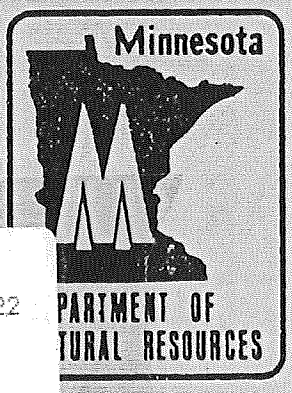
STATE OF MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

STATEMENT OF NEED AND REASONABLENESS

In the Matter of the Proposed Adoption of Rules of the Department of Natural Resources Designating Species of Wild Animals and Plants as Endangered Threatened or Of Special Concern.

Volume II



Division of Fish and Wildlife
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Notification of the public review process for this proposed list will appear in the State Register. You are invited to submit your comments to:

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PREFACE

The Department of Natural Resources proposes adoption of rules designating species of wild animals and plants as endangered, threatened or of special concern. Minnesota Statute 97.488 Protection of Threatened and Endangered species was revised during the 1981 Legislative session. The revision required that an official state list of endangered, threatened and special concern species be prepared for the legislature by January 1, 1984. In addition, it expanded the law to include plants as well as animals. To assist in the establishment of this list and to make recommendations to the Commissioner of Natural Resources the law stated that a volunteer technical committee of up to 30 individuals be appointed.

This document, a statement of need and reasonableness, includes the Department of Natural Resources proposed list of endangered, threatened and special concern plants and animals and supporting materials that discuss the status and distribution of each proposed endangered and threatened species. The supporting materials are the product of the six group committees - mammals, birds, amphibians and reptiles, fish, invertebrates and plants - of the volunteer Endangered Species Technical Advisory Committee. The Department's proposed list agrees, with only one exception, with the recommendations of the Endangered Species Technical Advisory Committee. In exception to the Committee's recommendations, the Department is not proposing at this time to include the invertebrate groups of jumping spiders and tiger beetles on the official state list.

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Rules as Proposed (all new material)

6 MCAR S 1.5600 Wild animals and plants designated as endangered, threatened, or of special concern; authority.

Pursuant to Minnesota Statutes, section 97.488, the species of wild animals and plants listed in 6 MCAR SS 1.5601 to 1.5603 are designated as endangered, threatened, or of special concern, as indicated in those parts.

6 MCAR S 1.5601 Animal species.

A. Mammals. The scientific names and the common names in A. are according to the Revised Checklist of North American Mammals North of Mexico, J. K. Jones, et al., 1982. The following species of mammals are designated as:

1. Endangered: none.
2. Threatened: Canis lupus, gray wolf.
3. Of special concern:
   a. Cervus elaphus, American elk;
   b. Cryptotis parva, least shrew;
   c. Felis concolor, mountain lion;
   d. Gulo gulo, wolverine;
   e. Martes americana, marten;
   f. Microtus chrotorrhinus, rock vole;
   g. Microtus ochrogaster, prairie vole;
   h. Microtus pinetorum, woodland vole;
   i. Myotis keenii, Keens' myotis;
   j. Odocoileus hemionus, mule deer;
   k. Phenacomys intermedius, heather vole;
   l. Pipistrellus subflavus, eastern pipistrelle;
   m. Rangifer tarandus, caribou;
   n. Spilogale putorius, spotted skunk;
   o. Synaptomys borealis, northern bog lemming;
   p. Thomomys talpoides, northern pocket gopher.

B. Birds. The scientific names and the common names in B. are according to the American Ornithologists Union Checklist, 1983. The following species of birds are designated as:

1. Endangered:

APPROVED BY THE REVISOR OF STATUTES OFFICE BY:

a. Ammodramus bairdii, Baird's sparrow;

b. Anthus spragueii, Sprague's pipit;

c. Athene cunicularia, burrowing owl;

d. Calcarius ornatus, chestnut-collared longspur;

e. Charadrius melodus, piping plover;

f. Falco peregrinus, peregrine falcon.

2. Threatened:

a. Haliaeetus leucocephalus, bald eagle;

b. Lanius ludovicianus, loggerhead shrike.

3. Of special concern:

a. Ammodramus henslowii, Henslow's sparrow;

b. Ammospiza caudacutus, sharp-tailed sparrow;

c. Asio flammeus, short-eared owl;

d. Bartramia longicauda, upland sandpiper;

e. Botaurus lentiginosus, American bittern;

f. Buteo lineatus, red-shouldered hawk;

g. Coturnicops noveboracensis, yellow rail;

h. Gallinula chloropus, common moorhen;

i. Grus canadensis, sandhill crane;

j. Limosa fedoa, marbled godwit;

k. Pandion haliaetus, osprey;

l. Pelecanus erythrorhynchos, American white pelican;

m. Phalaropus tricolor, Wilson's phalarope;

n. Podiceps auritus, horned grebe;

o. Rallus elegans, king rail;

p. Seiurus motacilla, Louisiana waterthrush;

q. Sterna forsteri, Forster's tern;

r. Sterna hirundo, common tern;

s. Tympanuchus cupido, greater prairie-chicken.

C. Amphibians and reptiles. The scientific names and the common names in C. are according to Standard Common and Current Scientific Names for North American Amphibians and Reptiles, second edition, J.T. Collins, et al., 1982. The following species of amphibians and reptiles are designated as:

1. Endangered: Eumeces fasciatus, five-lined skink.

2. Threatened:

APPROVED IN THE REVISOR OF STATUTES OFFICE BY:

a. Clemmys insculpta, wood turtle;

b. Emydoidea blandingi, Blanding's turtle.

3. Of special concern:

a. Chelydra serpentina, snapping turtle;

b. Coluber constrictor, racer (blue racer);

c. Crotalus horridus, timber rattlesnake;

d. Elaphe obsoleta, rat snake (black rat snake);

e. Elaphe vulpina, fox snake;

f. Heterodon nasicus, western hognose snake;

g. Heterodon platyrhinos, eastern hognose snake;

h. Lampropeltis triangulum, milk snake;

i. Pituophis melanoleucus, gopher snake (bull snake);

j. Sistrurus catenatus, massasauga;

k. Tropidoclonion lineatum, lined snake;

l. Acris crepitans, northern cricket frog (Blanchard's cricket frog);

m. Rana catesbeiana, bullfrog;

n. Rana palustris, pickerel frog.

D. Fish. The scientific names and the common names in D. are according to A list of Common and Scientific Names of Fishes from the United States and Canada, third edition, American Fisheries Society, 1979. The following species of fish are designated as:

1. Endangered: none.

2. Threatened: none.

3. Of special concern:

a. Acipenser fulvescens (Rafinesque), lake sturgeon;

b. Ammocrypta asprella (Jordan), crystal darter;

c. Cycleptus elongatus (Le Sueur), blue sucker;

d. Etheostoma chlorosomum (Hay), bluntnose darter;

e. Fundulus sciadicus (Cope), plains topminnow;

f. Hybopsis x-punctata (Hubbs and Crowe), gravel chub;

g. Ictalurus furcatus (Le Sueur), blue catfish;

h. Lampetra appendix (DeKay), American brook lamprey;

i. Morone mississippiensis (Jordan and Evermann), yellow bass;

APPROVED IN THE REVISOR OF STATUTES OFFICE BY:

j. Moxostoma duquesnei (Le Sueur), black redhorse;

k. Notropis amnis (Hubbs and Greene), pallid shiner;

l. Notropis emilae (Hay), pugnose minnow;

m. Notropis topeka (Gilbert), topeka shiner;

n. Noturus exilis (Nelson), slender madtom;

o. Polyodon spathula (Walbaum), paddlefish;

p. Scaphirhynchus platorynchus (Rafinesque), shovelnose sturgeon.

E. Butterflies. The scientific names in E. are according to A Catalogue/Checklist of the Butterflies of America North of Mexico, L.D. Miller and S.M. Brown, 1981. The following species of butterflies are designated as:

1. Endangered:

a. Hesperia assiniboia (Lyman), assiniboia skipper;

b. Hesperia uncas W.H. Edwards, uncas skipper;

c. Oeneis uhleri varuna, (W.H. Edwards) Uhler's arctic.

2. Threatened:

a. Hesperia dacotae (Skinner), Dakota skipper;

b. Hesperia ottoe W.H. Edwards, ottoe skipper;

c. Lycaeides samuelis Nabokov, Karner blue.

3. Of special concern:

a. Clossiana freija (Thunberg), freija fritillary;

b. Clossiana frigga saga (Staudinger), frigga fritillary;

c. Epidemia dorcas dorcas (W. Kirby), dorcas copper;

d. Epidemia epixanthe michiganensis (Rawson), bog copper;

e. Erebia disa mancinus Doubleday & Hewitson, disa alpine;

f. Erebia discoidalis discoidalis (W. Kirby), red-disked alpine;

g. Oarisma poweshiek (Parker), poweshiek skipper;

h. Oeneis jutta ascerta Masters & Sorensen, jutta arctic;

i. Proclossiana eunomia dawsoni (Barnes & McDunnough), bog fritillary.

F. Freshwater mollusks. The scientific names in F. are according to Freshwater Mollusca of Wisconsin Part II: Pelecypoda, F.C. Collins, 1982. The following species of freshwater mollusks are designated as:

1. Endangered:
   a. Lampsilis higginsi (Lea), Higgins' eye;
   b. Proptera (Potamilus) capax (Green), fat pocketbook.
2. Threatened: none.
3. Of special concern:
   a. Elliptio crassidens (Lamarck), elephant ear;
   b. Fusconaia ebena (Lea), ebony shell.

6 MCAR S 1.5602 Vascular plants.

The scientific names in A., B., and C. are according to Gray's Manual of Botany, eighth edition, M.L. Fernald, 1950, and include family designation.

A. Endangered. The following species are designated as endangered:

1. Asclepias stenophylla Gray, Asclepiadaceae;
2. Besseya bullii (Eaton) Rydb., Scrophulariaceae;
3. Cacalia suaveolens L., Asteraceae;
4. Chrysosplenium iowense Rydb., Saxifragaceae;
5. Cristatella jamesii T. & G., Capparidaceae;
6. Cypripedium arietinum R. Br., Orchidaceae;
7. Draba norvegica Gunn., Brassicaceae;
8. Eleocharis wolfii Gray, Cyperaceae;
9. Empetrum atropurpureum Fern. & Wieg., Empetraceae;
10. Erythronium propullans Gray, Liliaceae;
11. Gerardia auriculata Michx., Scrophulariaceae;
12. Hydrastis canadensis L., Ranunculaceae;
13. Isoetes melanopoda Gay & Dur., Isoetaceae;
14. Lespedeza leptostachya Engelm., Fabaceae;
15. Lesquerella ludoviciana (Nutt.) S. Wats., Brassicaceae;
16. Littorella americana Fern., Plantaginaceae;
17. Malaxis paludosa (L.) Sw., Orchidaceae;
18. Montia chamissoi (Ledeb.) Durand & Jackson,

Portulacaceae;

19. Napaea dioica L., Malvaceae;

20. Oryzopsis hymenoides (R. & S.) Ricker, Poaceae;

21. Osmorhiza chilensis H. & A., Apiaceae;

22. Parthenium integrifolium L., Asteraceae;

23. Platanthera flava (L.) Lindl. var. herbiola (R. Br.) Ames & Correll, Orchidaceae;

24. Platanthera leucophaea (Nutt.) Lindl., Orchidaceae;

25. Poa paludigena Fern. & Wieg., Poaceae;

26. Polygala cruciata L., Polygalaceae;

27. Polystichum braunii (Spenner) Fee var. purshii Fern., Polypodiaceae;

28. Potamogeton lateralis Morong, Potamogetonaceae;

29. Ruellia humilis Nutt., Acanthaceae;

30. Sagina nodosa (L.) fenzl ssp. borealis Crow, Caryophyllaceae;

31. Saxifraga cernua L. var. latibracteata Fern., Saxifragaceae;

32. Scleria triglomerata Michx., Cyperaceae;

33. Sedum rosea (L.) Scop. var. leedyi Rosend. & Moore, Crassulaceae;

34. Subularia aquatica L., Brassicaceae;

35. Sparganium glomeratum Laest., Sparganiaceae;

36. Sullivantia renifolia Rosend., Saxifragaceae;

37. Talinum rugospermum Holzinger, Portulaceaceae; and

38. Tofieldia pusilla (Mich.) Pers., Liliaceae.

B. Threatened. The following species are designated as threatened:

1. Allium cernuum Roth, Liliaceae;

2. Ammophila breviligulata Fern., Poaceae;

3. Androsace septentrionalis L. var. pulverulenta (Rydb.) Knuth, Primulaceae;

4. Arabis holboellii Hornem. var. retrofracta (Graham) Rydb., Brassicaceae;

5. Arenaria macrophylla Hook., Caryophyllaceae;

APPROVED IN THE REVISOR OF STATUTES OFFICE BY:

6. Arnica chionopappa Fern., Asteraceae;

7. Asclepias hirtella (Pennell) Woodson, Asclepiadaceae;

8. Asclepias sullivantii Englem., Asclepiadaceae;

9. Asplenium trichomanes L., Polypodiaceae;

10. Cacalia tuberosa Nutt., Asteraceae;

11. Carex conjuncta Boott, Cyperaceae;

12. Carex davisii Schwein. & Torr., Cyperaceae;

13. Carex hallii Olney, Cyperaceae;

14. Carex praticola Rydb., Cyperaceae;

15. Carex sterilis Willd, Cyperaceae;

16. Desmodium illinoense Gray, Fabaceae;

17. Drosera anglica Huds., Droseraceae;

18. Drosera linearis Goldie, Droseraceae;

19. Dryopteris marginalis (L.) Gray, Polypodiaceae;

20. Eleocharis olivaceae Torr., Cyperaceae;

21. Eleocharis rostellata Torr., Cyperaceae;

22. Gerardia gattingeri Sm., Scrophulariaceae;

23. Jeffersonia diphylla (L.) Pers., Berberidaceae;

24. Lycopodium porophilum Lloyd & Underwood, Lycopodiaceae;

25. Lygodesmia rostrata Gray, Asteraceae;

26. Mamillaria vivipara (Nutt.) Haw., Cactaceae;

27. Melica nitens Nutt., Poaceae;

28. Nymphaea tetragona Georgi, Nymphaeceae;

29. Pellaea atropurpurea (L.) Link, Polypodiaceae;

30. Plantago elongata Pursh, Plantaginaceae;

31. Rhynchospora capillacea Torr., Cyperaceae;

32. Rubus chamaemorus L., Rosaceae;

33. Salicornia rubra Nelson, Chenopodiaceae;

34. Saxifraga aizoon Jacq. var. neogaea Butters, Saxifragaceae;

35. Scleria verticillata Muhl., Cyperaceae;

36. Vaccinium uliginosum L. var. alpinum Bigel, Ericaceae;

37. Valeriana edulis Nutt. ssp. ciliata (T. & G.) Meyer, Valerianaceae;

38. Woodsia glabella R. Br., Polypodiaceae;

APPROVED BY THE REVISOR OF STATUTES OFFICE BY:

39. Woodsia scopulina D.C. Eat., Polypodiacea; and

40. Xyris torta Sm., Xyridaceae.

C. Special concern. The following species are designated as of special concern:

1. Adoxa moschatellina L., Adoxaceae;

2. Agrostis geminata Trin., Poaceae;

3. Allium schoenoprasum L. var. sibiricum (L.) Hartm., Liliaceae;

4. Antennaria aprica Greene, Asteraceae;

5. Arenaria dawsonensis Britt., Caryophyllaceae;

6. Arethusa bulbosa L., Orchidaceae;

7. Aristida longiseta Steud., Poaceae;

8. Aristida tuberculosa Nutt., Poaceae;

9. Asclepias amplexicaulis Sm., Asclepiadaceae;

10. Astragalus flexuosus Dougl., Fabaceae;

11. Astragalus missouriensis Nutt., Fabaceae;

12. Astragalus neglectus (T. & G.) Sheld., Fabaceae;

13. Athyrium pycnocarpon (Spreng.) Tides, Polypodiaceaea;

14. Bacopa rotundifolia (Michx.) Wettst., Scrophulariaceae;

15. Baptisia leucophaea Nutt., Fabaceae;

16. Botrychium lunaria (L.) Sw., Ophioglossaceae;

17. Botrychium mormo Wagner, Ophioglossaceae;

18. Buchloe dactyloides (Nutt.) Engelm., Poaceae;

19. Carex annectens Bickn., Cyperaceae;

20. Carex exilis Dew., Cyperaceae;

21. Carex laxiculmis Schwein., Cyperaceae;

22. Carex obtusata Lilj., Cyperaceae;

23. Carex scirpiformis Mack., Cyperaceae;

24. Carex woodii Dew., Cyperaceae;

25. Cephalanthus occidentalis L., Rubiaceae;

26. Chamaerhodos nuttallii Pick., Rosaceae;

27. Cirsium hillii (Canby) Fern., Asteraceae;

28. Cladium mariscoides (Muhl.) Torr., Cyperaceae;

29. Claytonia caroliniana Michx., Portulacaceae;

30. Cyperus acuminatus Torr. & Hook., Cyperaceae;

31. Cypripedium candidum Muhl., Orchidaceae;

32. Decodon verticillatus (L.) Ell., Lythraceae;

33. Deschampsia flexuosa (L.) Trin., Poaceae;

34. Desmanthus illinoense (Michx.) MacM, Fabaceae;

35. Dicentra canadensis (Goldie) Walp., Fumariaceae;

36. Dodecatheon meadia L., Primulaceae;

37. Draba arabisans Michx., Brassicaceae;

38. Dryopteris goldiana (Hook.) Gray, Polypodiaceae;

39. Echinochloa walteri (Pursh.) Nash, Poaceae;

40. Eleocharis pauciflora (Lightf.) Link var. fernaldii Svenson, Cyperaceae;

41. Eryngium yuccifolium Michx., Apiaceae;

42. Euphrasia hudsoniana Fern. & Wieg., Scrophulariaceae;

43. Floerkea proserpinacoides Willd., Limnanthaceae;

44. Gentiana affinis Griseb., Gentianaceae;

45. Gentianella amarella (L.) Borner ssp. acuta (Michx.) Gillett, Gentianaceae;

46. Geocaulon lividum (Richards.) Fern., Santalaceae;

47. Glaux maritima L., Primulaceae;

48. Hamamelis virginiana L., Hamamelidaceae;

49. Haplopappus spinulosus (Pursh) DC., Asteraceae;

50. Helianthus nuttallii T. & G. ssp. rydbergii (Br.) Long, Asteraceae;

51. Hydrocotyle americana L., Apiaceae;

52. Juncus stygius L. var. americanus Buchenau, Juncaceae;

53. Leersia lenticularis Michx., Poaceae;

54. Limosella aquatica L., Scrophulariaceae;

55. Myosurus minimus L., Ranunculaceae;

56. Oenothera rhombipetala Nutt., Onagraceae;

57. Opuntia humifusa Raf., Cactaceae;

58. Orobanche fasciculata Nutt., Orobanchaceae;

59. Orobanche ludoviciana Nutt., Orobanchaceae;

60. Orobanche uniflora L., Orobanchaceae;

61. Panax quinquefolium L., Apiaceae;

62. Paronychia fastigiata Fern., Caryophyllaceae;

APPROVED IN THE REVISOR OF STATUTES OFFICE BY:

63. Pinguicula vuglaris L., Lentibulariaceae;

64. Platanthera clavellata (Michx.) Luer, Orchidaceae;

65. Poa wolfii Scribn., Poaceae;

66. Polygonum arifolium L., Polygonaceae;

67. Polygonum viviparum L., Polygonaceae;

68. Polystichum acrostichoides (Michx.) Schott., Polypodoaceae;

69. Potamogeton vaseyi Robbins, Potamogetonaceae;

70. Ranunculus lapponicus L., Ranunculaceae;

71. Rhynchospora fusca (L.) Ait. f., Cyperaceae;

72. Rudbeckia triloba L., Asteraceae;

73. Sanicula canadensis L., Apiaceae;

74. Sanicula trifoliata Bickn., Apiaceae;

75. Schedonnardus paniculatus (Nutt.) Trel., Poaceae;

76. Scutellaria ovata Hill var. versicolor (Nutt.) Fern., Lamiaceae;

77. Solidago mollis Bartl., Asteraceae;

78. Solidago sciaphila Steele, Asteraceae;

79. Spartina gracilis Trin., Poaceae;

80. Stellaria longipes Goldie, Caryophyllaceae;

81. Symphoricarpos orbiculatus Moench, Caprifoliaceae;

82. Tephrosia virginiana (L.) Pers., Fabaceae;

83. Thelypteris hexagonoptera (Michx.) Weatherby, Fabaceae;

84. Tofieldia glutinosa (Michx.) Pers., Liliaceae;

85. Tradescantia ohiensis Raf., Commelinaceae;

86. Triglochin palustris L., Juncaginaceae;

87. Trillium nivale Riddell, Liliaceae;

88. Triplasis purpurea (Walt.) Champm., Poaceae;

89. Tsuga canadensis (L.) Carr., Pinaceae;

90. Utricularia gibba L., Lentibulariaceae;

91. Verbena simplex Lehm., Verbenaceae;

92. Viola lanceolata L., Violaceae;

93. Viola novae-angliae House, Violaceae;

94. Viola nuttallii Pursh, Violaceae;

95. Waldesteinia fragarioides (Michx.) Tratt., Rosaceae;

and

96. Xyris montana Ries., Xyridaceae.

6 MCAR S 1.5603 Lichens; mosses.

A. Lichens. The scientific names in A. are according to A Fourth Checklist of the Lichens of the Continental United States and Canada, M.E. Hale and W.L. Culberson, 1970. The following species of lichens are designated as:

1. Endangered:

a. Buellia nigra (Fink) Sheard/[Rinodina nigra Fink];

b. Dermatocarpon moulinsii (Mont.) Zahlbr.;

c. Leptogium apalachense (Tuck.) Nyl.;

d. Lobaria scrobiculata (Scop.) DC;

e. Parmelia stictica (Del.) Nyl.;

f. Pseudocyphellaria crocata (L.) Vain.

2. Threatened: Lobaria quercizans Michx.

3. Of special concern:

a. Cetraria aurescens Tuck.;

b. Cetraria oakesiana Tuck.;

c. Cladonia pseudorangiformis Asah.;

d. Coccocarpia cronia (Tuck.) Vain.;

e. Parmelia stuppea Tayl.;

f. Sticta fuliginosa (Dicks.) Ach.;

g. Umbilicaria torrefacta (Lightf.) Schrad.

B. Mosses. The scientific names in B. are according to A New List of Mosses of North America North of Mexico, H.A. Crum, et al., 1973. The following species of mosses are designated as:

1. Endangered: Schistostegia pennata (Hedw.) Web. & Mohr.

2. Threatenened: none.

3. Of special concern:

a. Bryoxiphium norvegicum (Brid.) Mitt.;

b. Tomenthypnum falcifolium (Ren ex. Nich.) Tuom.

PLANT GROUP COMMITTEE REPORT

STATUS REPORT ON MINNESOTA'S PLANTS

A Final Report of the Plant Group Committee
Submitted to the Chairman
Endangered Species Advisory Committee
Minnesota Department of Natural Resources

December 1982

by

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STATUS OF RARE PLANTS IN MINNESOTA

INTRODUCTION

There are about 2,000 species of vascular plants and 550 species of lichens which occur in Minnesota without the aid of cultivation. Many of these species occur only in very specific and fragile habitats, or in habitats frequently exploited by human developments. A few of these species, most notable the lichens, are extremely sensitive to airborne pollutants that may be transported many miles from their point of origin.

The native populations of these species declined drastically when the landscape of Minnesota was altered by human settlement. Activities such as logging and agriculture have eliminated most of Minnesota's original forests and 99.5% of the prairies. The widespread and often indescriminate use of herbicides has changed many wetlands and remnant grasslands into pure stands of non-native weed species. Although nearly all native plant species have suffered a decrease in populations due to habitat loss, a few species have suffered losses so great that their survival in Minnesota is in jeopardy.

To determine which species are in jeopardy, the plant group of the Endangered Species Technical Admisory Committee relied largely on plant specimens collected by Minnesota botanists over the last 120 years. These specimens are housed in the herbarium of the University of Minnesota which contains over 100,000 specimens of vascular plants and 20,000 specimens of lichens collected in Minnesota. By examining the frequency with which individual species were collected and the change over time in their frequency, the plant group was able to determine which species are the rarest, and which species show recent decline.

Species which have been collected very rarely in recent years and are known to rely on a disappearing habitat type are believed to be in the greatest danger. In many cases, this historical data was supplemented by field research conducted by members of the group. This usually involved returning to the site where a candidate species had been collected in the past to determine if the population or habitat still exists. Information concerning the status of species in neighboring states and throughout North America was also considered.

STATUS CATAGORIES

The accompanying lists contain the legislated catagories of endangered, threatened and special concern. In addition, a fourth catagory with unofficial status is presented. This catagory is termed "undetermined".

In general, species were assigned to the undetermined catagory if they appear to fit the definition of endangered, threatened or special concern, but their presence in Minnesota has not been recently verified. For the purpose of producing this list, 1960 was chosen as the cut-off date. This date is entirely artificial and does not reflect any biological process affecting plant rarity. It does, however, reflect the beginning of a period of ambitious land clearing activity and the widespread use of organic herbicides which together have done much to eliminate native habitats.

In a few cases, compelling reasons (i.e. reliable sight records) have led us to make exceptions and list species as endangered or threatened which have not been collected since 1960. This is the case with Ammophila breviligulata.

Some of the species in the undetermined catagory may now be extinct in Minnesota. This may be the case with Astragalus racemosa, Eleocharis halophila, Achillea sibirica or Triodanis leptocarpa. Other species are almost certainly extant but it will require a highly directed search to find them. This includes: Caltha natans, Osmorhiza obtusa and Selaginella selaginoides. Also in the undetermined catagory are species known to have occurred in Minnesota but their presence here may be the result of human activities. Two examples are Baptisia tinctoria (possibly introduced as a garden plant) and Gaura biennis (possibly introduced along railways and other transportation corridors).

ENDANGERED: The endangered catagory includes species which have experienced a decline in range or frequency severe enough to threaten its survival throughout all or a significant portion of its range (for the purpose of this definition the range of the species in Minnesota has been considered a factor in determining its status). This describes species such as Platanthera leucophaea and Lespedeza leptostachya which have been reduced to critically low numbers throughout their range. Also included in this catagory are species which have not suffered a large scale decline but because of their natural rarity would be immediately threatened by any future decline. This situation is exemplified by Potamogeton lateralis, Sullivantia renifolia and the midwest populations of Chrysosplenium iowense.

Some of the species in the endangered catagory occur in Minnesota at the periphery of their range and are probably secure in the center of their range. If, however, they are in danger of extinction in a significant portion of their range and if that portion of their range includes Minnesota, they may be listed as endangered. This situation is illustrated by Polygala cruciata, Isoetes melanopoda and Polystichum braunii. Because the phrase "significant portion of their range" is an integral part of the legislated definition of endangered, much consideration has been given to its interpretation. A purely objective interpretation proved impractical, but in most cases the combined range of a species in Minnesota and adjacent states and provinces was considered a significant portion of its total range. Exceptions were made for species with very large ranges as well as those with very restricted ranges. In all cases, an effort was made to apply the interpretation consistantly among the taxa.

Some species in the endangered catagory are present in Minnesota but absent from adjacent states and provinces. These species, in fact, may be disjunct from the next nearest population of their species by several hundred miles. These isolated populations have exceptional biological significance and may possess genetic material unique to the local populations. This is the case with Montia chamissoi, Sedum rosea and Saxifraga cernua.

The only species that is endangered by a species specific threat is Hydrastis canadensis (it is sought for its commerically valuable root). Most of the species are endangered because they occur in habitat types that are especially sensitive or frequently exploited. This is the case with (Parthenium integrifoluim and Platanthera flava var herbiola which have a significant portion of their range in the midwest prairie region where their native grassland habitats are fast disappearing.

THREATENED: Species in the threatened catagory exhibit patterns of geographic distribution similar to the endangered species, but the factors affecting their rarity are not as severe. Fox example, Saxifraga aizoon and Saifraga cernua are both arctic species with disjunct populations in the border lakes region of Cook County. S. aizoon occurs at 8 distinct sites along an 18 mile series of cliffs where S. cernua is restricted to a single site on one cliff face. S. cernua is considered to be in greater jeopardy because a single event (natural or otherwise) could extirpate the species from the midwest. S. aizoon, however, could presumable survive such an event because it is not restricted to a single site. On the basis of the evaluation, S. cernua is listed as endangered and S. aizoon is listed as threatened. It must be stated that threatened species may become endangered in the future if they suffer a decline in number or size of populations.

SPECIAL CONCERN: The special concern catagory generally contains species that are declining, threatened or endangered in Minnesota, but not in adjacent states or over a significant portion of their range. This is the case with Hamamelis virginiana, Tsuga canadensis and Dodecatheon meadia. Also included in the special concern catagory is a small group of species which are not threatened or endangered in Minnesota, but are threatened over a significant portion of their range. In such cases, Minnesota may be the stronghold of the species. There are four species that fit this criteria: Arethusa bulbosa, Cirsium hillii, Cypripedium candidum and Viola novae-angliae. In all cases, the preservation of special concern species is vitally important from a state point of view. Intensive efforts may be needed to prevent extirpation of these species and the resulting depletion of our state flora.

DISTRIBUTION AND RANGE MAPS

The maps accompanying this report are presented as an aid to understanding the status recommendations. The maps by themselves do not provide adequate justification for the status recommendations, but must be supplemented by the specific occurrence data presented in the status reports.

The North American maps show a generalized range for each species, but they do not infer distribution within that range. For example, a species shown to range throughout eastern North America may not occur in every state included within its range. It may be restricted to specific habitat types which are discontinuous or disjunct. Where such disjunctions are well documented, they are shown on the maps. Unfortunately, plant distributions are often poorly known and must frequently be represented by generalized maps.

The Minnesota maps show the known distribution of each endangered or threatened species in Minnesota. Each dot represents the location where a voucher specimen was collected. Sight records are excluded because they are unverifiable. Open dots represent collections dated earlier than 1960. Solid dots represent collections dated 1960 or later. If a given population has been collected several times, the date of the most recent collection is used. In a few cases, populations may be separated by only a few miles and are represented by a single dot.

RECOMMENDATIONS

Because of the large number of species being considered and the constantly changing landscape of Minnesota, the status of these species will not remain

constant. For this reason, the plant group strongly recommends that a thorough review of the plant list be conducted at three year intervals as provided for in the legislation. This review process is especially important for species in the undetermined catagory. If in the future any of the undetermined species are found to be extant in Minnesota, they should be considered for addition to the official list in an appropriate status catagory.

During the course of this project it became clear to members of the group that additional research is needed on the flora of Minnesota. Specific research needs include distribution, habitat requirements and management potential for critical species. Such research should be directed towards the production of a "conservation plan" and ultimately a "recovery plan". The production and implementation of a recovery plan would ideally result in an endangered species becoming secure within its native habitat and allow its removal from the list. However, research should not be limited to endangered species but should also include species in the threatened, special concern and undetermined catagories. One possible method of supporting such research would be in the form of grants and contracts from the DNR nongame fund. Limiting these funds to animal species neglects the largest portion of Minnesota's biotic community and ignores the primary role that plants fulfill in the maintenance of Minnesota's natural diversity.

PROPOSED LIST OF VASCULAR PLANTS CLASSIFIED AS
ENDANGERED, THREATENED OR SPECIAL CONCERN
BY THE PLANT GROUP COMMITTEE

ENDANGERED

SPECIES	FAMILY
Asclepias stenophylla Gray	Asclepiadaceae
Besseya bullii (Eaton) Rydb.	Scrophulariaceae
Cacalia suaveolens L.	Asteraceae
Chrysosplenium iowense Rydb.	Saxifragaceae
Cristatella jamesii T.&G.	Capparidaceae
Cypripedium arietinum R. Br.	Orchidaceae
Draba norvegica Gunn.	Brassicaceae
Eleocharis wolfii Gray	Cyperaceae
Empetrum atropurpureum Fern. & Wieg.	Empetraceae
Erythronium propullans Gray	Liliaceae
Gerardia auriculata Michx.	Scrophulariaceae
Hydrastis canadensis L.	Ranunculaceae
Isoetes melanopoda Gay & Dur.	Isoetaceae
Lespedeza leptostachya Engelm.	Fabaceae
Lesquerella ludoviciana (Nutt.) S. Wats.	Brassicaceae
Littorella americana Fern.	Plantaginaceae
Malaxis paludosa (L.) Sw.	Orchidaceae
Montia chamissoi (Ledeb.) Durand & Jackson	Portulacaceae
Napaea dioica L.	Malvaceae
Oryzopsis hymenoides (R.&S.) Ricker	Poaceae
Osmorhiza chilensis H.&A.	Apiaceae
Parthenium integrifolium L.	Asteraceae
Platanthera flava (L.) Lindl. var. herbiola (R.Br.) Ames & Correll	Orchidaceae
Platanthera leucophaea (Nutt.) Lindl.	Orchidaceae
Poa paludigena Fern. & Wieg.	Poaceae
Polygala cruciata L.	Polygalaceae
Polystichum braunii (Spenner) Fee var. purshii Fern.	Polypodiaceae
Potamogeton lateralis Morong	Potamogetonaceae
Ruellia humilis Nutt.	Acanthaceae
Sagina nodosa (L.) fenzl ssp. borealis Crow	Caryophyllaceae
Saxifraga cernua L. var. latibracteata Fern.	Saxifragaceae
Scleria triglomerata Michx.	Cyperaceae
Sedum rosea (L.) Scop. var. leedyi Rosend.& Moore	Crassulaceae
Subularia aquatica L.	Brassicaceae
Sparganium glomeratum Laest.	Sparganiaceae
Sullivantia renifolia Rosend.	Saxifragaceae
Talinum rugospermum Holzinger	Portulaceaceae
Tofieldia pusilla (Mich.) Pers.	Liliaceae

THREATENED

SPECIES	FAMILY
Allium cernuum Roth	Liliaceae
Ammophila breviligulata Fern.	Poaceae
Androsace septentrionalis L. var. pulverulenta (Rydb.) Knuth	Primulaceae
Arabis holboellii Hornem. var. retrofracta (Graham) Rydb.	Brassicaceae
Arenaria macrophylla Hook.	Caryophyllaceae
Arnica chionopappa Fern.	Asteraceae
Asclepias hirtella (Pennell) Woodson	Asclepiadaceae
Asclepias sullivantii Englem.	Asclepiadaceae
Asplenium trichomanes L.	Polypodiaceae
Cacalia tuberosa Nutt.	Asteraceae
Carex conjuncta Boott	Cyperaceae
Carex davisii Schwein.&Torr.	Cyperaceae
Carex hallii Olney	Cyperaceae
Carex praticola Rydb.	Cyperaceae
Carex sterilis Willd.	Cyperaceae
Desmodium illinoense Gray	Fabaceae
Drosera anglica Huds.	Droseraceae
Drosera linearis Goldie	Droseraceae
Dryopteris marginalis (L.) Gray	Polypodiaceae
Eleocharis olivaceae Torr.	Cyperaceae
Eleocharis rostellata Torr.	Cyperaceae
Gerardia gattingeri Sm.	Scrophulariaceae
Jeffersonia diphylla (L.) Pers.	Berberidaceae
Lycopodium porophilum Lloyd & Underwood	Lycopodiaceae
Lygodesmia rostrata Gray	Asteraceae
Mamillaria vivipara (Nutt.) Haw.	Cactaceae
Melica nitens Nutt.	Poaceae
Nymphaea tetragona Georgi	Nymphaeceae
Pellaea atropurpurea (L.) Link	Polypodiaceae
Plantago elongata Pursh	Plantaginaceae
Rhynchospora capillacea Torr.	Cyperaceae
Rubus chamaemorus L.	Rosaceae
Salicornia rubra Nelson	Chenopodiaceae
Saxifraga aizoon Jacq. var. neogaea Butters	Saxifragaceae
Scleria verticillata Muhl.	Cyperaceae
Vaccinium uliginosum L. var. alpinum Bigel	Ericaceae
Valeriana edulis Nutt. ssp. ciliata (T.&G.) Meyer	Valerianaceae
Woodsia glabella R. Br.	Polypodiaceae
Woodsia scopulina D.C. Eat.	Polypodiacea
Xyris torta Sm.	Xyridaceae

SPECIAL CONCERN

SPECIES	FAMILY
Adoxa moschatellina L.	Adoxaceae
Agrostis geminata Trin.	Poaceae
Allium schoenoprasum L. var. sibiricum (L.) Hartm.	Liliaceae
Antennaria aprica Greene	Asteraceae
Arenaria dawsonensis Britt.	Caryophyllaceae
Arethusa bulbosa L.	Orchidaceae
Aristida longiseta Steud.	Poaceae
Aristida tuberculosa Nutt.	Poaceae
Asclepias amplexicaulis Sm.	Asclepiadaceae
Astragalus flexuosus Dougl.	Fabaceae
Astragalus missouriensis Nutt.	Fabaceae
Astragalus neglectus (T.&G.) Sheld.	Fabaceae
Athyrium pycnocarpon (Spreng.) Tides	Polypodiaceae
Bacopa rotundifolia (Michx.) Wettst.	Scrophulariaceae
Baptisia leucophaea Nutt.	Fabaceae
Botrychium lunaria (L.) Sw.	Ophioglossaceae
Botrychium mormo Wagner	Ophioglossaceae
Buchloe dactyloides (Nutt.) Engelm.	Poaceae
Carex annectens Bickn.	Cyperaceae
Carex exilis Dew.	Cyperaceae
Carex laxiculmis Schwein.	Cyperaceae
Carex obtusata Lilj.	Cyperaceae
Carex scirpiformis Mack.	Cyperaceae
Carex woodii Dew.	Cyperaceae
Cephalanthus occidentalis L.	Rubiaceae
Chamaerhodos nuttallii Pick.	Rosaceae
Cirsium hillii (Canby) Fern.	Asteraceae
Cladium mariscoides (Muhl.) Torr.	Cyperaceae
Claytonia caroliniana Michx.	Portulacaceae
Cyperus acuminatus Torr. & Hook.	Cyperaceae
Cypripedium candidum Muhl.	Orchidaceae
Decodon verticillatus (L) Ell.	Lythraceae
Deschampsia flexuosa (L.) Trin.	Poaceae
Desmanthus illinoense (Michx.) MacM	Fabaceae
Dicentra canadensis (Goldie) Walp.	Fumariaceae
Dodecatheon meadia L.	Primulaceae
Draba arabisans Michx.	Brassicaceae
Dryopteris goldiana (Hook.) Gray	Polypodiaceae
Echinochloa walteri (Pursh.) Nash	Poaceae
Eleocharis pauciflora (Lightf.) Link var. fernaldii Svenson	Cyperaceae
Eryngium yuccifolium Michx.	Apiaceae
Euphrasia hudsoniana Fern. & Wieg.	Scrophulariaceae
Floerkea proserpinacoides Willd.	Limnanthaceae
Gentiana affinis Griseb.	Gentianaceae
Gentianella amarella (L.) Borner ssp. acuta (Michx.) Gillett	Gentianaceae
Geocaulon lividum (Richards.) Fern.	Santalaceae
Glaux maritima L.	Primulaceae

SPECIAL CONCERN (con't)

SPECIES	FAMILY
Hamamelis virginiana L.	Hamamelidaceae
Haplopappus spinulosus (Pursh) DC.	Asteraceae
Helianthus nuttallii T.&G. ssp rydbergii (Br.) Long	Asteraceae
Hydrocotyle americana L.	Apiaceae
Juncus stygius L. var. americanus Buchenau	Juncaceae
Leersia lenticularis Michx.	Poaceae
Limosella aquatica L.	Scrophulariaceae
Myosurus minimus L.	Ranunculaceae
Oenothera rhombipetala Nutt.	Onagraceae
Opuntia humifusa Raf.	Cactaceae
Orobanche fasciculata Nutt.	Orobanchaceae
Orobanche ludoviciana Nutt.	Orobanchaceae
Orobanche uniflora L.	Orobanchaceae
Panax quinquefolium L.	Apiaceae
Paronychia fastigiata Fern.	Caryophyllaceae
Pinguicula vuglaris L.	Lentibulariaceae
Platanthera clavellata (Michx.) Luer	Orchidaceae
Poa wolfii Scribn.	Poaceae
Polygonum arifolium L.	Polygonaceae
Polygonum viviparum L.	Polygonaceae
Polystichum acrostichoides (Michx.) Schott.	Polypodiaceae
Potamogeton vaseyi Robbins	Potamogetonaceae
Ranunculus lapponicus L.	Ranunculaceae
Rhynchospora fusca (L.) Ait. f.	Cyperaceae
Rudbeckia triloba L.	Asteraceae
Sanicula canadensis L.	Apiaceae
Sanicula trifoliata Bickn.	Apiaceae
Schedonnardus paniculatus (Nutt.) Trel.	Poaceae
Scutellaria ovata Hill var. versicolor (Nutt.) Fern.	Lamiaceae
Solidago mollis Bartl.	Asteraceae
Solidago sciaphila Steele	Asteraceae
Spartina gracilis Trin.	Poaceae
Stellaria longipes Goldie	Caryophyllaceae
Symphoricarpos orbiculatus Moench	Caprifoliaceae
Tephrosia virginiana (L.) Pers.	Fabaceae
Thelypteris hexagonoptera (Michx.) Weatherby	Fabaceae
Tofieldia glutinosa (Michx.) Pers.	Liliaceae
Tradescantia ohiensis Raf.	Commelinaceae
Triglochin palustris L.	Juncaginacea
Trillium nivale Riddell	Liliaceae

SPECIAL CONCERN (con't)

SPECIES	FAMILY
Triplasis purpurea (Walt.) Champm.	Poaceae
Tsuga canadensis (L.) Carr.	Pinaceae
Utricularia gibba L.	Lentibulariaceae
Verbena simplex Lehm.	Verbenaceae
Viola lanceolata L.	Violaceae
Viola novae-angliae House	Violaceae
Viola nuttallii Pursh	Violaceae
Waldesteinia fragarioides (Michx.) Tratt.	Rosaceae
Xyris montana Ries.	Xyridaceae

STATUS UNDETERMINED

SPECIES

Achillea sibirica Ledeb.	Asteraceae
Agrostis hyemalis (Walt.) BSP.	Poaceae
Anemone multifida Poir	Ranunculaceae
Asclepias purpurascens L.	Asclepiadaceae
Aster pilosus Willd.	Asteraceae
Aster shortii Lindl.	Asteraceae
Aster undulatus L.	Asteraceae
Astragalus racemosus Pursh	Fabaceae
Astragalus tennellus Pursh	Fabaceae
Baptisia tinctoria (L.) R.Br.	Fabaceae
Bartonia virginica (L.) BSP.	Gentianaceae
Bidens discoidea (T.&G.) Britt.	Asteraceae
Botrychium lanceolatum (Gmel.) Angstr.	Ophioglossaceae
Calamagrostis lacustris (Kearney) Nash	Poaceae
Calamagrostis purpurascens R.Br.	Poaceae
Caltha natans Pall.	Ranunculaceae
Carex crus-corvi Kunz.	Cyperaceae
Carex formosa Dew.	Cyperaceae
Carex garberi Fern.	Cyperaceae
Carex katahdinensis Fern.	Cyperaceae
Carex laevivaginata (Kukenth.) Mack.	Cyperaceae
Carex lurida Wohlemb.	Cyperaceae
Carex michauxiana Boeckl.	Cyperaceae
Carex pallescens L.	Cyperaceae
Carex plantaginea Lam.	Cyperaceae
Carex rossii Boott	Cyperaceae
Carex squarrosa L.	Cyperaceae
Carex supina Willd.	Cyperaceae
Carex xerantica Bailey	Cyperaceae
Castilleja septentrionalis	Scrophulariaceae
Crataegus douglasii Lindl.	Rosaceae
Cymopteris acaulis (Pursh.) Raf.	Apiaceae
Desmodium cuspidatum (Muhl.) Loud. var. longifolium (T.&G.) Schub.	Fabaceae
Desmodium nudiflorum (L.) DC.	Fabaceae
Didiplis diandra (Nutt.) Wood.	Lythraceae
Eleocharis halophila Fern.&Brack.	Cyperaceae
Eleocharis nitida Fern.	Cyperaceae
Eleocharis parvula (R.&S.) Link	Cyperaceae
Empetrum nigrum L.	Empetraceae
Eupatorium sessilifolium L. var. brittonianum Porter	Asteraceae
Euphorbia missurica Raf.	Euphorbiaceae
Festuca paradoxa Desv.	Poaceae
Gaura biennis L.	Onagraceae
Gentiana macounii Holm.	Gentianaceae
Gleditsia triacanthos L.	Fabaceae

STATUS UNDETERMINED (con't)

SPECIES	FAMILY
Hedeoma pulegioides (L.) Pers.	Lamiaceae
Heteranthera limosa (Sw.) Willd.	Pontederiaceae
Iodanthus pinnatifidus (Michx.) Steud	Brassicaceae
Juncus articulatus L.	Juncaceae
Juncus brachycarpus Engelm.	Juncaceae
Juncus marginatus Rostk.	Juncaceae
Lactuca floridana (L.) Gaertn.	Asteraceae
Listera auriculata Wieg.	Orchidaceae
Listera convallarioides (Swartz) Nutt.	Orchidaceae
Luzula parviflora (Ehrh.) Desv.	Juncaceae
Marsilea mucronata A.Br.	Marsileaceae
Monolepsis nuttalliana (R.&S.) Greene	Chenopodiaceae
Muhlenbergia uniflora (Muhl.) Fern.	Poaceae
Myriophyllum tenellum Bigel.	Haloragaceae
Najas gracillima (A.Br.) Magnus	Najadaceae
Oenothera laciniata Hill	Onagraceae
Osmorhiza obtusa (C.&R.) Fern.	Apidaceae
Oxytropis viscida Nutt.	Fabaceae
Paronychia canadensis (L.) Wood	Caryophyllaceae
Penstemon digitalis Nutt.	Scrophulariaceae
Phacelia franklinii (R.Br.) Gray	Hydrophyllaceae
Polemonium occidentale Green var. lacustre (Wherry) Lakela	Polemoniaeae
Polygonum careyi Olney	Polygonaceae
Polytaenia nuttallii DC.	Apiaceae
Potamogeton bicupulatus Fern.	Potamogetonaceae
Potamogeton diversifolius Raf.	Potamogetonaceae
Potentilla effusa Dougl.	Rosaceae
Potentilla nicolletii (S.Wats.) Sheld.	Rosaceae
Prenanthes crepidinea Michx.	Asteraceae
Psoralea tenuiflora Pursh.	Fabaceae
Pyrola minor L.	Pyrolaceae
Quercus prinoides Willd. var. acuminata (Michx.) Gl.	Fagaceae
Rorippa sessiliflora (Nutt.) Hitchc.	Brassicaceae
Rotala ramosior (L.) Koehne	Lythraceae
Sagittaria graminea Michx.	Alismataceae
Salix pellita Anderss.	Salicaceae
Scirpus pedicellatus Fern.	Cyperaceae
Selaginella selaginoides (L.) Link	Selaginellaceae
Senecio canus Hook.	Asteraceae
Senecio indecorus Greene	Asteraceae
Silene nivea (Nutt.) Otth	Caryophyllaceae
Tillaea aquatica L.	Crassulaceae
Triodanis leptocarpa (Nutt.) Nieuwl.	Campanulaceae
Vernonia baldwini Torr. var. interior (Sm.) Schub.	Asteraceae

Proposed List of Mosses and Lichens - Classified as
Endangered, Threatened and Special Concern
by the Plant Group Committee

Lichens

ENDANGERED

Buellia nigra (Fink) Sheard (Rinodina nigra Fink)
Dermatocarpon moulinsii (Mont.) Zahlbr.
Leptogium apalachense (Tuck.) Nyl.
Lobaria scrobiculata (Scop.) DC
Parmelia stictica (Del.) Nyl.
Pseudocyphellaria crocata (L.) Vain.

