between is floodplain that is part of an ancient drainageway, characterized by prairie swales and marshy surfaces.

Typical features of the local topography are the generally flat horizon, low relief and a gently undulating surface formed by long and intermittent stream that drains surface runoff enters the sand pit. Wetland vegetation in this soil association.

The soils of the Saude-Marshan-Lawler association in section 34 were formed on loamy and sandy alluvium (Soil Survey, 1981). The abandoned sand pit is on the edge of an alluvial bench in the southeastern one-quarter of section 34. Before the railroad began operation in 1887, most of the fill material, Flagger sandy loam, was used to form the original railroad embankment.

An intermittent stream that drains surface runoff enters the sand pit in the northwest corner. At the southwest corner the drainage of the sand pit connects with a wet swale that is underlain by Talcot clay. Dry-mesic prairie growing on the stream bench abruptly intergrades with wetland vegetation in this soil association.

The Clarion-Webster-Nicoller soil association in section 3 includes soils that were formed in glacial till and local alluvium derived from glacial till. A small wet, calcareous swale in the middle of section 3, underlain by Webster silty clay loam, harbors an association of wet mesic and wet prairie flora that is adapted to the alkaline macroenvironment.

The surrounding uplands are part of an outwash plain which is mantled with various loams of different water-holding capacities. Most of the land surrounding the railroad prairie is under cultivation.

ORIGINAL LAND SURVEY RECORDS

The original survey of town lines for the Swaledale area was completed in 1849. Section lines were platted in 1853 for the present-day civil townships of Pleasant Valley and Mt. Vernon (Land Survey, 1849 & 1853). Among the various kinds of information contained in the original fieldnotes of the surveyors are descriptions of the vegetation along survey lines. Specific plant names were not mentioned in the fieldnotes for the Swaledale area, but entire communities were recognized.

Numerous references to "prairie" and "marsh" were entered in the fieldnotes by the deputy surveyors to describe the Swaledale area in 1853. According to the survey records "prairie" was present at the quarter and corner posts for sections 3 and 10 in Pleasant Valley township. At the south corner posts between sections 3 and 4 the fieldnotes reveal: "Land gently Rolling Soil first Rate, Prairie". The land between sections 2 and 3 in Pleasant Valley township is described in the fieldnotes as "... low level and wet soil 3d rate Prairie". "3d rate Prairie" suggests the presence of lowland prairies that interconnected with other wetlands along meandering creeks, sloughs and in grassy depressions called swales. "Prairie" was also noted at the quarter and corner posts for section 34 in Mt. Vernon township.

No reference in the fieldnotes to trees being present provides further evidence of a prairie-dominated landscape. Where trees were absent along survey lines a mound of earth was dug to indicate a boundary: "Set quarter section corner on mound of earth and sod . . . ."

Marsh was reported to occupy the area between sections 33 and 34 of Mt. Vernon township: "Enter marsh bears SE Over same bears S.E unfit for cult. [cultivation] Enter another marsh bears SE and connects with others".

The fieldnotes report "willow brush" growing on the fringes of some marshes. The phrase "willow brush" refers to a shrub-carr community dominated by various willows, notably Salix discolor, and red-stemmed dogwood, Cornus anemone. These shrubs are part of the present-day flora. Based on the survey records, water and wetlands were abundant resources in presettlement times.

Deputy surveyors were instructed to write a summary that characterized a township's natural resources, and thus its settlement potential. The following township summary is for that area of present-day Mt. Vernon:

This township is all prairie with the exception of a little scattering timber on the west side Not enough however to be of any utility to settlers It contains numerous small marshes and some of considerable extent, most of them are unfit for cultivation with out a resort to artificial means, but a small proportion of the marshes in the Township is exhibited on the plat they generally have no particular connection with each other some are very small The creek [Beaver Dam Creek] is very sluggish crooked and muddy and generally has a margin of willow brush it is fit habitation for beaver and other animals The creek has its source in the large marsh [Zirbel's Slough] in the North West part of this township and the North East part of Township 95 Range 22.