THREATENED

Lobaria quercizans Michx.

SPECIAL CONCERN

Cetraria aurescens Tuck.
Cetraria oakesiana Tuck.
Cladonia pseudorangiformis Asah.
Coccocarpia cronia (Tuck.) Vain.
Parmelia stuppea Tayl.
Sticta fuliginosa (Dicks.) Ach.
Umbilicaria torrefacta (Lightf.) Schrad.

UNDETERMINED

Sticta weigelii (Ach.) Vain.

Mosses

ENDANGERED

Schistostegia pennata (Hedw.) Web. & Mohr

THREATENED

None

SPECIAL CONCERN

Bryoxiphium norvegicum (Brid.) Mitt.
Tomenthypnum falcifolium (Ren ex. Nich.) Tuom.

Vascular Plants

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Allium cernuum* Roth

FAMILY: Liliaceae

COMMON NAME: Wild Onion

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although this species is wide ranging, its distribution in the midwest is quite local. It is rare or uncommon in adjacent states and was only recently discovered in Minnesota. The single Minnesota population is small but the site is in public ownership and protection of its habitat may be possible.

PREFERRED HABITAT IN MINNESOTA: This species occurs on wooded slopes.

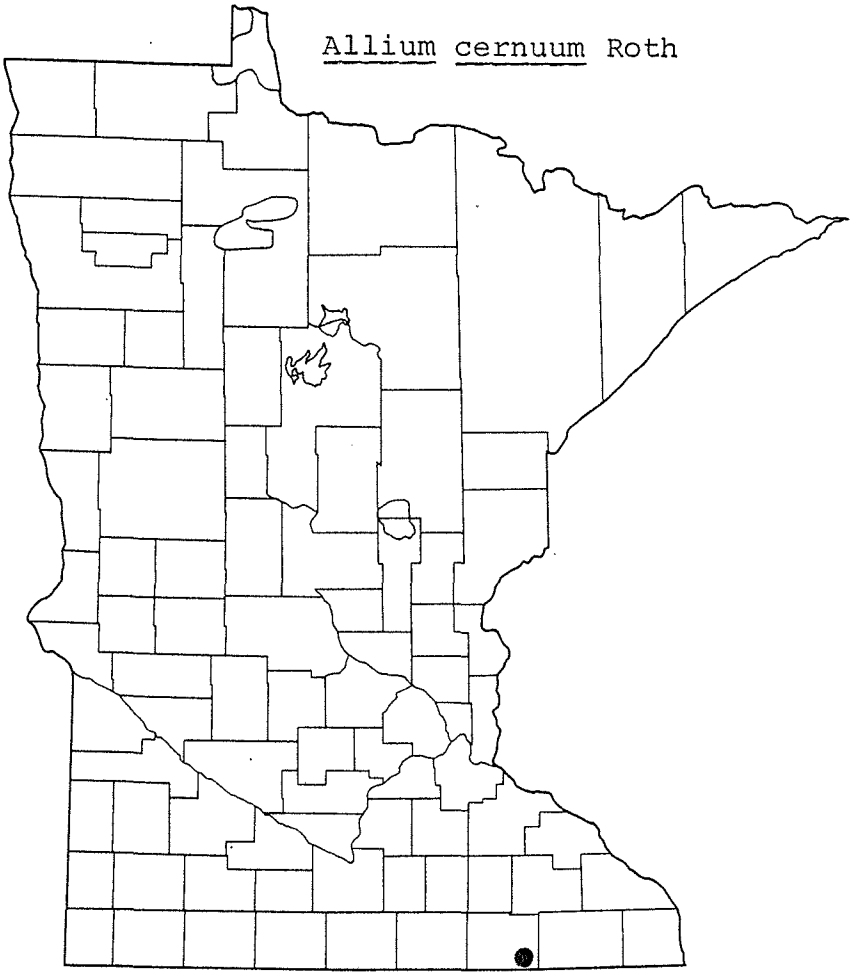
RECOMMENDATIONS: An effort should be made to secure protection for the only Minnesota population of this species.

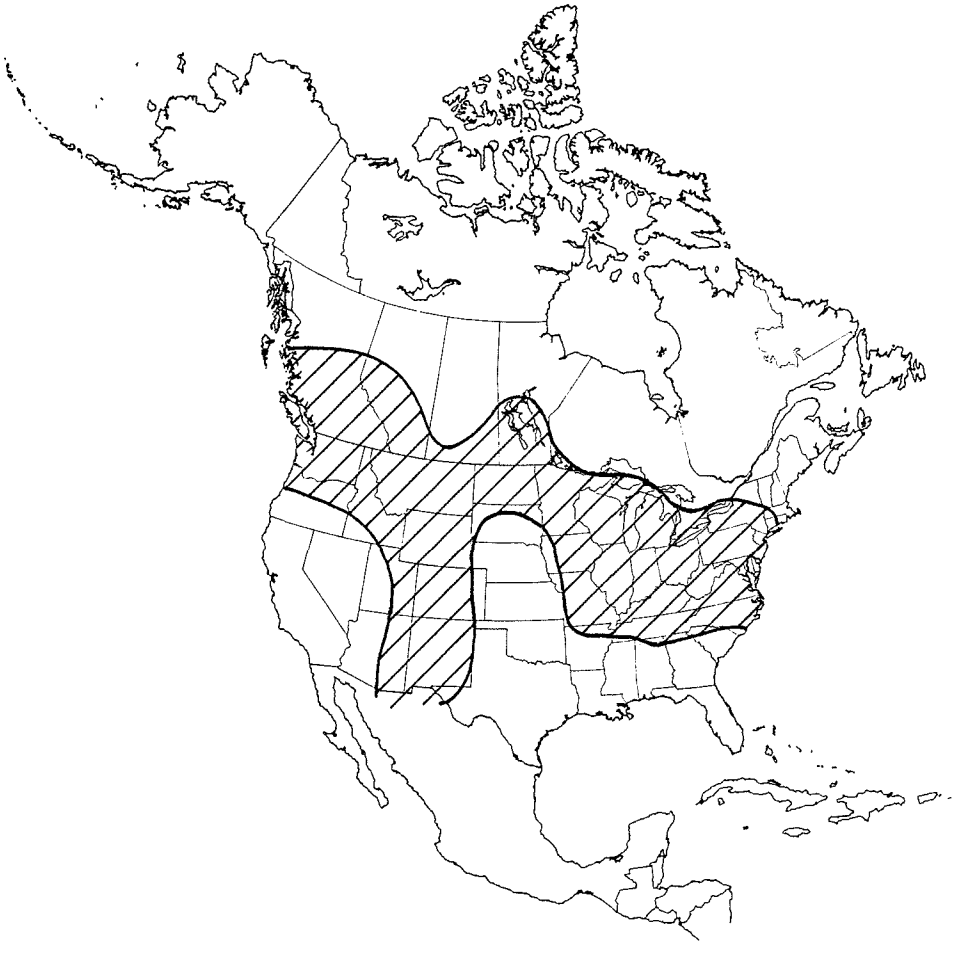
SELECTED REFERENCES:

Jacobsen, T. D. 1979. Numerical analysis of variation between *Allium cernuum* and *Allium stellatum* (Liliaceae). Taxon 28(5/6):517-523.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Allium cernuum Roth





SPECIES STATUS SHEET

SCIENTIFIC NAME: Ammophila breviligulata Fern.

FAMILY: Poaceae

COMMON NAME: Beach Grass

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species reaches Minnesota at the extreme western edge of its range. Its distribution inland is limited to sensitive dune habitats associated with the Great Lakes, and its only population in the state occurs on Minnesota Point in Duluth. Although it appears to be well established at this site, its proximity to residential and commercial areas may make it vulnerable to land development and other disturbances. It may also be threatened by a nonnative strain of this species which has been introduced on Minnesota Point to stabilize the dunes.

PREFERRERD HABITAT IN MINNESOTA: The population on Minnesota Point occurs on sand dunes on the shore of Lake Superior.

RECOMMENDATIONS: The population of A. breviligulata on Minnesota Point needs to be censused. Land use trends should be studied to determine the extent of the threat to its habitat.

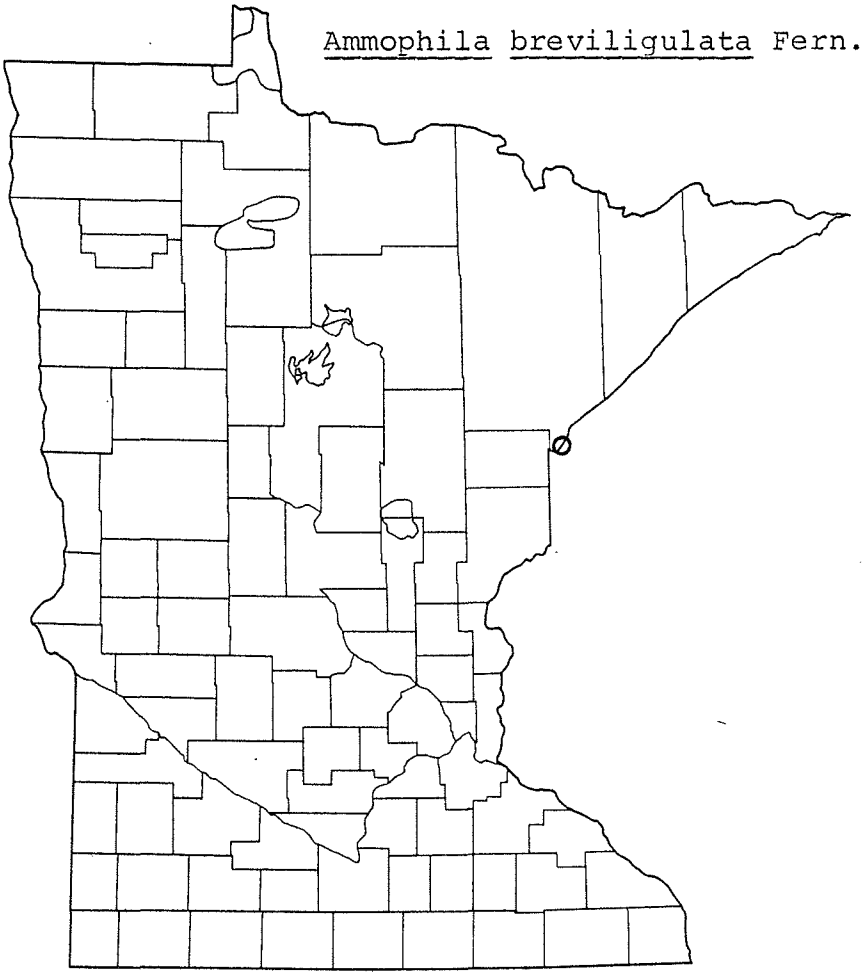
SELECTED REFERENCES:

Dore, W. G. and J. McNeill. 1980. Grasses of Ontario. Agriculture Canada, Ottawa.

Guire, K. E. and E. G. Voss. 1963. Distribution of distinctive shoreline plants in the Great Lakes region. Mich. Bot. 2:99114.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Ammophila breviligulata Fern.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Androsace septentrionalis L. var. puberulenta (Rydb.) Knuth

FAMILY: Primulaceae

COMMON NAME: None

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: In Minnesota, this species is restricted both geographically and ecologically. Known occurrences are limited to Kittson and Roseau Counties where hundreds of square miles of native habitat are being converted to agricultural use each year. These lands had previously been thought unsuitable for agricultural development because of their low productivity and high susceptibility to erosion. Recent trends in land use, however, indicate that even these marginal lands will continue to be exploited. There are five historical collections of this species, none since 1960.

PREFERRED HABITAT IN MINNESOTA: This species occurs in sand prairies and on gravel ridges.

RECOMMENDATIONS: The possible occurrence of this species on protected public lands in northwestern Minnesota needs to be investigated.

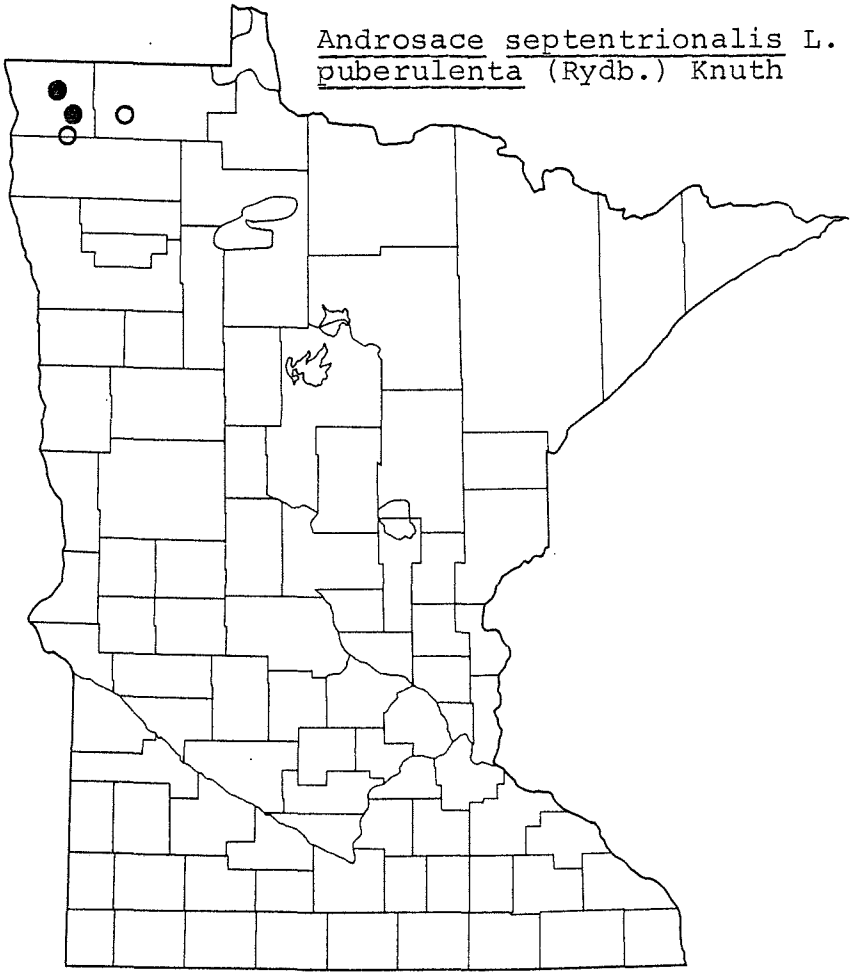
SELECTED REFERENCES:

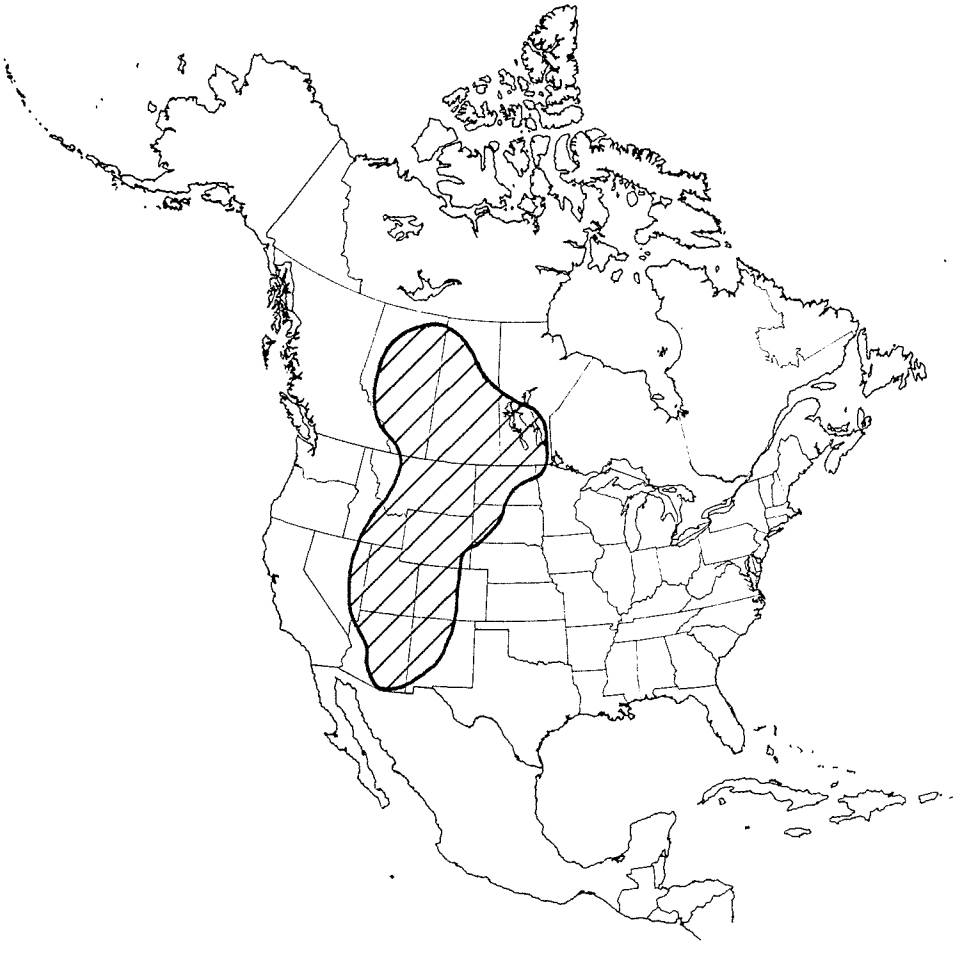
Moore, J. W. 1966. A provisional list of flowering plants, ferns and fern allies of Kittson County, Minnesota. Dept. of Bot., Univ. of Mn., Minneapolis.

Robbins, G.T. 1944. North American species of Androsace. Am. Midl. Nat. 32:137-163.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Androsace septentrionalis L. var. puberulenta (Rydb.) Knuth





SPECIES STATUS SHEET

SCIENTIFIC NAME: Arabis holboellii Hornem. var. retrofracta (Graham) Rydb.

FAMILY: Brassicaceae

COMMON NAME:

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species has wide distribution but is characteristically a species of the plains and cordillaras. It is quite rare and local in the Great Lakes Region. One of the two Cook County populations was verified in 1980 and appears to be secure. One of the two populations in Kittson County was discovered in 1982 and efforts are being made to preserve its habitat.

PREFERRED HABITAT: The Kittson County populations occur on dry prairies and dunes. The populations in Cook County occurs in crevices on north-facing cliffs.

RECOMMENDATIONS: The preservation of critical sand dune habitat in Kittson County may be necessary to ensure the survival of this species in western Minnesota.

SELECTEDREFERENCES:

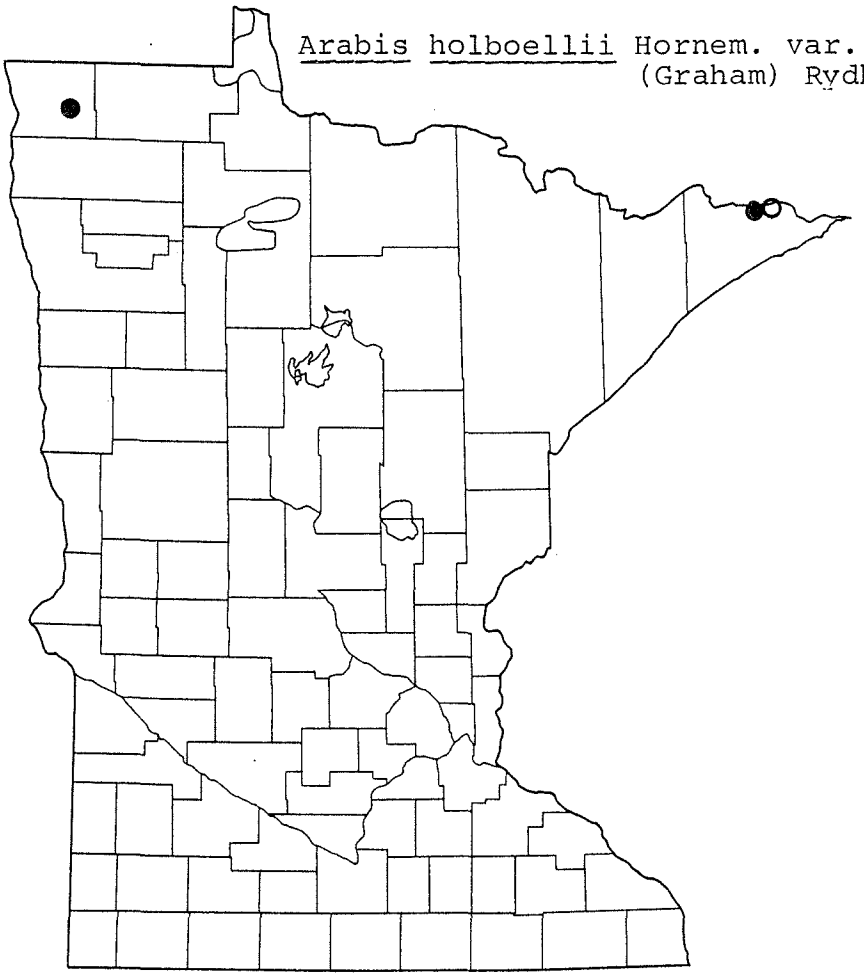
Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

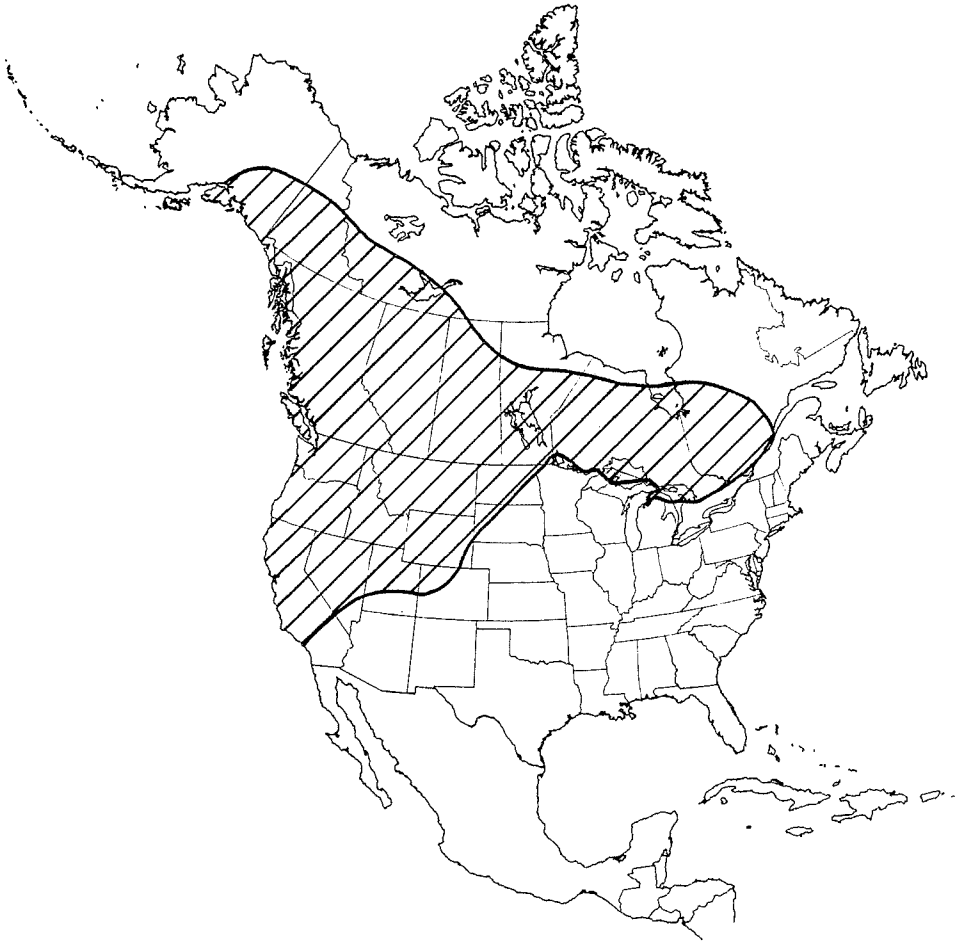
Hopkins, M. 1937. Arabis in eastern and central North America. Rhodora 39:63-98; 106-148; 155-186.

Marquis, R. J. and E. G. Voss. 1981. Distribution of some western North American plants disjunct in the Great Lakes region. Mich. Bot. 20(2):53-82.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Arabis holboellii Hornem. var. retrofracta (Graham) Rydb.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Arenaria macrophylla Hook.

FAMILY: Caryophyllaceae

COMMON NAME: Broadleaved Sandwort

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species is most typically found in the alpine and subarctic regions of northwestern North America. Populations in central and eastern North America are local and often disjunct. One of the populations in Lake County is presumed to have been destroyed when its forest habitat was clearcut in 1976. Extant populations are probably restricted to the Border Lakes area and are believed to be small.

PREFERRED HABITAT IN MINNESOTA: Four of the collections are from crevices in dry cliffs. The fifth collection is from an aspen woods.

RECOMMENDATIONS: All of the populations need to be revisited and their status reevaluated.

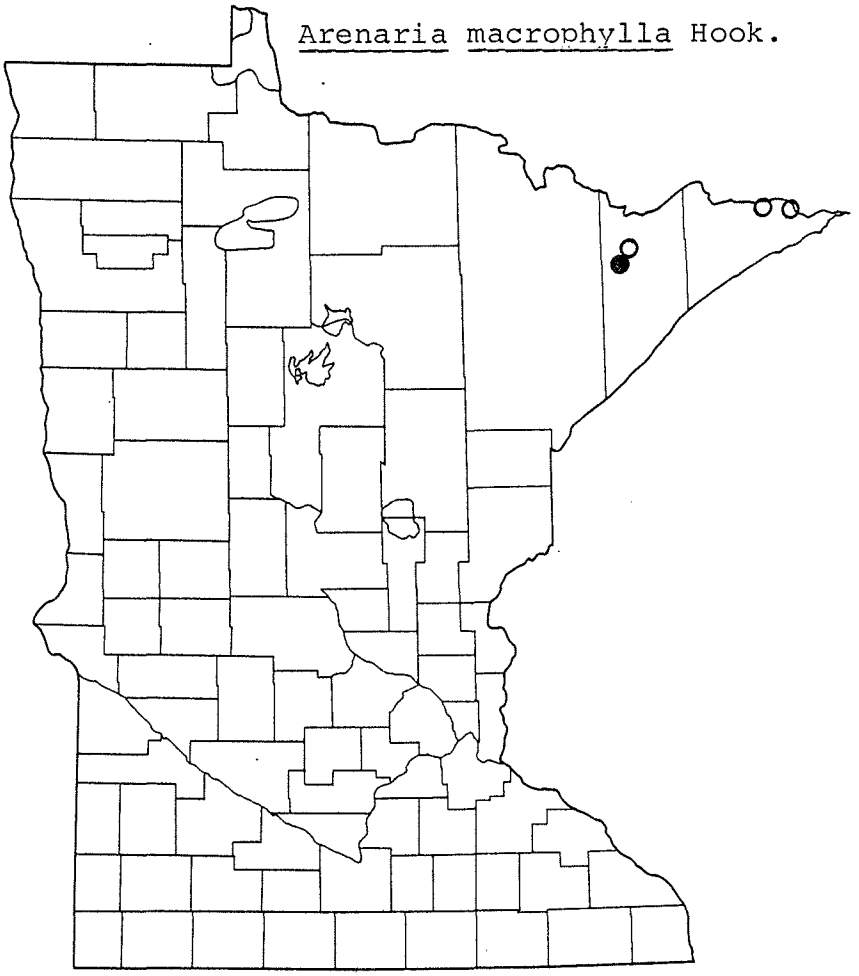
SELECTED REFERENCES:

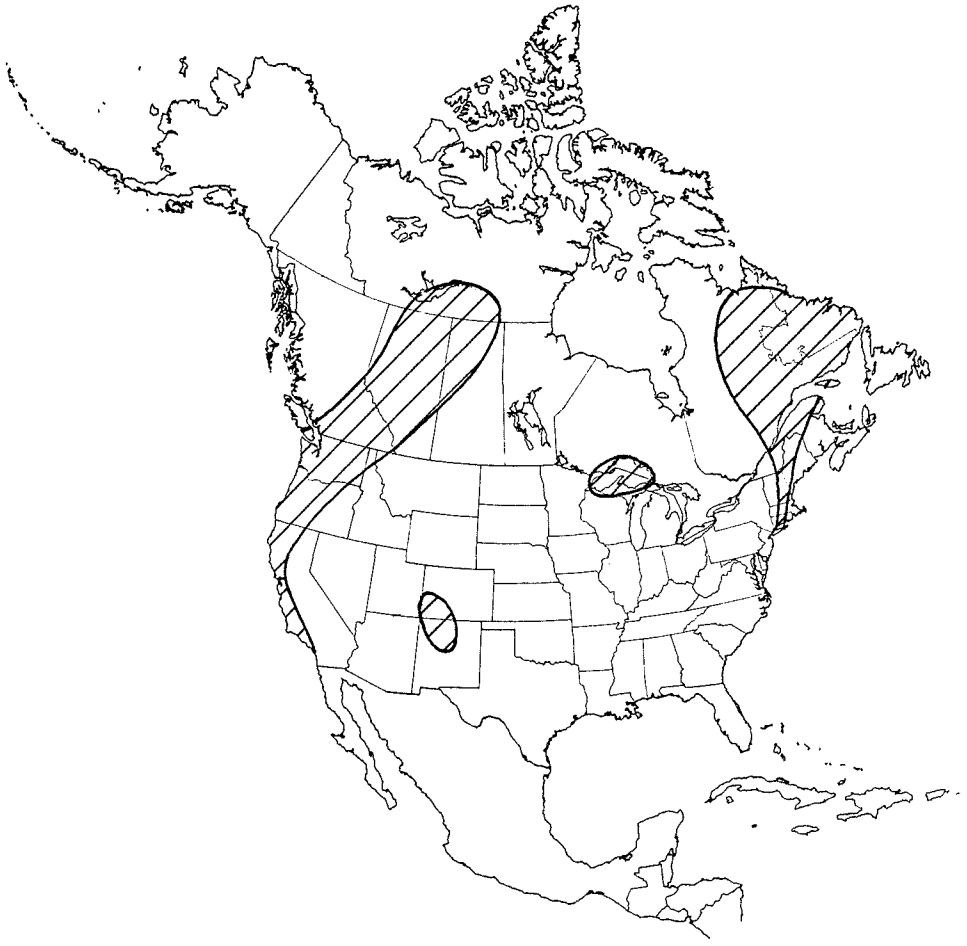
Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, Northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

Marquis, R. J. and E. G. Voss. 1981. Distributions of some western North American plants disjunct in the Great Lakes Region. Mich. Bot. 20(2):53-79.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Arenaria macrophylla Hook.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Arnica chionopappa Fern. [Arnica lonchophylla Greene]

FAMILY: Asteraceae

COMMON NAME: Arnica

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota near Clearwater Lake (Cook County) in 1932. It was next found on the shore of Lake Superior near Silver Bay (Lake County) in 1938. The third population was found in 1941 along the Gooseberry River (Lake County) near where it enters Lake Superior. None of these three populations have been collected recently, although there is a reliable sight record from Gooseberry State Park for 1981. These populations are the only ones reported from the Great Lakes region and are hundreds of miles from the next nearest population.

PREFERRED HABITAT IN MINNESOTA: The Minnesota collections of this species are from north-facing basalt and slate cliffs.

RECOMMENDATIONS: A search should be made for the three documented populations of this species to confirm their existence and assess their status.

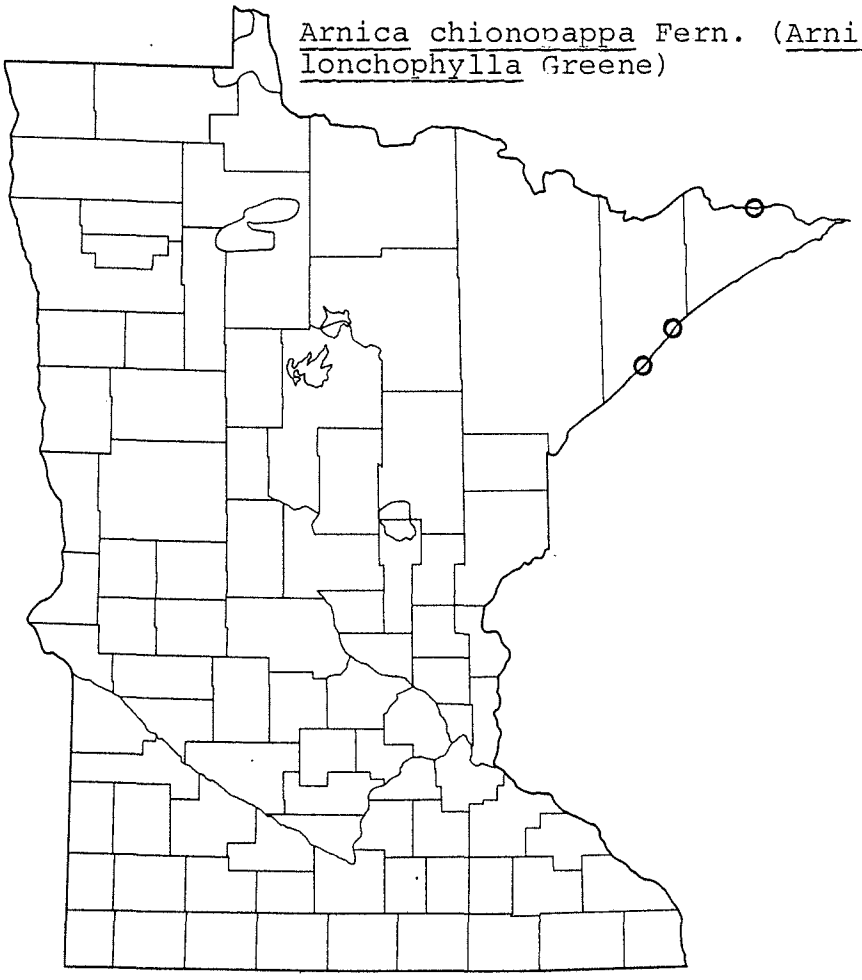
SELECTED REFERENCES:

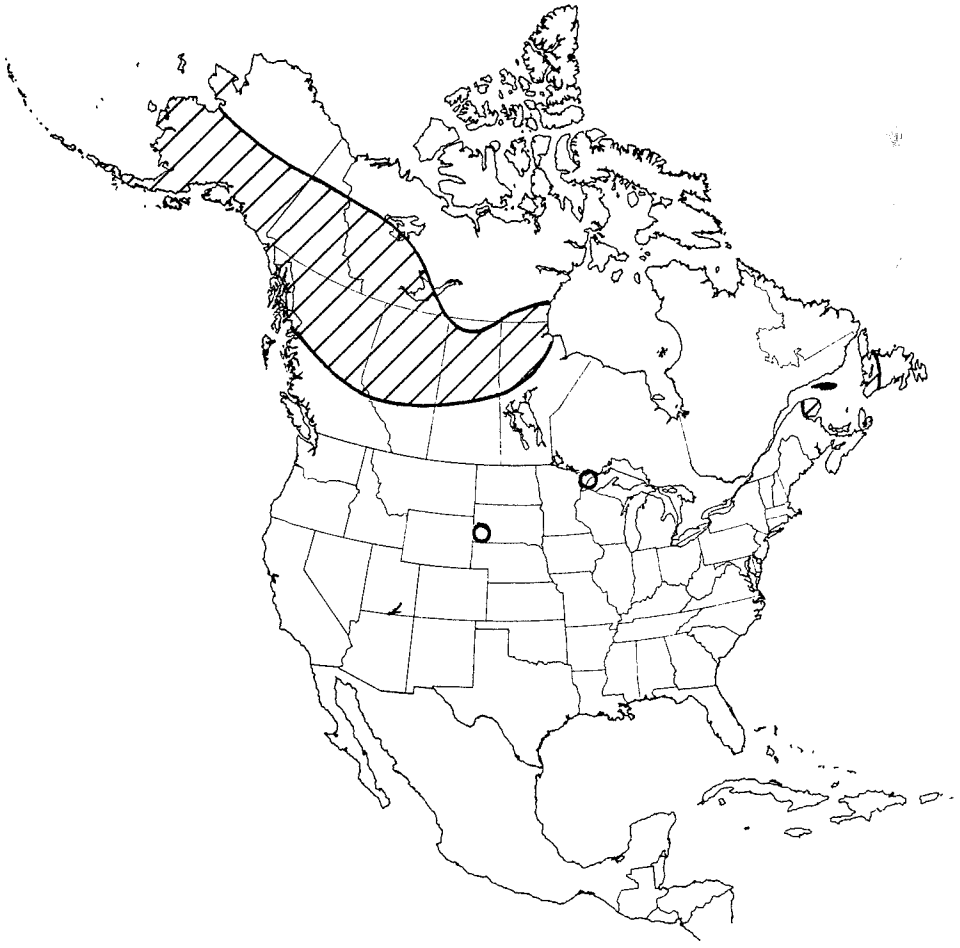
Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55: 21-55; 63-101; 116-154; 161-201.

Maguire, B. 1943. A monograph of the genus Arnica. Brittonia 4:386-510.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Arnica chionopappa Fern. (Arnica lonchophylla Greene)





SPECIES STATUS SHEET

SCIENTIFIC NAME: Asclepias hirtella (Pennell) Woodson

FAMILY: Asclepiadaceae

COMMON NAME: Green Milkweed

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: A literature citation had previously credited this species with occurring in Minnesota (Woodson 1954), but no supporting specimen had been seen in Minnesota herbaria. In 1978, however, the species was discovered in a native habitat at Cartney Wildlife Management Area (Mower County). The population consists of about 50-100 plants and appears to be well established. The site has been registered with the Minnesota Natural Heritage Register Program and is currently protected from major human disturbance. Intensive searches of remnant prairies in southeastern Minnesota have failed to locate any additional populations.

PREFERRED HABITAT IN MINNESOTA: The site at Cartney WMA is an unbroken mesic prairie that had been grazed by cattle until the early 1960's.

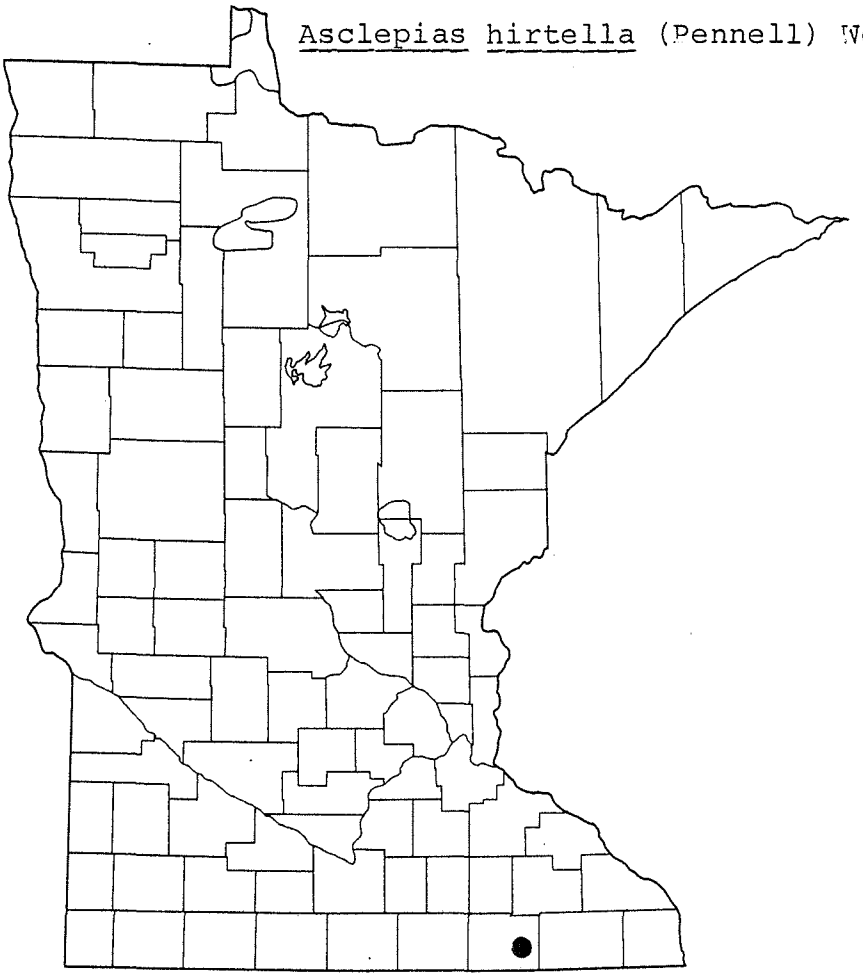
RECOMMENDATIONS: Because this species was only recently re-discovered in Minnesota very little is known about the status of its population. For this reason it should be closely monitored to determine its response to typical prairie management techniques such as burning and mowing.

SELECTED REFERENCES:

Woodson, R. E. 1954. The North American species of Asclepias. Ann. Mo. Bot. Gard. 41:1-211.

PREEPARED BY: Welby Smith, Botanist, Natural Heritage Program

Asclepias hirtella (Pennell) Woodson



SPECIES STATUS SHEET

SCIENTIFIC NAME: Asclepias stenophylla Gray

FAMILY: Asclepiadaceae

COMMON NAME: Narrow-leaved Milkweed

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was not known to occur in Minnesota until 1978 when it was discovered near Hokah (Houston County). The population consists of about 10 flowering plants and is disjunct 300 miles from the main range of the species. Although the population is apparently well established, its long-term viability is uncertain. The site is on public land and efforts are being made to preserve it.

PREFERRED HABITAT IN MINNESOTA: The Minnesota population occurs in gravelly soil at the base of a hillside prairie.

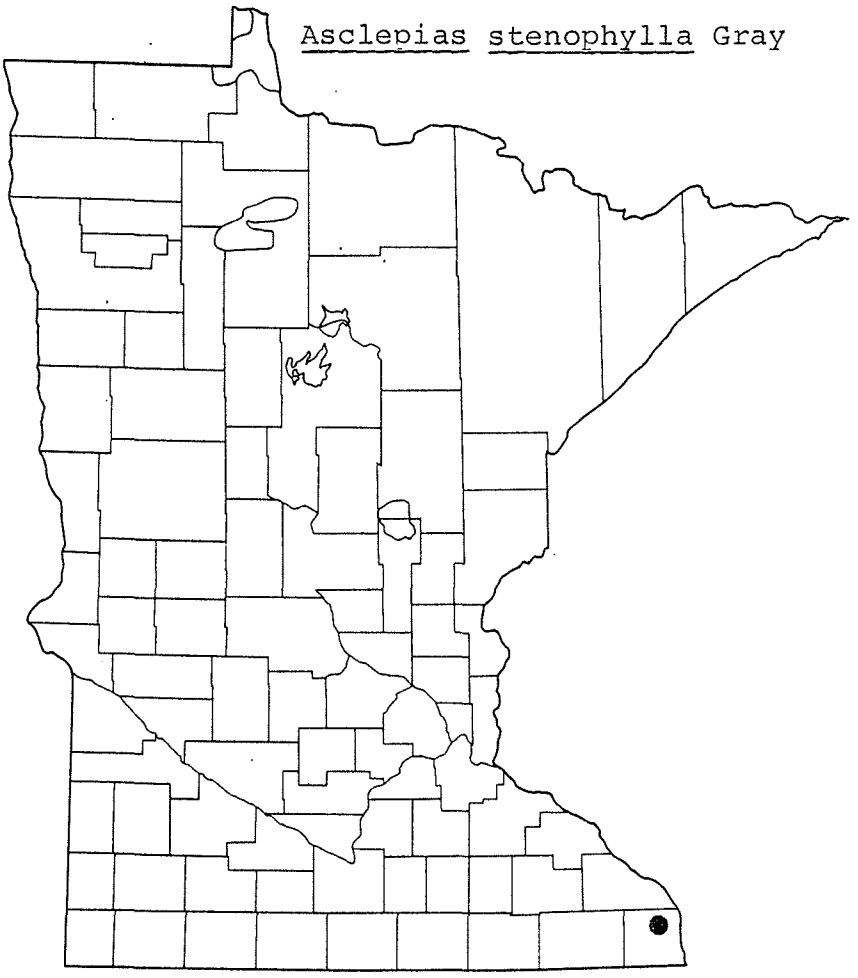
RECOMMENDATIONS: This population should be monitored on an annual basis to determine population trends and management needs.

SELECTED REFERENCES:

Woodson, R. E. 1954. The North American species of Asclepias. Ann. Mo. Bot. Gard. 41:1-211.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Asclepias stenophylla Gray



SPECIES STATUS SHEET

SCIENTIFIC NAME: Asclepias sullivantii Engelm.

FAMILY: Asclepiadaceae

COMMON NAME: Prairie Milkweed

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The original range of this species coincided with that of the tall grass prairie. This range now serves as the major corn producing region of the country and very little of the native prairie remains. In Minnesota, most of the surviving plants occur in prairie remnants on railroad right-of-ways. These right-of-ways are rapidly being abandoned and are invariably sold to adjacent landowners who incorporate them into farms for crop production. If this process continues at it present rate, most of the extant populations will be eliminated within the decade. The anomalous collection from Cass County is dated 1890 and has never been verified.

PREFERRED HABITAT IN MINNESOTA: This species is entirely restricted to native tall grass mesic prairies and shows little ability to survive in degraded habitats. It frequently occurs with other rare prairie species such as Cacalia tuberosa and Parthenium integrifolium.

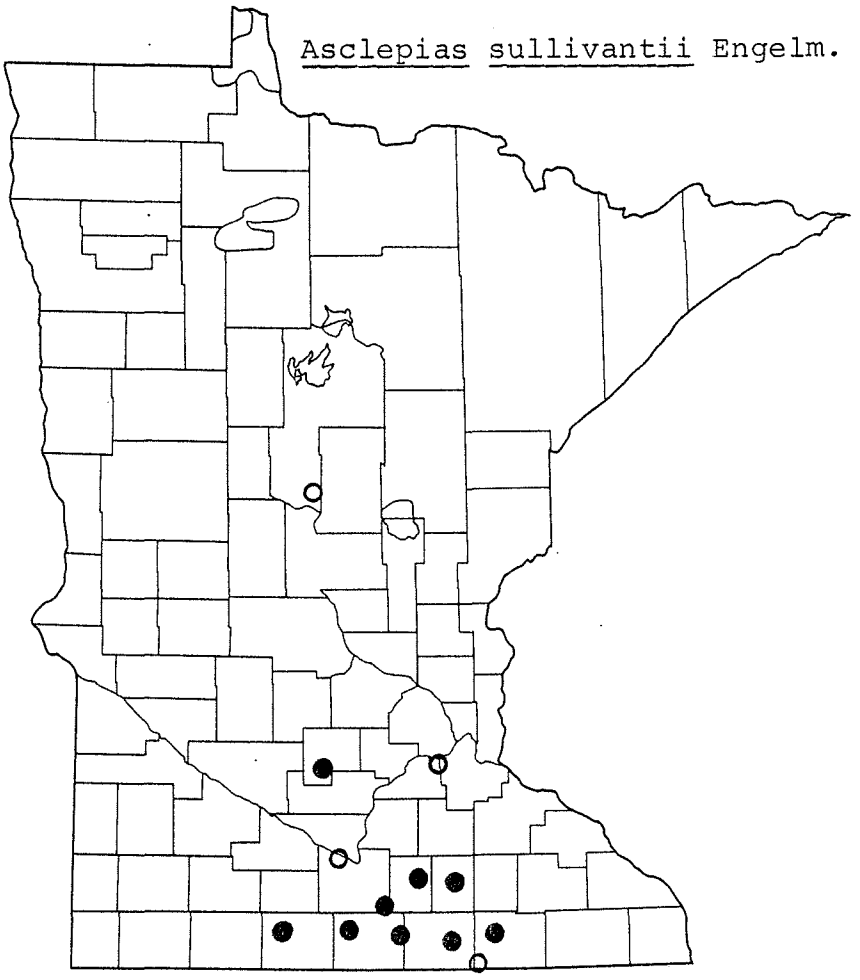
RECOMMENDATIONS: The only way to preserve this species in its native habitat in Minnesota may be to acquire remnant prairies occurring on railroad right-of-ways and manage them for the perpetuation of the native plant community.

SELECTED REFERENCES:

Woodson, R. E. 1954. The North American species of Asclepias. Ann. Mo. Bot. Gard. 41:1-211.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Asclepias sullivantii Engelm.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Asplenium trichomanes L.

FAMILY: Polypodiaceae

COMMON NAME: Maidenhair Spleenwort

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The only populations of this species known to be extant in Minnesota occur along a narrow strip of border lakes in Cook County. The populations are very local and situated in a fragile, although inaccessible habitat. The collection from Goodhue County is dated 1895 and the location is given only as "Vasa". Repeated attempts to locate this site have failed and it may be gone.

PREFERRED HABITAT IN MINNESOTA: This species occurs on ledges and crevices on moist, east-facing cliffs and occasionally on associated talus. Minnesota populations belong to the diploid subspecies trichomanes which apparently prefer noncalcareous rocks.

RECOMMENDATIONS: Populations of this species may still survive on sandstone exposures in southeastern Minnesota. This is probably where future inventory work should be concentrated.

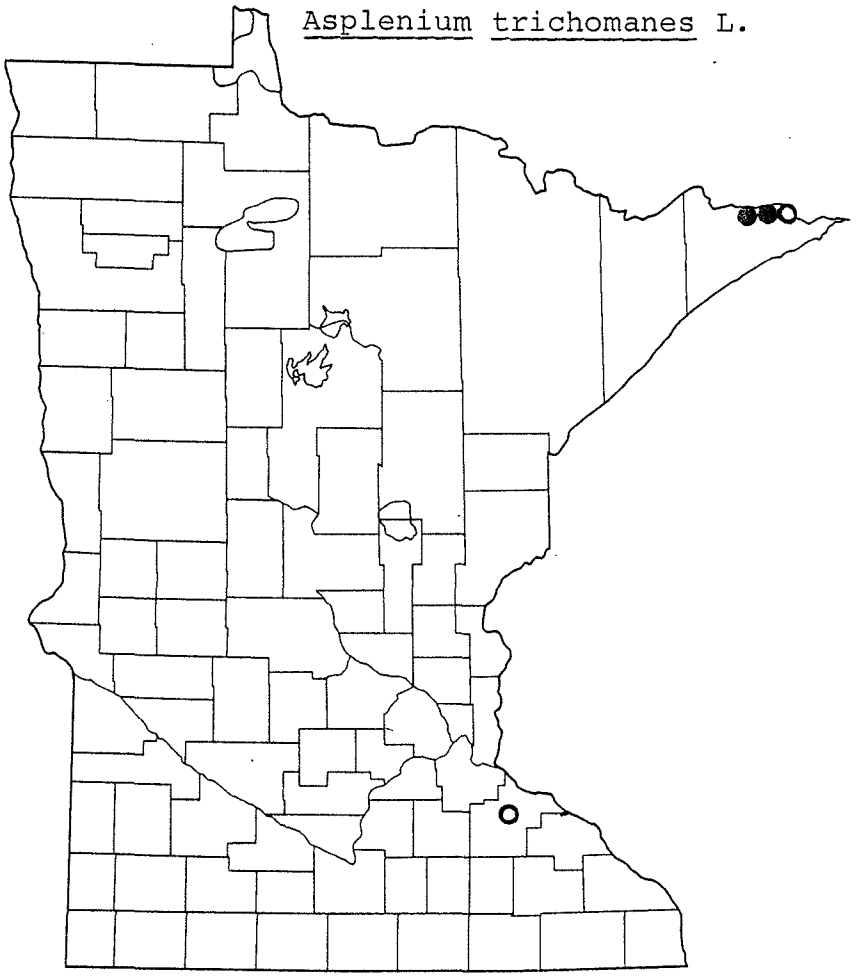
SELECTED REFERENCES:

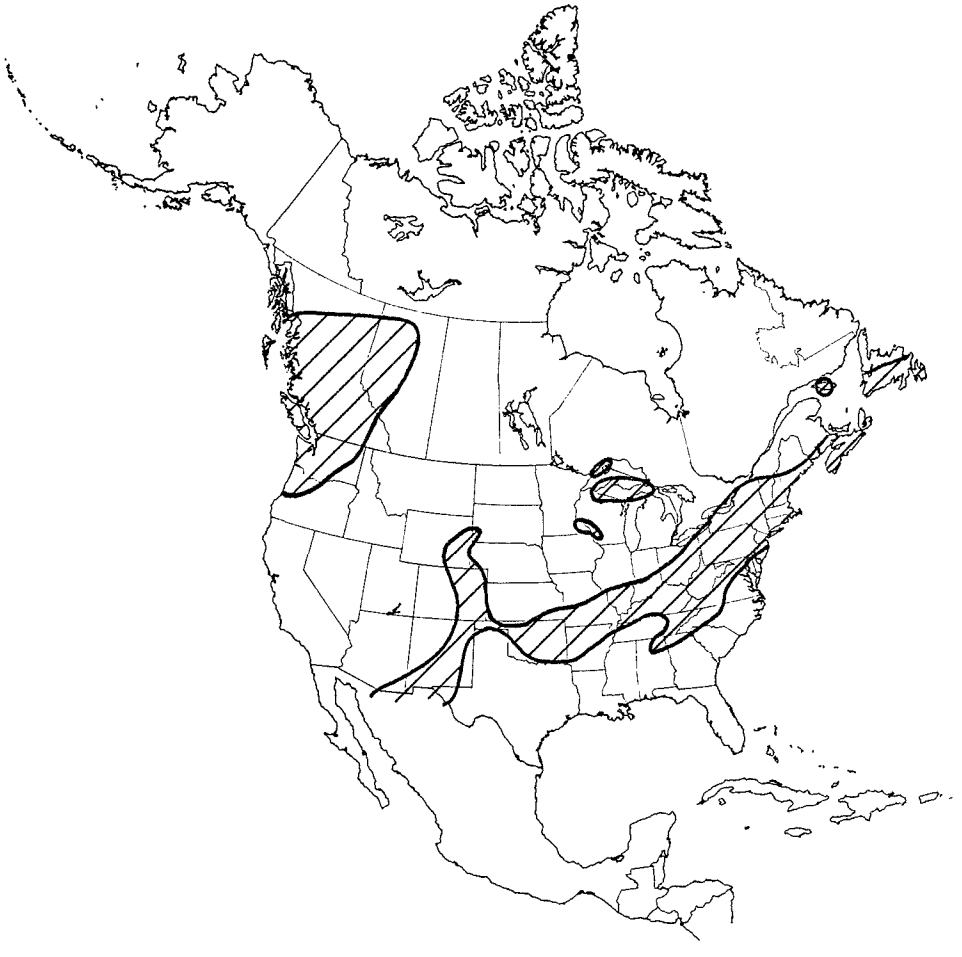
Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

Moran, R. C. 1982. The Asplenium trichomanes complex in the United States and adjacent Canada. Am. Fern Jour. 72(1):5-11.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Asplenium trichomanes L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Besseya bullii (Eaton) Rydb. [Wulfenia bullii (Eaton) Barnhart]

FAMILY: Scrophulariaceae

COMMON NAME: Kitten Tails

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: More than half of the historically known populations of this species in Minnesota were located in what is now the metropolitan area of Minneapolis-St. Paul and surrounding suburbs. The majority of these populations have not been verified since the 1920s and are believed to have been destroyed by the expansion of the metropolitan area. Only five of the 21 documented sites are known to survive. The last known population in Scott County was destroyed in 1981 by industrial development. This species is a midwestern endemic and is rare or threatened wherever it occurs.

PREFERRED HABITAT IN MINNESOTA: Besseya bullii prefers gravelly soil on dry prairies, bluffs and high-lime prairies. It may also occur in open woods and savannas.

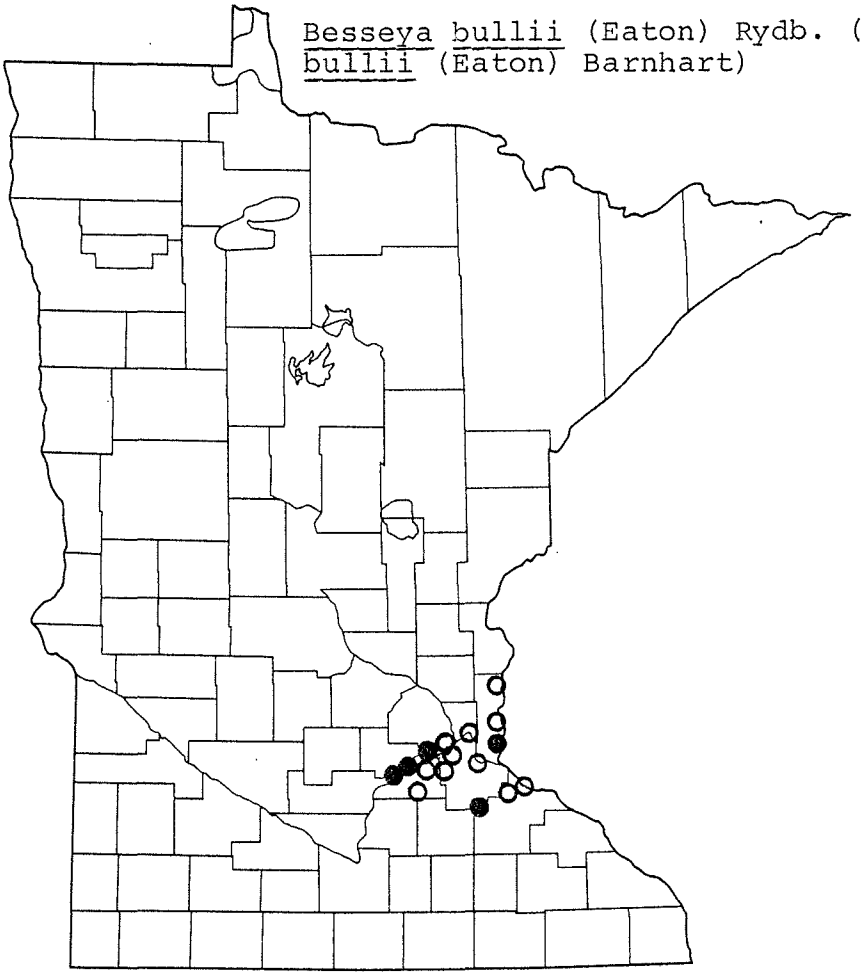
RECOMMENDATIONS: A search should be made for remnant populations which may survive in the Twin Cities area. Efforts should be directed to bluffs bordering the Mississippi, Minnesota and St. Croix Rivers.

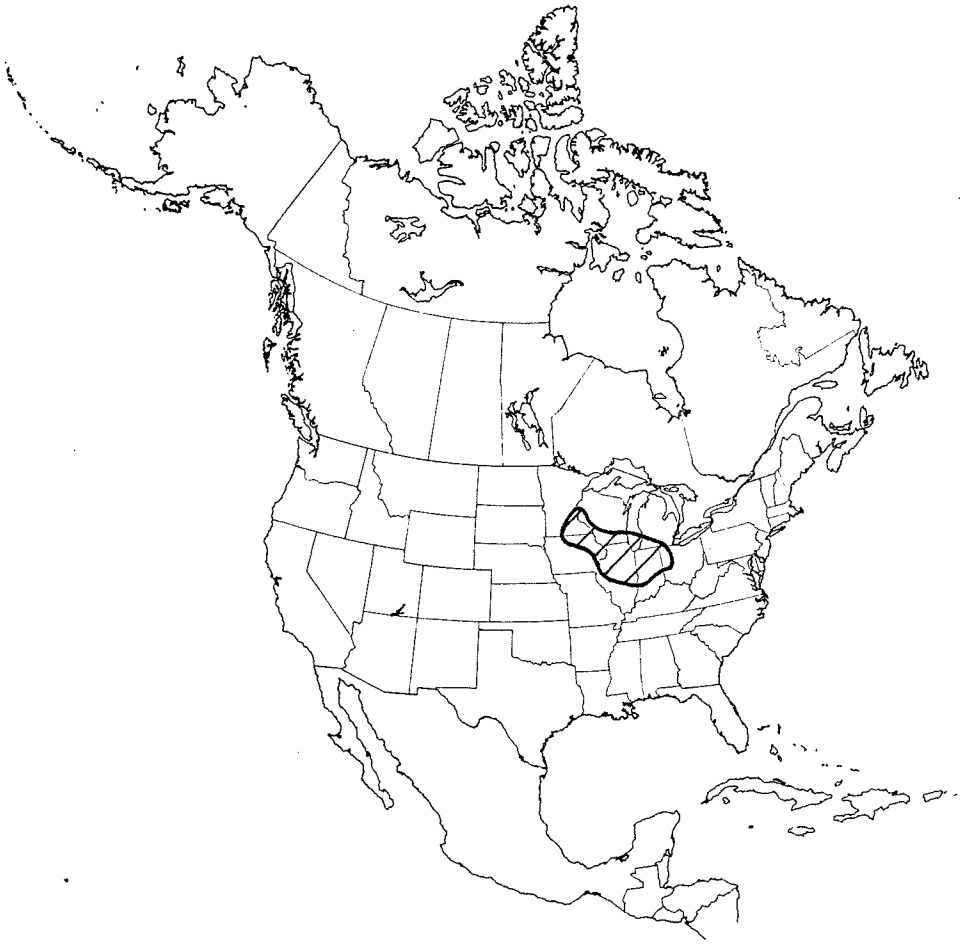
SELECTED REFERENCES:

Mickelson, C. J. and H. H. Iltis. 1966. Preliminary reports on the flora of Wisconsin #50. Wisc. Acad. Sci. Arts an Letters 55:187-222.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Besseya bullii (Eaton) Rydb. (Wulfenia bullii (Eaton) Barnhart)





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cacalia suaveolens* L.

FAMILY: Asteraceae

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

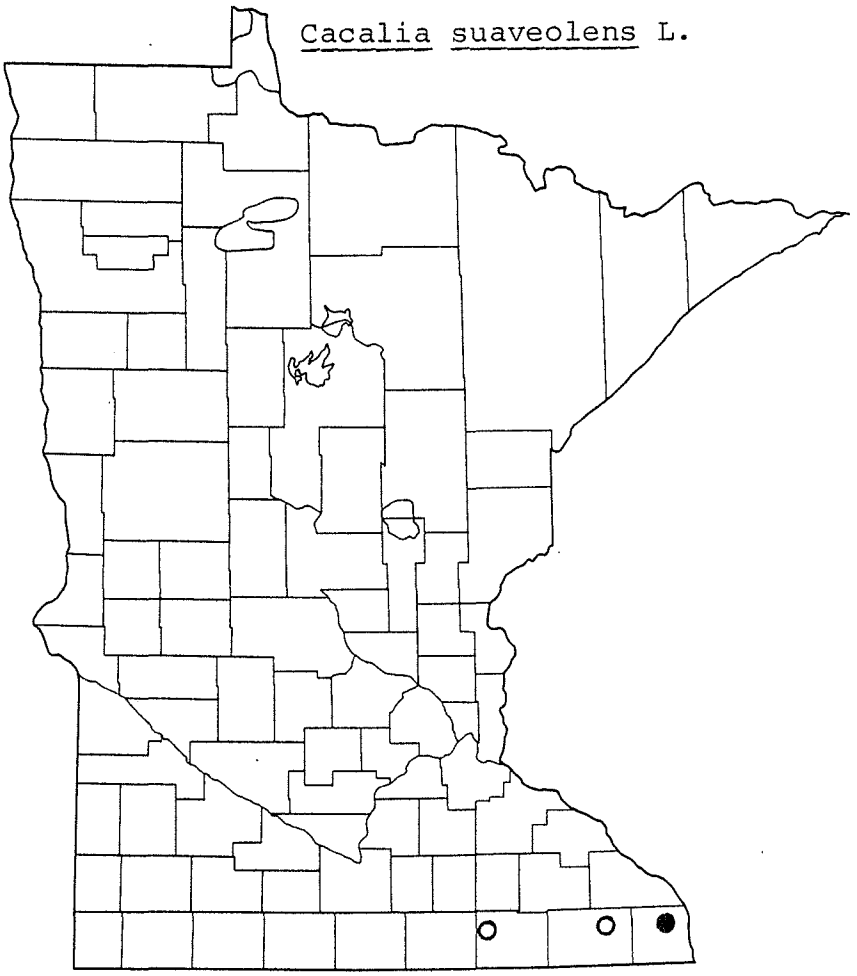
BASIS FOR MINNESOTA STATUS: This species reaches the northwestern limit of its range in Minnesota, and was probably uncommon even before human settlement. Since settlement, populations have been reduced to critically low numbers by excessive land drainage in southeastern Minnesota. Unrestricted ditching and tiling has essentially eliminated wetlands from the landscape of that region. Similar environmental degredation threatens this species throughout much of its range. The population in Mower County is known by a 1947 collection and could not be located in 1981. The Fillmore County collection is labeled "Lanesboro 1893".

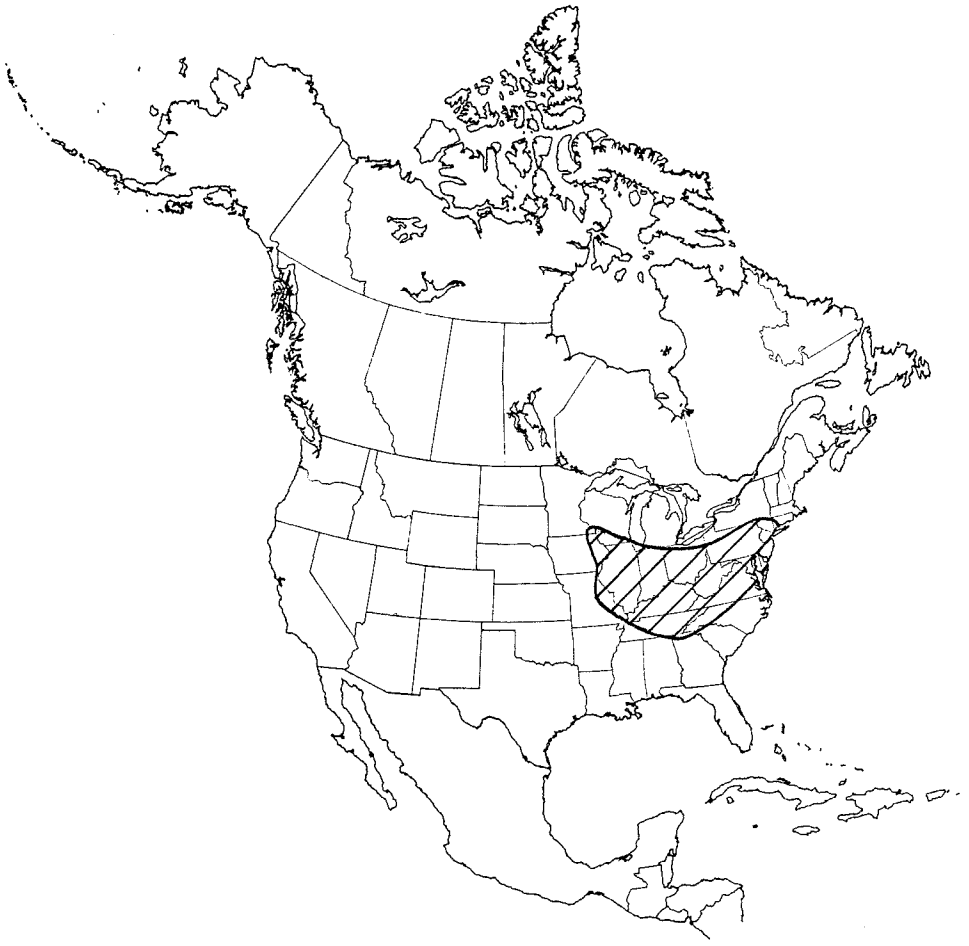
PREFERRED HABITAT IN MINNESOTA: *Cacalia suaveolens* occurs in low wet meadows along stream courses and edges of marshes. With the destruction of its native habitat, this species (where extant) may now be restricted to wet ditches.

RECOMMENDATIONS: Continued searches of undrained meadows along stream banks in Mower and Fillmore Counties may discover populations occurring in native habitats.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Cacalia suaveolens L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cacalia tuberosa* Nutt. [*C. plantaginea* (Raf.) Shinners]

FAMILY: Asteraceae

COMMON NAME: Tuberous Indian-plantain

STATE STATUS: Threatened

FEDERAL STATUS: None

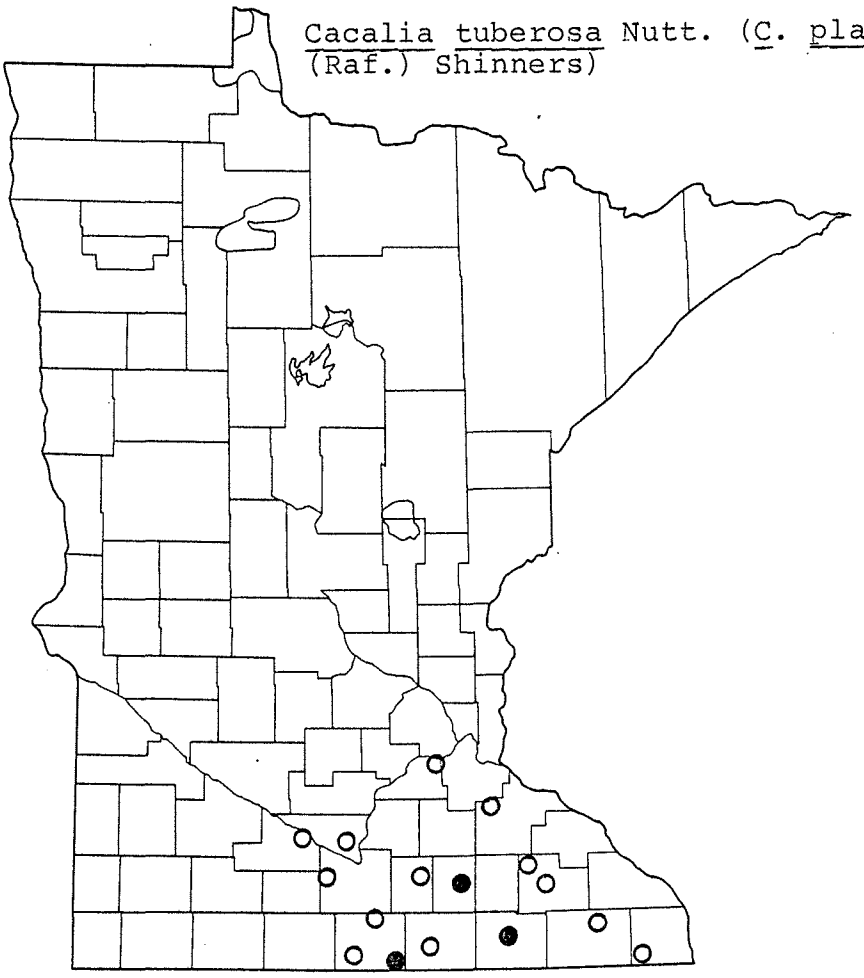
BASIS FOR MINNESOTA STATUS: Unlike the previous species, *C. tuberosa* was not formerly rare in Minnesota, but the nearly total destruction of its prairie habitat has reduced its populations to a few remnant colonies. All of these remnants are small and only one is currently protected. Most occur on railroad right-of-ways which are rapidly being abandoned and sold to adjacent landowners who invariably convert them to cropland.

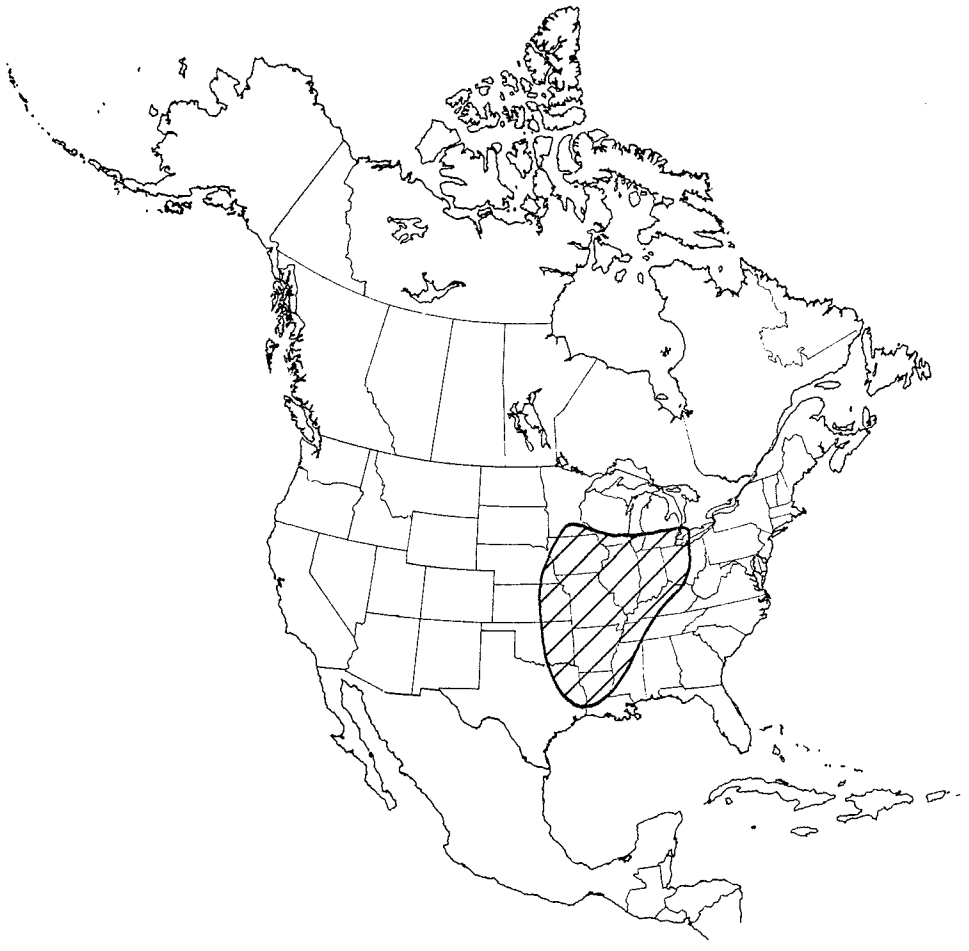
PREFERRED HABITAT IN MINNESOTA: This species is restricted to mesic prairies in southeast Minnesota. It frequently occurs with other rare prairie species such as *Asclepias sullivantii* and *Parthenium integrifolium*.

RECOMMENDATIONS: The only way to preserve this species in its native habitat in Minnesota may be to acquire remnant prairies occurring on railroad right-of-ways and manage them for the perpetuation of the native plant community.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Cacalia tuberosa Nutt. (C. plantaginea (Raf.) Shinners)





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex conjuncta* Boott.

FAMILY: Cyperaceae

COMMON NAME: Jointed Sedge

STATE STATUS: Threatened

FEDERAL STATUS: None

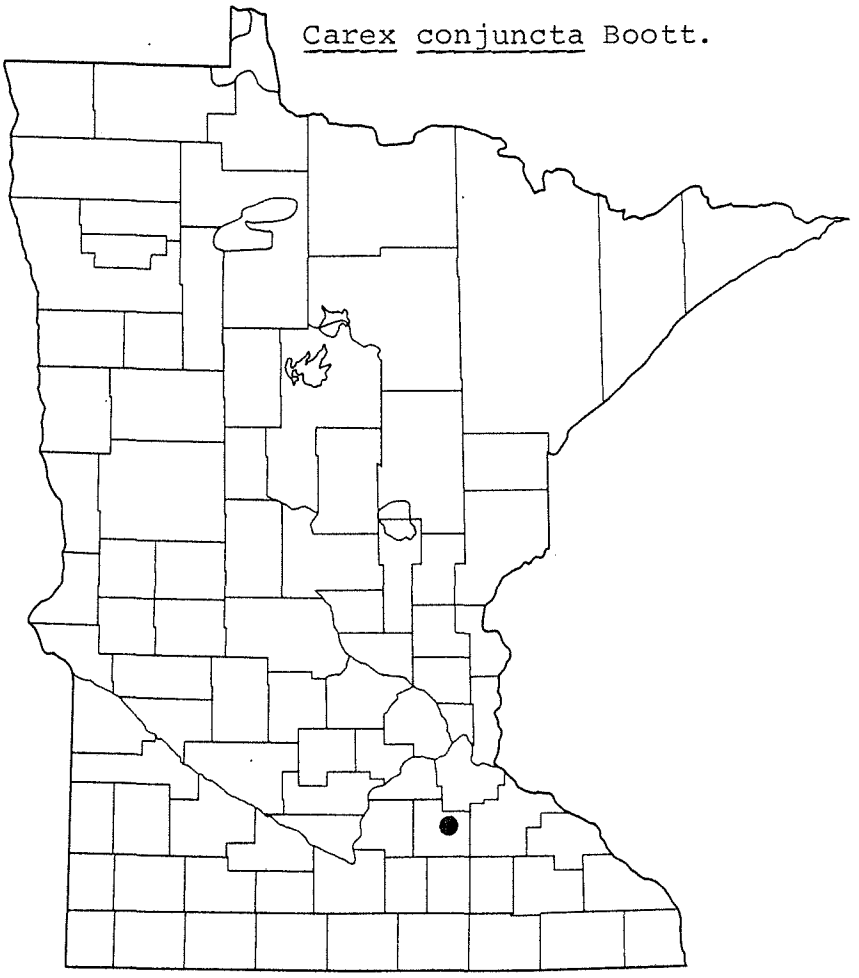
BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota in 1976 in the Rice County Wilderness Area. Subsequent searches of its preferred habitat in southeastern Minnesota have failed to locate any additional populations. The Rice County population is small but is not known to face threats from human activity.

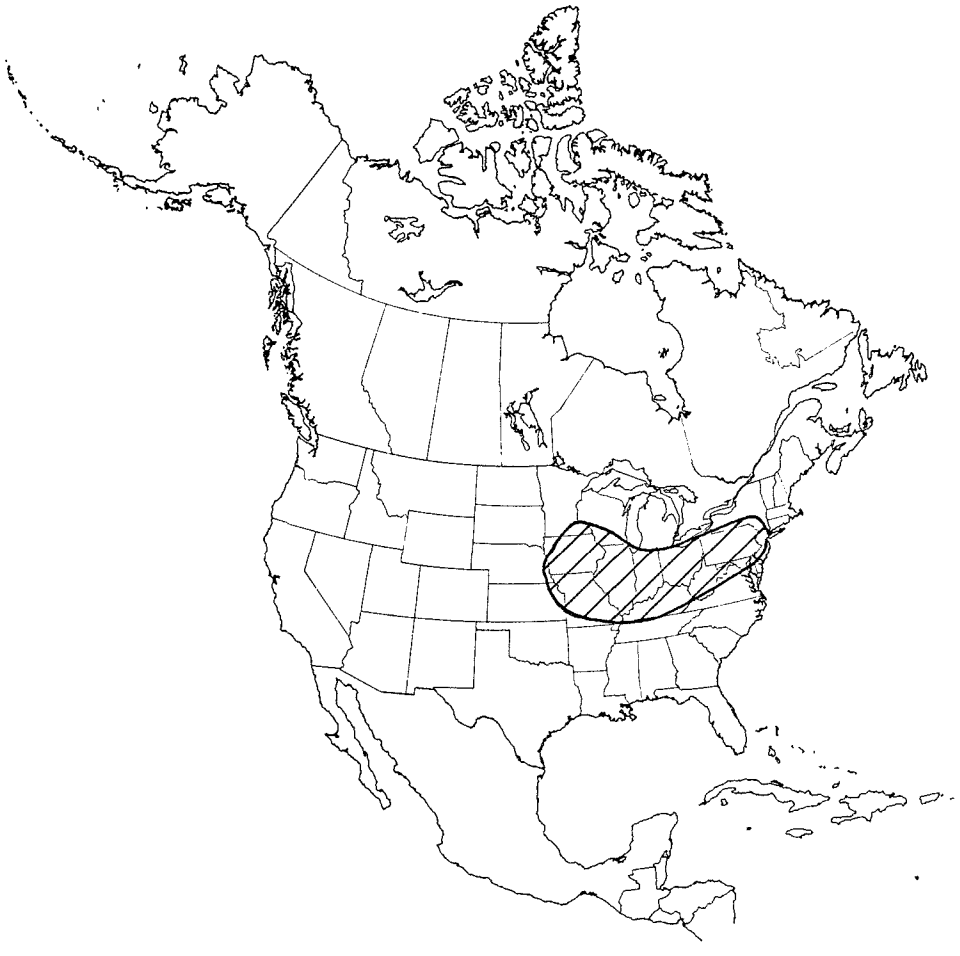
PREFERRED HABITAT IN MINNESOTA: The only known population in Minnesota inhabits an alluvial forest in the Cannon River Valley. It occurs there with two other rare sedge species, *Carex davisii* and *Carex grayi*.

RECOMMENDATIONS: This population should be protected by a cooperative management agreement between Rice County and the Minnesota Natural Heritage Register Program.

REPARED BY: Welby Smith, Botanist, Natural Heritage Program

Carex conjuncta Boott.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex davisii* Schwein. & Torr.

FAMILY: Cyperaceae

COMMON NAME: Davis' Sedge

STATE STATUS: Threatened

FEDERAL STATUS: None

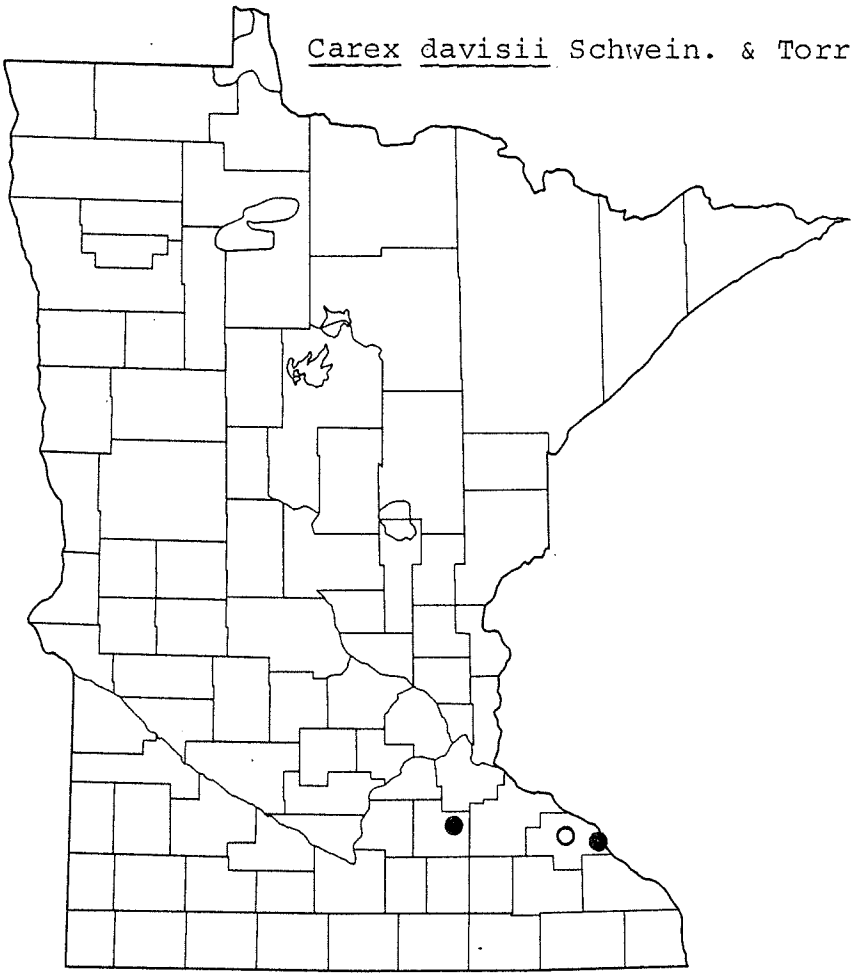
BASIS FOR MINNESOTA STATUS: This species was first discovered in Minnesota in 1918 on the Zumbro River floodplain in Wabasha County. It was not seen again until 1979 when it was found in the Cannon River Valley (Rice County). It was found again in the Weaver Bottoms (Wabahsa County) in 1982. Since the first collection site has never been relocated, we currently know of only two extant populations, both of which are quite small but presumably stable.

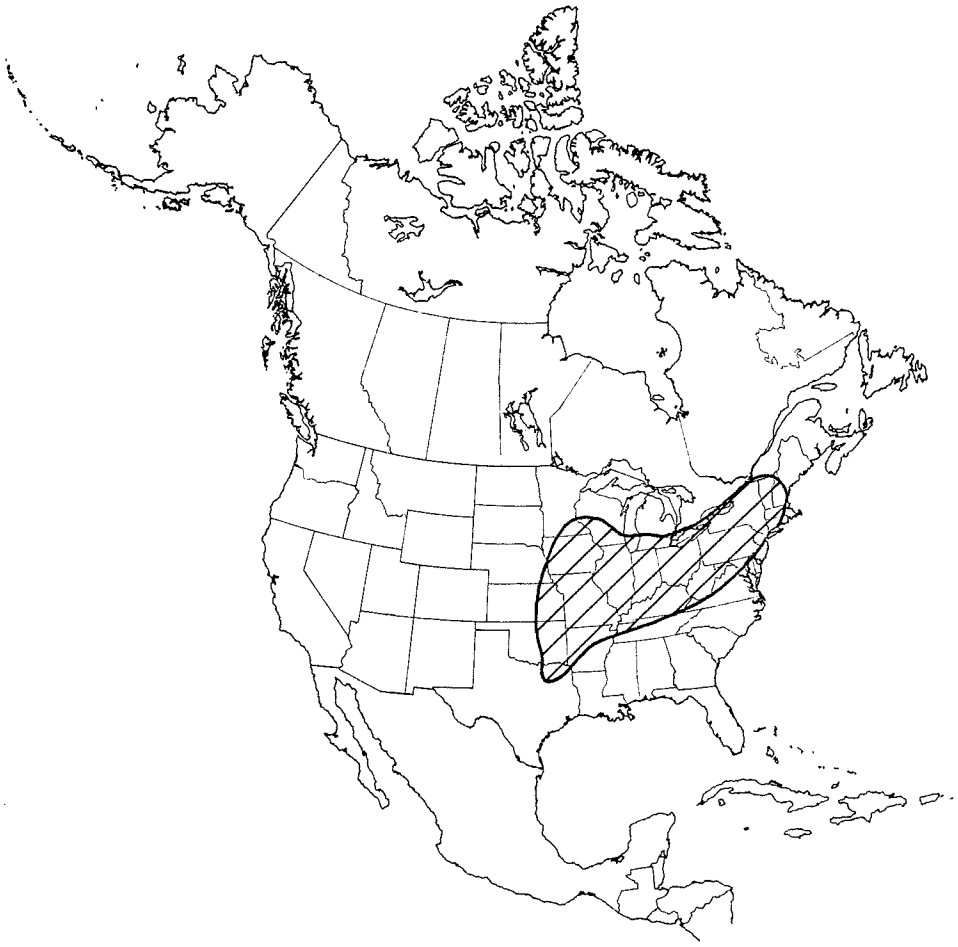
PREFERRED HABITAT IN MINNESOTA: The three Minnesota populations occur in mature alluvial forests in major stream valleys.

RECOMMENDATIONS: No recommendations can be made at this time.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Carex davisii Schwein. & Torr.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex hallii* Olney

FAMILY: Cyperaceae

COMMON NAME: Hall's Sedge

STATE STATUS: Threatened

FEDERAL STATUS: None

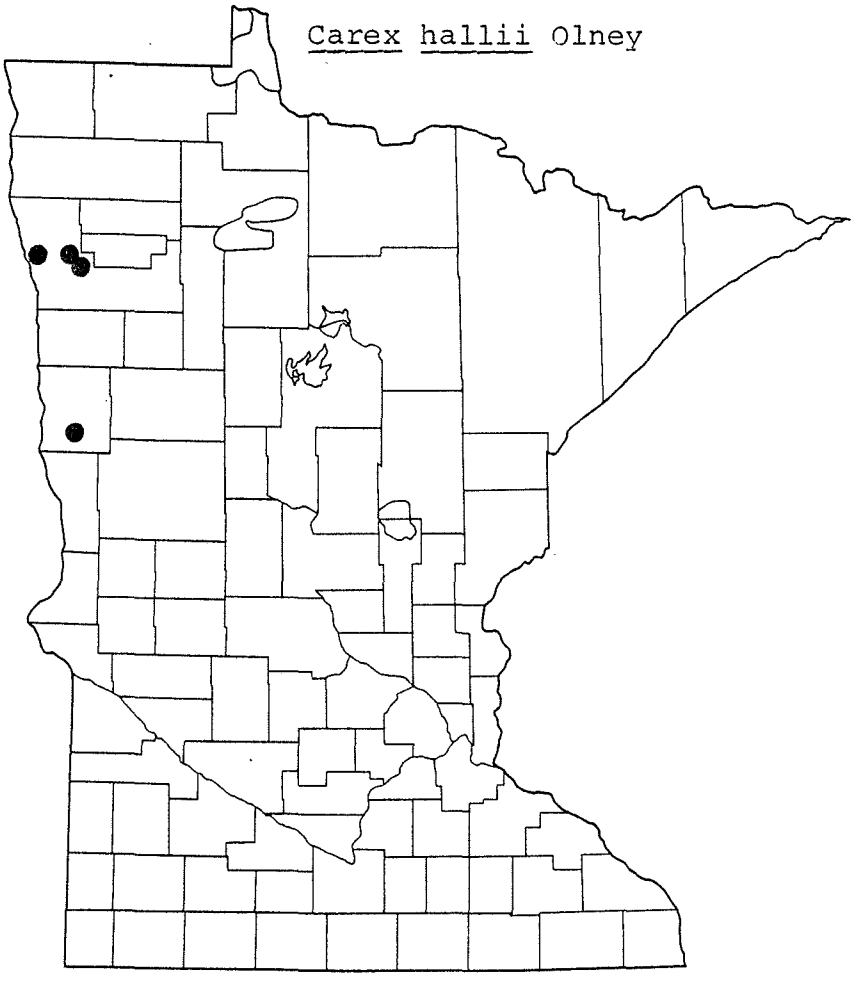
BASIS FOR MINNESOTA STATUS: This species occurs in Minnesota at the eastern periphery of its range and has been collected in the state at only four locations. Two of these four populations appear to be secure at this time, but one faces imminent destruction from agricultural development. In Minnesota, this species may now be restricted to Polk County, where native habitats are rapidly being converted to agricultural fields.

PREFERRED HABITAT IN MINNESOTA: This species occurs in wet, calcareous prairies where it may be found with another rare sedge, *Carex scirpiformis*.

RECOMMENDATIONS: It is possible that undiscovered populations occur on protected areas in Clay County, such as: Blazing Star Prairie, Bluestem Prairie and Bicentennial Prairie.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Carex hallii Olney



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex praticola* Rydb.

FAMILY: Cyperaceae

COMMON NAME: None

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota by Butters and Abbe in 1936. They eventually located four populations along a short series of border lakes (Cook County). None of these sites have been relocated since the 1930's and their current status is unknown. The anomalous collection from Lake County is from the Lake Isabella area and is dated 1979.