The area of present-day Pleasant Valley township was summarized in this manner:

This Township has a gently Rolling surface soil is of good quality, there are portions that are covered with water and unfit for cultivation. There is one stream [Beaver Dam Creek] running through the south part of sufficient size for power for machinery with a very small portion of timber in places along its Banks There is also a creek running through this Township that Heads in the N.W. corner and Leaves the Township in Section 13 which is deep and sluggish mud bottom and is about 20 links wide.

With the exception of a few wooded stream banks and widely scattered oak groves, the original vegetation cover for the Swaledale area prior to settlement was tallgrass prairie. Potholes, kettleholes and extinct glacial drainageways interrupt the upland plain. These lowlands were occupied by a wetlands complex comprised of low prairie, marsh, shrub-carr and sedge meadow. Most of these wetlands have been drained and converted to cropland.

EARLY SETTLEMENT TO MODERN TIMES

The presence of a rich prairie flora along certain portions of the Swaledale railroad right-of-way is evidence that these areas were not cultivated or altered significantly by agricultural practices or railroad activity before or after the railroad became established. Those areas
which contain a greater floristic diversity and that appear least disturbed correspond mainly to lowland prairie and sedge meadow habitats. Because these areas were too wet to be utilized as cropland or suitable pasture they were inadvertently preserved.

On October 18, 1887 a deed was obtained by the Mason City and Fort Dodge Railroad Company to establish a 66 foot right-of-way for rail traffic. In addition to the right-of-way, 3.7 acres of adjacent property was acquired. This acreage, located on a sandy alluvial bench, served as a sand pit that supplied earthen fill to elevate the original railroad embankment in lowland areas. The railroad was completed by 1887 (Wheeler, 1910).

In 1897 the railroad company acquired an additional 6.18 acres of land that enlarged the sand pit. Because of the method of excavation by wheel or skid scrapers, two earthen knolls, covered with mesic to dry-mesic prairie, were preserved at the southwestern corner of the sand pit.

The knolls were formed as the surrounding bench was excavated. Later, draft animals, pulling a scrapper filled with soil, were driven across a wooden platform that connected the knolls. Midway across the platform the scrapper was tripped and the dirt was deposited through a hole in the platform to a waiting wagon below.

The narrow lane separating the two knolls is not very apparent because of some filling in from past erosion and an overgrown vegetation cover, noticeably Populus tremuloides. Tallgrass prairie occupies the top of the knolls because here the original vegetation cover was not scraped away.

Smaller knobs that occur further northeast in the sand pit are vegetated with Agropyron repens and Bromus inermis. The presence of these weedy grasses indicates that these lesser mounds are "spoil piles" composed of unused fill material.

Seasonal ponding occurs on the eastern side of the sand pit where the fill removal has created a shallow seepage. Portions on the west side of the sand pit also become seasonally pended, although here the soils contain a greater amount of organic muck. Unlike the seasonal pools on the east side of the pit which formed as a result of being excavated, most of the low area on the west side appears to be part of the original landscape surface.

Periodic grass fires along the railroad right-of-way were common in the days of the steam locomotive, especially in the spring. Between 1915 and 1950 two freights and two passenger trains stopped in Swaledale every day. By destroying shrubs and trees the fires may have reduced competition with prairie species. In many instances it was a deliberate practice for the railroad company to begin fires in the ditches of the right-of-way to reduce the amount of woody growth.

The lands surrounding the railroad right-of-way eventually were placed under cultivation or pastured. Cereal crops that were grown then would have included corn, oats, rye and wheat, while flax and hemp were also planted at different times.

An 1894 newspaper article published in the The Mason City Daily Times-Herald summarizes the state of agricultural affairs near the turn of the century:

\begin{quote}
It was only a little over twenty years ago that they commenced to farm it [Pleasant Valley]. Ten years ago it was practically a prairie. Now nearly every acre of it is fenced and under cultivation. Loaded with big crops this year — oats from 30 to 90 bushels and corn from 20 to 40 bushels — it is indeed a pleasant sight to look upon. Its farmers are making money, fast improving their condition, buying improved strains of stock and learning improved methods of farming. The next few years will see even greater changes. It is good to be a Pleasant Valley farmer.
\end{quote}

The same news article continues with "Land selling for from $30 to $40 an acre in these times means that it is valuable."