PREFERRED HABITAT IN MINNESOTA: The populations in Cook County occur on north-facing cliffs adjacent to border lakes. Little is known about the Lake County population except that it reportedly occurs in sandy soil.

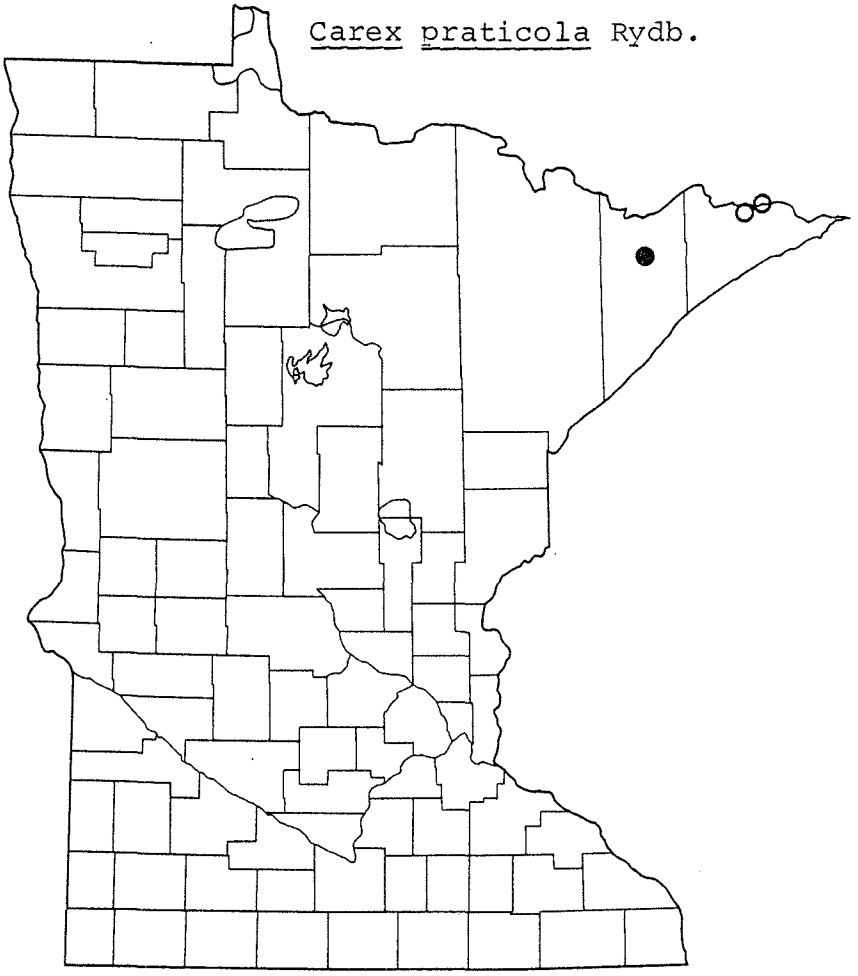
RECOMMENDATIONS: An attempt should be made to relocate the collection sites of Butters and Abbe.

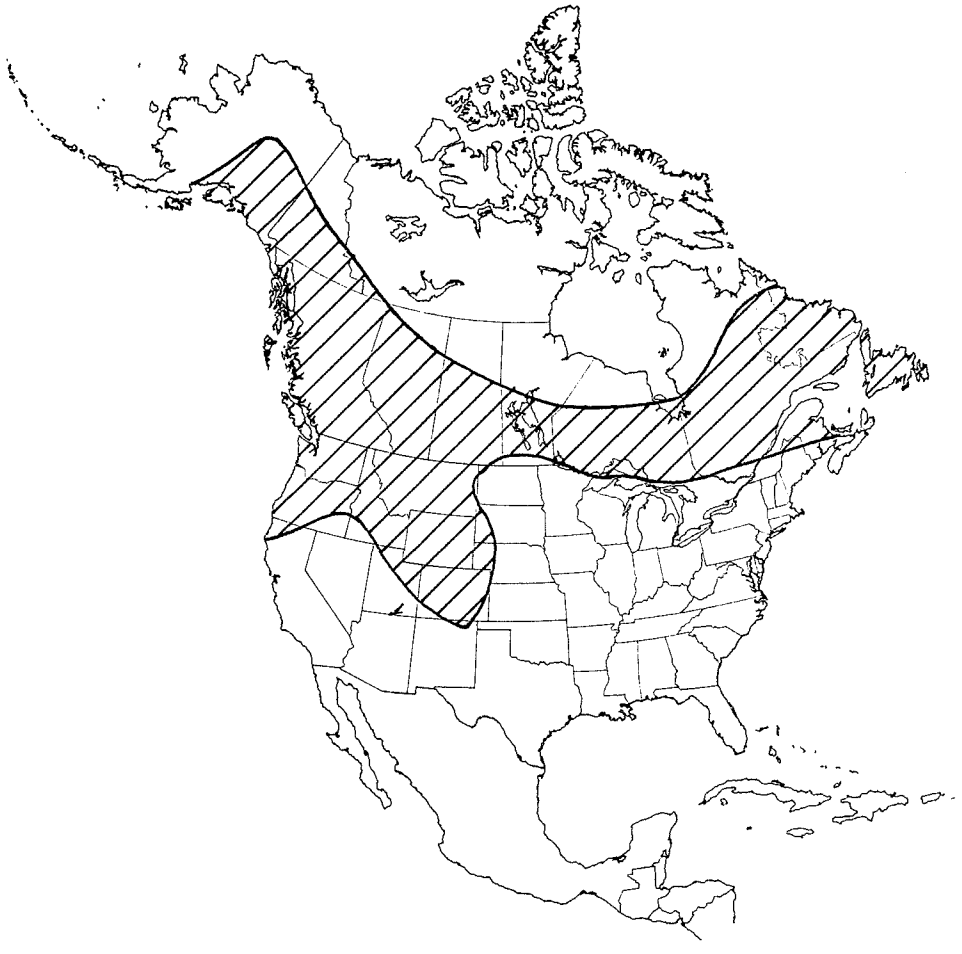
SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Carex praticola Rydb.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Carex sterilis* Willd.

FMAILY: Cyperaceae

COMMON NAME: Four-spiked Star Sedge

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although this species occurs over a relatively large portion of Minnesota, it is entirely restricted to small, fragile fen habitats. Fens are highly localized phenomena that are maintained by the surface discharge of cold, calcareous groundwater. Loss of this water supply would result in the destruction of the fen habitat and the dependent species. Several of the known populations of *Carex sterilis* are currently threatened by commercial and agricultural activity that may draw down the groundwater and thereby disrupt the discharge of water in the fens.

PREFERRED HABITAT IN MINNESOTA: *Carex sterilis* is an obligate fen species in Minnesota. Within fens it may become a dominant species along with *Scirpus cespitosus* and *Carex interior*. It often occurs with other rare fen species such as *Eleocharis rostellata*, *Rhynchospora capillacea* and *Scleria verticillata*.

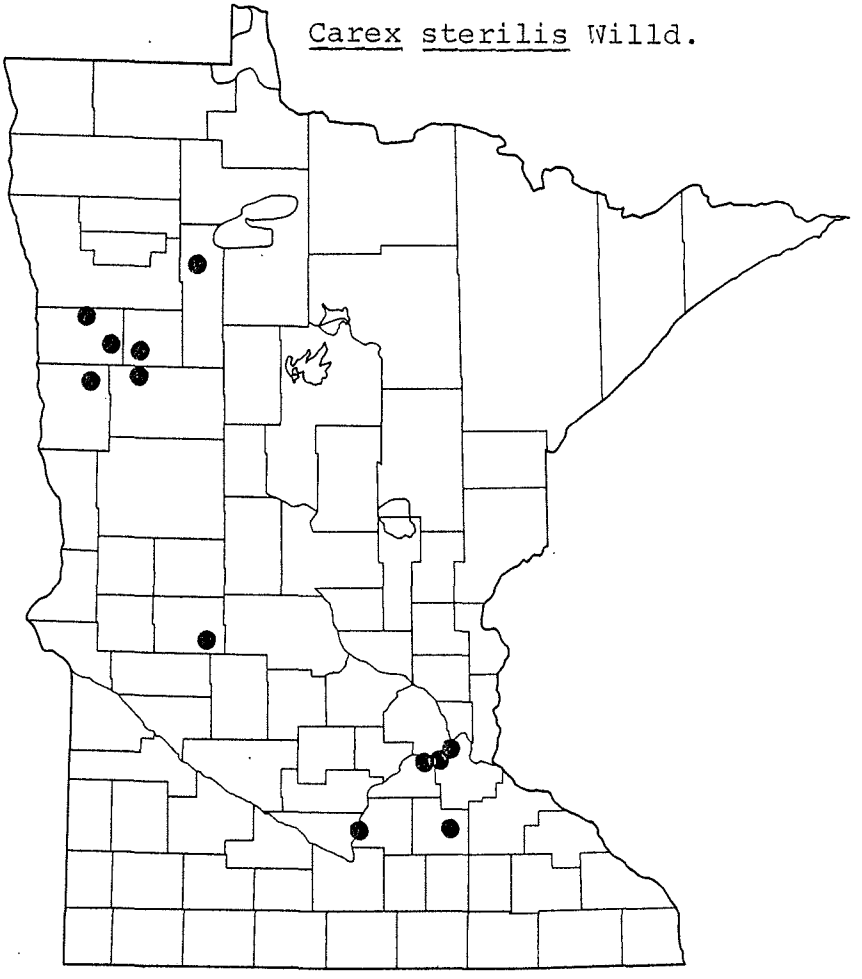
RECOMMENDATIONS: Additional information is needed on the hydrology of fens and the recovery potential of degraded fen habitats.

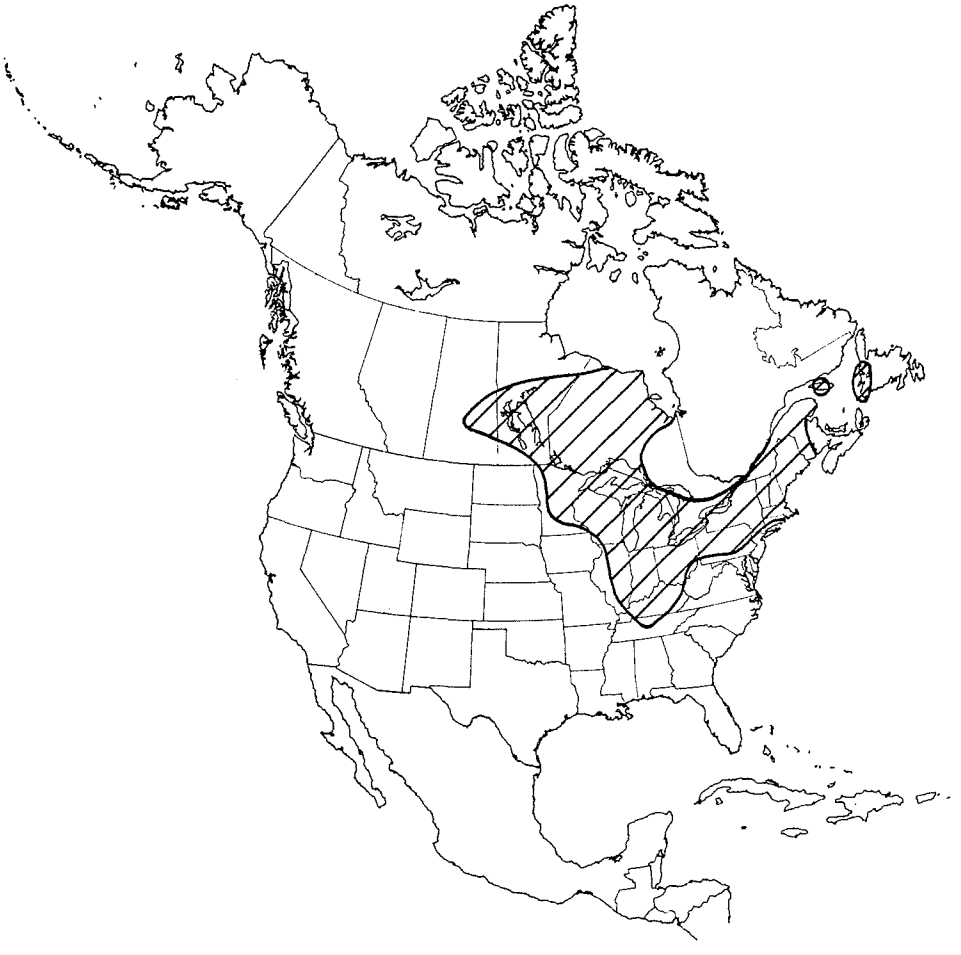
SELECTED REFERENCES:

Reznicek, A. A. and P. W. Ball. 1980. The Taxonomy of *Carex* section *stellulatae* in North America north of Mexico. Contr. Univ. Mich. Herb. 14:153-203.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Carex sterilis Willd.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Chrysosplenium iowense* Rydb.

FAMILY: Saxifragaceae

COMMON NAME: a species of Golden Saxifrage

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1972; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: This species is thought to be relict of Minnesota's pleistocene flora which survived the most recent glacial advance in the "Driftless Area". It remains isolated in the Driftless Area by severe habitat requirements that cannot be met in the glaciated portions of the state. All five Minnesota populations of this species occur within seven miles of each other. Two of these populations have been degraded by cattle grazing and one consists of only a few individuals and may not be viable.

PREFERRED HABITAT IN MINNESOTA: *Chrysosplenium iowense* has been found only on algific talus slopes associated with dolomite formations in the Galena geological group. The term "algific" means "cold producing" and results from cold air draining from ice caves in fossil talus slopes. These slopes are periglacial features and are often quite small (i.e. a few square feet). These phenomena are very localized and are restricted to the unglaciated region in Minnesota and adjacent Iowa.

RECOMMENDATIONS: A high priority should be given to the preservation of the known algific talus slope habitats. Additional searches for undiscovered habitats should concentrate on the Root River Valley in Fillmore County.

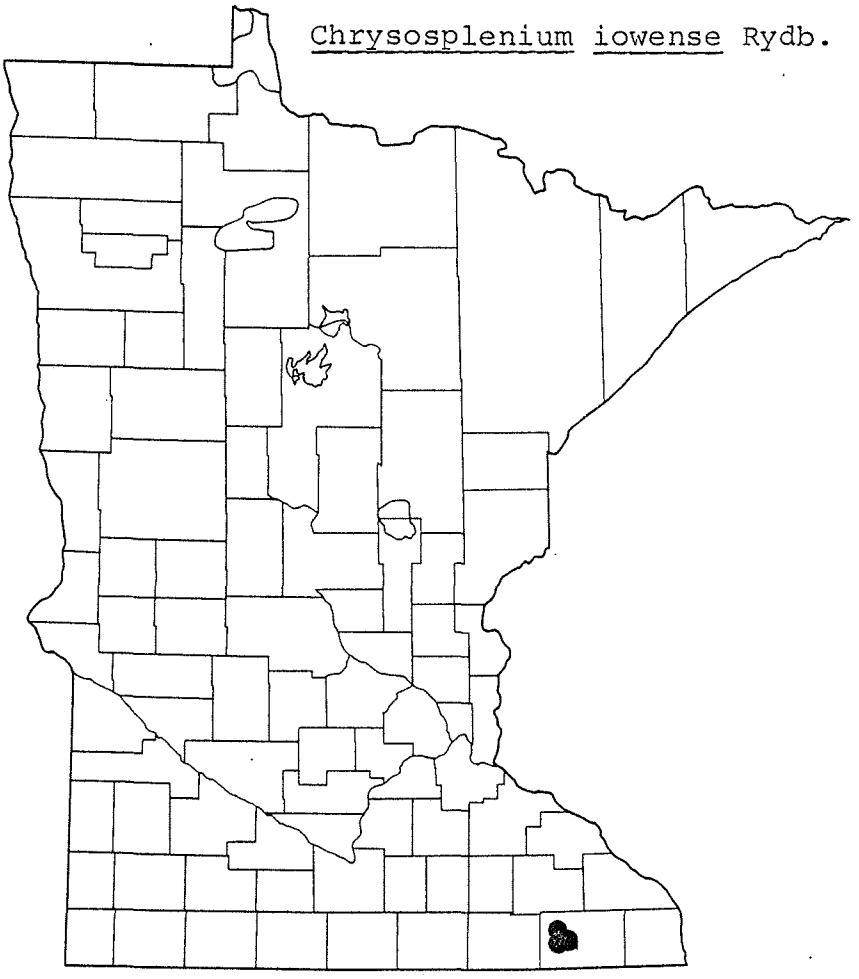
SELECTED REFERENCES:

Packer, J. G. 1963. The taxonomy of some North American species of *Chrysosplenium*, section *Alternifolia* Franchet. Can. J. Bot. 41:85-103.

Rosendahl, C.O. 1947. Studies in *Chrysosplenium*, with special reference to the taxonomic status and distribution of *C. iownse*. Rhodora 49:25-35.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Chrysosplenium iowense Rydb.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Cristatella jamesii* T. & G. [*Polanisia jamesii* (T. G.) Iltis]

FAMILY: Capparidaceae

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota in 1978 in a sand dune area near Hastings. Much of the dune area at this site has been planted to conifers which will eventually shade out the native dune vegetation. Other portions of the site have been damaged by off-road-vehicles and sand quarrying. Subsequent searches of other sand dune habitats in south-eastern Minnesota have failed to locate any additional populations.

PREFERRED HABITAT IN MINNESOTA: This species occurs in sand dunes habitats.

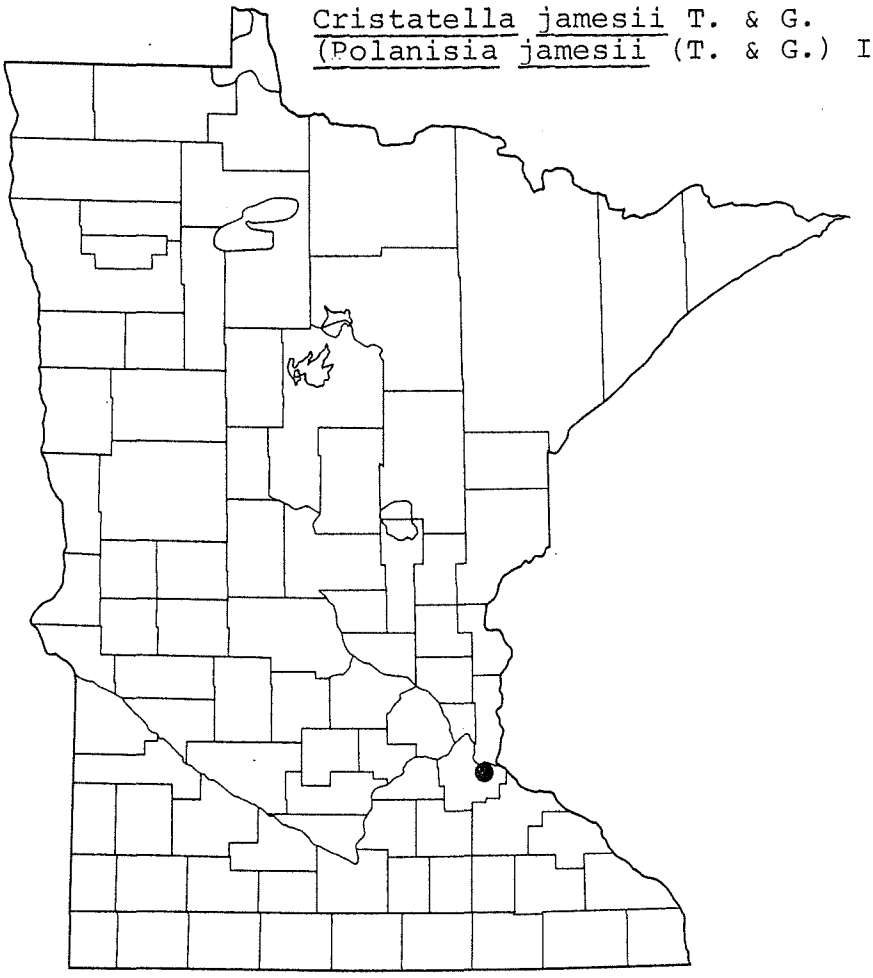
RECOMMENDATIONS: An attempt should be made to restore the natural features to the sand dune habitat near Hastings, and protect it from future degredation.

SELECTED REFERENCES:

Iltis, H. H. 1958. Studies in the Capparidaceae IV. *Polanisia* Raf. Brittonia 10:33-58.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Cristatella jamesii T. & G.
(Polanisia jamesii (T. & G.) Iltis)



SPECIES STATUS SHEET

SCIENTIFIC NAME: Cypripedium arietinum R. Br.

FAMILY; Orchidaceae

COMMON NAME: Ram's-Head Lady's-Slipper

STATE STATUS: Endangered

FEDERAL STATUS: Previously considered by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted 12-28-73; amended 1978. Federal Register 40(127):27859, 7-1-75). Not currently being considered for listing because it has proven to be more abundant than previously believed (Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: This species has always been uncommon in Minnesota, but the widespread destruction of its forest habitat by logging and mining activities has further reduced its numbers. The remaining populations face a critical threat from illicit removal by orchid fanciers. Several of the known populations have been severely depleted by this activity. The populations in Hennepin and Wright Counties have not been verified since 1911 and 1927 respectively, and are believed to have been destroyed by residential development. The often-reported population at Cedar Creek Natural History Area may have been transplanted there from another location.

PREFERRED HABITAT IN MINNESOTA: Cypripedium arietinum occurs in a wide range of coniferous forest habitats including bogs dominated by tamarack, black spruce or white cedar. It also occurs in upland forests of white pine or jack pine where it usually occurs in sandy soil.

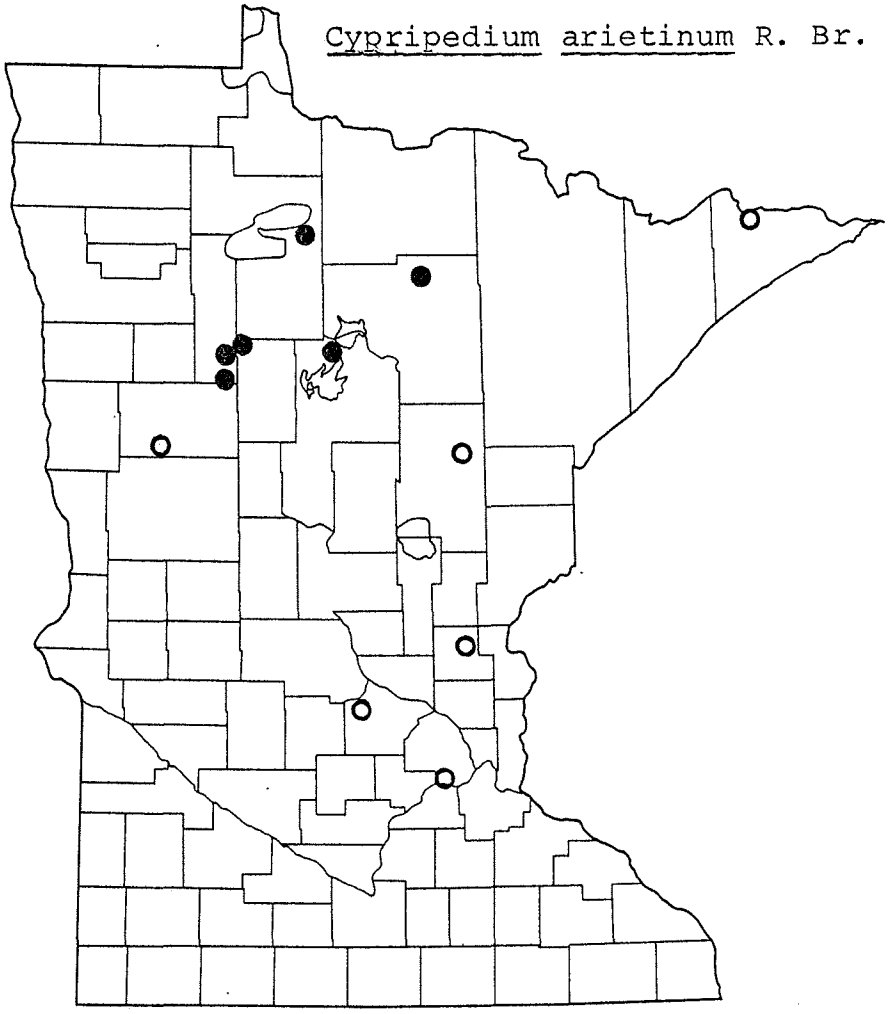
RECOMMENDATIONS: Survival of the species at several localities may depend on protecting it from orchid collectors. This may be accomplished by increasing public awareness and enforcement of current laws.

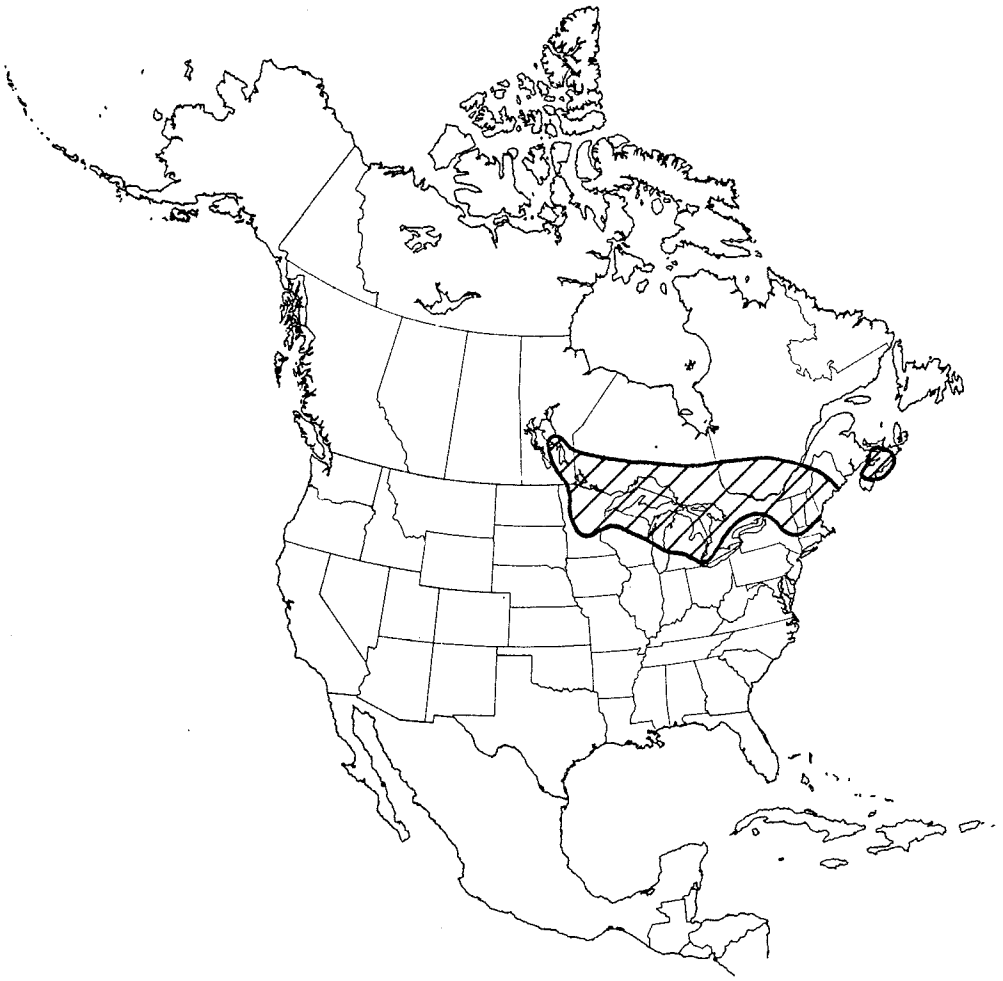
SELECTED REFERENCES:

Luer, C. A. 1975. The Native Orchids of the United States and Canada Excluding Florida. New York Botanical Garden.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Cypripedium arietinum R. Br.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Desmodium illinoense Gray

FAMILY: Fabaceae

COMMON NAME: A species of Tick-trefoil

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was first collected in Minnesota near Cannon Falls (Goodhue Co.) in 1889, then at two locations in Houston County in 1899. It was not collected again until 1975 when it was discovered in Afton State Park. The population in Winona County is in Whitewater Wildlife Management Area where it was discovered in 1982. The three 19th century collection sites have never been relocated and they may have since been destroyed.

PREFERRED HABITAT IN MINNESOTA: This species is a characteristic prairie plant throughout its range. In Minnesota it may have once occurred in mesic prairies in the southeast, but it now appears to be confined to sandy or gravelly prairies where agriculture is less intensive.

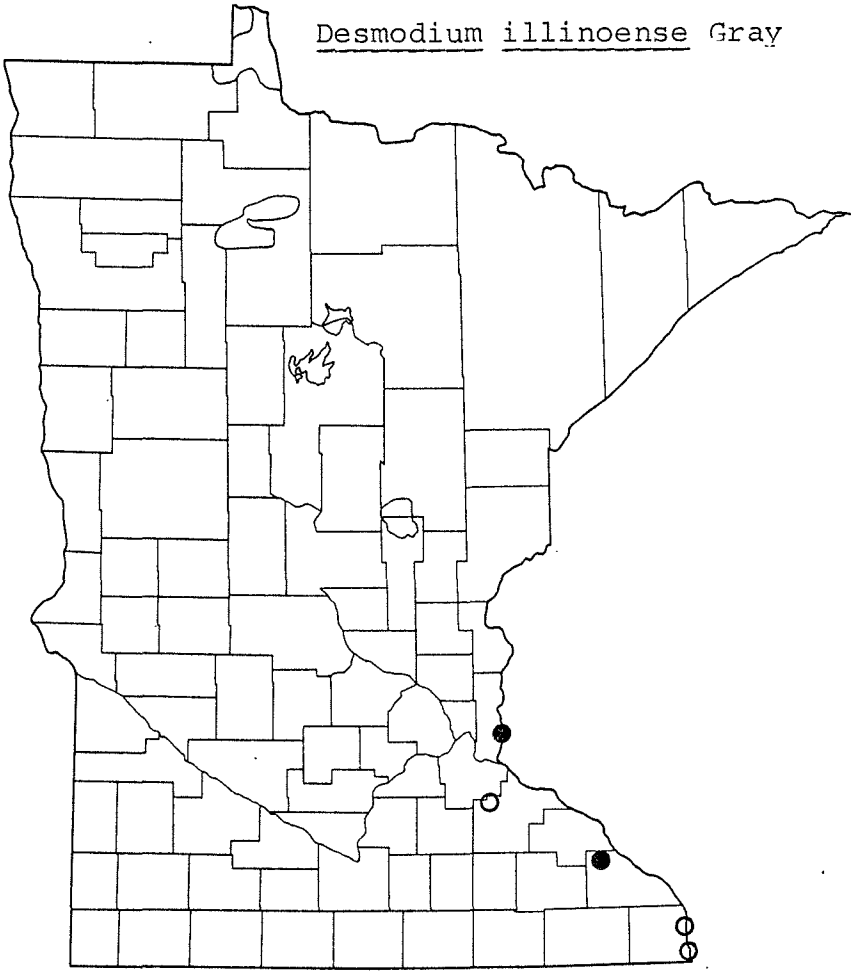
RECOMMENDATIONS: Both populations that are currently known to be extant are on public land. An effort should be made to secure their protection through registration or cooperative agreement.

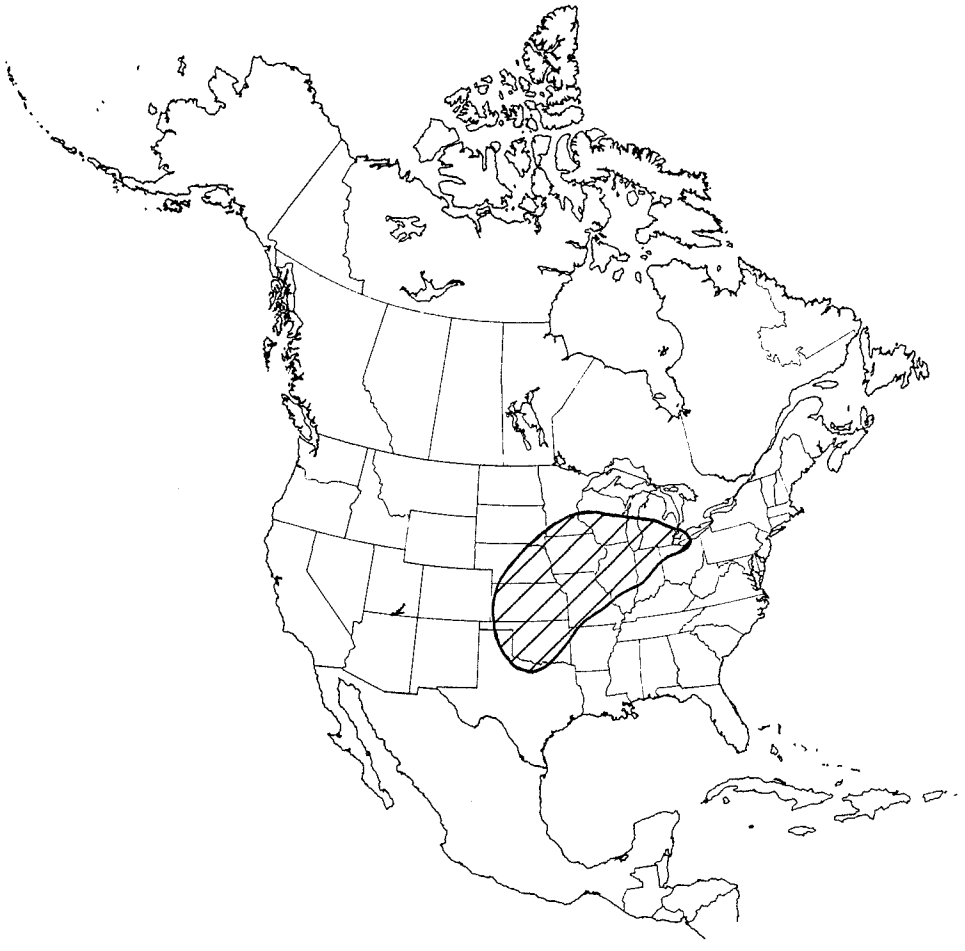
SELECTED REFERENCES:

Isely, D. 1955. The leguminosae of the north-central United States II. Hedysareae. Iowa St. Coll. J. Sci. 30:33-118.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Desmodium illinoense Gray





SPECIES STATUS SHEET

SCIENTIFIC NAME: Draba norvegica Gunn.

FAMILY: Lamiaceae

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The only population of this arctic species known in the Great Lakes Basin was discovered on Susie Island in Lake Superior (Cook County) in 1937. It was successfully relocated in 1980 and again in 1981. The population level is critically low, and appears to consist of only a few individuals. Although the site is protected from human disturbance by its remoteness, it may be threatened by the expanding gull population which uses the island for nesting.

PREFERRED HABITAT IN MINNESOTA: The plants occur in the barren crevices of the shore rocks.

RECOMMENDATIONS: Because of the tenuous existence of this population, its status should be monitored closely. The gull population should also be monitored.

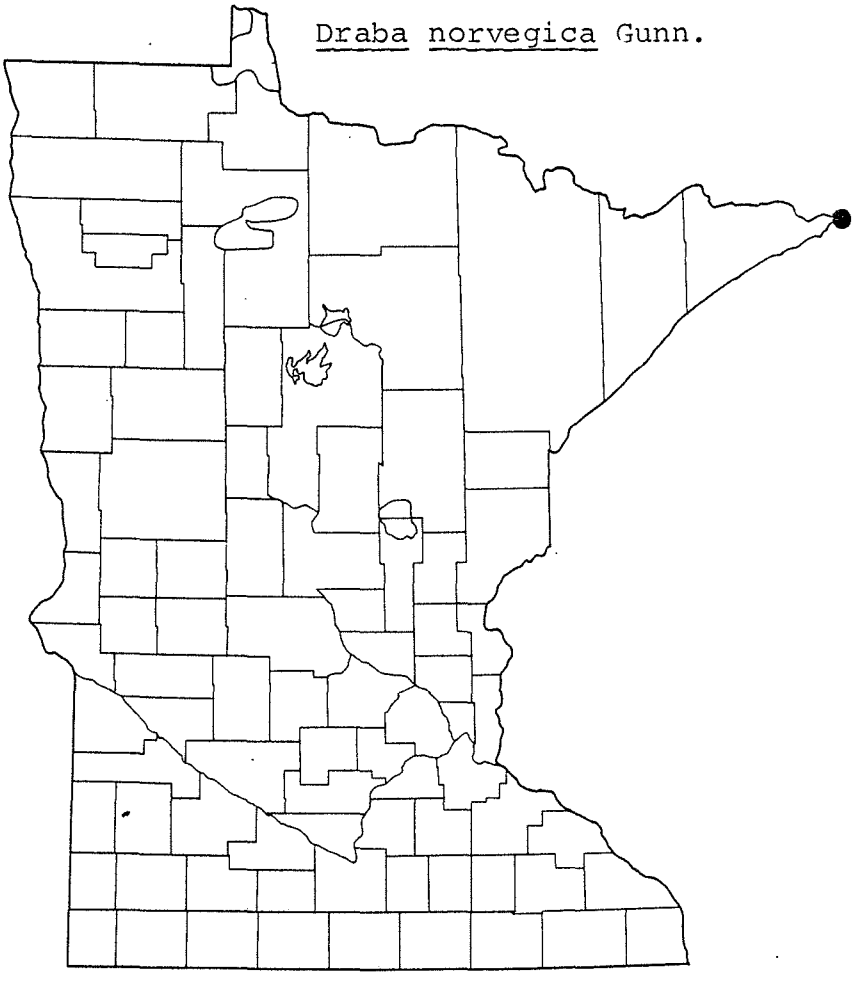
SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

Given, D. R. and J. H. Soper. 1981. The Arctic-Alpine Element of the Vascular Flora at Lake Superior. Nat. Mus. Can. Pub. in Bot. No. 10.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Draba norvegica Gunn.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Drosera anglica* Huds.

FAMILY: Droseraceae

COMMON NAME: English Sundew

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The numerous collections of this species are the result of a recent and intensive botanical inventory of its habitat. The inventory revealed that this species has very restrictive habitat requirements and a narrow ecological amplitude. Populations are limited to small microhabitats within large hydrological systems. Even limited human activity could disrupt these systems and indirectly destroy remote populations of *Drosera anglica*. Expansion of commercial peat mining could increase the scale of destruction to a critical level.

PREFERRED HABITAT IN MINNESOTA: This species appears to be restricted to minerotrophic water tracks in patterned peatlands, where it occurs in the wettest portions of flark formations. It is often associated with *Drosera linearis* and *Drosera intermedia*.

RECOMMENDATIONS: The best undisturbed examples of larger patterned peatlands (over 2,000 acres) should be protected from peat mining.

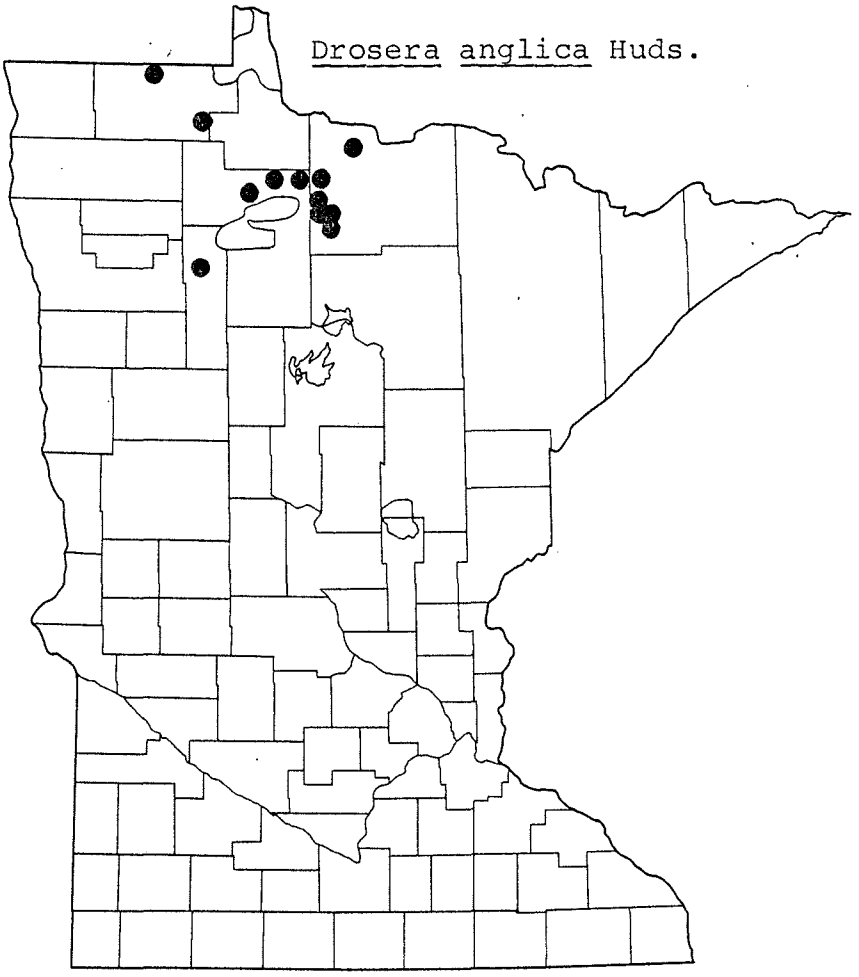
SELECTED REFERENCES:

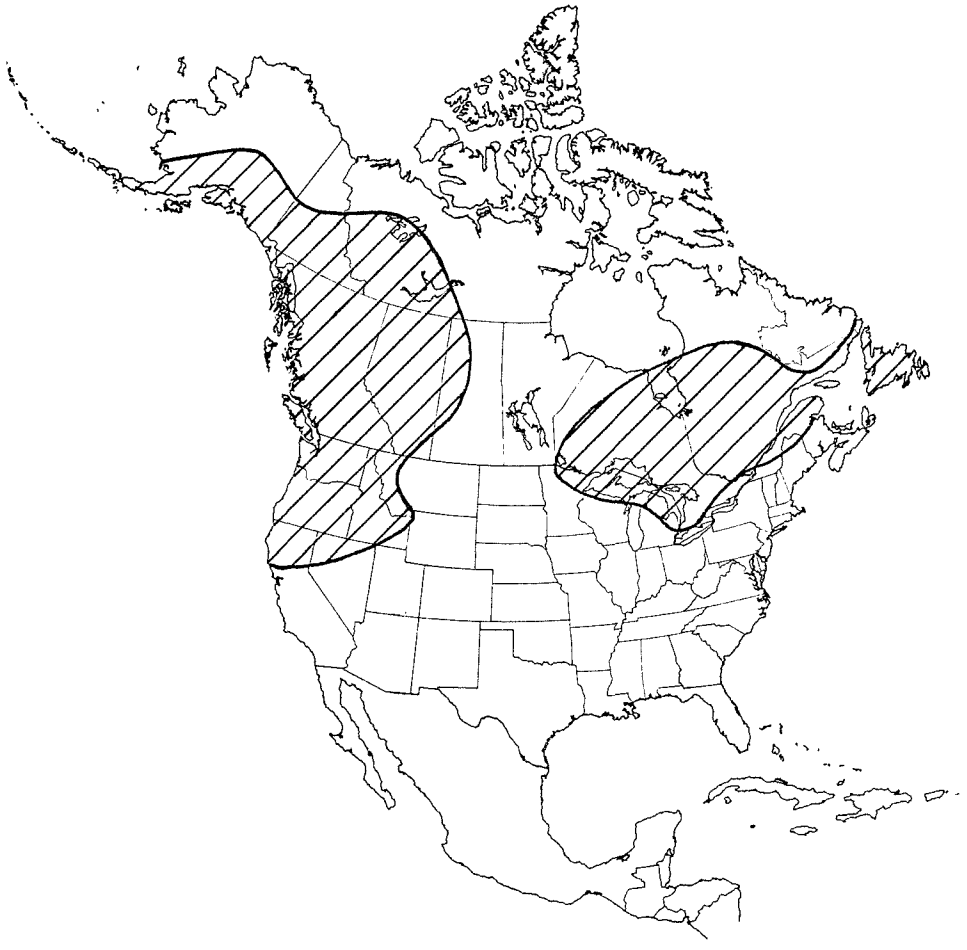
Glaser, P. H., et. al. 1981. The patterned mires of the Red Lake Peatland, northern Minnesota: vegetation, water chemistry and landforms. Jour. Ecol. 69:575-599.

Wheeler, G. A. and P. H. Glaser. 1979. Notable vascular plants of the Red Lake Peatland, northern Minnesota. Mich. Bot. 18:137-142.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Drosera anglica Huds.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Drosera linearis* Goldie

FAMILY: Droseraceae

COMMON NAME: Linear-leaved Sundew

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Like the previous species, *Drosera linearis* is restricted by specific habitat requirements. It is extremely sensitive to disturbance of its environment and will not persist when the water level in its habitat is altered. The Hennepin County population was located somewhere near Minneapolis and was last collected in 1878. The Morrison County collection is without location and is dated 1891.

PREFERRED HABITAT IN MINNESOTA: Like the preceding species, *Drosera linearis* occurs in flark formations in minerotrophic water tracks in patterned peatlands. Historically, however, it also occurred in calcareous fens in Morrison and Hennepin Counties.

RECOMMENDATIONS: The best undisturbed examples of large patterned peatlands (over 2,000 acres) should be protected from peat mining.