Even at the turn of the century there was evidence of enough prairie acres to support a prairie chicken population along the right-of-way. Between 1910 and 1915 local Swaledale residents Alfred Christianesen, Bill Krugel and Carl "Buck" Leinhaas bagged prairie chickens along the Swaledale railroad prairie.

In 1935 or 1936 my father, Leo Eddy, observed prairie chickens while hunting pheasants along the railroad embankment. Virgil Rice explained that when his family moved to the Swaledale area in 1936, he too observed prairie chickens on the 70 to 75 acres of lowland prairie that lay parallel to the railroad tracks. Today only a few acres of this prairie remain.

In more recent times the Swaledale railroad prairie has supplied some local residents with plants for decorative and medicinal uses. It is with some irony that the railroad, which divided the unbroken expanses of tallgrass prairie and helped to facilitate early settlement of the land, led to the preservation of the small but significant prairie relics north of Swaledale today.

\section*{RESULTS AND DISCUSSIONS}

Of the total number of plants that were collected along the Swaledale railroad prairie from 1976 to 1986, 247 species were identified from 64 families. Of these there are four pteridophytes, all of which belong to the genus Equisetum: one gymnosperm, Juniperus virginiana; 62 monocotyledons and 180 dicotyledons.

The monosocots are largely represented by 27 grasses or about 11.0% of the total railroad prairie flora, and 21 Cyperaceae, or 8.5%. The largest dicot family is the Compositae with 45 species, or 18.2% of the total prairie flora. The second largest dicot family is represented by 14 Leguminosae, or 5.7% of the total flora.

Two state threatened and one endangered species grow on the Swaledale railroad prairie. All three are wetland plants. The two threatened species are water horsetail, Equisetum fluviatile and valerian, Valeriana adina. Bog willow, Salix paltelettata is a state endangered species.

It is possible that a relict population of the state endangered white lady slipper, Cypripedium candidum, could be present on the Swaledale railroad prairie since associated species grow there and two reliable sightings were made between 1972 and 1974.

The Swaledale railroad prairie is comprised of an assortment of discontinuous remnants because the original vegetation cover has been disturbed at various points along the right-of-way. Although the prairie habitats have varying soils and moisture-holding capacities, five basic prairie types are represented along the railroad right-of-way. In the order from driest to wettest they are: dry, dry-mesic, mesic, wet-mesic and wet.

Dry to dry-mesic prairie elements grow on the earthen knolls at the abandoned sand pit and along other well-drained places of the right-of-way. Associated forbs and legumes found here include Silphium campestre, Aster azureus, Coreopsis palmata, Rudbeckia hirta, Liatris aspera, Solidago nemoralis, S. rigida, Lithospermum canescens, Amorpha canescens, Lepidium capitatum, Ptilostemon purpureum, Anemone cylindrica, Potentilla arguta, Rosa carolina, Physalis longifolia, P. pubescens, Verbena stricta and Viola palustris.

Some of the grasses growing on the dryer sites are Andropogon gerardii and A. scoparius, Panicum lanuginosum, P. oligonanthus, P. leibergii, Sorgastrum nutans and Stipa spartea.

Rare plants that were found growing on dry to mesic prairie remnants included Asclepias viridiflora, Lechea stricta and Pterostylis argophylla.

In contrast to a dry prairie flora, species that inhabit the mesic remnants include Hypoxis hirsuta, Allium canadense, Tradescantia occidentalis, A. erinaceum, A. roseum, Aesculopilus, Asclepias viridiflora, Silphium terebinthinaceum, A. scoparius, A. canescens, Lepidium canescens, L. virginicum, Aster tomentosus, Panicum virgatum, Centaurea foliosa, Solidago graminifolia, Veronicia stricta, Monarda fistulosa, Pyrenacanthemum flexuosum, Dianthus canadense, Ptilostemon candivus.
Sphagnum, Phryma leptophylla, Aquilegia canadensis, Populus pseudomas and Juniperus virginiana. Sambucus canadensis, Morus wetter depressions are also inhabited by various mosses, notably

The moss of the lowland prairies and related wetlands, which are elements of the Swaledale railroad prairie, includes Asclepias incarnata, Bidens coronis, Gentiana andrewsius, Stachys palustris, Lythrum alatum, Phlox maculatus, Geum aleppicum, Spirua alba, Veronicastrum virginicum, Oxyposal rigidor and Verbena hastata.