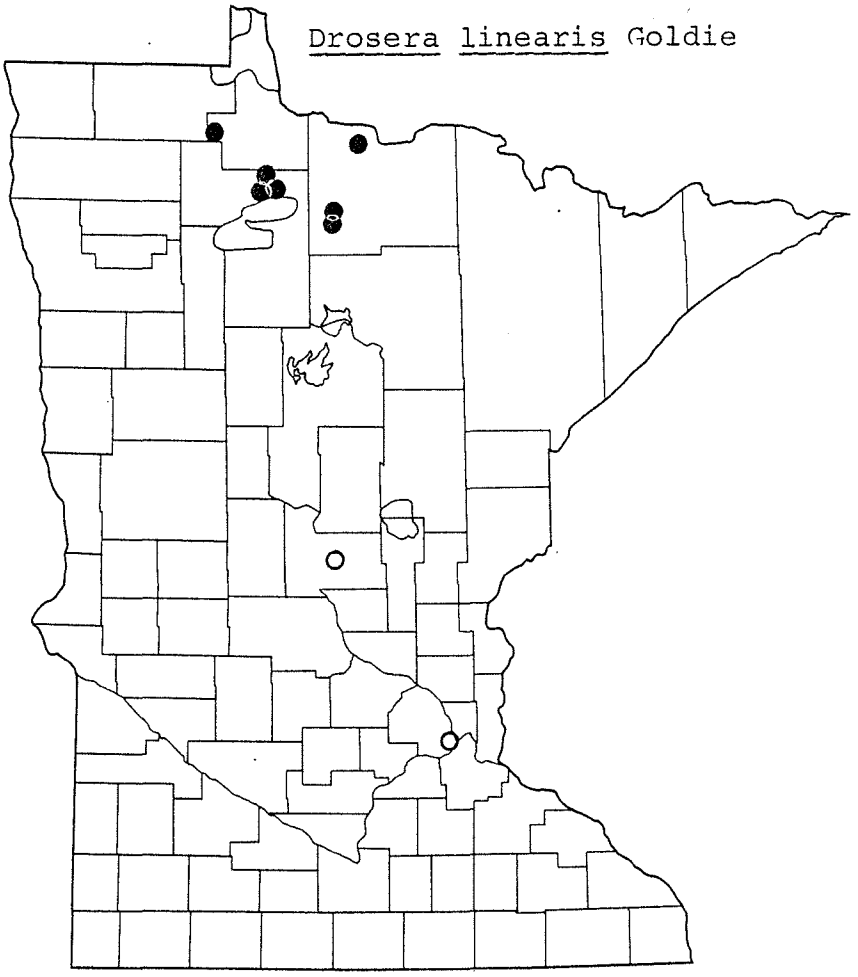
SELECTED REFERENCES:

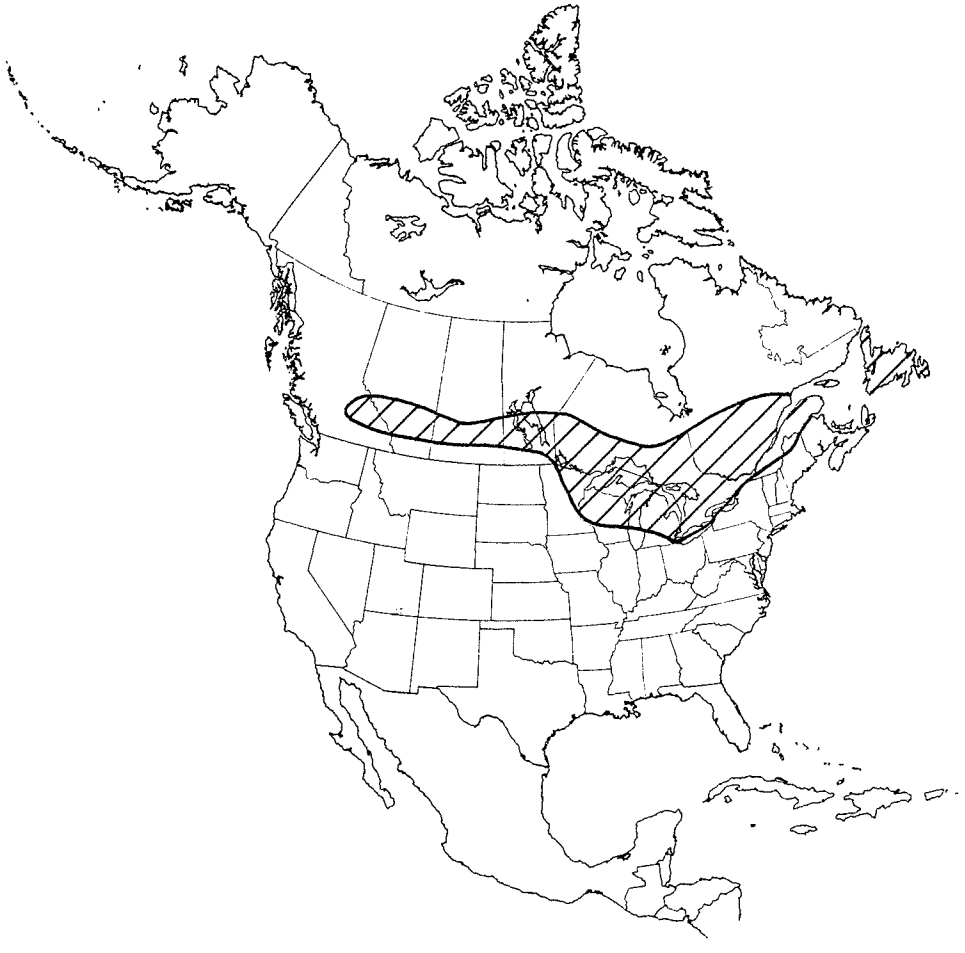
Glaser, P. H., et. al. 1981. The patterned mired of the Red Lake Peatland, northern Minnesota: vegetation, water chemistry and landforms. Jour. Ecol. 69:575-599.

Wheeler, G. A. and P. H. Glaser. 1979. Notable vascular plants of the Red Lake Peatland, northern Minnesota. Mich. Bot. 18:137-141.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Drosera linearis Goldie





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Dryopteris marginalis* (L.) Gray

FAMILY: Polypodiaceae

COMMON NAME: Marginal Wood Fern

STATE STATUS: Threatened

FEDERAL STATUS: None

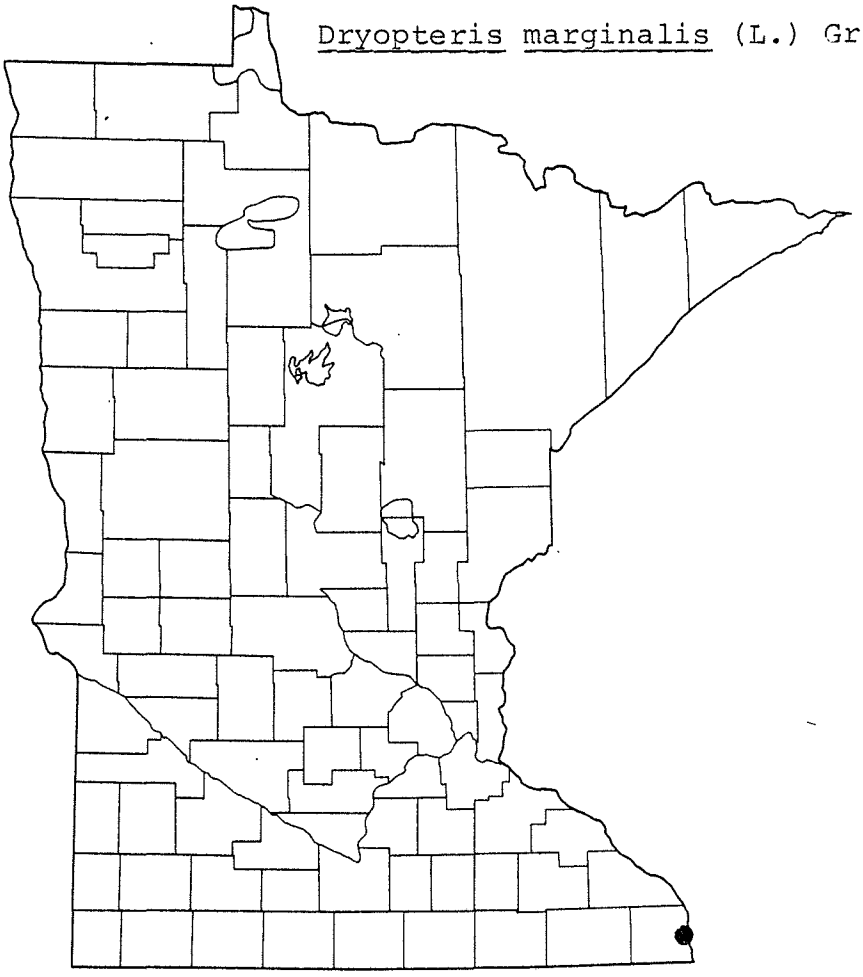
BASIS FOR MINNESOTA STATUS: Although this species was unknown in the state until 1981, it is assumed to be a native inhabitant of Minnesota which simply went undiscovered until that time. The fact that it was not found during the previous 100 years of floristic research is testimony to its true rarity. Threats to the Minnesota population have not been assessed, but it occurs in a habitat type that is frequently exploited for timber and livestock production.

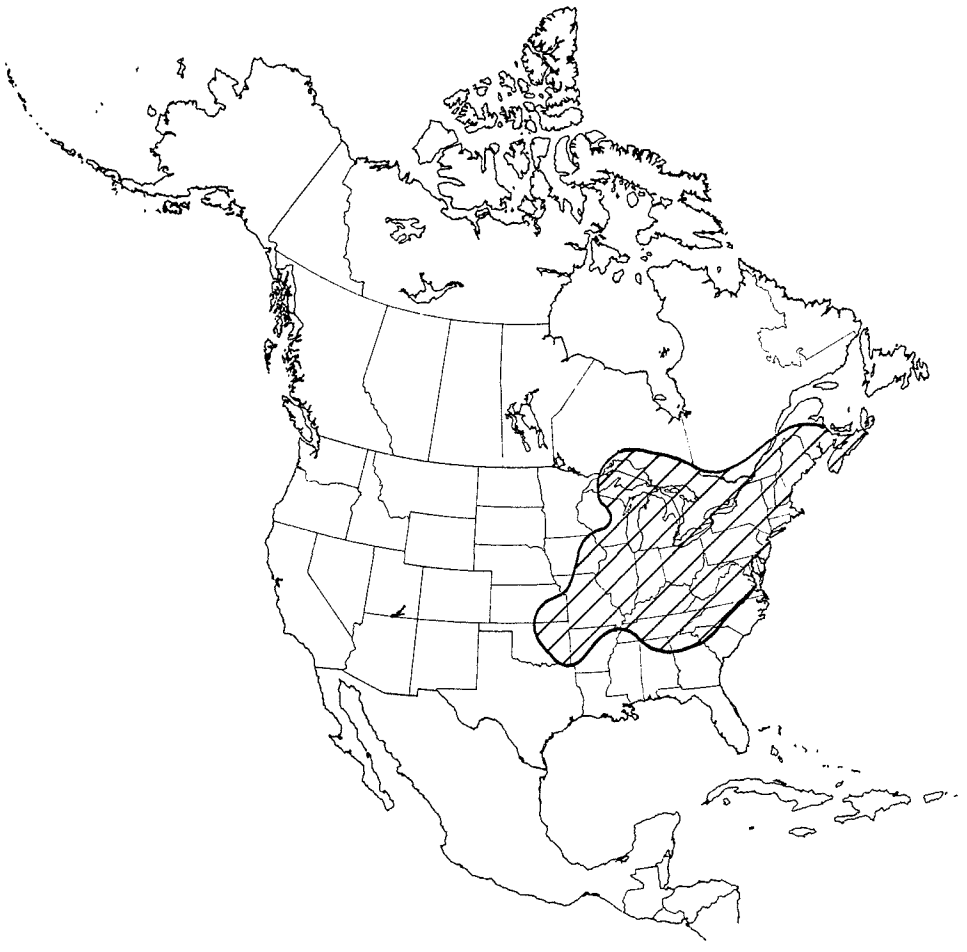
PREFERRED HABITAT IN MINNESOTA: The single Minnesota population of *D. marginalis* occurs on a bluff in an oak woods.

RECOMMENDATIONS: The population of *D. marginalis* needs to be censused, and protection options need to be explored.

PREPARED BY: Welby smith, Botanist, Natural Heritage Program

Dryopteris marginalis (L.) Gray





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eleocharis olivacea* Torr.

FAMILY: Cyperaceae

COMMON NAME: Olive-brown Spike-rush

STATE STATUS: Threatened

FEDERAL STATUS: None

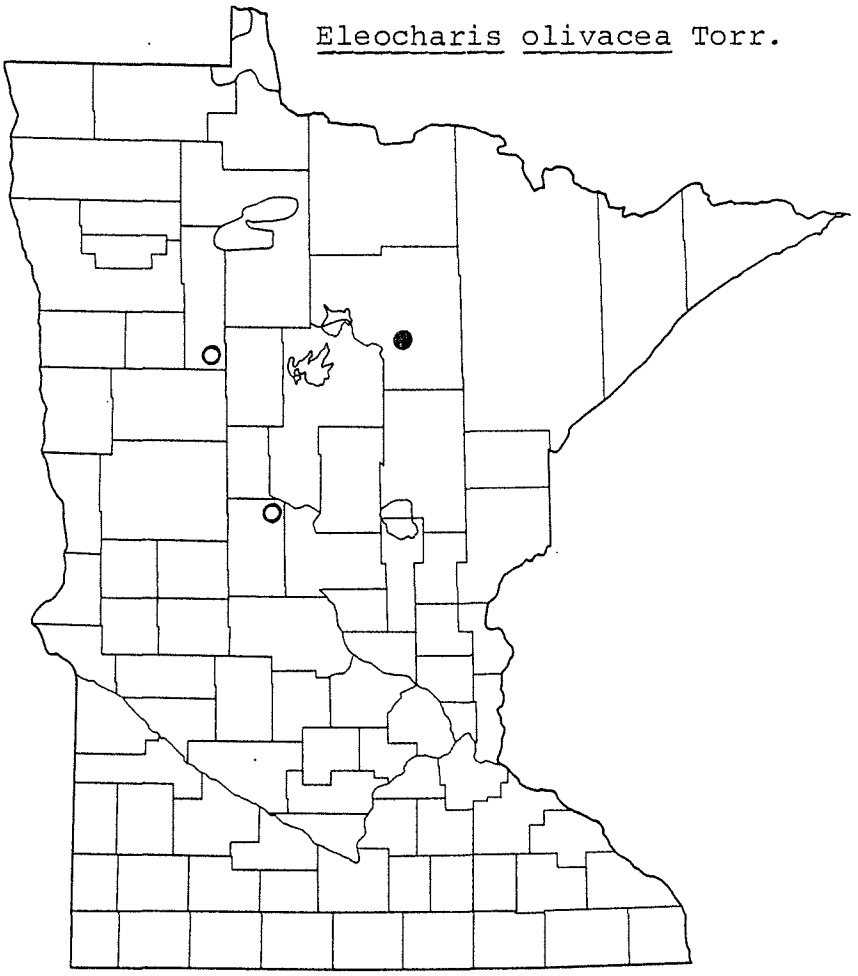
BASIS FOR MINNESOTA STATUS: This species is characteristic of the Atlantic Coastal Plain and its distribution inland is local and often disjunct. The reason for its rarity is not known, but it is absent from large areas of apparently suitable habitat. The collections from Todd and Clearwater Counties date from the 1930's and the current status of these populations is unknown. The site in Itasca County was recently transferred from federal to state ownership and will soon be designated as Botany Bog Scientific and Natural Area.

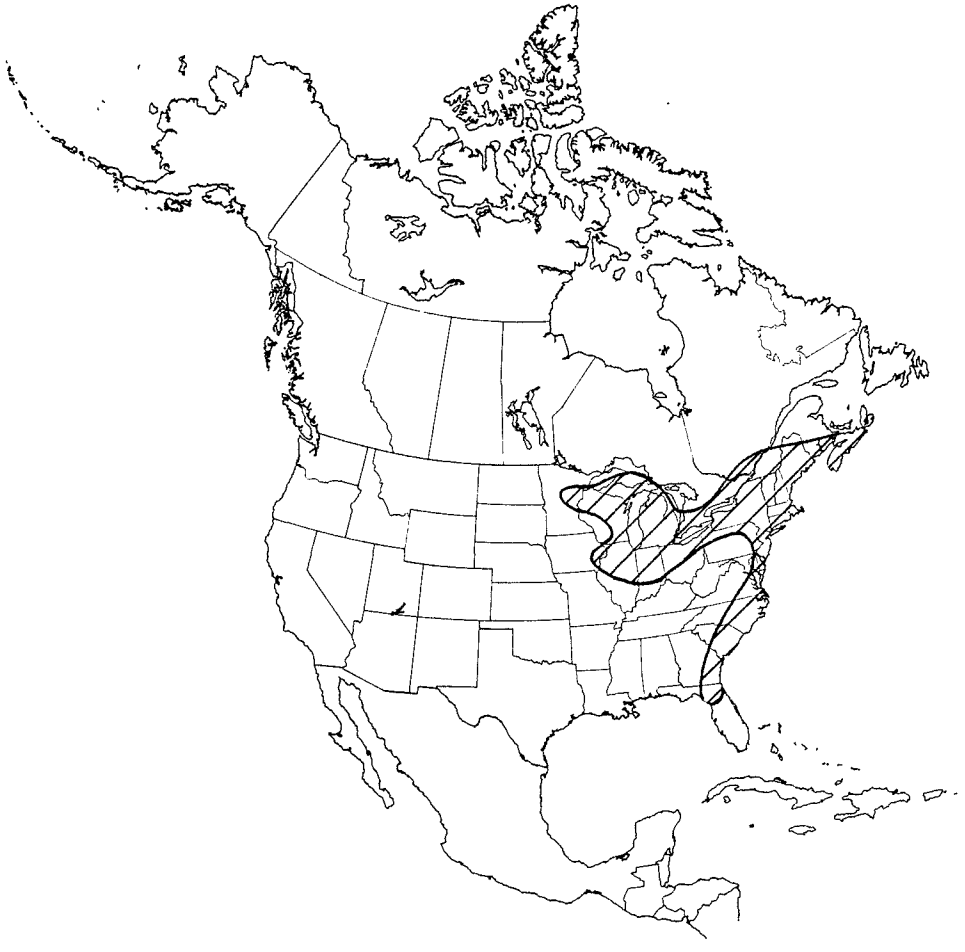
PREFERRED HABITAT IN MINNESOTA: This species occurs in bogs and on margins of bog lakes. The population at Botany Bog occurs with such rare species as *Nymphaea tetragona*, *Utricularia gibba* and *Xyris montana*.

RECOMMENDATIONS: No recommendations can be made at this time.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Eleocharis olivacea Torr.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eleocharis rostellata* Torr.

FAMILY: Cyperaceae

COMMON NAME: Beaked Spike-rush

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Only five populations of this species are known to occur in Minnesota and two of them are quite small. This species has very specialized environmental requirements and is susceptible to changes in groundwater level. The populations in Becker and Mahnomen Counties are remnants of a much larger continuous population that was fragmented by draining and land clearing activities.

PREFERRED HABITAT IN MINNESOTA: This species is restricted to calcareous fens and fen-like peatlands in the northwest and north-central counties. It is absent from fens in the Minnesota Valley and west-central counties. It usually occurs in association with *Scirpus cespitosus* and *Carex sterilis*.

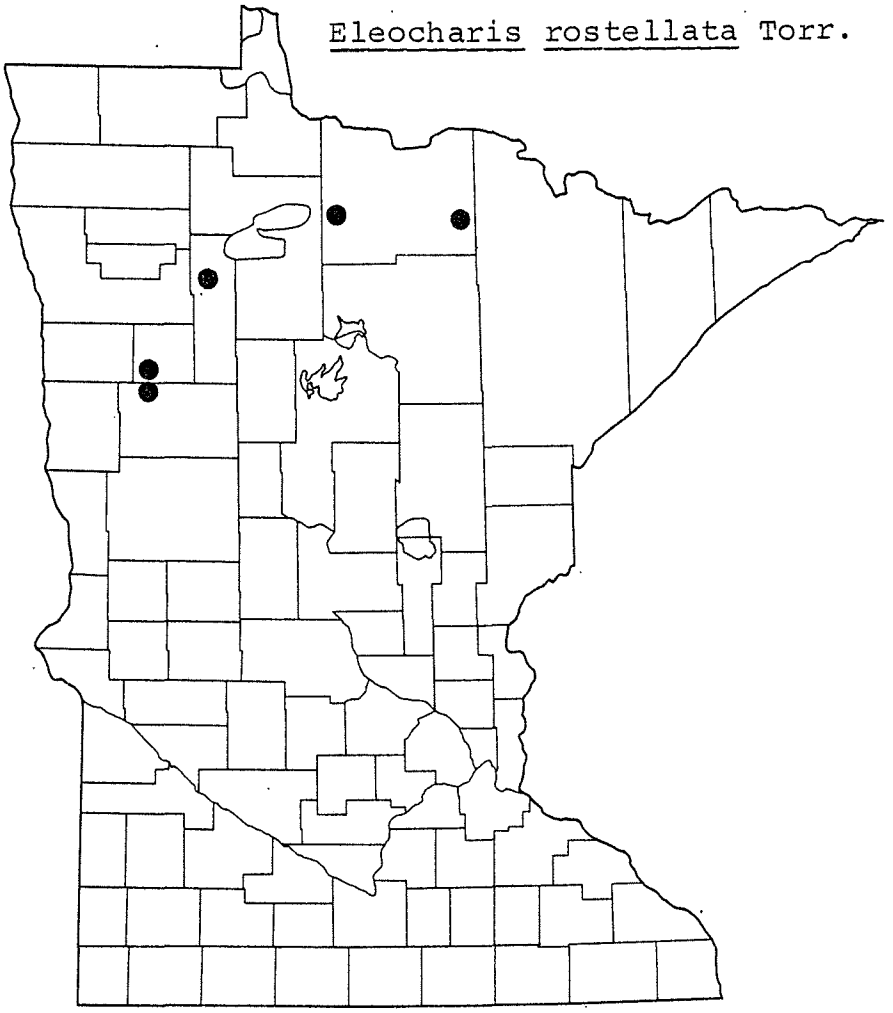
RECOMMENDATIONS: Additional information is needed on the hydrology of fens and the recovery potential of degraded fens.

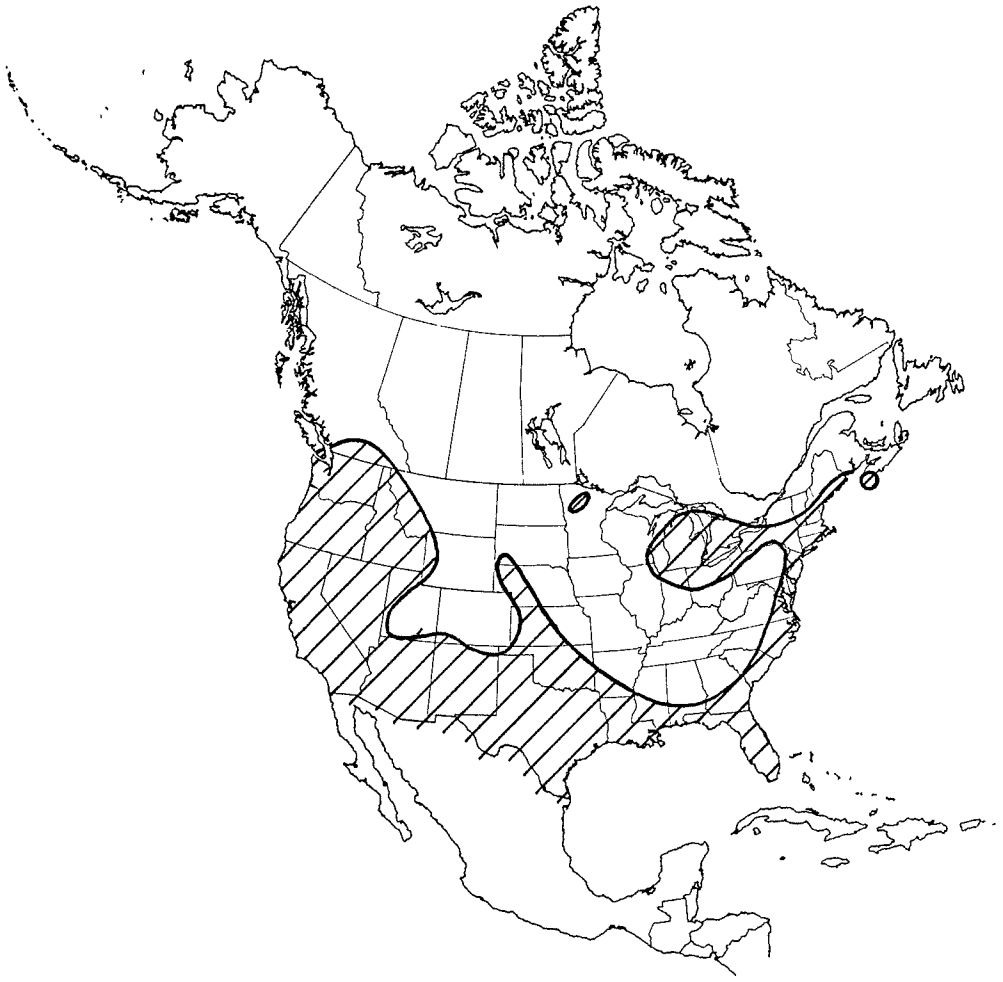
SELECTED REFERENCES:

Swenson, H. K. 1934. Monographic studies in the genus *Eleocharis*. III. Rhodora 36:377-389.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Eleocharis rostellata Torr.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Eleocharis wolfii* Gray

FAMILY: Cyperaceae

COMMON NAME: Wolf's Spikesedge

STATE STATUS: Endangered

FEDERAL STATUS: None

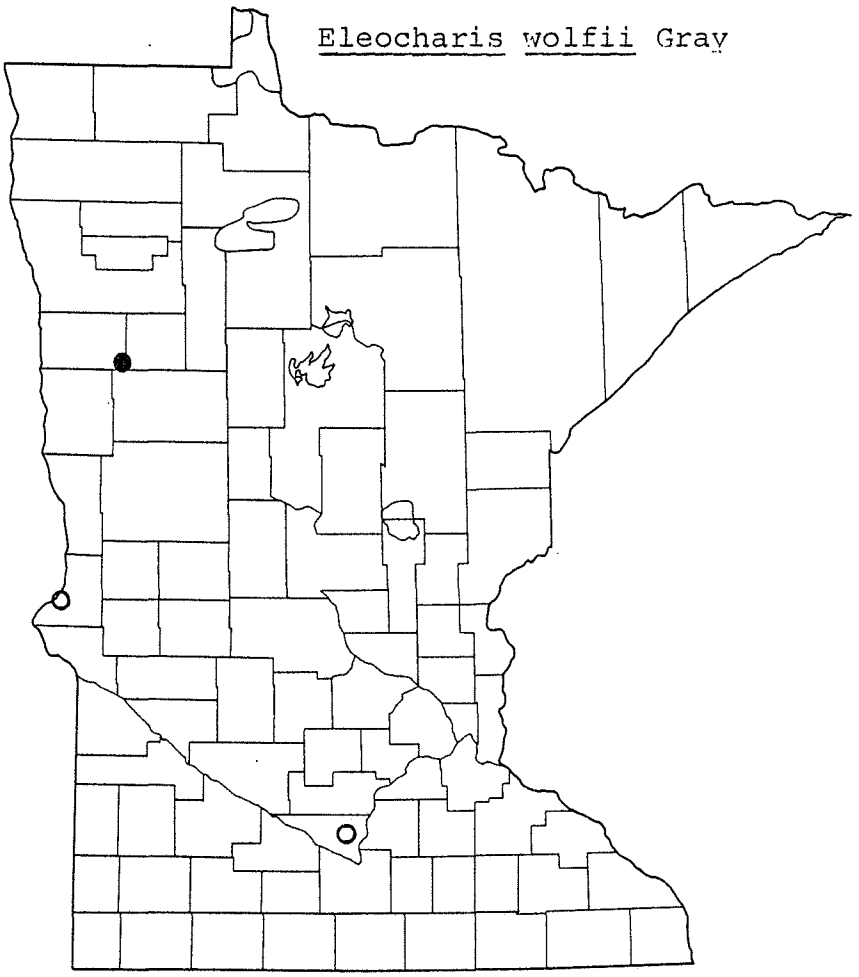
BASIS FOR MINNESOTA STATUS: Although this species is widely distributed, it is generally rare or local wherever it occurs. It was first collected in Minnesota by A. L. Ballard somewhere near Nicollet (Nicollet Co.) in 1892. It was next found near Lake Traverse in the Red River Valley in 1921 and again in Norman County in 1967. Specific threats to this species are not well known but the general degredation of wetlands in Minnesota may have a potential impact on its habitat.

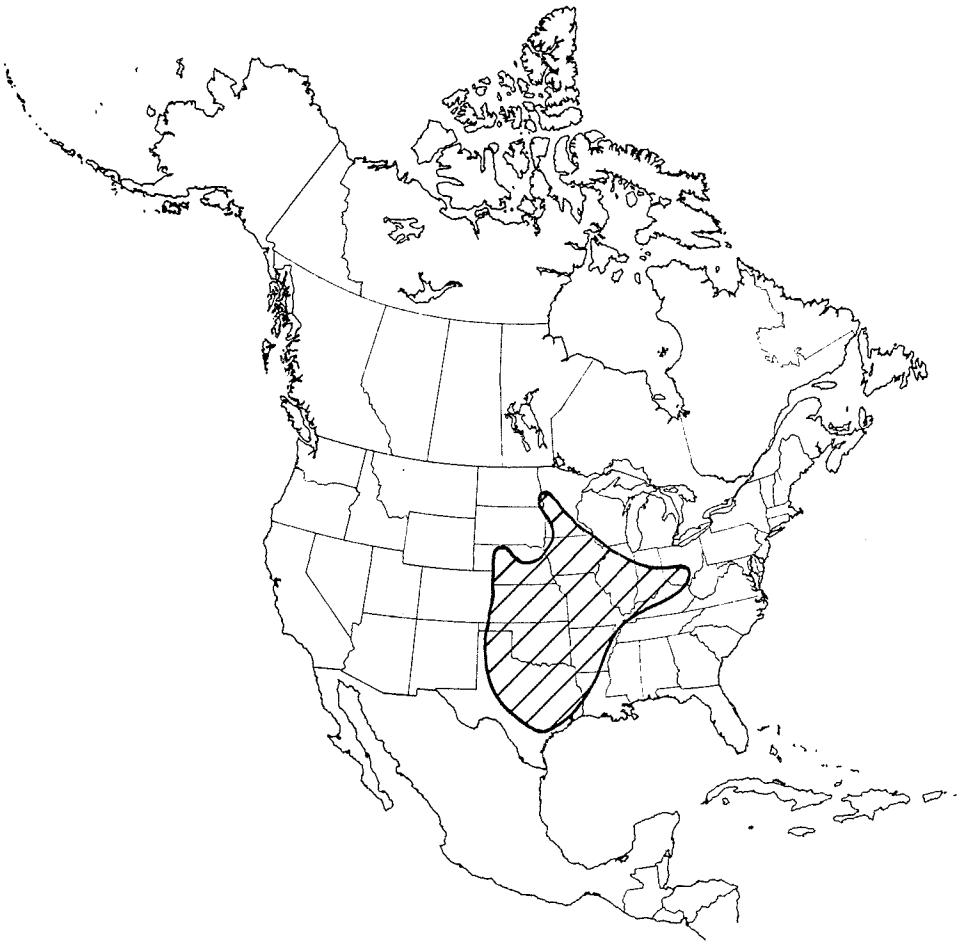
PREFERRED HABITAT IN MINNESOTA: The preferred habitat of *Eleocharis wolfii* in Minnesota is poorly known. The older collections refer to its habitat only as "moist places". The site in Norman County was described as "mud flats near stream".

RECOMMENDATIONS: No recommendations can be made at this time.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Eleocharis wolfii Gray





SPECIES STATUS SHEET

SCIENTIFIC NAME: Empetrum atropurpureum Fern. & Wieg.

FAMILY: Empetraceae

COMMON NAME: Purple Crowberry

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This boreal species is known to have occurred on several of the small rocky islands in the Susie Island chain in Lake Superior (Cook County). The populations appear to have declined since the islands were first explored in the 1930's and 1940's, and it may now be gone from some of the islands. This could be due to the rapidly expanding gull population which uses the islands for nesting. Any surviving populations are part of the small, isolated Great Lakes range that is disjunct from the main range of the species.

PREFERRED HABITAT IN MINNESOTA: This species occurs on barren shore rocks, cliff ledges and forest margins.

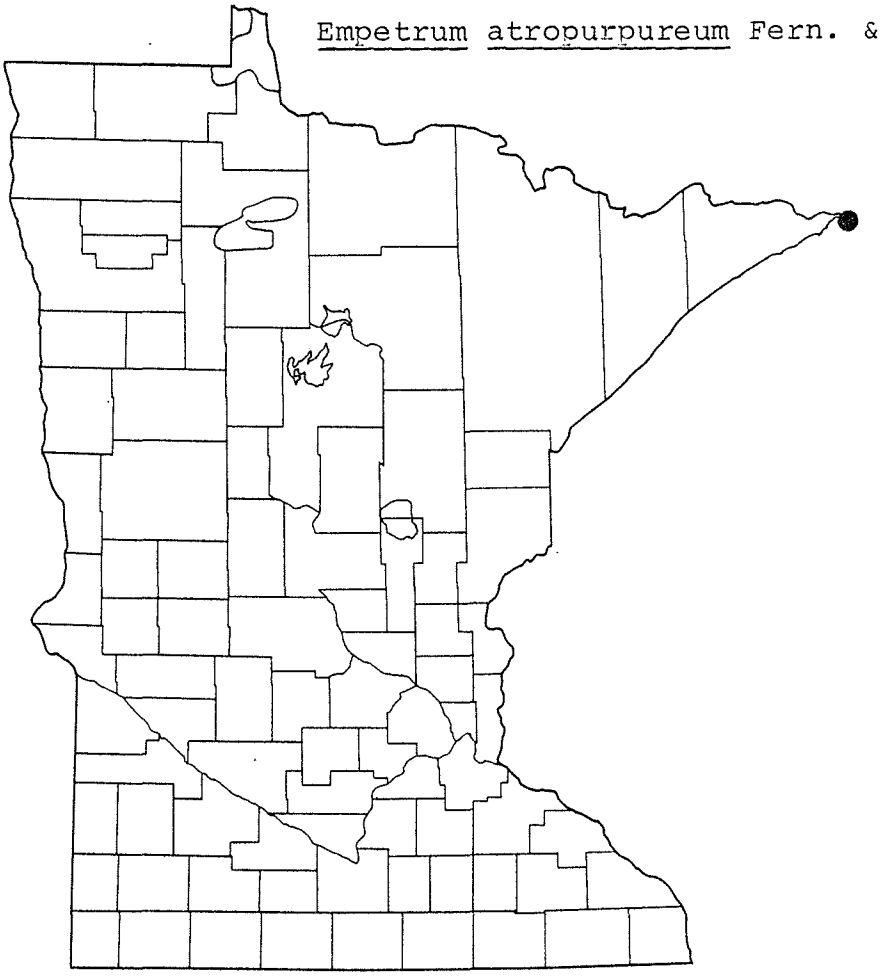
RECOMMENDATIONS: A thorough search for all the previously vouchered populations is necessary to determine the extent of any decline in populations.

SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Empetrum atropurpureum Fern. & Wieg.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Erythronium propullans Gray

FAMILY: Liliaceae

COMMON NAME: Minnesota Trout Lily, Dwarf Dog-tooth Violet

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1972; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: This is Minnesota's only endemic plant species. It was discovered by Mrs. Mary B. Hedges near St. Mary's College in Faribault in 1870, and was described the following year by Asa Gray. It is entirely restricted to a few river valleys in Rice and Goodhue Counties where there are about 15 extant sites containing a total of only a few hundred individuals. Several colonies are known to have been destroyed by road building, farming, urban development and off-road vehicles. Several more colonies are presently threatened by the same activities.

PREFERRED HABITAT IN MINNESOTA: Erythronium propullans occurs on alluvial soil near the base of north-facing slopes in stream valleys.

RECOMMENDATIONS: Because of the extreme rarity of this species, it should receive the highest priority for protection. The preservation of all extant populations may be critical to the survival of the species.

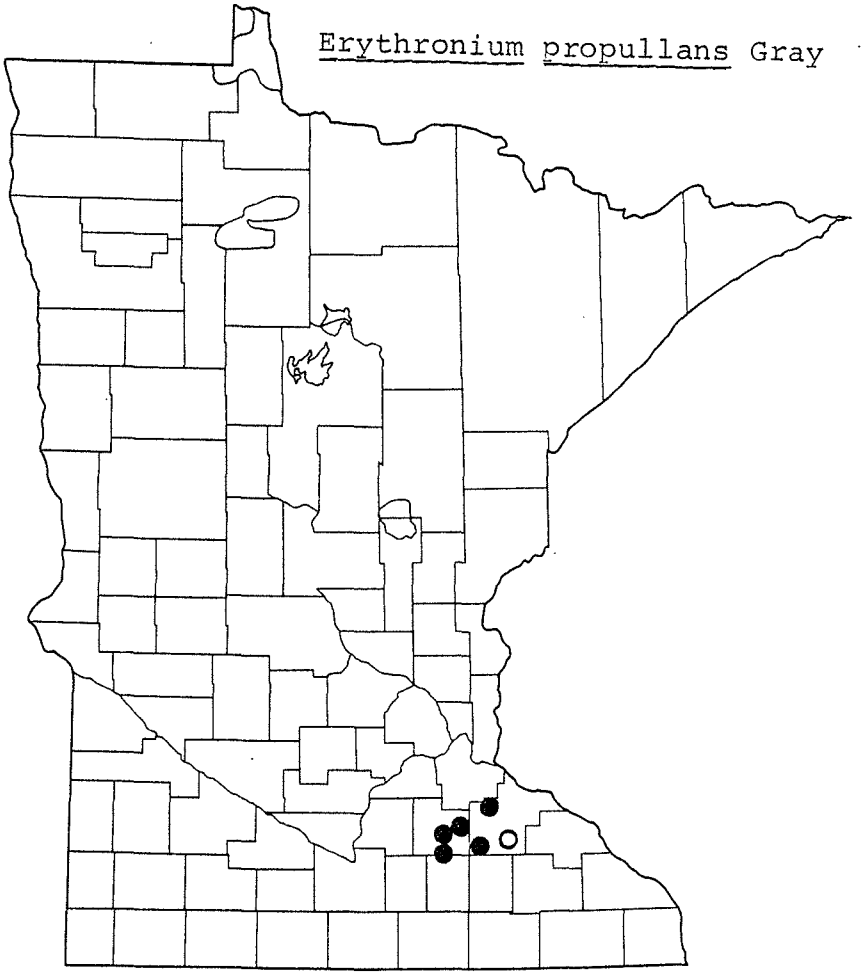
SELECTED REFERENCES:

Gray, A. 1871. A new species of Erythronium. Amer. Nat. 5:298-300.

Morley, T. 1978. Distribution and rarity of Erythronium propullans. Phytologia 40:(5) 381-389

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Erythronium propullans Gray



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Gerardia auriculata* Michx. [*Tomanthera auriculata* (Michx.) Raf.]

FAMILY: Scrophulariaceae

COMMON NAME: Eared Gerardia

STATUS STATUS: Endangered

FEDERAL STATUS: None

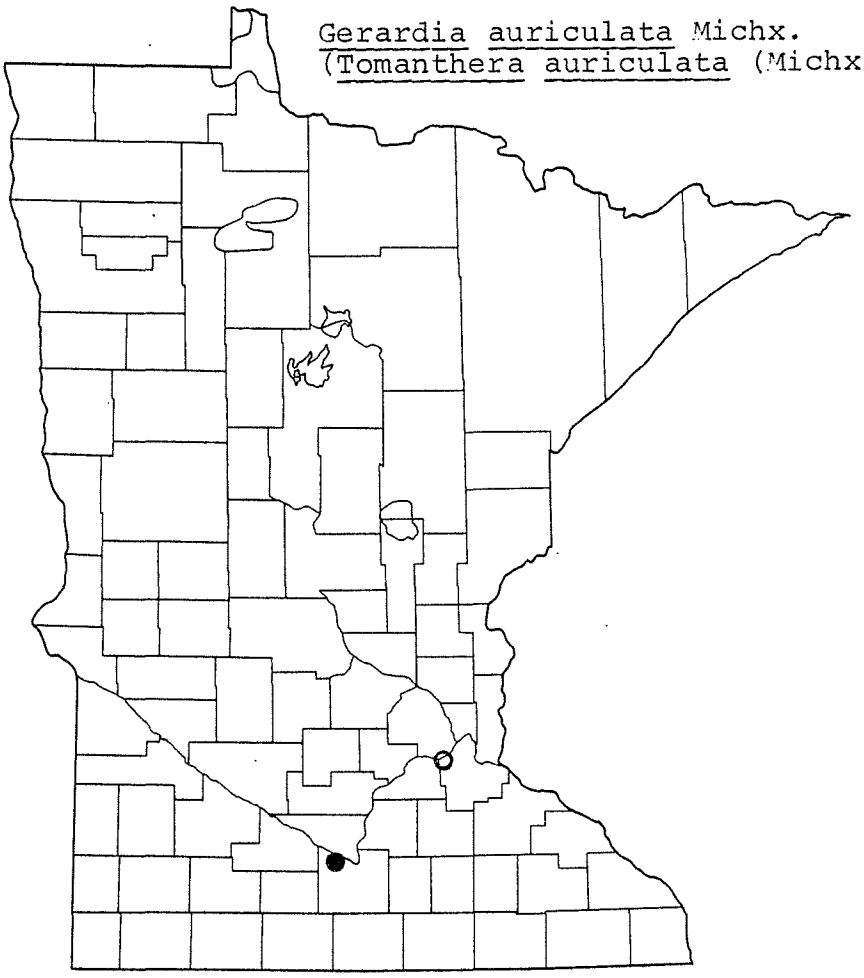
BASIS FOR MINNESOTA STATUS: This species is rare through much of the region and is either absent or believed extinct in neighboring states. All of the occurrences in Minnesota are from the lower Minnesota Valley where development pressure is very high, especially in the Twin Cities metropolitan area. It was first collected in Minnesota at an unknown location in Nicollet County in 1892. It was later collected in Dakota County in 1956 and Blue Earth County in 1960. The latter two collection sites have been recently searched without success.

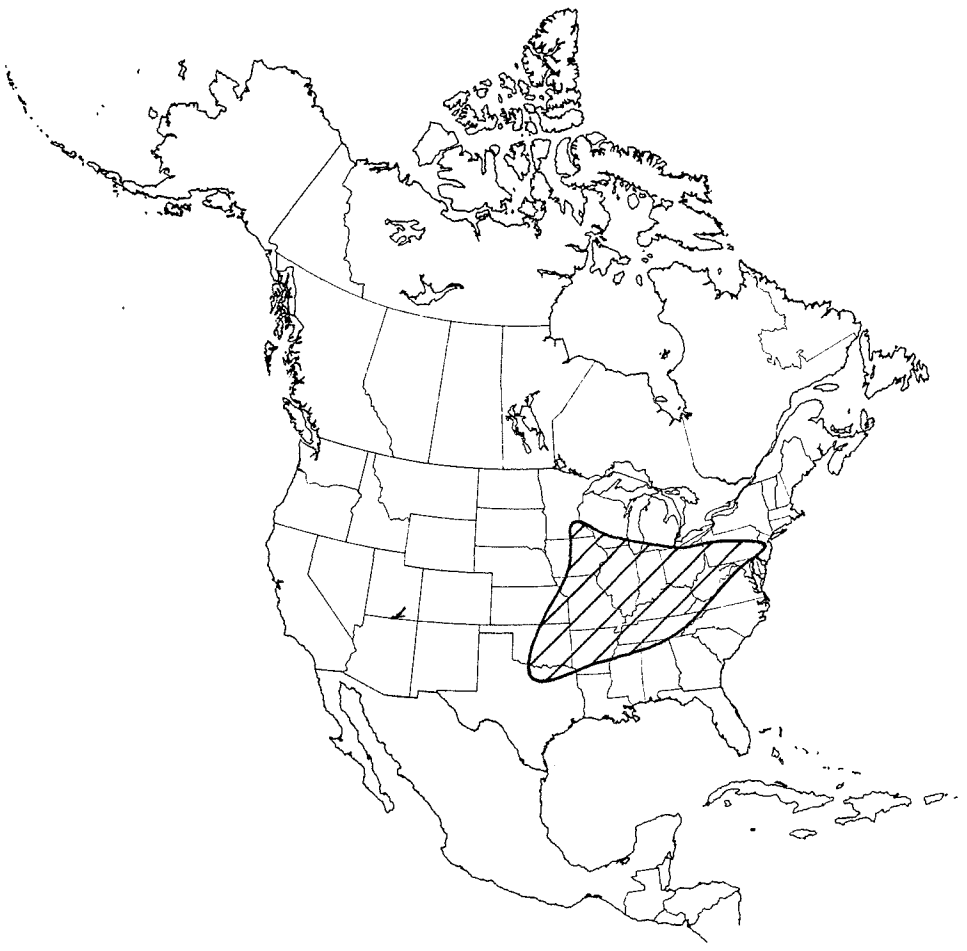
PREFERRED HABITAT IN MINNESOTA: This species occurs in wet meadows and low prairies.

RECOMMENDATIONS: Continued searches should be conducted in the lower Minnesota Valley between Burnsville and Mankato.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Gerardia auriculata Michx.
(Tomanthera auriculata (Michx.) Raf.)





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Gerardia gattingeri* Small

FAMILY: Scrophulariaceae

COMMON NAME: Round-stemmed Gerardia

STATE STATUS: Threatened

FEDERAL STATUS: None

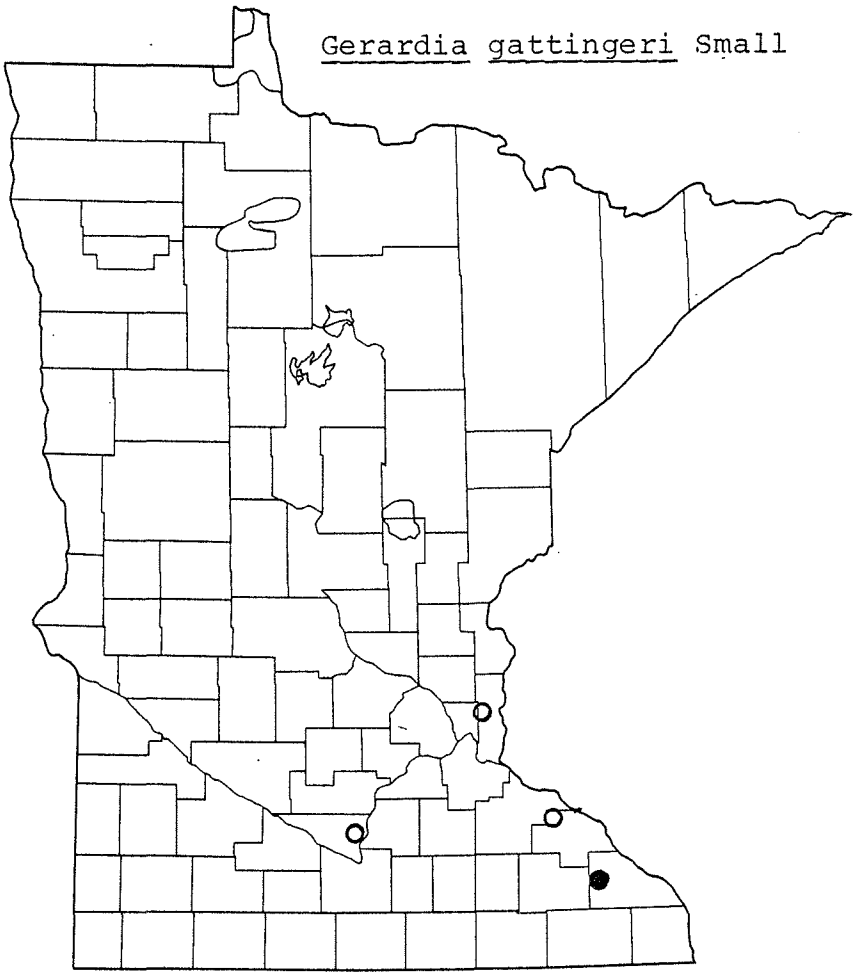
BASIS FOR MINNESOTA STATUS: Although widespread, this species is rare and local throughout the region, and appears to have suffered local extirpations in Minnesota. The collections from Nicollet, Washington and Wabasha Counties date from the 1800's and may no longer be extant. A population is believed to survive at Whitewater State Park, but its status is uncertain.

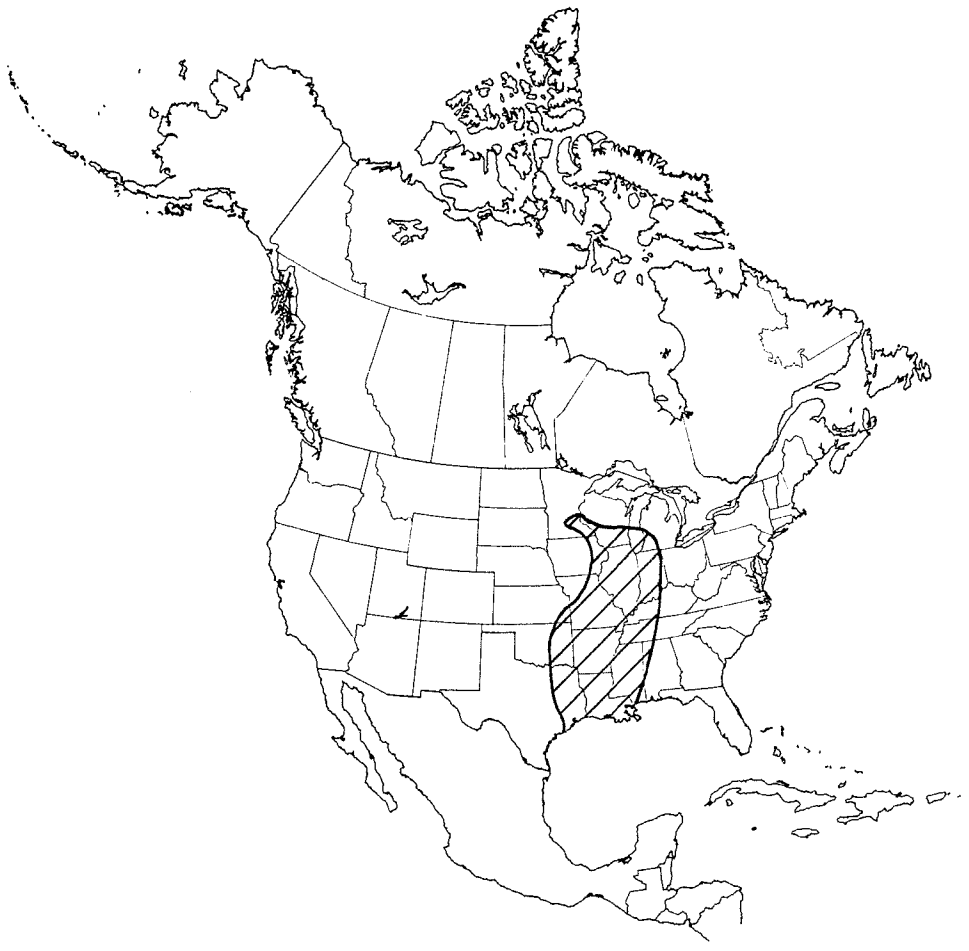
PREFERRED HABITAT IN MINNESOTA: This species occurs in meadows, hill prairies and open woods.

RECOMMENDATIONS: The population at Whitewater State Park needs to be censused and management potential assessed.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Gerardia gattingeri Small





SPECIES STATUS SHEET

SCIENTIFIC NAME: Hydrastis canadensis L.

FAMILY: Ranunculaceae

COMMON NAME: Golden Seal

STATE STATUS: Endangered

FEDERAL STATUS: Previously considered by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973; amended 1978. Federal Register 40(127):27859, July 1, 1975). Not currently being considered for listing because it has proven to be more abundant than previously believed (Fed. Register 45(242):82480, 12-15-80).

BASIS FOR MINNESOTA STATUS: This species has always been rare in Minnesota because it occurs here at the extreme periphery of its range. Recently, however, it has become critically endangered because of increasing commercial exploitation. It is currently limited to a few scattered populations, none of which are adequately protected. Other threats include land clearing and cattle grazing.

PREFERRED HABITAT: This species requires undisturbed deciduous woodlands.

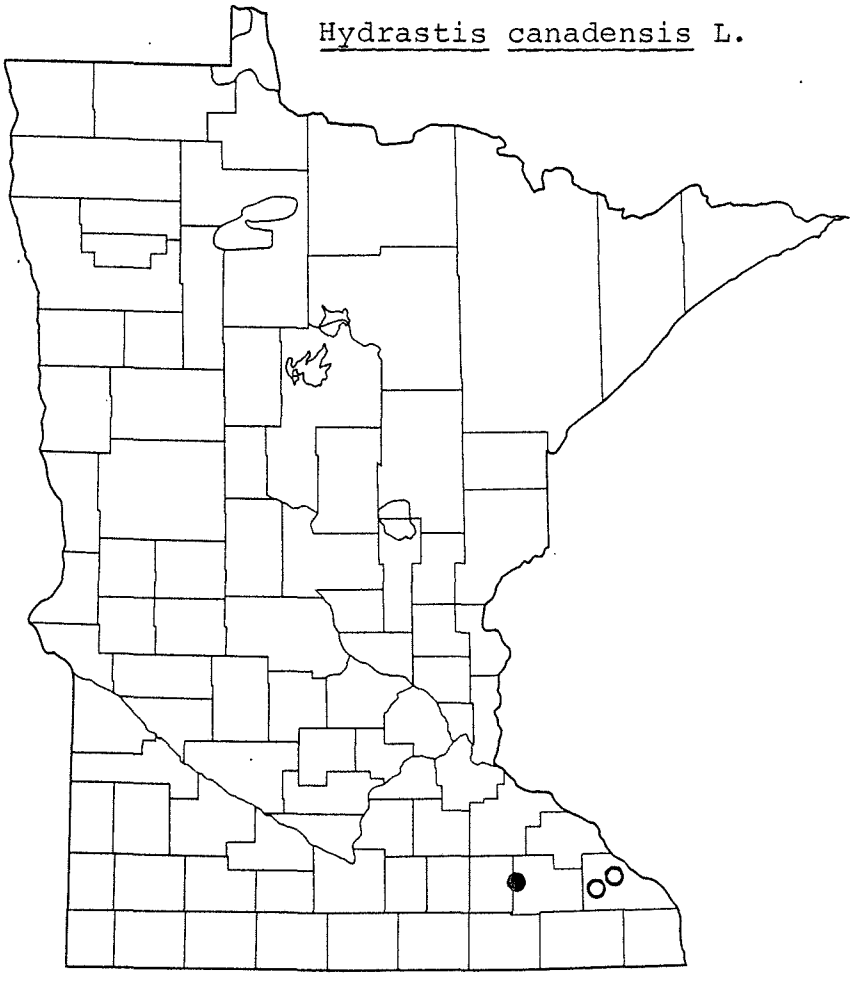
RECOMMENDATIONS: This species has nearly reached economic extinction in Minnesota. It is so rare that it is uneconomical to exploit. Before biological extinction is reached, all commercial trade in wild Minnesota Hydrastis should be prohibited.

SELECTED REFERENCES:

Rosendahl, C. O. and J. W. Moore. 1947. A new variety of Sedum rosea from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Hydrastis canadensis L.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Isoetes melanopoda* Gay & Dur.

FAMILY: Isoetaceae

COMMON NAME: a species of Quillwort

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This heterosporous fern occurs in Minnesota at the northern periphery of its range. The potential for its occurrence is further limited by its unusual habitat requirements. It appears to be rare or local over most of its range and may, in fact, be extinct in neighboring states. It is currently known to occur at two sites in Minnesota. Both populations are small and consist of only a few individuals each. One of the populations will be protected in the proposed Blue Mounds Scientific and Natural Area.

PREFERRED HABITAT IN MINNESOTA: This species has been found only in ephemeral pools that form in depressions in Sioux Quartzite outcrops. It occurs with other rare species of this habitat such as *Plantago elongata*, *Heteranthera limosa* and *Marsilea mucronata*.

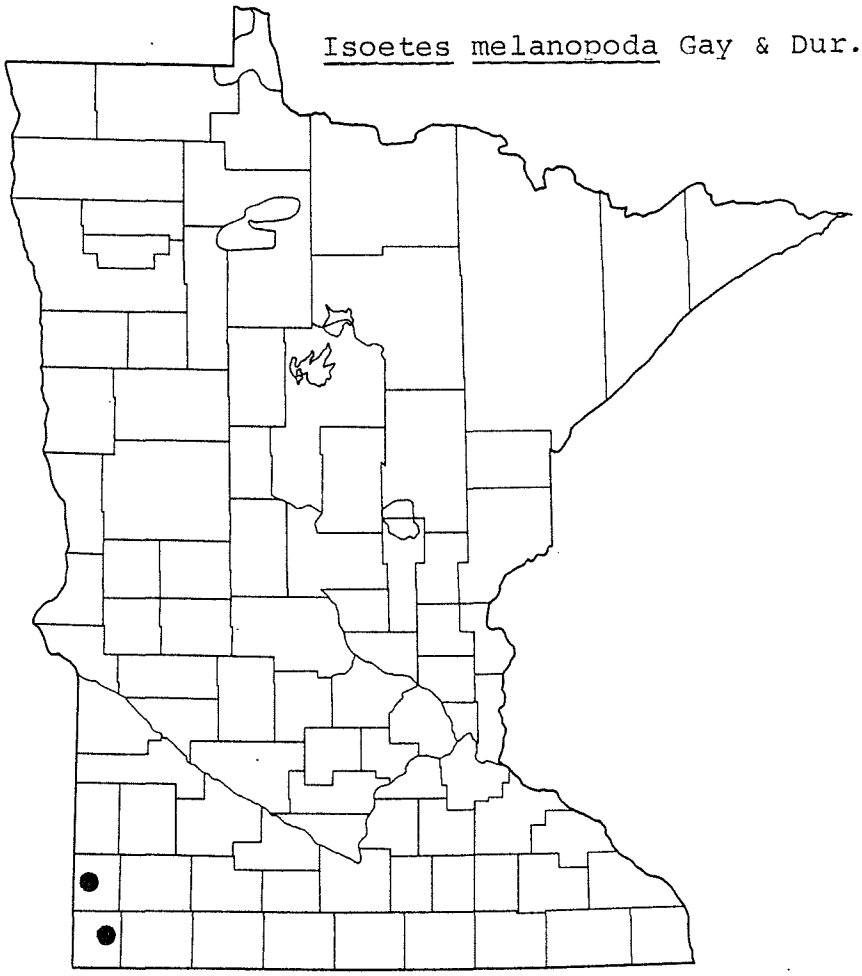
RECOMMENDATIONS: No recommendations can be made at this time.

SELECTED REFERENCES:

Moore, J. W. and R. M. Tryon. 1946. A new record for *Isoetes melanopoda*. Am. Fern Jour. 36:89-91.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Isoetes melanopoda Gay & Dur.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Jeffersonia diphylla* (L.) Pers.

FAMILY: Berberidaceae

COMMON NAME: Twinleaf

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species reaches the northwestern limit of its range in Minnesota and occurs here very rarely. Of the four historical collection sites, only two could be located recently. The two remaining sites may have been destroyed by land clearing or cattle grazing. These two activities are especially destructive and have eliminated most of the potential habitat of this species.

PREFERRED HABITAT IN MINNESOTA: *Jeffersonia diphylla* occurs on moist, wooded talus slopes, typically north-facing.

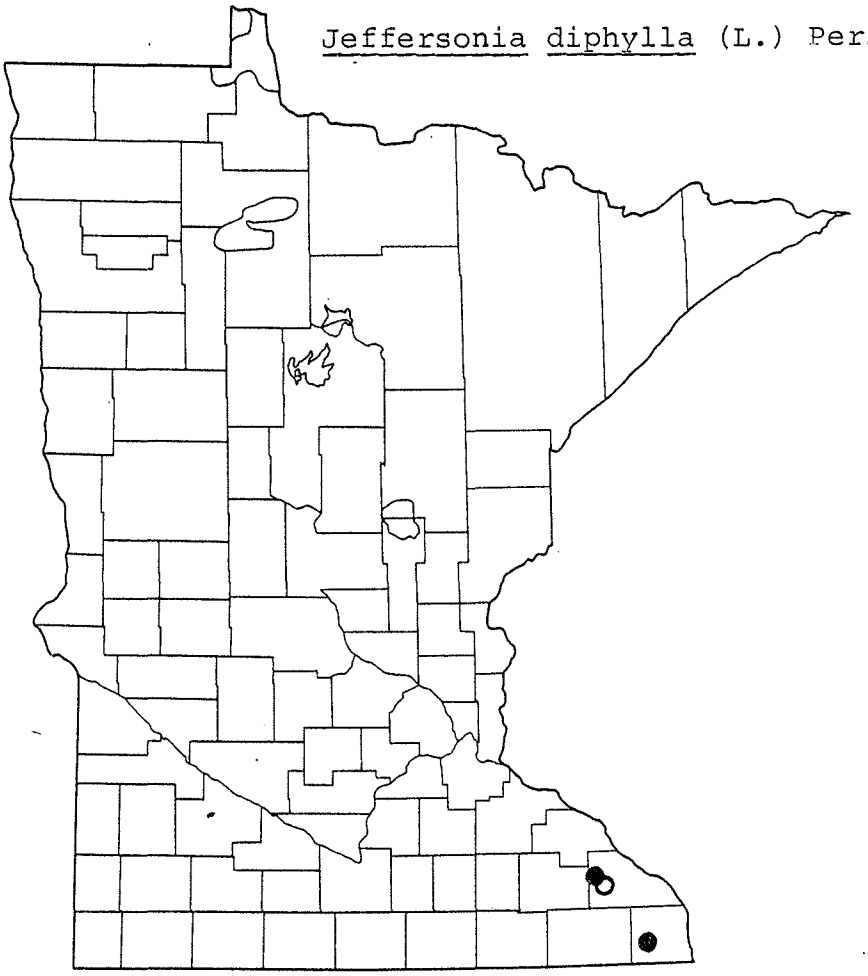
RECOMMENDATIONS: The two known populations occur in state parks and warrant special consideration in park management activities.

SELECTED REFERNCES:

Rosendahl, C. O. and J. W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Jeffersonia diphylla (L.) Pers.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Lespedeza leptostachya Engelm.

FAMILY: Fabaceae

COMMON NAME: Prairie Bush Clover

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: The pre-settlement range of this species was very restricted. It has become even more restricted in recent times because of numerous local extirpations. This contraction of range has been accompanied by isolation of populations in remnant habitats. These remnants persist because they are too dry or too rocky for agriculture. Recent advances in agricultural technology, however, have made these marginal lands more economical to convert to cropland. The largest population in Minnesota occurs in a proposed state Scientific and Natural Area and is being intensively studied to determine management potential. The anomalous collection in Cass County is dated 1890 and has never been verified.

PREFERRED HABITAT IN MINNESOTA: The most recent collections are from dry prairies, gravel hills and rock outcrops. It also shows a distinct preference for north-facing slopes.

RECOMMENDATIONS: Several of the known populations in Minnesota are quite small, and their long-term viability is uncertain. Intensive monitoring of these populations may be necessary to predict population trends and recovery potential.

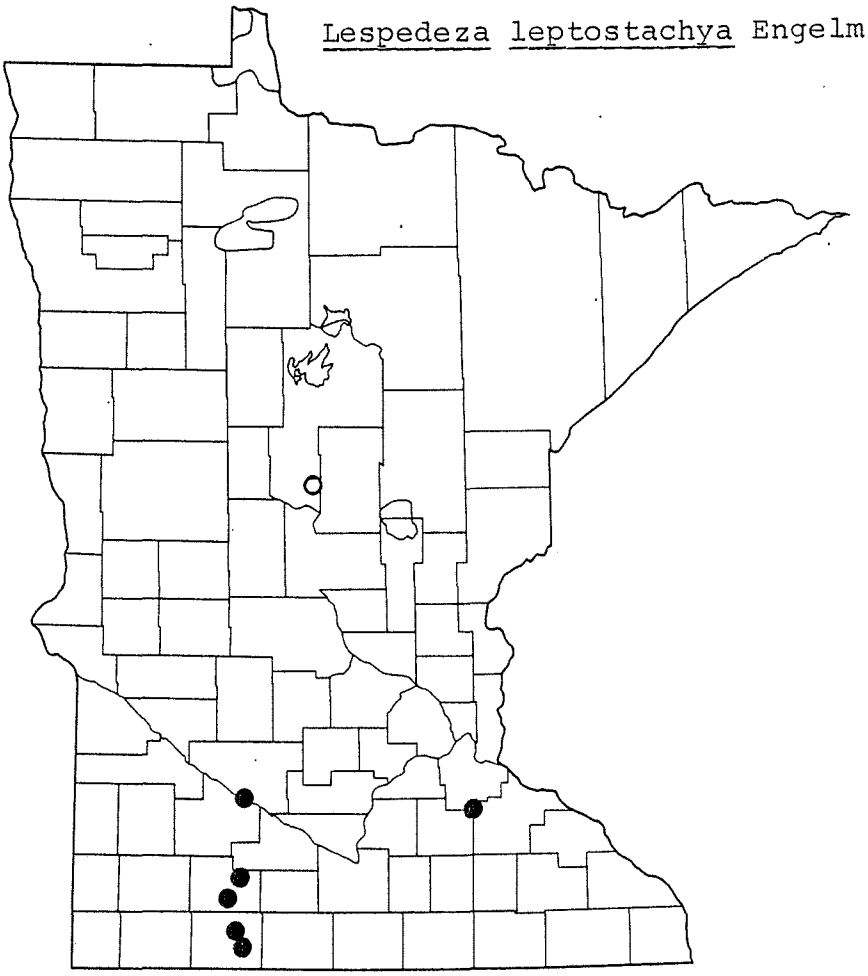
SELECTED REFERENCES:

Clewell, A. F. 1966. Native North American species of Lespedeza. Rhodora 68:359-405.

Sheldon, E. P. 1890. Some extensions of plant ranges. Minn. Bot. Stud. Vol. 1:14-18.

PREPARED BY: Welby smith, Botanist, Natural Heritage Program

Lespedeza leptostachya Engelm.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Lesquerella ludoviciana (Nutt.) S. Wats.

FAMILY: Brassicaceae

COMMON NAME: Bladder Pod

STATE STATUS: Endangered

FEDERAL STATUS: None

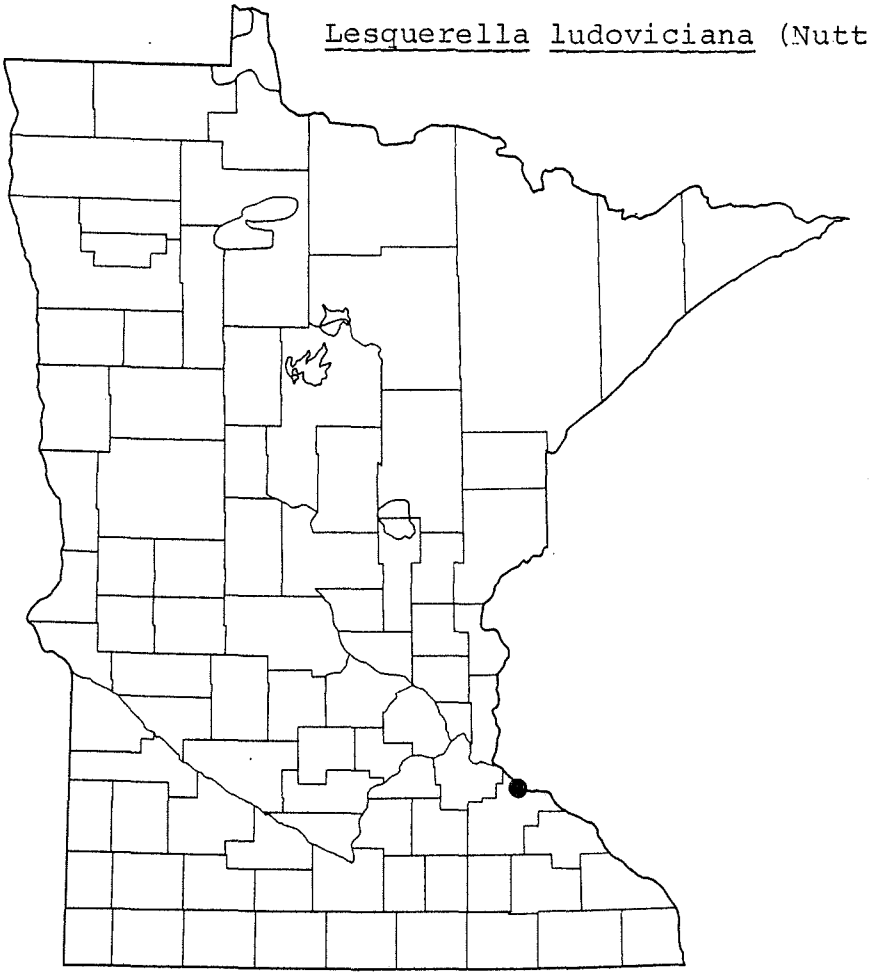
BASIS FOR MINNESOTA STATUS: In Minnesota, this species is restricted to dry prairie bluffs in the city of Red Wing, where it has been known since 1886. This site is disjunct 300 miles from the main portion of its range in the Great Plains. The continued survival of this species in Minnesota could be threatened by encroaching urban development and non-compatible recreational activities.

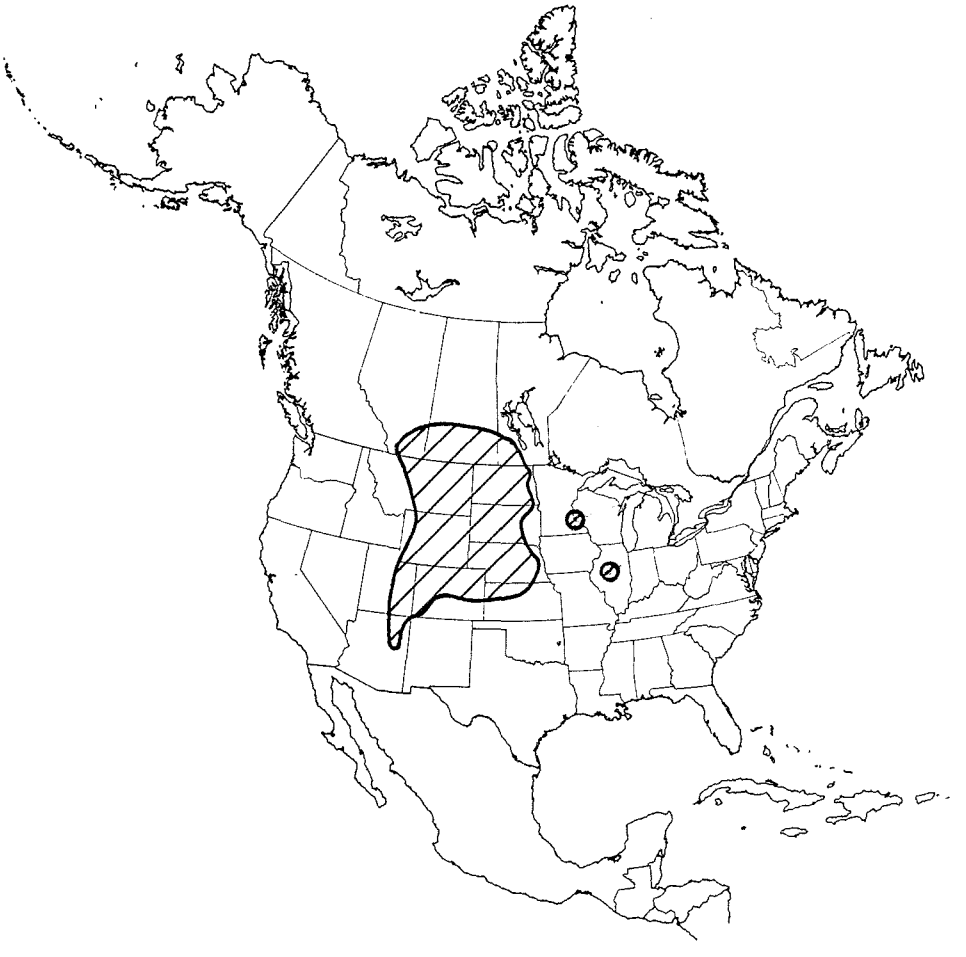
PREFERRED HABITAT IN MINNESOTA: The Minnesota plants occur in a dry prairie habitat on a series of south-facing bluffs. They appear to prefer exposed sandy soil where competition is minimal.

RECOMMENDATIONS: An effort should be made to protect the habitat of this species from urban encorachment.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Lesquerella ludoviciana (Nutt.) S. Wats.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Littorella americana* Fern.

FAMILY: Plantaginaceae

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This small aquatic species is rare or local throughout its limited range. It was discovered in Minnesota at Basswood Lake (Lake Co.) in 1886. It was rediscovered at this site in 1957 after it had been found at Iron Lake and Lac La Croix (St. Louis Co.) in 1953. It was next found at Snowbank Lake and Malberg Lake (Lake Co.) in 1957. The population at Snowbank Lake was successfully relocated in 1982, but it had suffered a severe decline when most of its habitat was eliminated by the construction of retaining walls.

PREFERRED HABITAT IN MINNESOTA: *Littorella americana* is an aquatic species that occurs in shallow water of lake margins. In times of low water it may survive stranded on sandy beaches. It may occur with another rare aquatic species, *Subularia aquatica*.

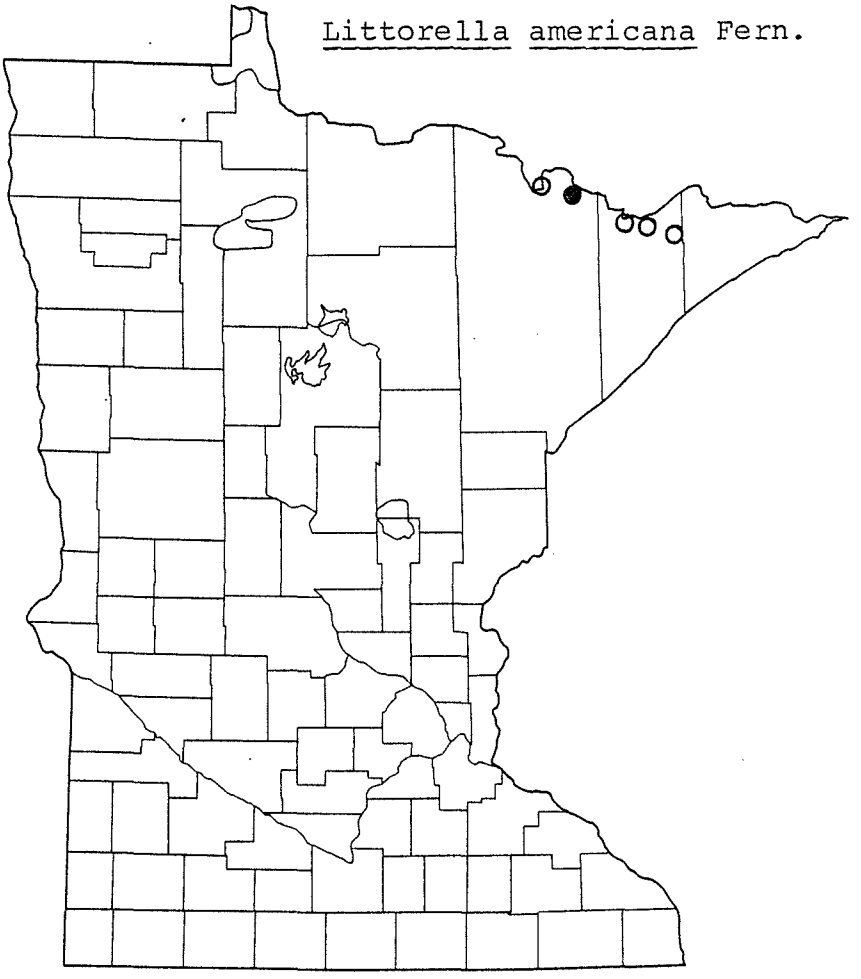
RECOMMENDATIONS: No recommendations can be made at this time.

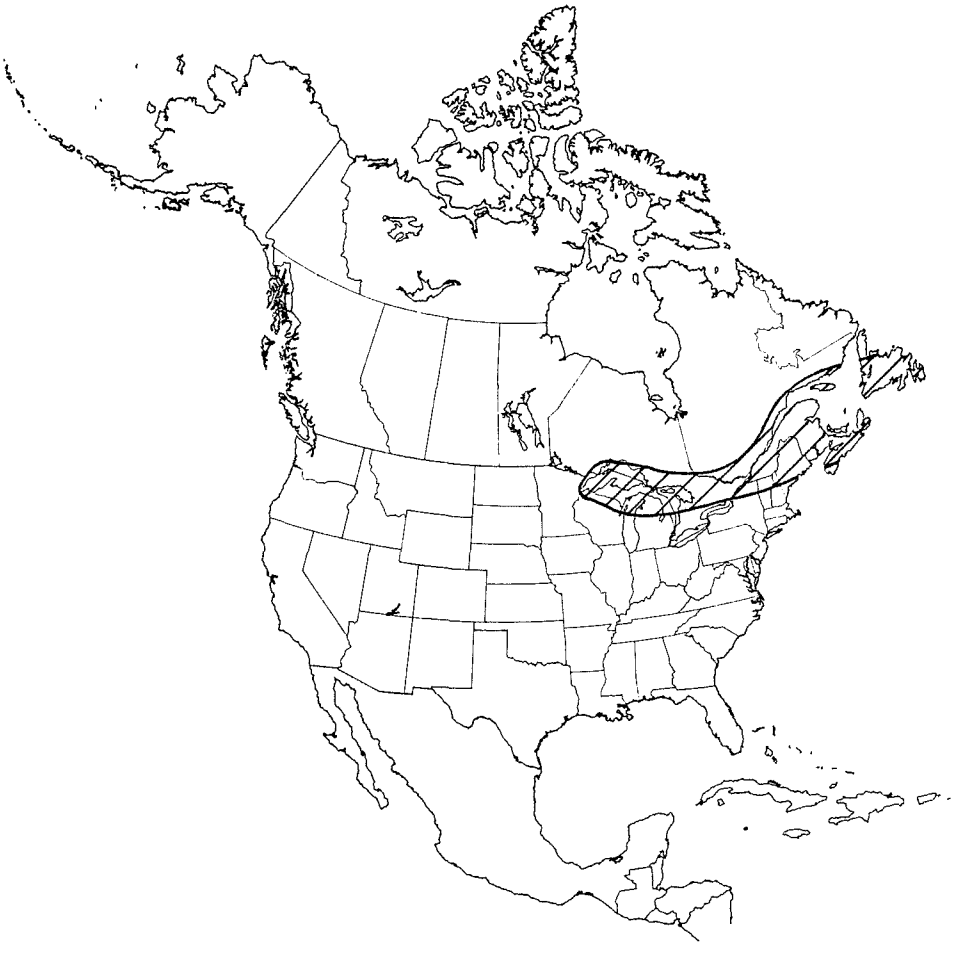
SELECTED REFERENCES:

Lakela, O. 1958. Distribution of *Littorella americana* in the mid-arrowhead region of Minnesota. Rhodora 60:33-37.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Littorella americana Fern.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Lycopodium porophilum Lloyd & Underwood

FAMILY: Lycopodiaceae

COMMON NAME: Fir Club-moss

STATE STATUS: Threatened

FEDERAL STATUS: None

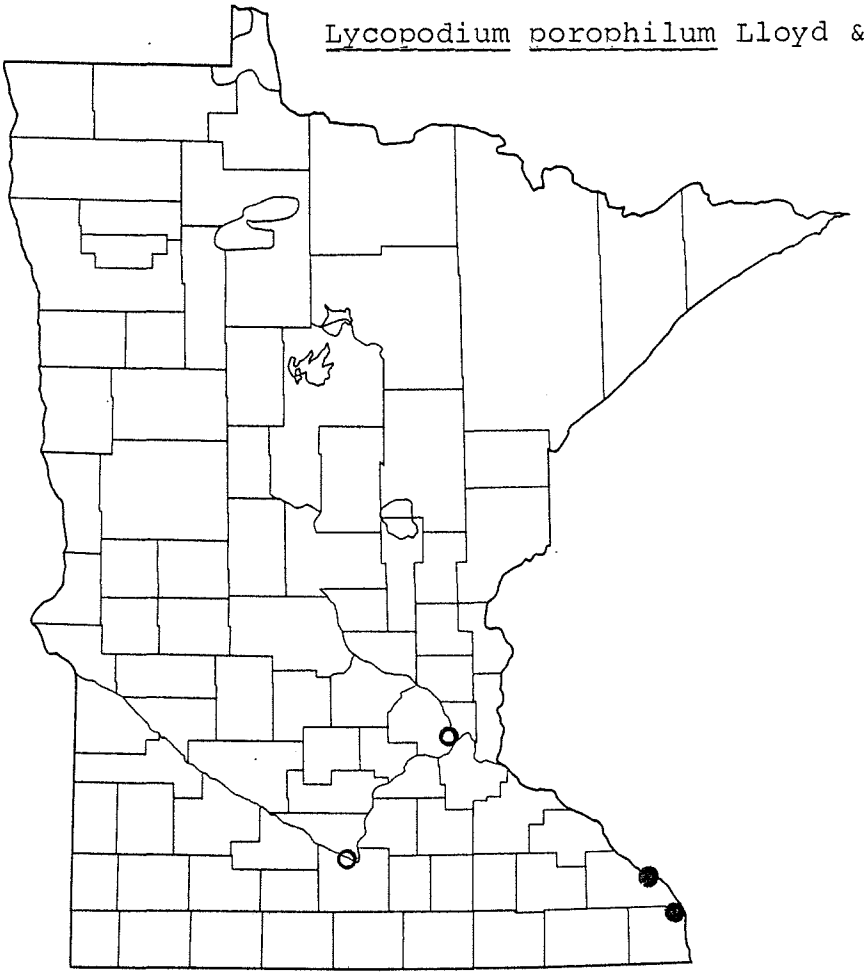
BASIS FOR MINNESOTA STATUS: This species is generally rare or uncommon in the region and is restricted to a limited habitat type. The Hennepin County site is known by a 1902 collecion from the Minneapolis area. The Blue Earth County site is known by a 1883 collection from Minneopa Falls. Both these populations may now be extinct. We currently know of only two extant populations of this species (Houston and Winona Counties), and both are small and vulnerable.

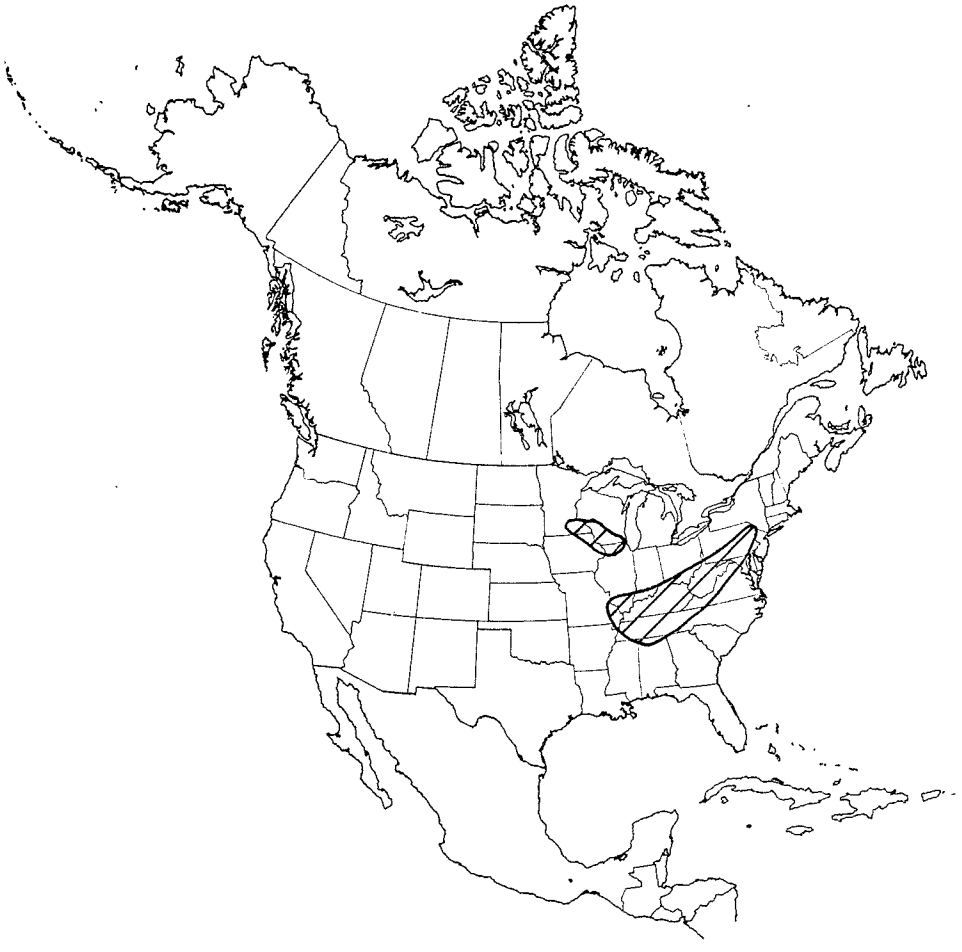
PREFERRED HABITAT IN MINNESOTA: This species appears to be restricted to sandstone ledges.

RECOMMENDATIONS: The population in Winona County occurs on public land with three other rare fern species. An effort should be made to protect the site from unnecessary disturbance.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Lycopodium porophilum Lloyd & Underwood





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Lygodesmia rostrata* Gray

FAMILY: Asteraceae

COMMON NAME: Annual Skeleton-weed

STATE STATUS: Threatened

FEDERAL STATUS: None

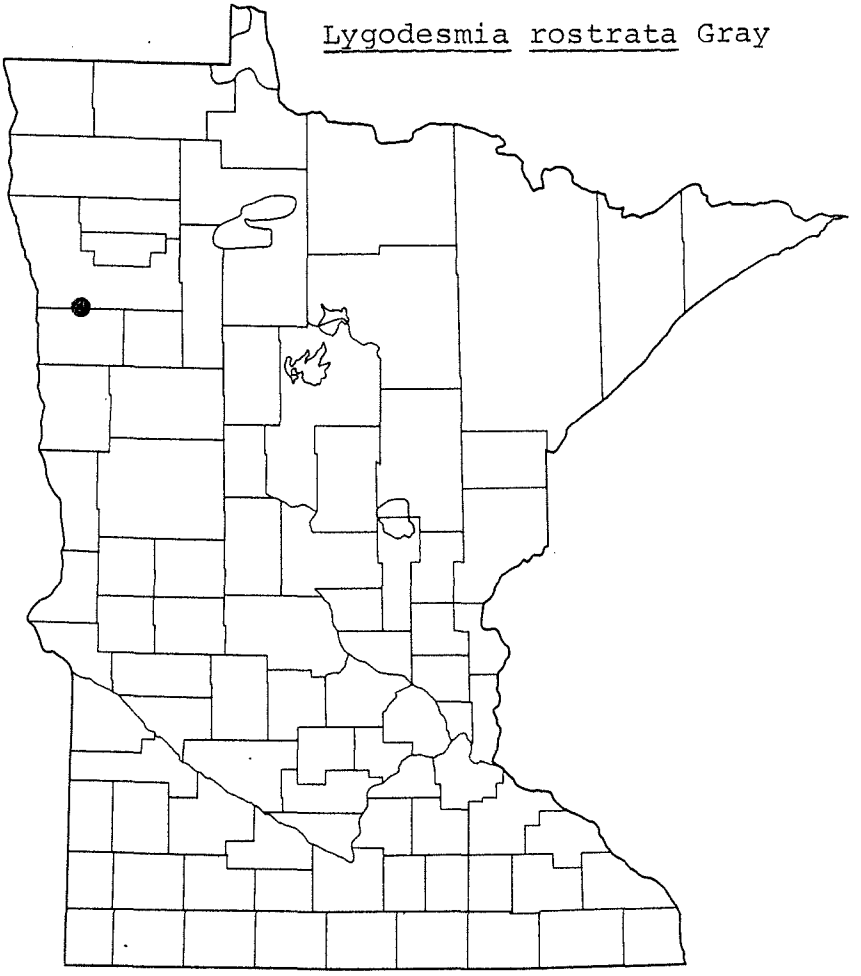
BASIS FOR MINNESOTA STATUS: The only station for this species in Minnesota is in Agassiz Dunes Scientific and Natural Area (Polk County). The population was discovered in 1974 and is small but appears to be stable. The occurrence of this species in the state is probably limited by the lack of suitable habitat and the corresponding predominance of agricultural land in western Minnesota.

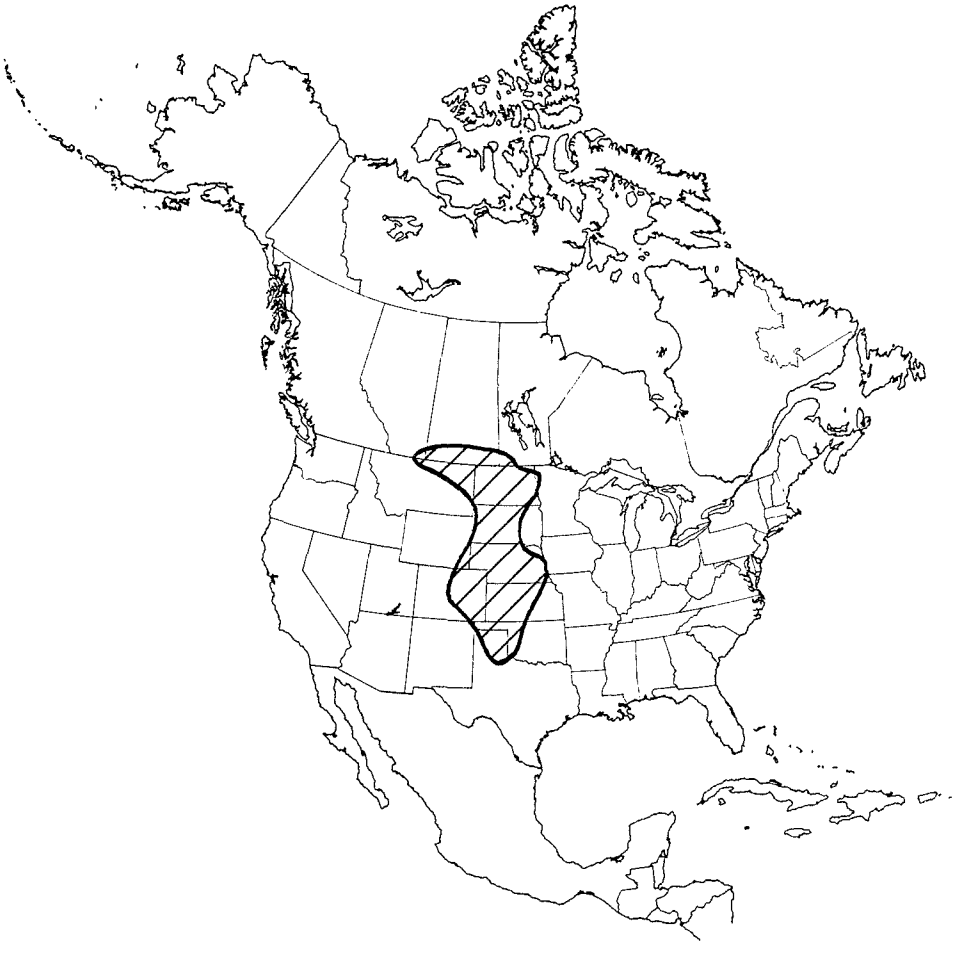
PREFERRED HABITAT IN MINNESOTA: This species occurs in sand dunes, apparently requiring the open sand in unstablized blow-outs.

RECOMMENDATIONS: Additional information is needed to determine the environmental needs and management potential of the population at Agassiz Dunes Scientific and Natural Area.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Lygodesmia rostrata Gray





SPECIES STATUS SHEET

SCIENTIFIC NAME: Malaxis paludosa (L.) Sw.

FAMILY: Orchidaceae

COMMON NAME: Bog Adder's-mouth

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This diminutive orchid was not known to occur in North America until 1904 when it was discovered near New York Mills (Otter Tail County) by H. L. Lyon. Since then it has been found in Alaska and parts of Canada, but it remains a very rare species wherever it occurs. Known sites in Minnesota contain few individuals and exist in fragile habitats that could be easily destroyed by logging or ditching activities.

PREFERRED HABITAT IN MINNESOTA: This species requires cold wet bogs where it occur in mats of Sphagnum moss.