A wet, calcareous swale at one site harbors a fen-like association, including Zygadenus elegans, Aster umbrellatus, Eupatorium perfoliatum and E. maculatum, Thalictrum dasyurapum, Galium boreale, Pedicularis lanceolata, Zizia aurea and Valeriana adulis.

Alisma subcordatum, Iris versicolor, Cardamine bulbosa, Caltha palustris, Penthorum sedoida, Lycopodium americana, Polygonum amphibium, Rumex alismatus, R. crispus and Cirisa maculata thrive in the ponded areas where the waterable seeps above the soil layers. There are a variety of sedges here, including Carex acuta and C. atrorubens, three Eleocharis species and numerous carex species. Salix discolor grows along the margins of these wet areas where it is slightly better drained.

In addition to big bluestem, grasses growing in the wetter soils include Calamagrostis canadensis, Muhlenbergia racemosa, Phragmites australis, Poa palustris and Spartina patens. At one location along the right-of-way, stolons from a pure stand of Phragmites australis have spread from a wet ditch and crossed beneath the railroad tracks to the opposite embankment.

The abandoned sand pit is timbered mainly with Populus deltoides and Populus tremuloides. Two particularly large cottonwood trees, the largest which measures over 18 feet circumference, probably became established along the upper southeastern perimeter. Also present here are thickets formed by Rubus missouriensis, R. chamaemorus, C. nigra, C. rubus, and C. fruticosus.

Two particularly large cottonwood trees, the largest which measures over 18 feet circumference, probably became established in the sand pit shortly after the railroad company had finished scraping for fill material, circa 1900.

Also present is Acer saccharinum, which frequents the low ground on the south side of the sand pit and more recently has become well established along the upper southeastern perimeter. Acer negundo is a common tree throughout the sand pit and in more recent years has spread considerably along the upper northeastern perimeter. Also present, but only as incidentals, are Prunus pensylvanica, Robinia pseudoacacia and Juniperus virginiana.

The better drained areas of the sand pit the shrub layer is dominated by Lonicera tatarica, Ribes armenatum and R. missouriense, and Rubus allegheniensis form a brambly groundlayer, especially along the shaded banks of the sand pit. Growing along the upper eastern perimeter of the sand pit are dense thickets of Rhus glabra and Prunus americana. Sambucus canadensis, Morus alba and Prunus virginiana are incidentals along fencerows and in the wooded openings of the sand pit.

The moist depressions along the west side of the sand pit are occupied by dense patches of Equisetum hyemale, a prevalent groundlayer species that appears to be spreading eastward in the sand pit. The wetter depressions are also inhabited by various mosses, notably Sphagnum species.

Where the water becomes ponded, a broken canopy is formed by a scattering of Salix fragilis. Also present here are thickets formed by Salix interior, and to a lesser extent, Cornus amomum.

The surface waters of the seepages become colonized by Lemna minor, while Phalaris arundinacea grows along the pond margins and on the pond beds when the waters dry up. A remnant population of Typha angustifolia, surrounded by a willow and dogwood thicket, grows in a wet seepage along the west side of the sand pit.

It is apparent that the woodland in the sand pit is a haven to many plants which must have become established after the woods came into existence. A few noteworthy woodland species that occur there are Eupatorium rugosum, Ampeliscarpa bracteata, Sanguinaria canadensis, Phryma leptostachya, Aquilegia canadensis and Geum canadense. Many common weeds grow on the railroad right-of-way gravel and in other disturbed habitats of the study area. Ulnia pumila is a woody invader of the railroad right-of-way ditches. Once established it eventually shades out the native prairie flora. A dramatic example of this occurs on the edge of Swaledale where the railroad right-of-way intersects with county road B-60. An occasional burn or cutting would help check the spread of U. pumila and encourage growth of prairie vegetation.