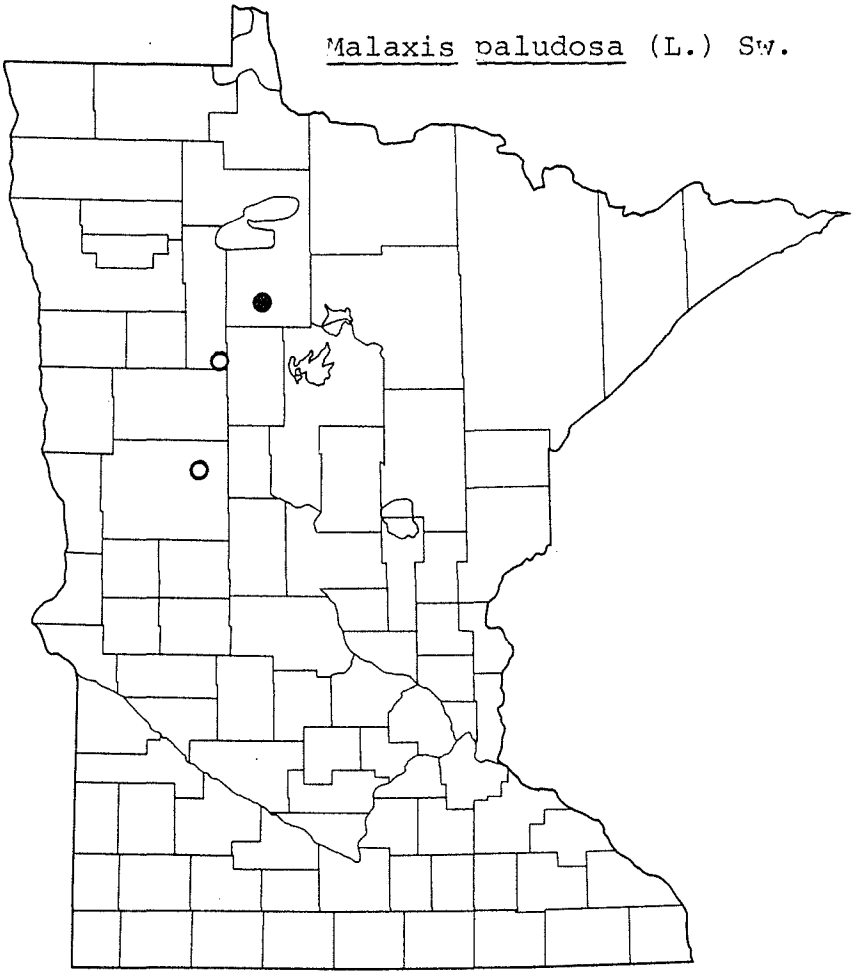
RECOMMENDATIONS: Additional survey work is needed to determine the full range and extent of this species in Minnesota.

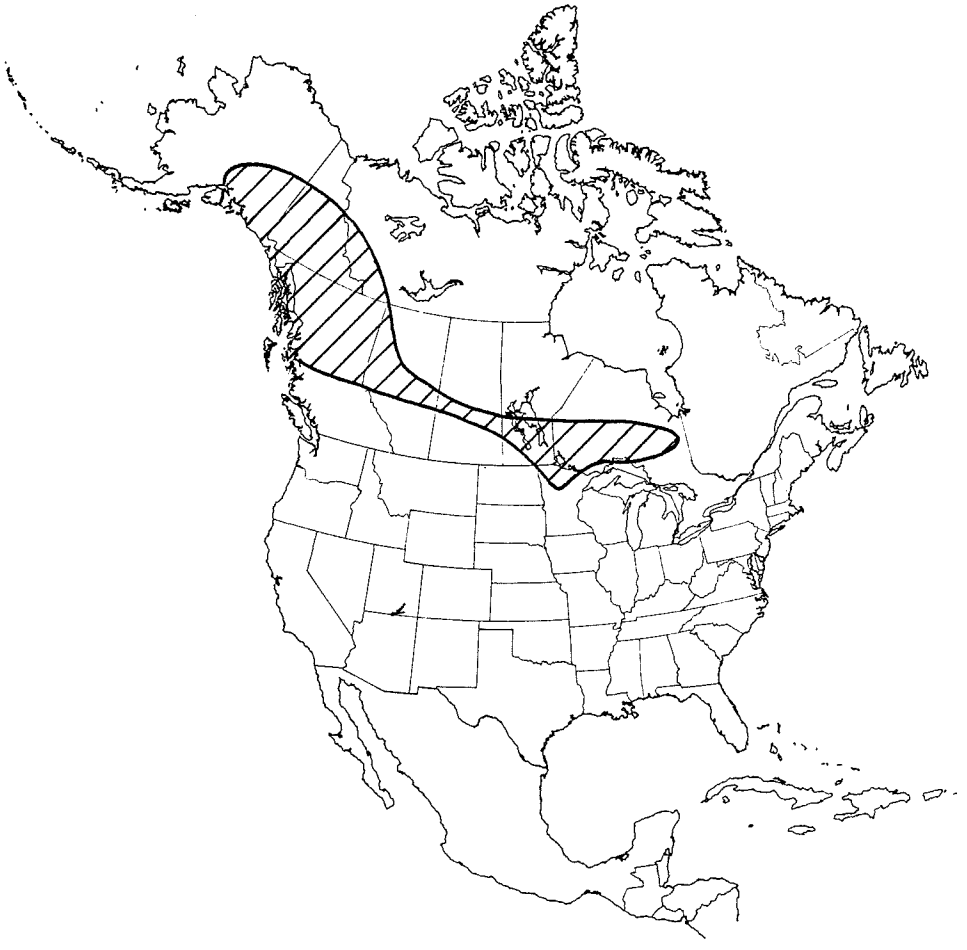
SELECTED REFERENCES:

Luer, C. A. 1975. The Native Orchids of the United States and Canada Excluding Florida. The New York Botanical Garden.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Malaxis paludosa (L.) Sw.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Mammillaria vivipara (Nutt.) Haw. [Coryphantha vivipara (Nutt.) Britt. & Br.]

FAMILY: Cactaceae

COMMON NAME: Ball Cactus

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The only population of this cactus in the state was discovered in 1898 in the Minnesota Valley in Big Stone and adjacent portions of Lac Qui Parle Counties. The surviving plants are scattered infrequently among granite outcrops in a two or three square mile area. Most of this area is owned by a mining company which has recently destroyed a portion of the population while quarrying granite. The remainder of the population occurs on protected portions of adjacent public land. Even with protection it is seriously threatened by illegal removal by cactus fanciers.

PREFERRED HABITAT IN MINNESOTA: This species occurs in crevices of granite outcrops.

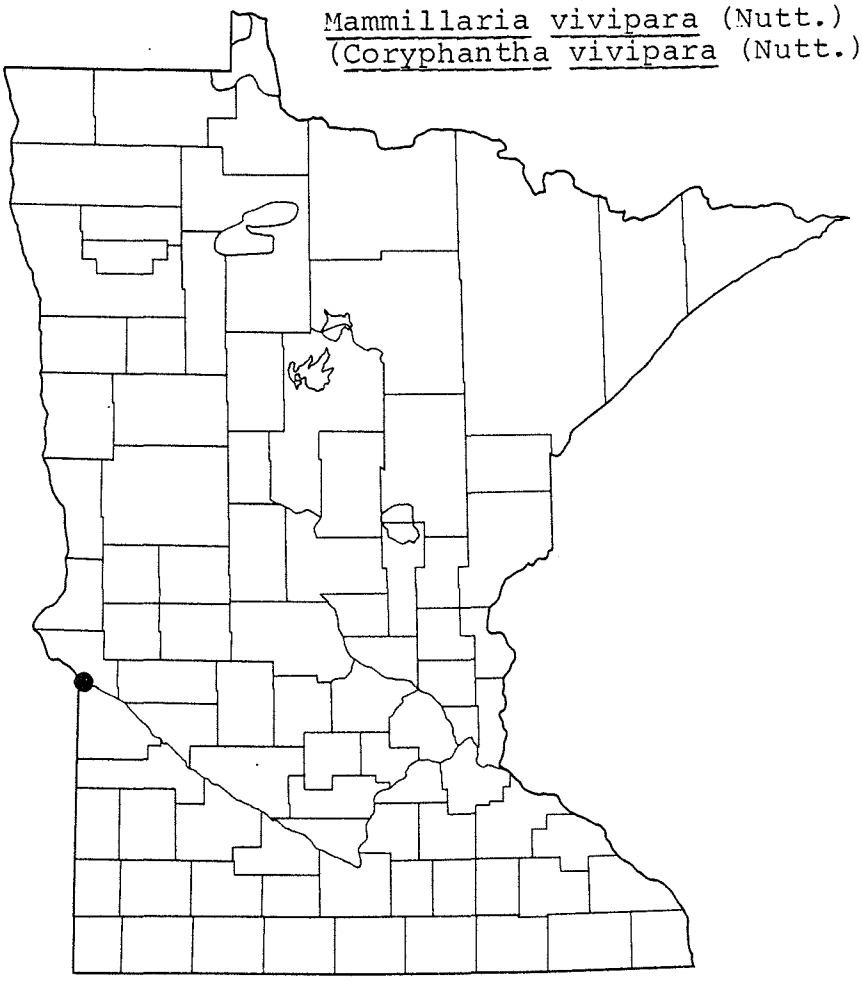
RECOMMENDATIONS: Additional efforts should be made to protect the surviving remnants of Minnesota's only population of this species.

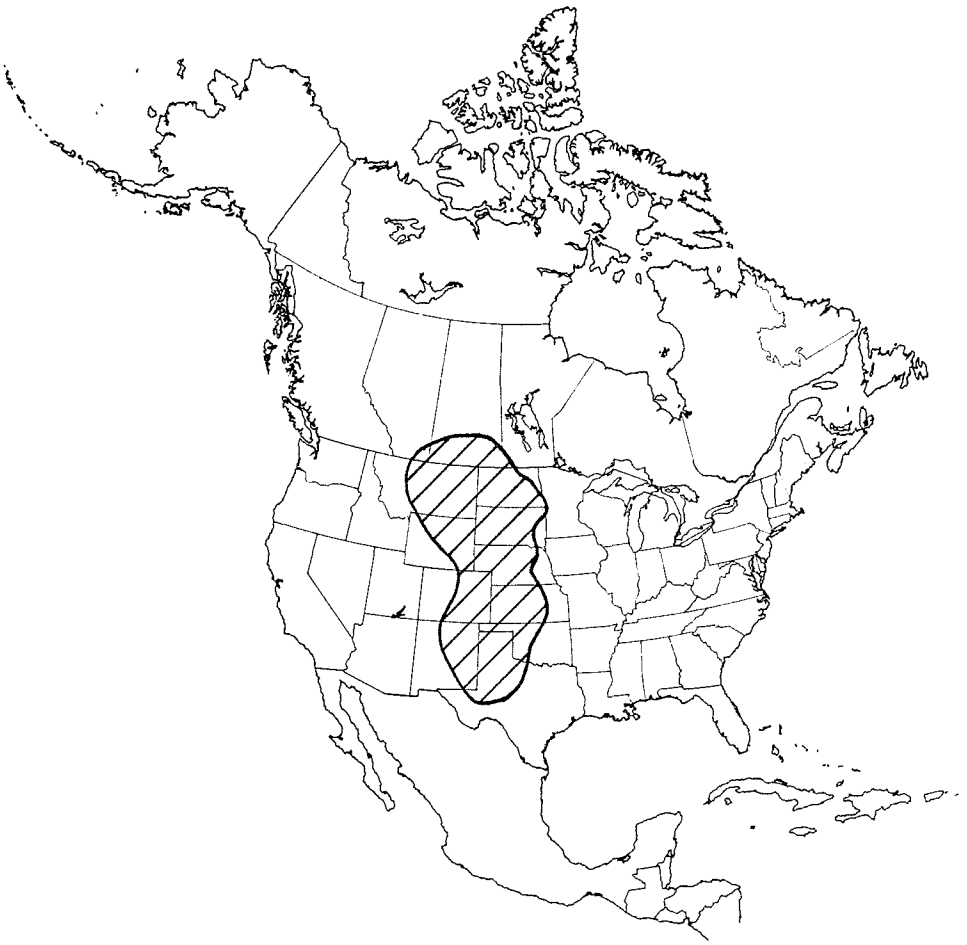
SELECTED REFERENCES:

Moyer, L. R. 1899. Extensions of plant ranges in the Upper Minnesota Valley. Minn. Bot. Stud. 1:191-192.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Mammillaria vivipara (Nutt.) Haw.
(Coryphantha vivipara (Nutt.) Britt. & Br





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Melica nitens* Nutt.

FAMILY: Poaceae

COMMON NAME: Three-flowered Melic

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This is a southern and eastern grass species that reaches the northern limit of its range in Minnesota. Within the state it is apparently restricted to the Root River Valley in Fillmore and Houston Counties where it has been reported a total of only four times. The only populations currently known to be extant occur in remnant habitats on a railroad right-of-way. This right-of-way has recently been sold by the railroad company and the future of the populations of *Melica nitens* is uncertain.

PREFERRED HABITAT IN MINNESOTA: This species occurs in dry sandy soil in open woods and prairies.

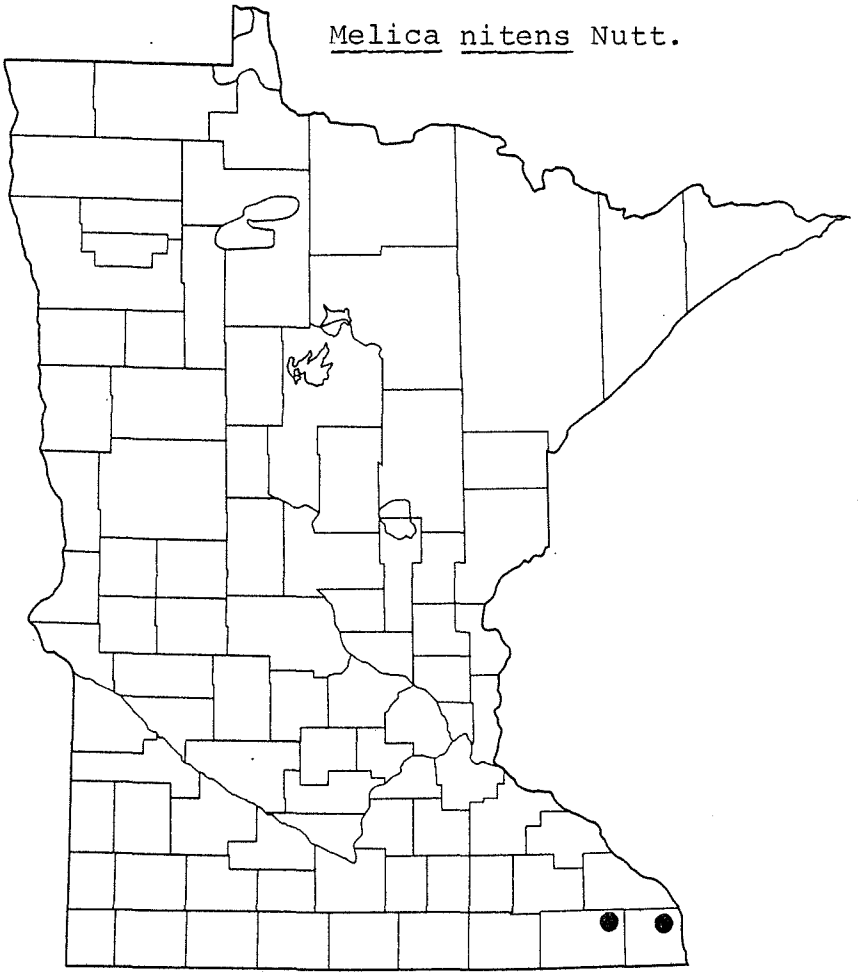
RECOMMENDATIONS: Undiscovered populations may occur along the Root River Trail or on public forest land in the Root River Valley. Future searches should concentrate in those areas.

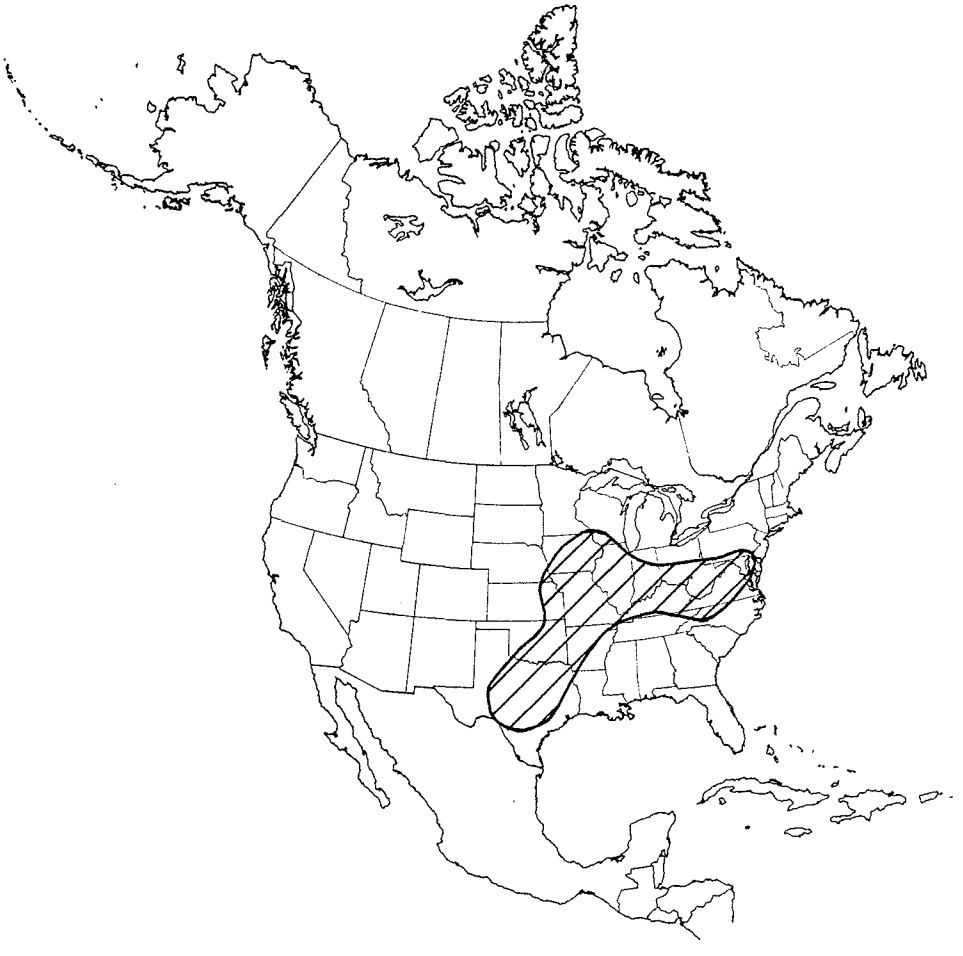
SELECTED REFERENCES:

Rosendahl, C. O. and J. W. Moore. 1947. A new variety of *Sedum rosea* from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Melica nitens Nutt.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Montia chamissoi (Ledeb.) Durand & Jackson

FAMILY: Portulacaceae

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species is a relict of Minnesota's pleistocene flora and is believed to have survived the most recent glacial advances in the unglaciated region of southeastern Minnesota. The population at Queen's Bluff (Winona County) is the only population known to be extant in the midwest. It is disjunct from the main range of the species in the Rocky Mountains by at least 800 miles. It was discovered in 1889 and appears to have retained its vigor in spite of a nearly disasterous storm in 1899 which left a foot of alluvium on the colony. This site has been acquired as a state Scientific and Natural Area and management will be directed towards the perpetuation of the population.

PREFERRED HABITAT IN MINNESOTA: This species occurs in seepage areas on wet sandstone ledges.

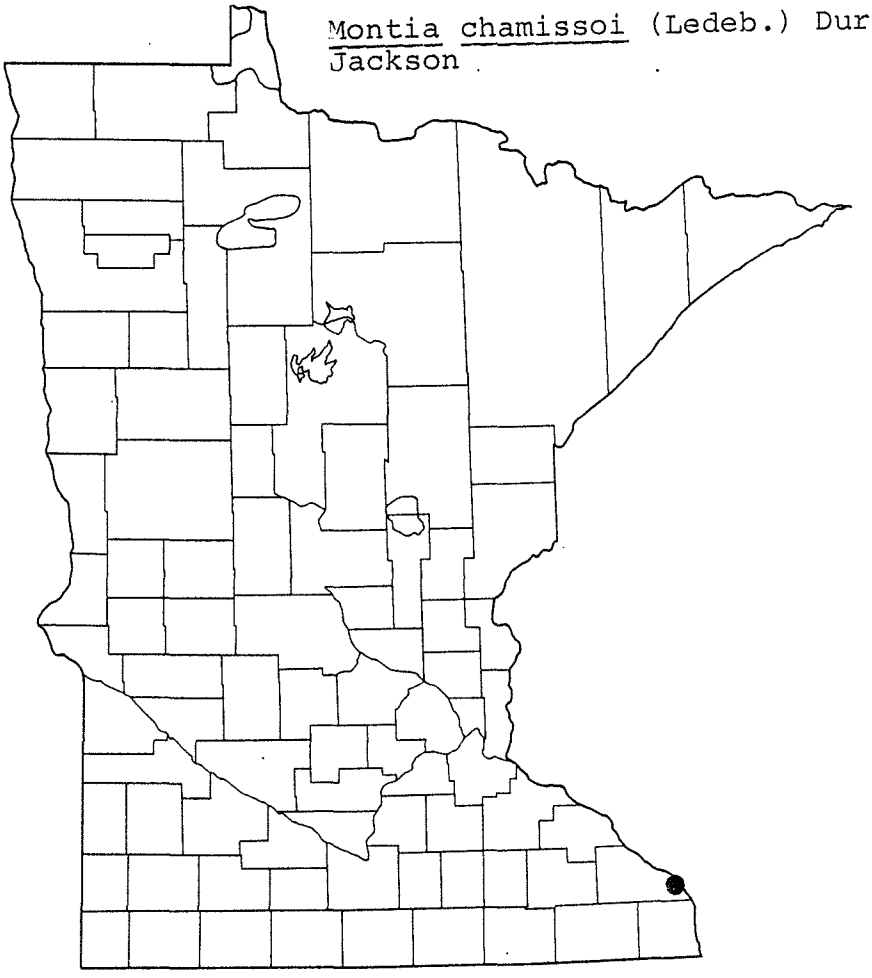
RECOMMENDATIONS: This population should be closely monitored to determine the biological nature of the population and its management needs.

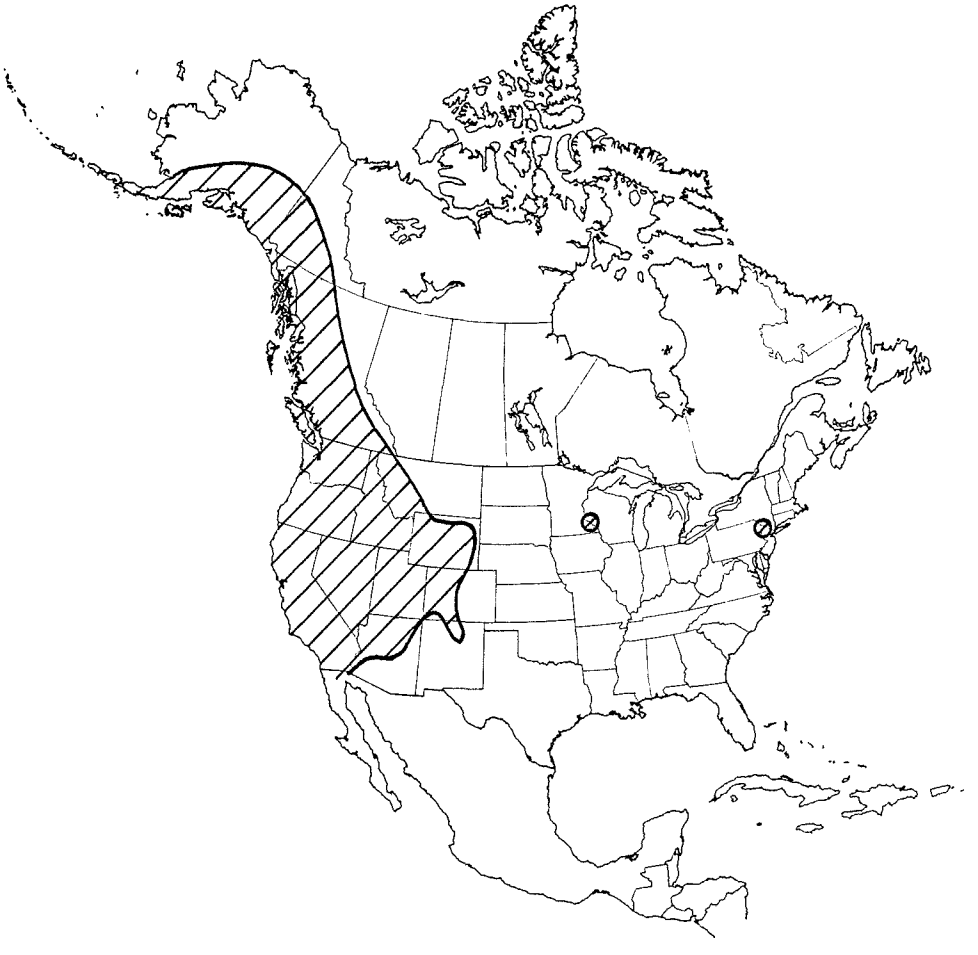
SELECTED REFERENCES:

Holzinger, J. M. 1901. The duration of Claytonia chamissoi Ledeb. Plant World 4:41-43.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Montia chamissoi (Ledeb.) Durand & Jackson





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Napaea dioica* L.

FAMILY: Malvaceae

COMMON NAME: Glade Mallow

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species belongs to a monotypic genus that is endemic to the Midwest. It survives today mostly in remnant habitats and is threatened over much of its range. There are five records from Minnesota, but only two are from this century. The only population known to be extant is currently threatened by cattle grazing.

PREFERRED HABITAT: This species may have once occurred in prairies and meadows in southeastern Minnesota, but it now seems confined to protected areas on stream banks.

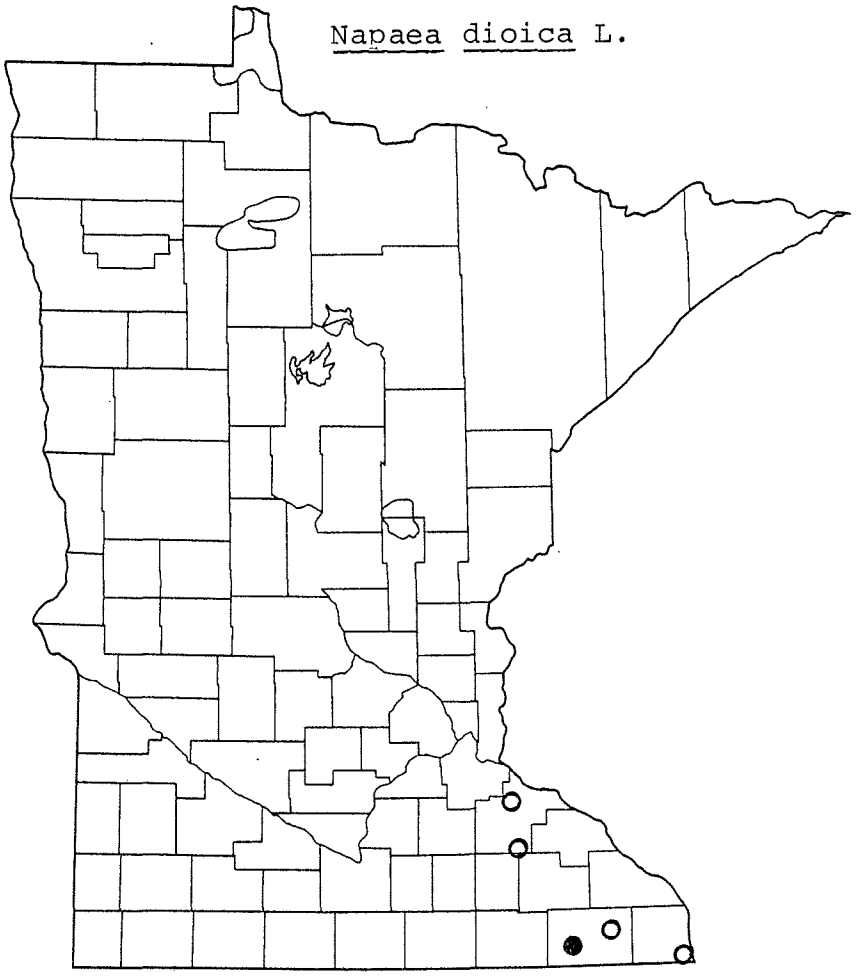
RECOMMENDATIONS: The stronghold of this species in Minnesota (if one exists) may be in the Root River Valley in Fillmore and Houston Counties. Future searches for this species should concentrate in that area.

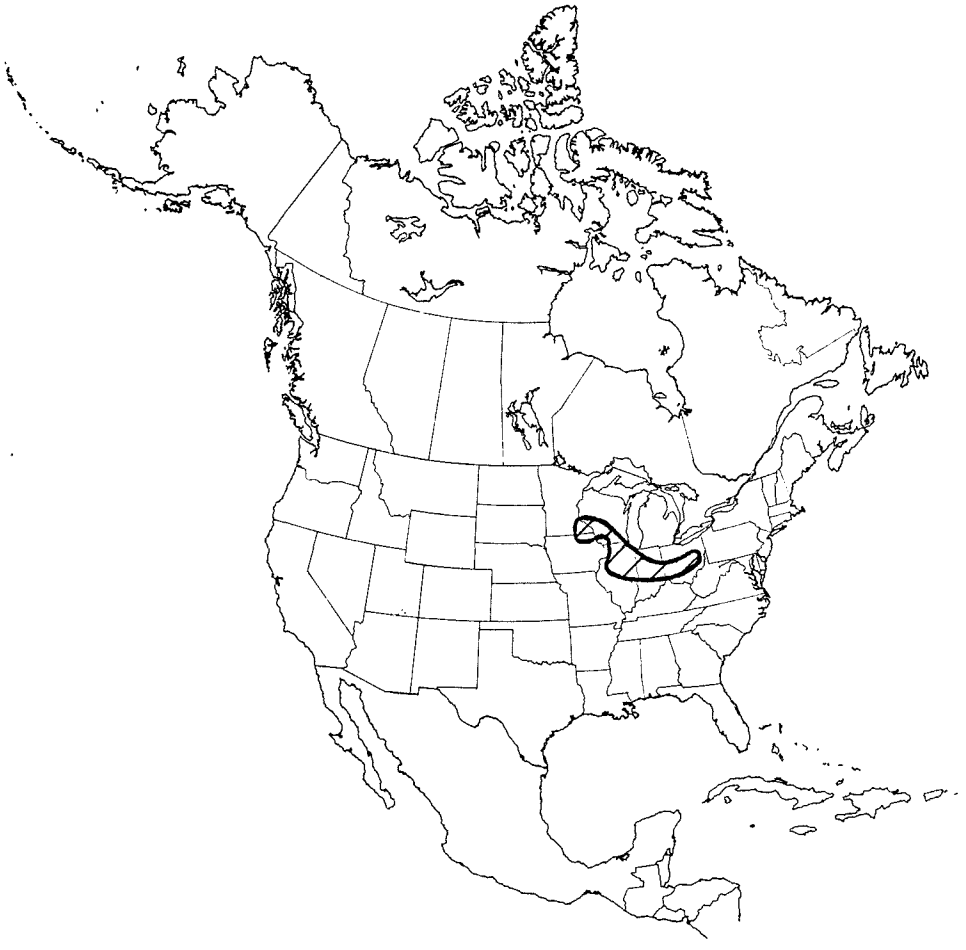
SELECTED REFERENCES:

Mickelson, C. J. and H. H. Iltis. 1966. Preliminary reports on the flora of Wisconsin No. 55. Compositae IV. Wisc. Acad. Sci. Arts and Letters 55:187-222.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Napaea dioica L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Nymphaea tetragona* Georgi

FAMILY: Nymphaeceae

COMMON NAME: Four-angled Water-lily

STATE STATUS: Threatened

FEDERAL STATUS: None

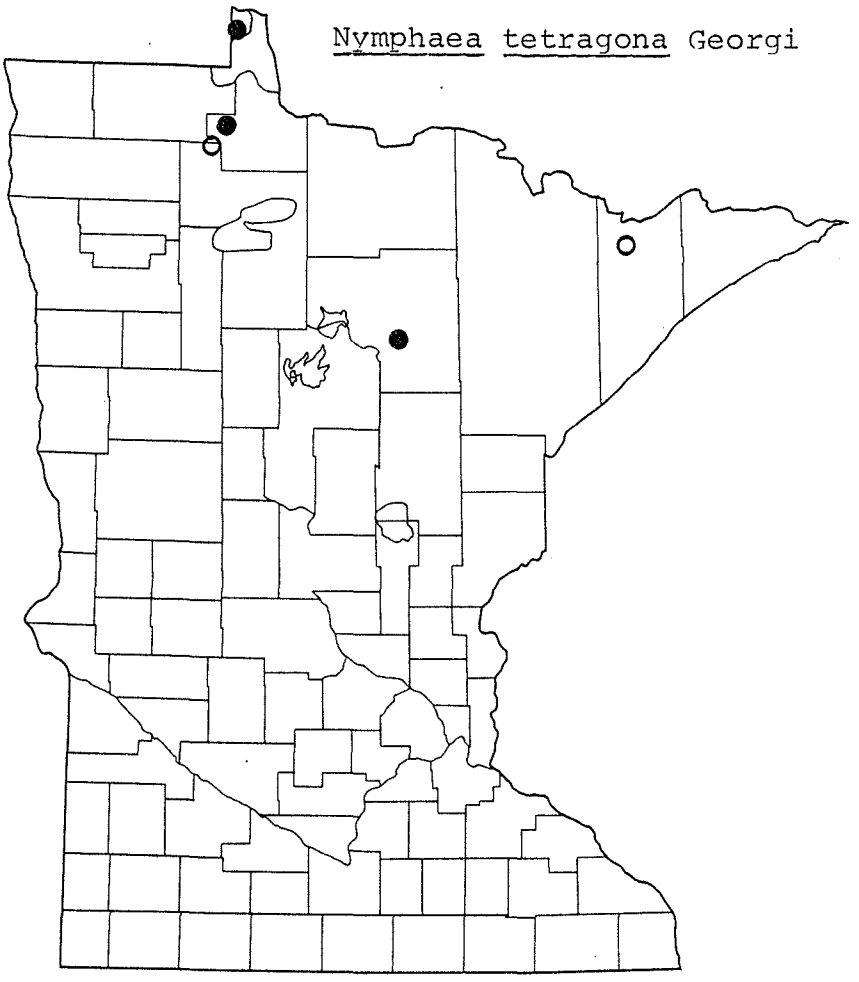
BASIS FOR MINNESOTA STATUS: This is a northern species that reaches the southern limit of its range in Minnesota, and is generally rare or local throughout its range. All of the populations currently known to be extant in Minnesota are small, and they may have difficulty persisting. The site in Itasca County was recently transferred from federal to state ownership and will soon be designated Botany Bog Scientific and Natural Area. The specimen from Lake County was collected in Bald Eagle Lake in 1914 and its current status is unknown. Activities such as peat mining and logging pose potential threats to the habitat of this species.

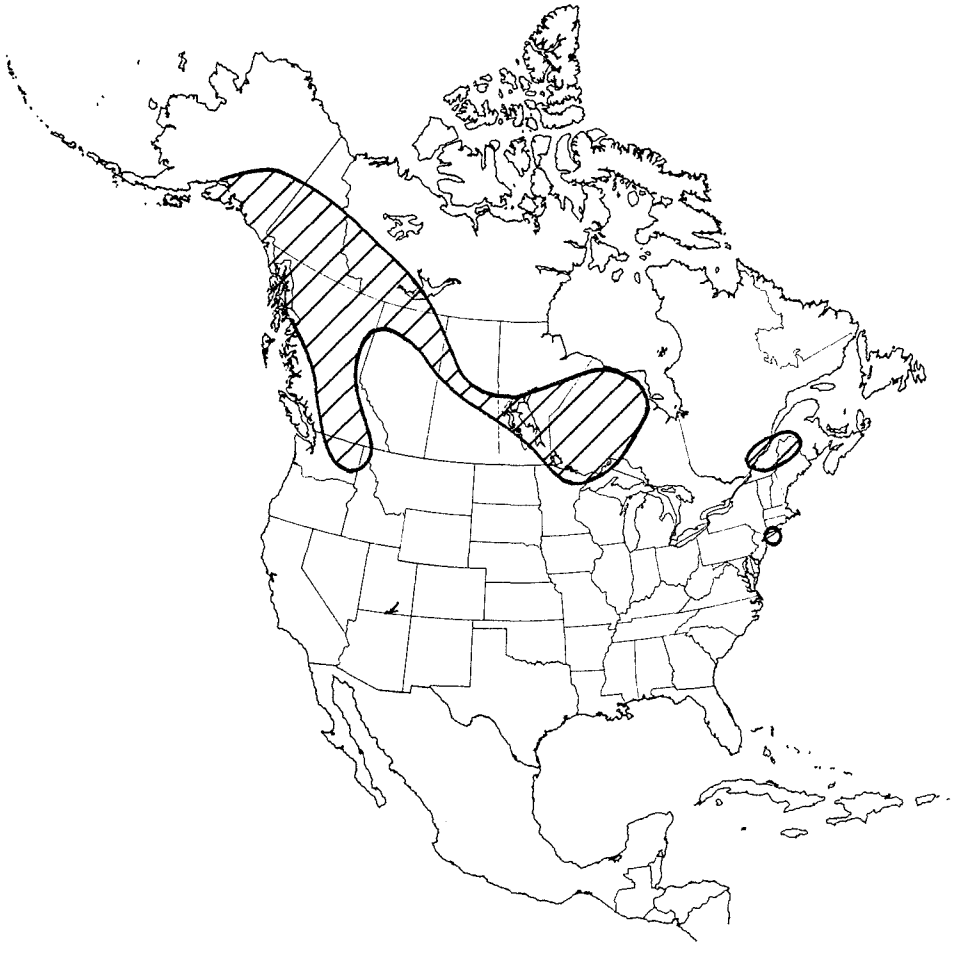
PREFERRED HABITAT IN MINNESOTA: This species occurs in shallow lakes, bogs, pools and slow moving streams. The population at Botany Bog occurs in a bog pool with an unusual assemblage of rare species that include: *Utricularia gibba*, *Xyris montana* and *Eleocharis olivacea*.

RECOMMENDATIONS: No recommendations can be made at this time.

PREPARED BY: Welby smith, Botanist, Natural Heritage Program

Nymphaea tetragona Georgi





SPECIES STATUS SHEET

SCIENTIFIC NAME: Oryzopsis hymenoides (R. & S.) Ricker

FAMILY: Poaceae

COMMON NAME: Indian Ricegrass

STATE STATUS: Endangered

FEDERAL STATUS: None

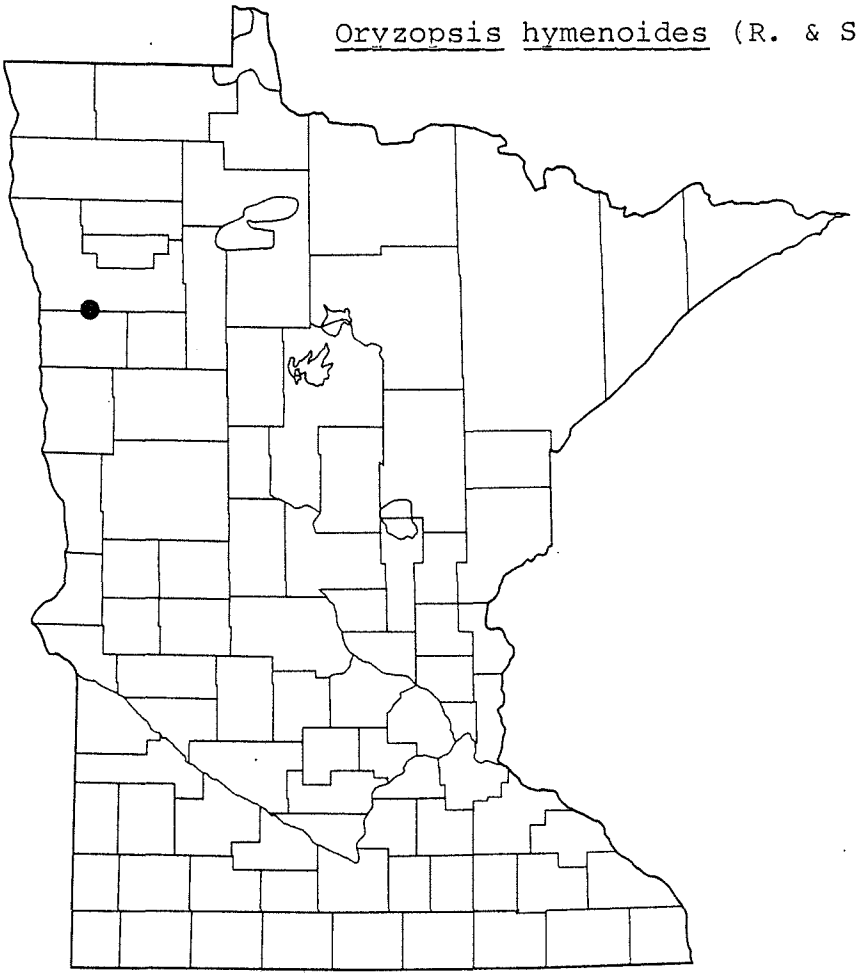
BASIS FOR MINNESOTA STATUS: The single population of this species in Minnesota is disjunct 200 miles from the eastern edge of its range in the Great Plains. It was first discovered in 1947 and has been recollected as recently as 1980. The site has been designated as Agassiz Dunes Scientific and Natural Area and is currently protected from agricultural activity and other human disturbances.

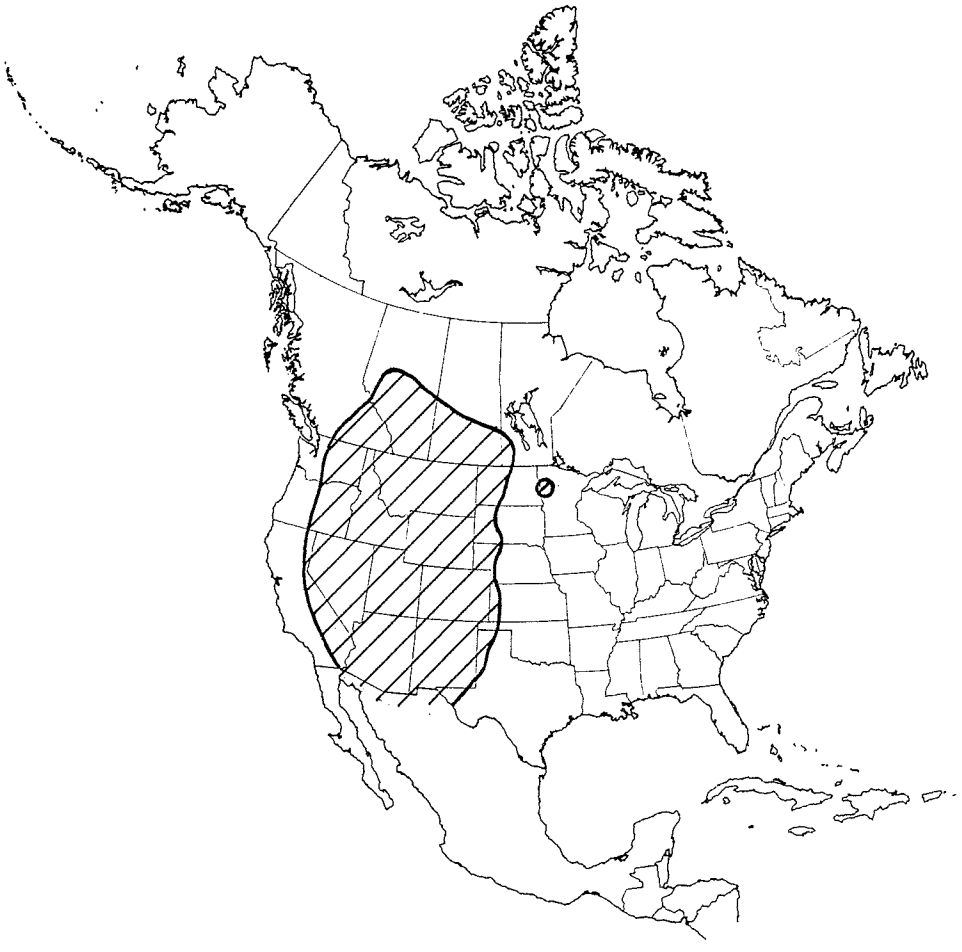
PREFERRED HABITAT IN MINNESOTA: This species occurs in active blow-outs in sand dunes.

RECOMMENDATIONS: More information is needed on the ecological relationship between this species and its required habitat. Such information would help direct management towards the perpetuation of the population.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Oryzopsis hymenoides (R. & S.) Ricker





SPECIES STATUS SHEET

SCIENTIFIC NAME: Osmorhiza chilensis H. & A.

FAMILY: Apiaceae

COMMON NAME: Chilean Sweet Cicely

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota near Hovland (Cook County) by J. C. Jones in 1870. It was not seen again until 1978 when it was relocated at the original site. It has a very limited distribution in the Great Lakes region and although an intensive search might discover additional populations in Minnesota, they would necessarily be limied to a few remnant old-growth hardwood stands in Cook County. These hardwood forests are being selectively eliminated and replaced with conifer plantations. The major portion of the forest near Hovland recently suffered this fate.

PREFERRED HABITAT IN MINNESOTA: This species occurs in northern hardwood forests dominated by sugar maple. These isolated forests occur on a narrow ridge that parallels the north shore of Lake Superior from Duluth to the Candian border.