Aggressive weeds that colonize waste ground and other disturbed habitats include Amaranthus albus, Artemisia tridentata and A. artenisiifolia, Taraxacum officinale, Lycnthis alba, Chenopodium album, Comosulocus arvensis, Capsella bursa-pastoris, Thlaspi arvensis, Stetia glauca and S. viridis, Gloriosa hederacea, Leonurus cardaca, Abutilon theophrasti, Mirabilis nyctagina, Plantago major, Patisasca sativa and Urtica dioica.

In the ditches along certain stretches of the right-of-way excessive mound building by pocket gophers coincides with a weedy infestation of the ubiquitous Canada thistle, Cirsium arvense. Periodically controlled burns in thistle-infested areas could help alleviate the spread of this noxious weed.

**CATALOG OF SPECIES**

The terms frequent, infrequent and rare are used qualitatively to describe how often a plant occurs on the Swaledale railroad prairie.

**PTERIDOPHYTES**

EQUISETACEAE (Horsetail Family)


E. fluviatile L. Water horsetail. Wet ditches; observed at one location. Rare.

**IOWA THREATENED SPECIES**

E. hyemale L. Scouring rush. Forming a dense, extensive groundlayer on damp, sandy soils of the sand pit. Frequent.

E. laevigatum A. Br. Smooth scouring rush. Wet ditches and swales. Infrequent.

**GYMNOSPERMS**

CUPRESSACEAE (Bald Cypress Family)

Juniperus virginiana L. Red cedar. Infrequent tree in sand pit.

**MONOCOTYLEDONS**

ALISTAMACEAE (Water Plantain Family)


AMARYLLIDACEAE (Amaryllis Family)

Hypoxis hirsuta (L.) Cov. Yellow stargrass. Mesic prairie and wooded openings in sand pit. Frequent.

**COMMELINACEAE (Spiderwort Family)**

Truclanta chenensis Raf. Spiderwort. Dry-mesic to mesic prairies. Frequent.

**CYPERACEAE (Sedge Family)**

Carex alpinaeosa Tuckerman Foxail sedge. Lowland prairies, wet swales. Frequent.


C. cespitosa (Bailey) Bickn. Wet ditches and swales. Infrequent.


C. festucacea Willd. Fescue sedge. Dry-mesic to mesic prairies and wooded openings in sand pit. Frequent.

C. haydenii Dwarf Hayden's sedge. Lowland prairies. Rare.


C. projecta Mack. Lowland prairies. Necklace sedge. Rare


**MACROECENOMES**

Lam. Loose-flowered sedge. Wet ditches and swales. Frequent.

C. projecta Mack. Lowland prairies. Necklace sedge. Rare
C. tribuloides Wahl. Wet ditches and seepage ponds in sand pit. Rare.
E. ovata (Roth) R. & S. Ovoid spikerush. Wet ditches and swales. Rare.
Scirpus acutus Muhl. ex Bigelow Hardstem bulrush. Marshy habitats, wet ditches and seepage ponds in sand pit. Infrequent.

GRAMINEAE (Grass Family)
Agrifogus giganteus Roth. Redtop. Various habitats. Frequent.
Andropogon gerardii Vitm. Big bluestem. Dry-mesic to wet prairies. Frequent.
A. scoparius Michx. Little bluestem. Dry to dry-mesic prairies. Less frequent than the preceding species.
Bromus inermis Leyss. Smooth brome. Frequent weed of disturbed habitats.
Calamagrostis canadensis (Michx.) Beauv. Bluejoint. Lowland prairies. Frequent.
Digitaria sanguinalis (L.) Scop. Crabgrass. Frequent weed.
Echinochloa crus-galli (Beauv.) Fern. Barnyard grass. Infrequent weed.
Elymus virginicus L. Virginia wild rye. Dry-mesic to mesic prairies. Infrequent.
Festuca pratensis Hudson Meadow fescue. An introduction; disturbed habitats. Frequent.
Hordeum jubatum L. Squirreltail grass. An introduction; disturbed habitats. Frequent.
Muhlenbergia richardsoni (Michx.) BSP. Lowland prairies. Frequent.
Panicum virgatum Beal Large blue flag. Wet ditches, swales and marshy habitats.
P. virgatum var. verticillata (Vasey) Scribn. Dry prairie. Infrequent.
P. glaucum Schult. Dry to dry-mesic prairies. Infrequent.
P. virgatum L. Switchgrass. Mesic to wet-mesic prairies. Frequent.
Phalaris arundinacea L. Reed canary grass. Bordering stream banks and forming dense patches in low sand pit. Frequent.
Phleum pratense L. Timothy hay. An introduction; disturbed habitats. Frequent.
Poa pratensis L. Fowl meadow grass. Lowland prairies.
P. pratensis L. Kentucky bluegrass. Escape from lawns.
Sorghastrum nutans (L.) Nash Indian grass. Dry-mesic to mesic prairies. Infrequent.
P. virgatum L. Switchgrass. Mesic to wet-mesic prairies. Frequent.

COMPOSITAE (Composite Family)
Casuia tomentosa Nutt. Indian plantain. Lowland prairie; observed at one location. Rare.
Cirsium arvense (L.) Scop. Canada thistle. Frequent weed.
Echinacea pallida Nutt. Pale coneflower. Dry-mesic to mesic prairies. Frequent.
Erigeron philadelphicus L. Fleabane. Ditches and wooded openings in sand pit. Frequent.
E. rugosum Houtt. White snakeroot. Damp woods in sand pit; observed at one location. Rare.
H. maximilliani Schrad. Mesic prairie. Rare.
Helopsis bel坦antitoides (L.) Sweet. Ox-eye. Dry-mesic to mesic prairies. Infrequent.
Lactuca canadensis L. Wild lettuce. Various habitats. Frequent.
Matricaria matricarioides (Less.) Porter Pineappleweed. Infrequent weed.
Prenanthes racemosa Michx. Rattlesnake root. Wet-mesic to wet prairie; observed at one location. Rare.
Rushida pinus (Vent.) Barnh. Prairie coneflower. Dry-mesic to mesic prairies. Frequent.
Rudbeckia hirta L. Black-eyed Susan. Dry-mesic to mesic prairies. Frequent.
Salsage canadensis L. Canada goldenrod. Dry-mesic to mesic prairies. Frequent.
S. rigoL L. Stiff-leaved goldenrod. Dry-mesic to mesic prairie. Frequent.
Taraxacum officinale Weber Common dandelion. Frequent weed.
Tragopogon dubius Scop. Goats beard. Frequent weed.
Xanthium strumarium L. Cocklebur. Frequent weed of cultivated fields and other disturbed soils.
CONVOLULACEAE (Morning Glory Family)
Convoluclus arvensis L. Field bindweed. Frequent weed in ditches.
C. sepium L. Hedge bindweed. Frequent weed in ditches.
CORNACEAE (Dogwood Family)
CRASSULACEAE (Oprine Family)
Penthorum sedoides L. Ditch stonecrop. Muddy ditches and marshy habitats. Rare.
CRUCIFERAE (Mustard Family)
Brassica kaber (DC.) L. C. Wheeler Charlock. Frequent weed.
Capsella bursa-pastoris (L.) Medic. Frequent weed.
Cardamine bulbosa (Schreb.) BSP. Spring cress. Marshy habitats, wet ditches and swales. Frequent.
Thlaspi arvense L. Pennycress. Frequent weed.
CUCURBITACEAE (Gourd Family)
EUPHORBIACEAE (Spurge Family)
Euphorbia canadensis L. Flowering spurge. Dry to dry-mesic prairies. Frequent.
GENTIANACEAE (Gentian Family)
WITT - No collection date.
LABIACE (Mint Family)
Glecoma hederacea L. Ground ivy. Frequent weed in sand pit.
Lemnurus cardis L. Motherwort. Frequent weed.
Monarda fistulosa L. Wild bergamot. Mesic to wet-mesic prairies. Frequent.
Nepeta cataria L. Catnip. Frequent weed.
Pyrethrum officinarum (Walt.) BSP. Mountain mint. Mesic prairie. Infrequent.
LEGUMINOSAE (Legume Family)
Ambrosia artemisiifolia L. Common dandelion. Frequent weed.
Desmodium canadense (L.) DC. Showy tick-trefoil. Mesic prairie. Frequent.
Medicago lupulina L. Black medic. Frequent weed.
M. officinalis (L.) Pall. Yellow sweet clover. An introduction; disturbed habitats. Frequent.
Althaea rosea L. Ox-eye. Dry-mesic to mesic prairies. Infrequent.
E. Thymifolia L. Black locust. Escape from cultivation; scattered locations on damp soils in sand pit. Infrequent.
Trifolium hybridum L. Alsike clover. Frequent weed of disturbed habitats. Frequent.
T. pratense L. Red clover. Frequent weed of disturbed habitats.
T. repens L. White clover. Frequent weed of disturbed habitats.
LOBELIACEAE (Lobelia Family)
Lobelia spicata Lam. Pale-spiked lobelia. Dry-mesic to mesic prairies. Frequent.
LYTHRACEAE (Loosestrife Family)
Lythrum salicaria L. Purple loosestrife. Lowland prairies. Frequent.
MALVACEAE (Mallow Family)
MENISPERMACEAE (Moosewood Family)
Menispermum canadense L. Moosewood. Thickeners and fencegrowers. Frequent.
MORACEAE (Mulberry Family)
Morus alba L. Mulberry. Escape from cultivation; fencerows and along perimeter of sand pit. Infrequent.
NYCTAGINACEAE (Four O’Clock Family)
Mirabilis nyctaginiflora (Michx.) MacM. Four o’clock. Railroad right-of-way gravel. Frequent.
OLEACEAE (Olive Family)
Praxelis peninsularis Marsh. Green ash. Infrequent tree in the sand pit.
ONAGRACEAE (Evening Primrose Family)
Oenothera biennis L. Evening primrose. Frequent.
OXALIDACEAE (Wood Sorrel Family)
Oxalis stricta L. Yellow wood sorrel. Various open habitats. Frequent.
PAPAVERACEAE (Papay Family)
Sanguinaria canadensis L. Bloodroot. One clump of seven plants observed along a shaded bank in sand pit. Rare.
PHRYMACEAE (Lopseed Family)

PLANTAGINACEAE (Plantain Family)
Plantago major L. Large plantain. Frequent weed.

POLONIACEAE (Phlox Family)
P. pilosa L. Downy phlox. Dry-mesic to mesic prairies. Frequent.

POLYGONACEAE (Smartweed Family)
P. avicularis L. Bindweed. Frequent weed.
P. comulovulosa L. Black bindweed. Frequent weed.
P. pericarpa L. Lady’s thumb. Infrequent weed of open, wet habitats.

Rhamnaceae
Rhus typhina L. American poison ivy. Throughout ditches and fencerows. Frequent.

RANUNCULACEAE (Burrercup Family)
Anemone canadensis L. Canada anemone. Dry-mesic to mesic prairies. Frequent.

RHAMNACEAE (Buckthorn Family)
Cannabis americana L. New Jersey tea. A vigorous-growing clump of plants observed at one mesic location. Rare.

Rhamnus catharticus L. European buckthorn. Escape from cultivation. Infrequent shrub in the right-of-way ditches.

ROSACEAE (Rose Family)
Agrimonia eupatoria L. Marsh marigold. Wet ditches and marshy habitats. Frequent.

SOLANACEAE (Potato Family)

SPREIBRAGAEAE (Gooseberry Family)

SCHROPHULARIACEAE (Snapdragon Family)

SCROPHULARIACEAE (Snapdragon Family)

SECALE ceruleanum P. Mill. Stonecrop. Observed at one location; wet ditches at edge of woods. Rare.

Thalictrum aquilegifolium L. Queen Anne’s lace. Infrequent weed.

Urticaceae
Urtica dioica L. Stinging nettle. Frequent weed.

VALERIANACEAE (Valerian Family)
Valeriana officinalis L. Virginia snakeroot. Wet-mesic prairie; observed at one location. Infrequent.

UMBELLIFERAE (Parsley Family)
Coriandrum sativum L. Coriander. Frequent weed.

URTICACEAE (Nettle Family)
Urtica dioica L. Stinging nettle. Frequent weed.

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The year 1987 marks the centennial birthday of my hometown, Swaledale, Iowa. As a token of my affections for a little town where I learned about my prairie heritage, this paper is dedicated to Swaledale.

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