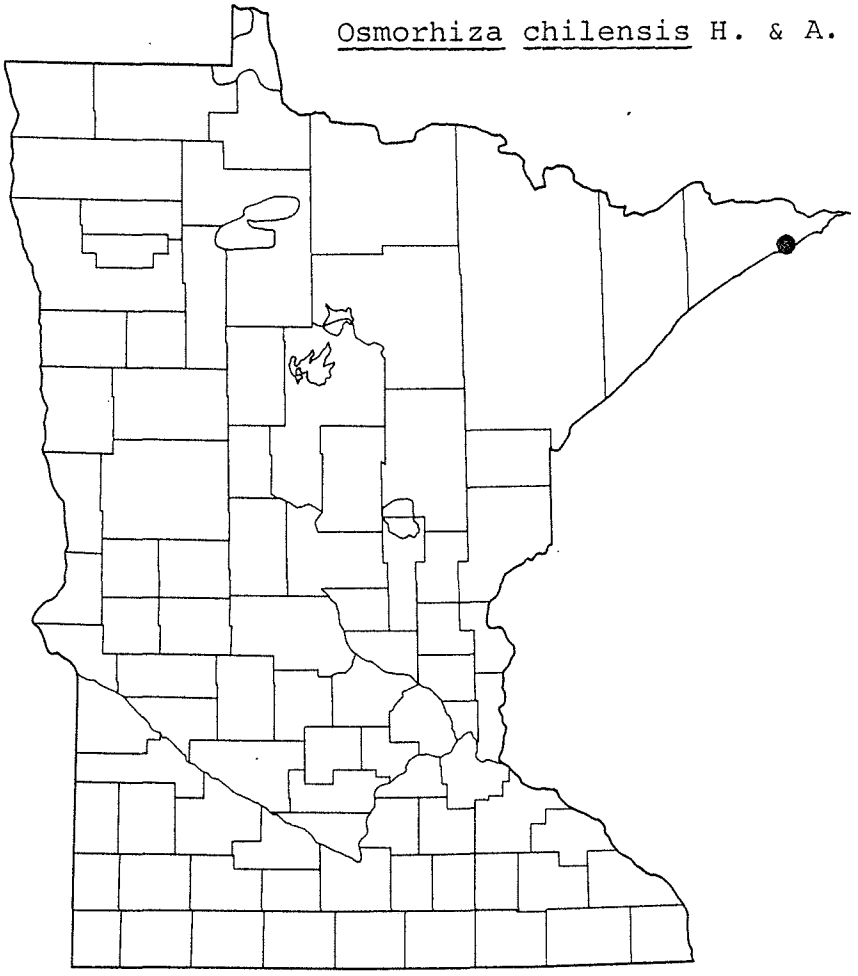
RECOMMENDATIONS: Survival of this species in Minnesota may depend on the preservation of the few remaining old-growth hardwood forests in Cook County.

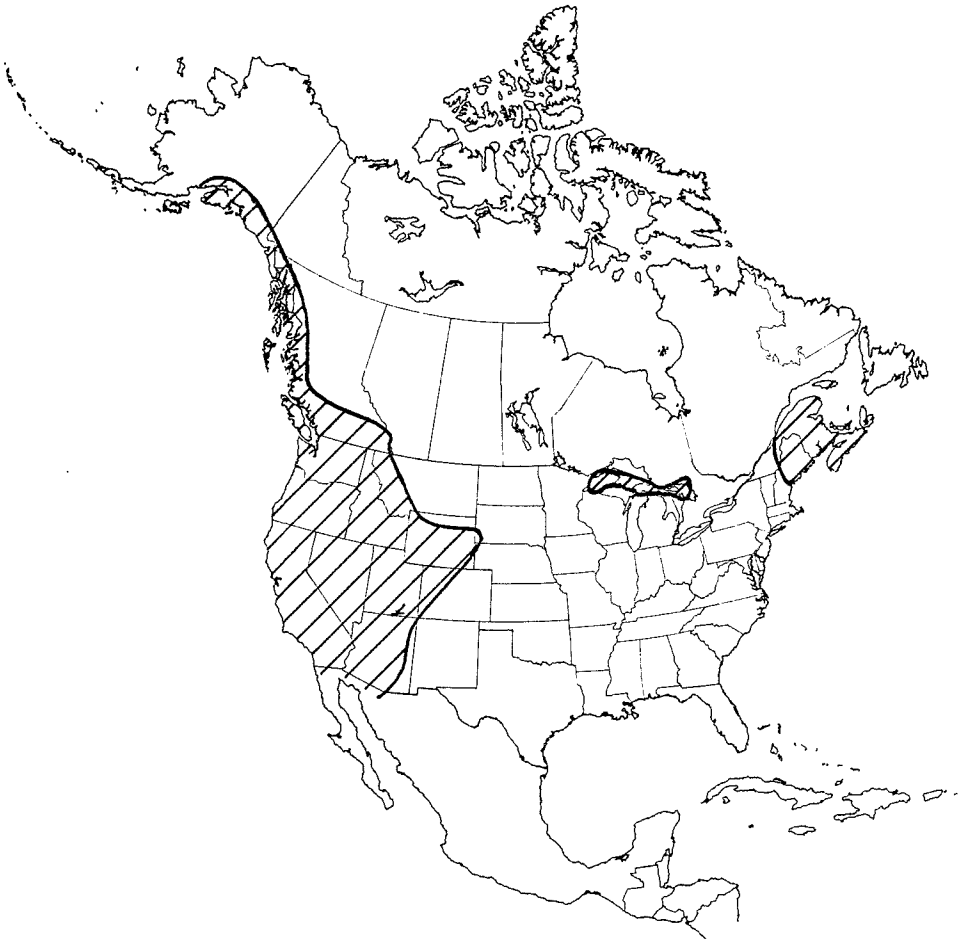
SELECTED REFERENCES:

Marquis, R. J. and E. G. Voss. 1981. Distributions of some western North American plants disjunct in the Great Lakes region. Mich. Bot. 20(2):53-82.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Osmorhiza chilensis H. & A.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Parthenium integrifolium* L.

FAMILY: Asteraceae

COMMON NAME: Wild Quinine

STATE STATUS: Endangered

FEDERAL STATUS: None

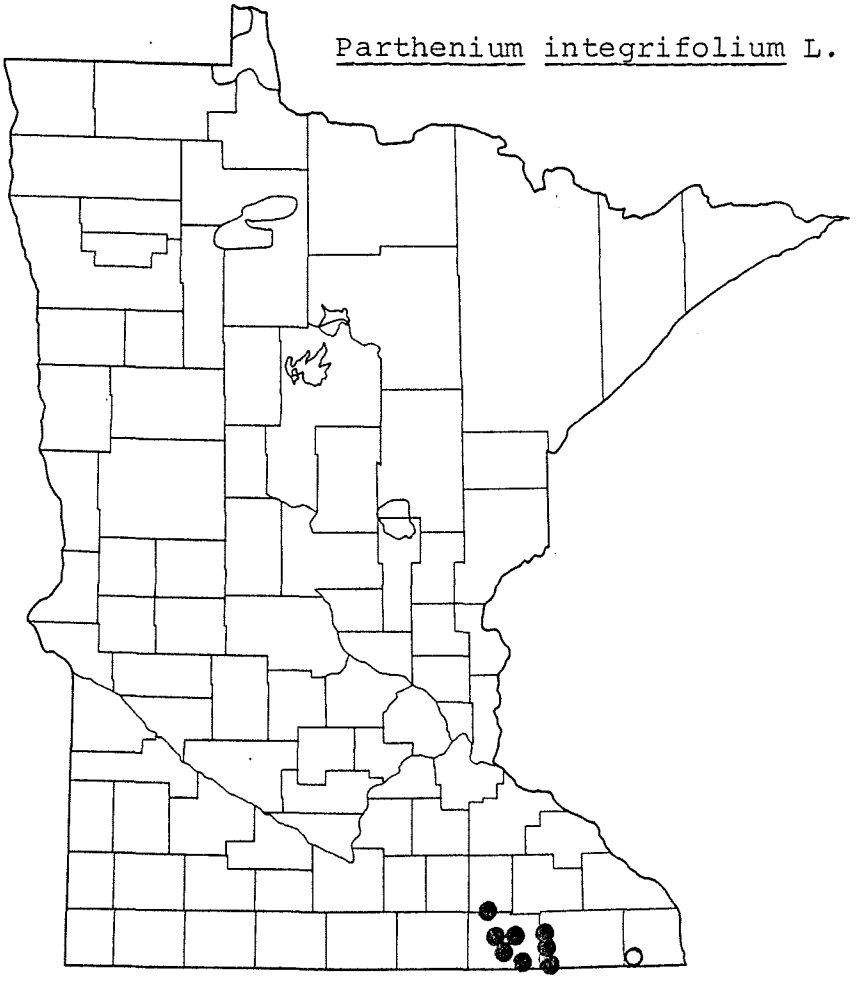
BASIS FOR MINNESOTA STATUS: Like so many of the mesic prairie species, *Parthenium* suffered a drastic decline in population when the prairies were converted to crop production. The only significant populations which survive today occur on remnant prairie strips along railroad right-of-ways. These right-of-ways are rapidly being abandoned by the railroad companies and sold to adjacent landowners who invariably incorporate the prairie into farms and convert them to agricultural uses. The only population currently protected is on Wild Indigo Scientific and Natural Area.

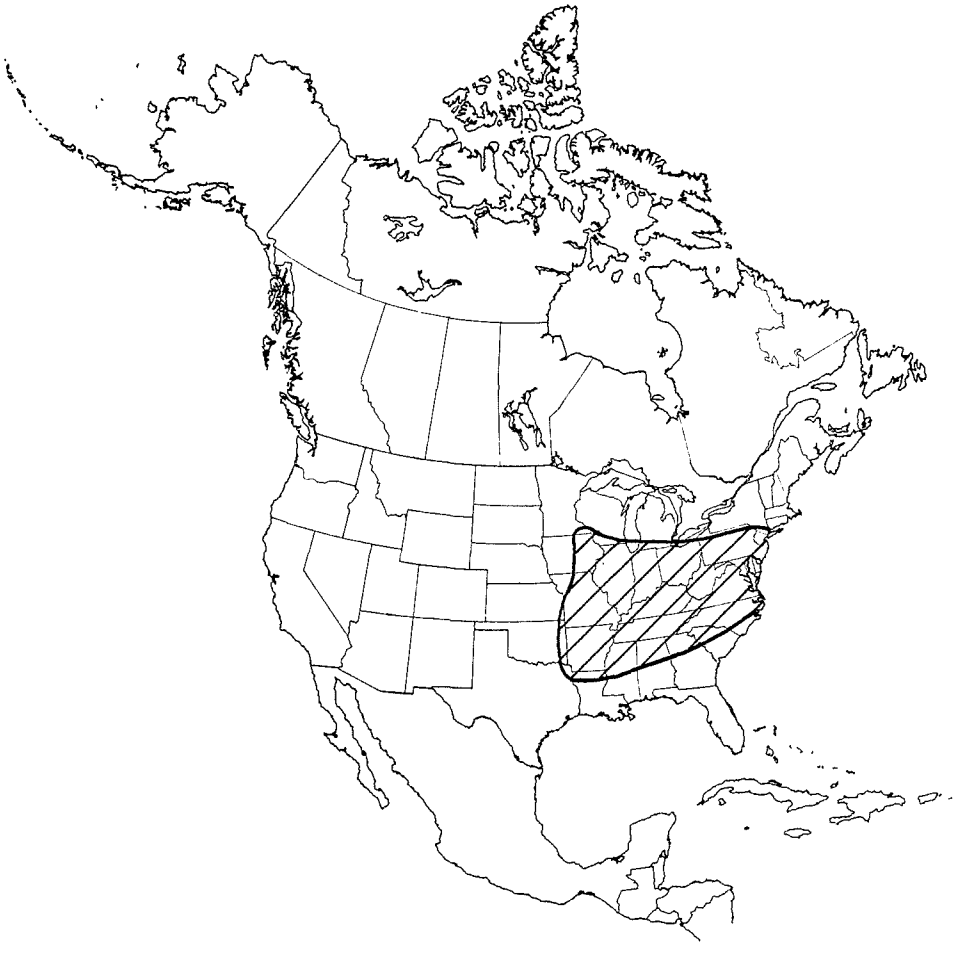
PREFERRED HABITAT IN MINNESOTA: This species occurs in tall grass prairies. Often occurring with other rare prairie species such as: *Asclepias sullivantii*, *Cacalia tuberosa* and *Valeriana edulis*.

RECOMMENDATIONS: The only way to preserve this species in its native habitat in Minnesota may be to acquire remnant prairies occurring on railroad right-of-ways and manage them for the perpetuation of the native plant community.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Parthenium integrifolium L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Pellaea atropurpurea (L.) Link

FAMILY: Polypodiaceae

COMMON NAME: Purple Cliff-brake

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The regional populations of this fern are largely limited to the "Driftless Area". In Minnesota, it is apparently further restricted to the steep bluffs bordering the Mississippi River. The reason for its rarity is unknown, and the closely related Smooth Cliff-brake (Pellaea glabella) is common in essentially the same habitat.

PREFERRED HABITAT IN MINNESOTA: This species occurs on dry sandstone and dolomite ledges. It may occur with another rare fern, Cheilanthes feei.

RECOMMENDATIONS: No recommendations can be made at this time.

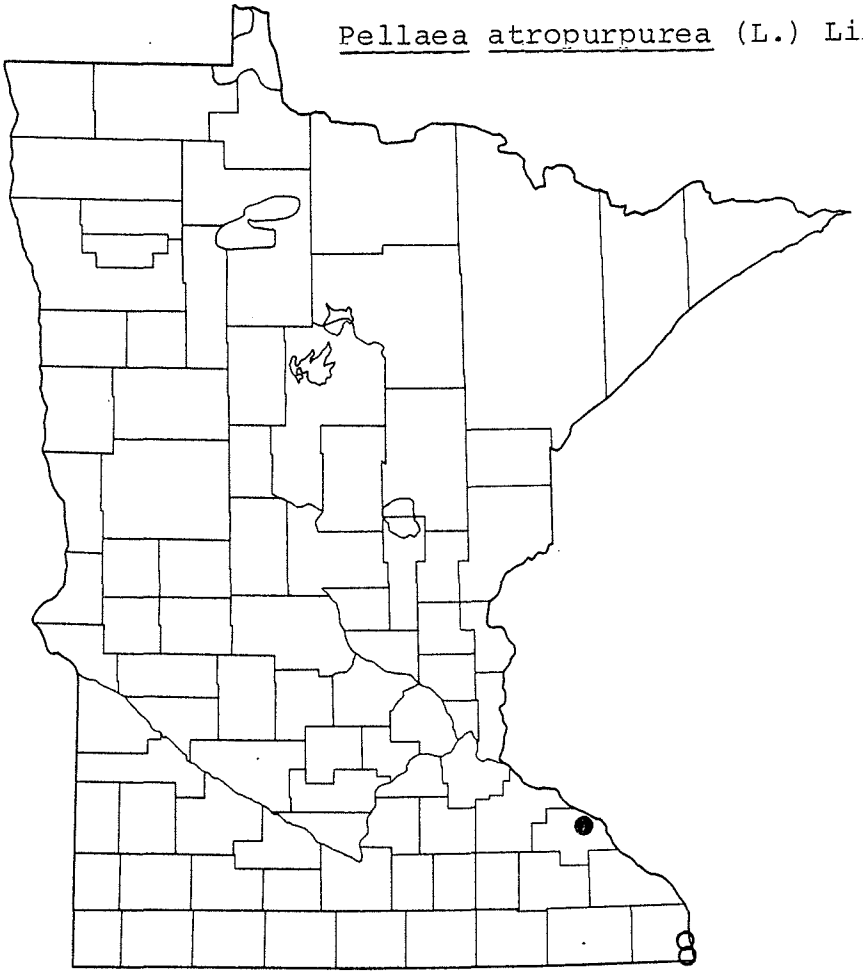
SELECTED REFERENCES:

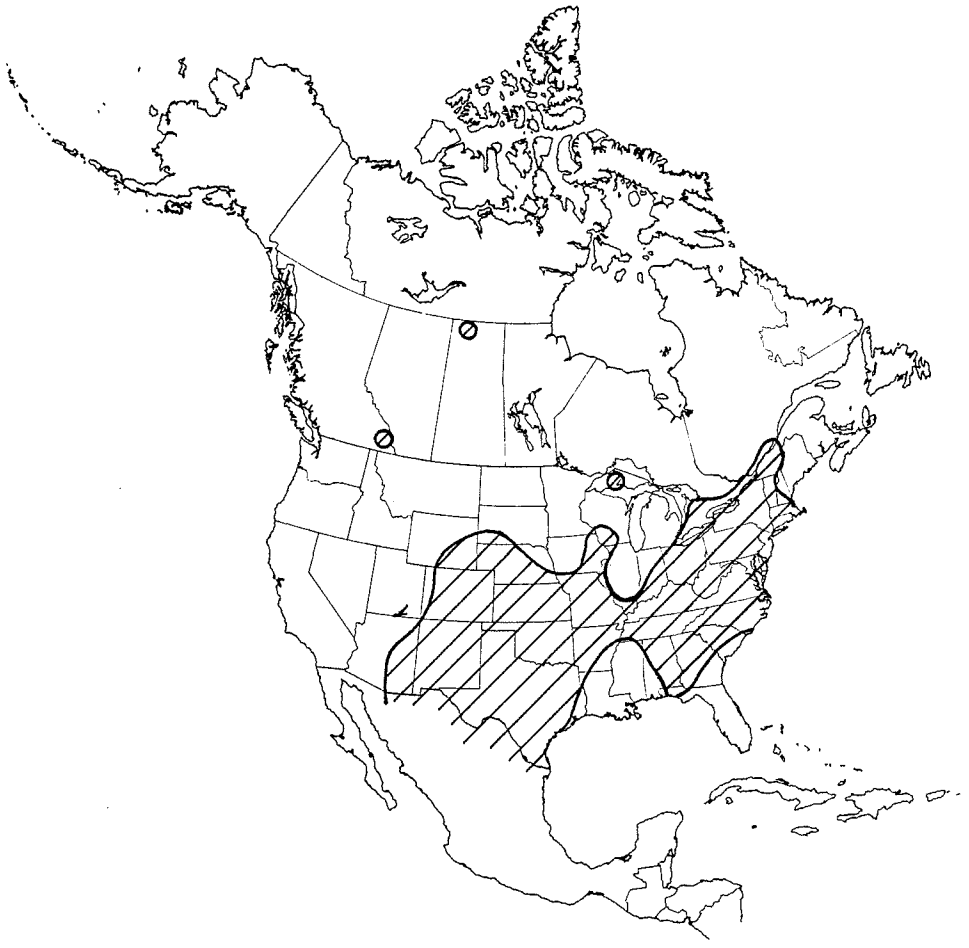
Rosendahl, C.O. and J.W. Moore. 1947. A new variety of Sedum rosea from southeastern Minnesota and additional notes on flora of the region. Rhodora 49:197-202.

Tryon, A.F. 1957. A revision of the fern genus Pellaea section pellaea. Ann Mo. Bot. Gard. 44(2):125-193.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Pellaea atropurpurea (L.) Link





SPECIES STATUS SHEET

SCIENTIFIC NAME: Plantago elongata Pursh

FAMILY: Plantaginaceae

COMMON NAME: a species of Plantain

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This western species reaches the eastern edge of its range in Minnesota, and appears to have very specific habitat requirements. Of the three collection sites, only one is known to be extant. It contains less than 15 individuals and its existence may be tenuous even though its habitat appears to be secure. Recent searches have failed to locate plants at the other two sites.

PREFERRED HABITAT IN MINNESOTA: This species occurs in moist seepage areas on quartzite outcrops and margins of shallow depression pools. It can be expected to occur with other rare species of this habitat such as: Isoetes melanopoda, Heteranthera limosa and Cyperus acuminatus.

RECOMMENDATIONS: The single extant population should be monitored closely to determine its response to current management activities.

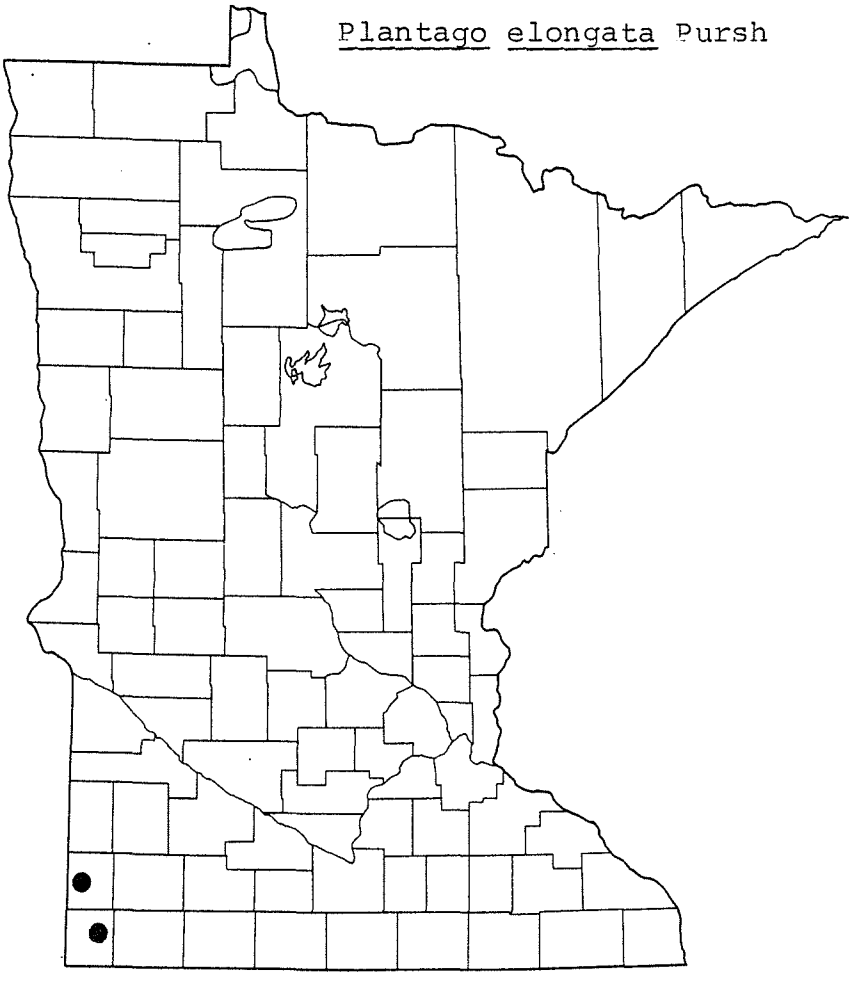
SELECTED REFERENCES:

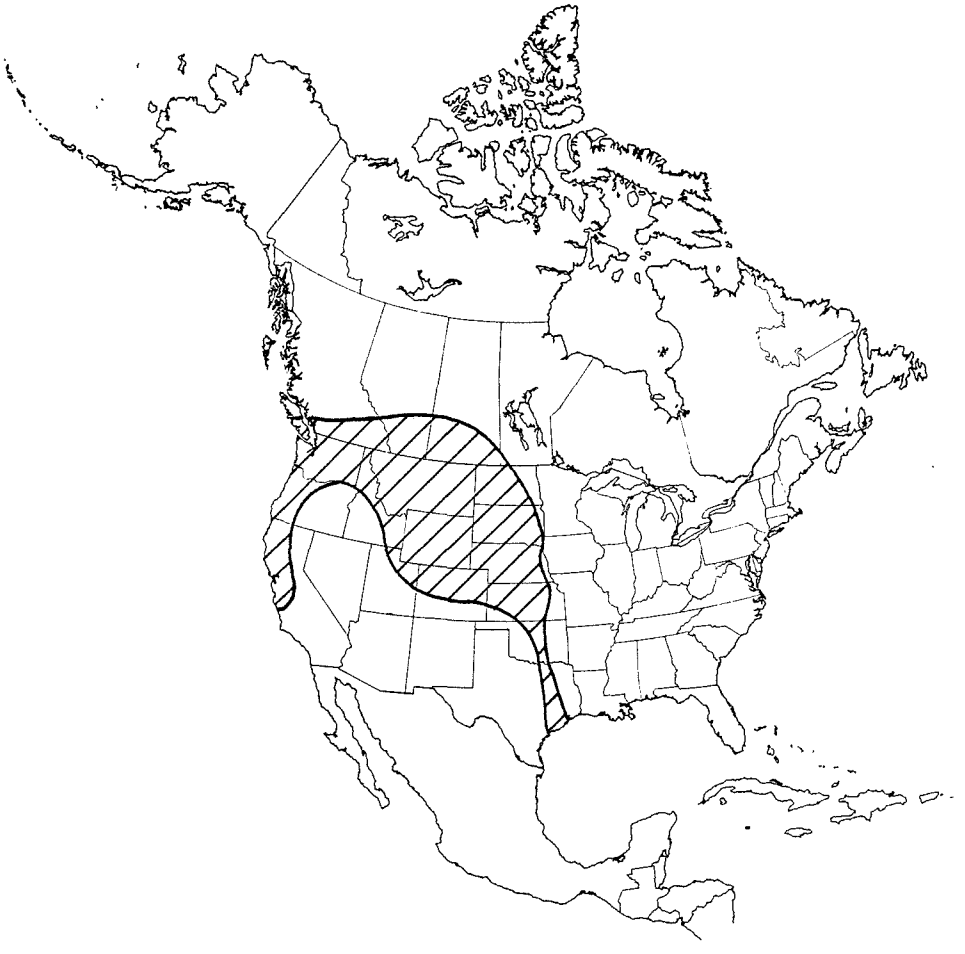
Bassett, I. J. 1966. Taxonomy of North American Plantago L., section micropsyllium Decne. Can. J. Bot. 44(4):467-479.

Moore, J. W. 1954. A Provisional List of the Flowering Plants, Ferns, and Fern Allies of Pipestone County, Minnesota. Department of Botany, University of Minnesota, Minneapolis.

PREPARED BY: Welby smith, Botanist, Natural Heritage Program

Plantago elongata Pursh





SPECIES STATUS SHEET

SCIENTIFIC NAME: Platanthera flava (L.) Spreng.
var. herbiola (R. Br.) Ames & Correll

FAMILY: Orchidaceae

COMMON NAME: Tubercled Rein-orchid

STATE STATUS: Endangered

FEDERAL STATUS: Previously considered by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, eancted December 28, 1973; amended 1978. Federal Register 40(127):27859, July 1, 1975). Not currently being considered for listing because it has proven to be more abundant than previously believed (Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: In spite of intensive field searches, this species has been collected only once in Minnesota since 1909. This lack of recent collections may indicate a precipitous decline in populations. This decline is likely the result of habitat loss associated with the expanding residential and commercial activities in east-central Minnesota. The single extant population was discovered in 1982 and consists of about 60 plants. It is currently threatened by herbicide application, vandalism and land conversion.

PREFERRED HABITAT IN MINNESOTA: Because of the lack of current data, it is difficult to characterize the preferred habitat of this species. It appears to prefer wet acidic habitats, probably prairies and meadows. It may also be associated with sandy substrates.

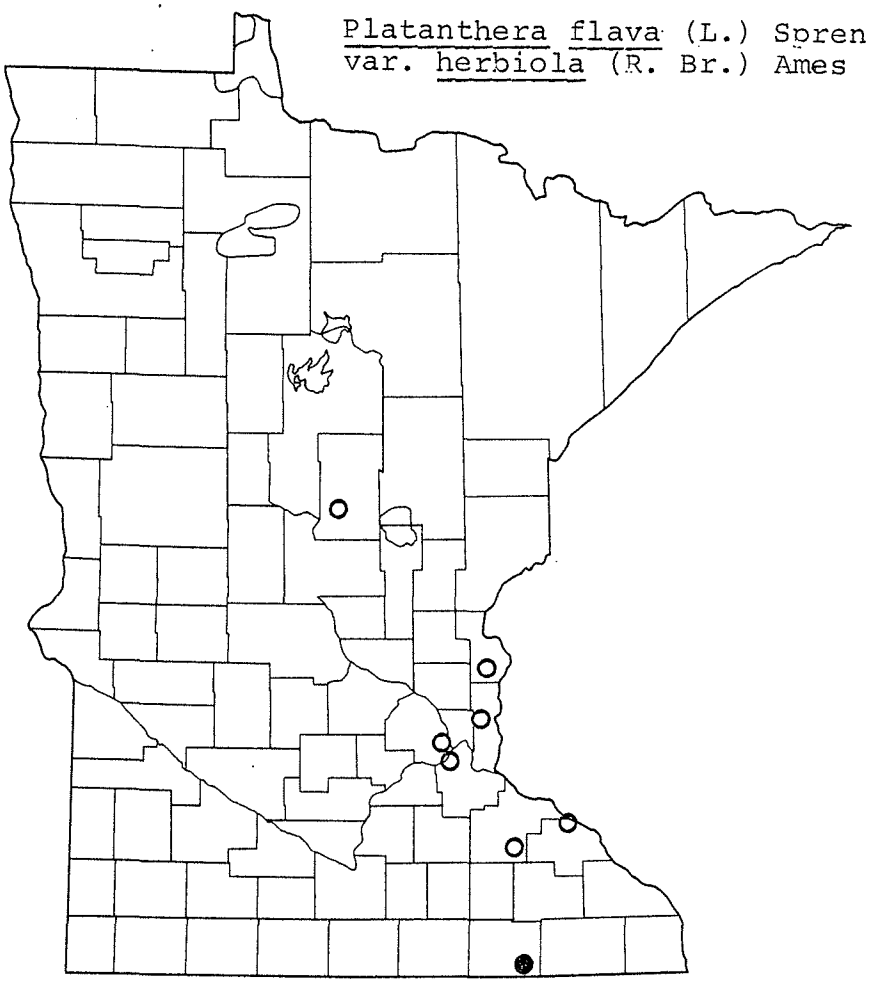
RECOMMENDATIONS: Continued field search is needed to determine the presence and extent of any surviving populations.

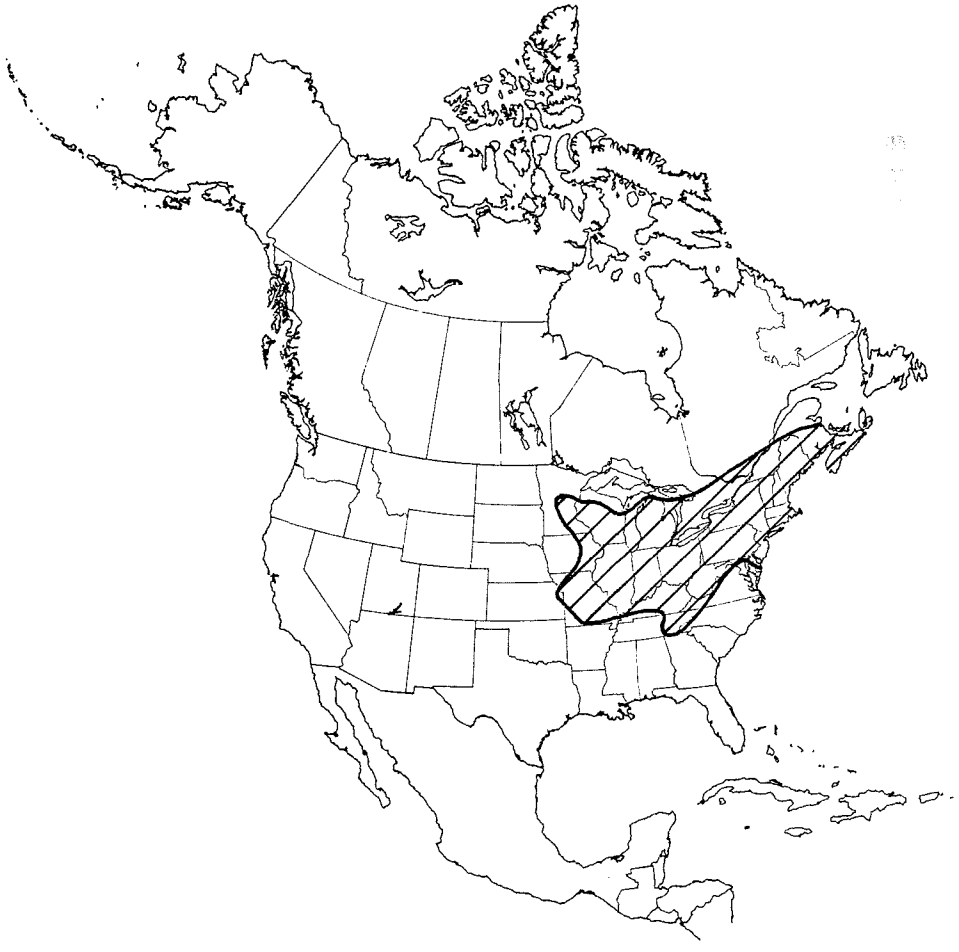
SELECTED REFERENCES:

Luer, C. A. 1975. The Native Orchids of the United States and Canada Excluding Florida. The New York Botanical Garden, New York.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Platanthera flava (L.) Spreng.
var. herbiola (R. Br.) Ames & Correll





SPECIES STATUS SHEET

SCIENTIFIC NAME: Platanthera leucophaea (Nutt.) Lindl.

FAMILY: Orchidaceae

COMMON NAME: Prairie White-fringed Orchid

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public law 93-205, enacted December 28, 1973; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: The range of this species in Minnesota has been greatly reduced in historical times. It once occurred throughout the prairie region of Minnesota, but now survives as a few isolated colonies in remnant habitats. Most of the extant sites in northwestern Minnesota survive in habitats previously unsuitable for agriculture. However, recent advances in agricultural technology and the high demand for tillable land now makes it economical to exploit these marginal lands. The conversion of these native habitats to agricultural uses is expected to proceed at a rapid rate. One of only two colonies known to be extant in southern Minnesota was severely depleted by illegal removal of plants in 1981.

PREFERRED HABITAT IN MINNESOTA: Platanthera leucophaea is quite habitat-specific in Minnesota. It requires low, wet, calcareous prairies. The species has never been collected in swamps, bogs or fens as it has been in the eastern portion of its range.

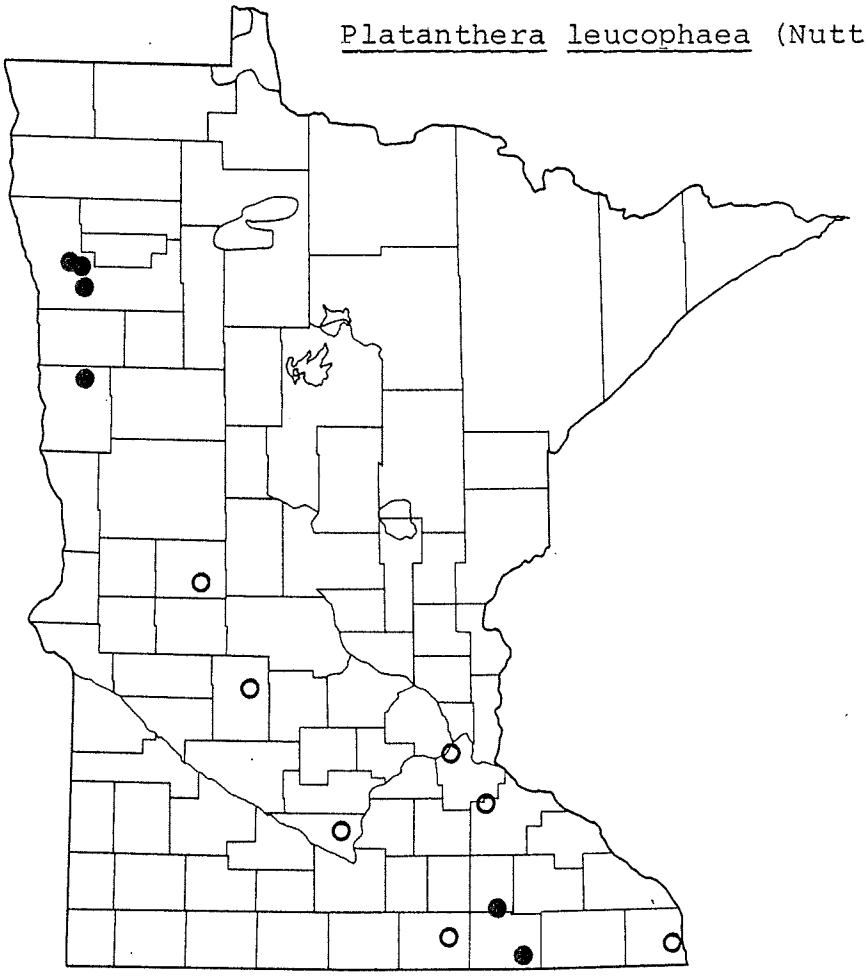
RECOMMENDATIONS: Additional information is needed on the environmental requirements of this species and management needs as they relate to pollinators and prescribed burn.

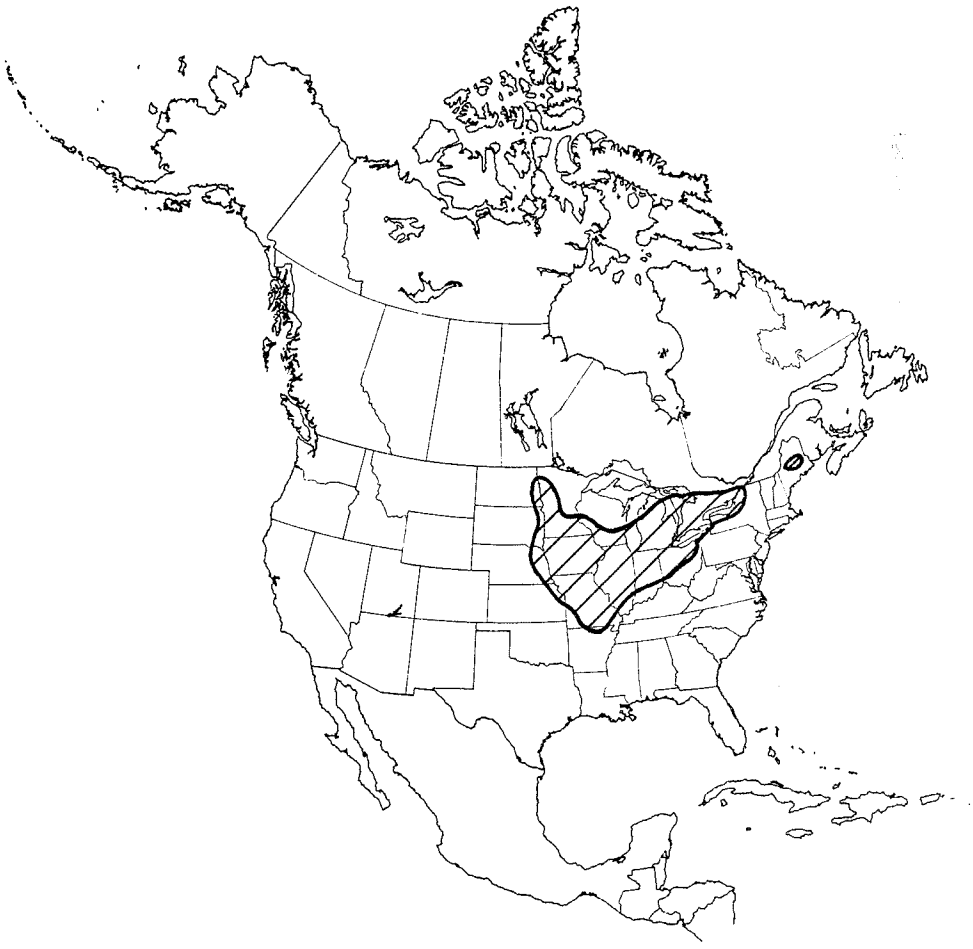
SELECTED REFERENCES:

Luer, C. A. 1975, The Native Orchids of the United States and Canada Excluding Florida. The New York Botanical Garden, New York.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Platanthera leucophaea (Nutt.) Lindl.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Poa paludigena* Fern. & Wieg.

FAMILY: Poaceae

COMMON NAME: Bog Bluegrass

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973; amended 1978. Federal Register 45(242):82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: *Poa paludigena* was discovered in Minnesota in 1980 during the botanical inventory of Kettle River Scientific and Natural Area. The population appears to be well established, but its extent and current status have not been adequately documented. This species appears to be rare or local throughout its range and is dependent on a sensitive habitat.

PREFERRED HABITAT IN MINNESOTA: The only population known in Minnesota occurs at a springhead in a hardwood swamp.

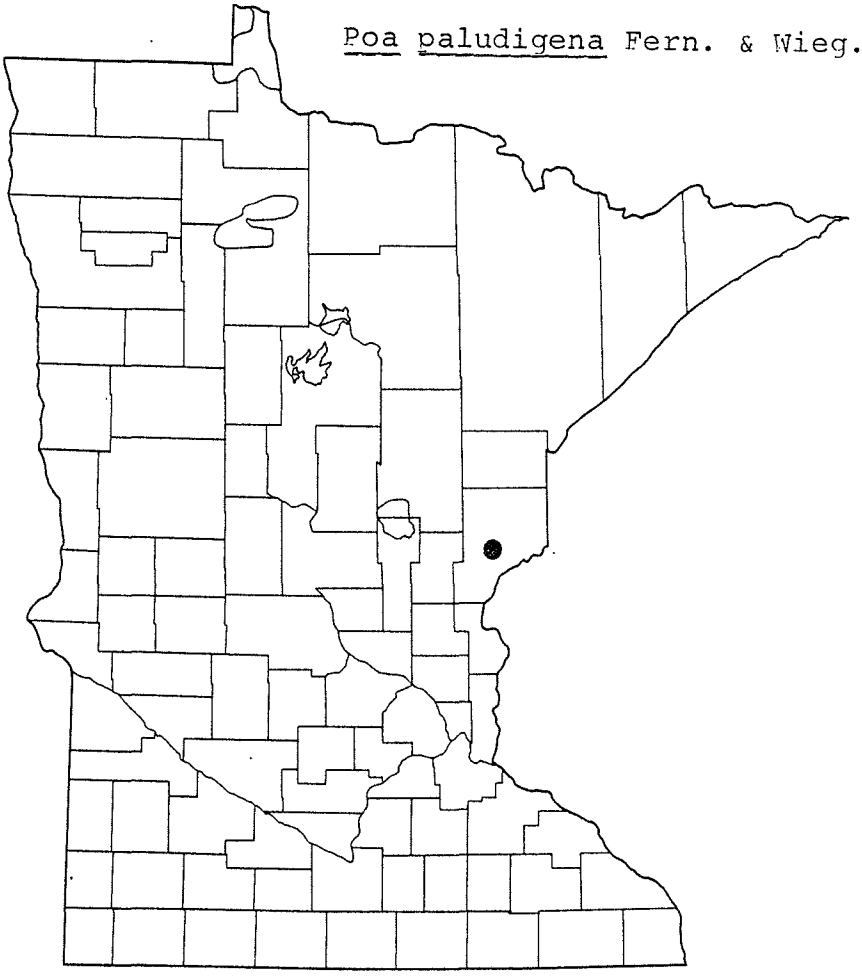
RECOMMENDATIONS: This population should be re-located and its status assessed.

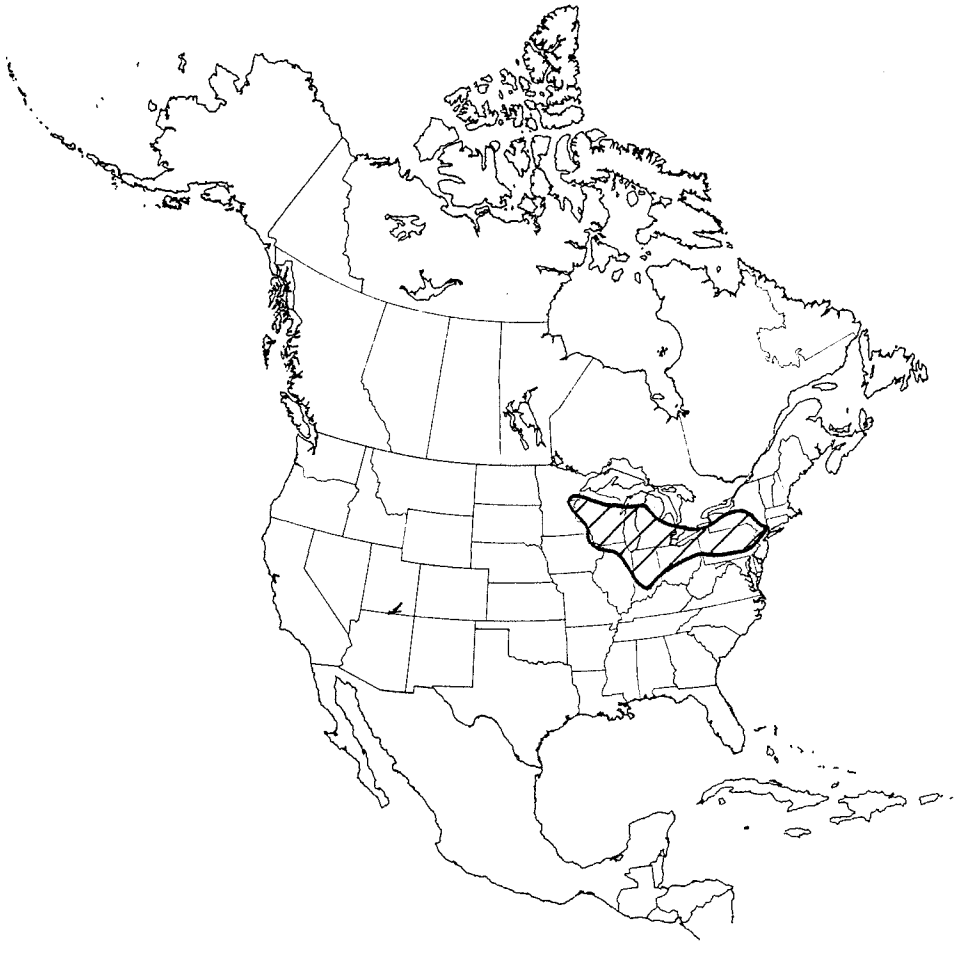
SELECTED REFERENCES:

Fernald, M. L. and K.M. Wiegand. 1918. Some new species and varieties of *Poa* from eastern North America. Rhodora 20:122-127.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Poa paludigena Fern. & Wieg.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Polygala cruciata L.

FAMILY: Polygalaceae

COMMON NAME: Cross Milkwort

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species has not been collected outside Anoka County since 1905, and extant populations may now be restricted to remnant habitats there. The rapid rate of land development in Anoka County threatens all native plant community types and surviving populations of P. cruciata may already be dangerously few. The most recent collection is from Cedar Creek Natural History Area and is dated 1981. This species is very rare where it occurs in adjacent states.

PREFERRED HABITAT IN MINNESOTA: This species occurs in low sandy and peaty meadows where it may occur with other rare species such as Xyris torta, Viola lanceolata and Rotala ramosior.

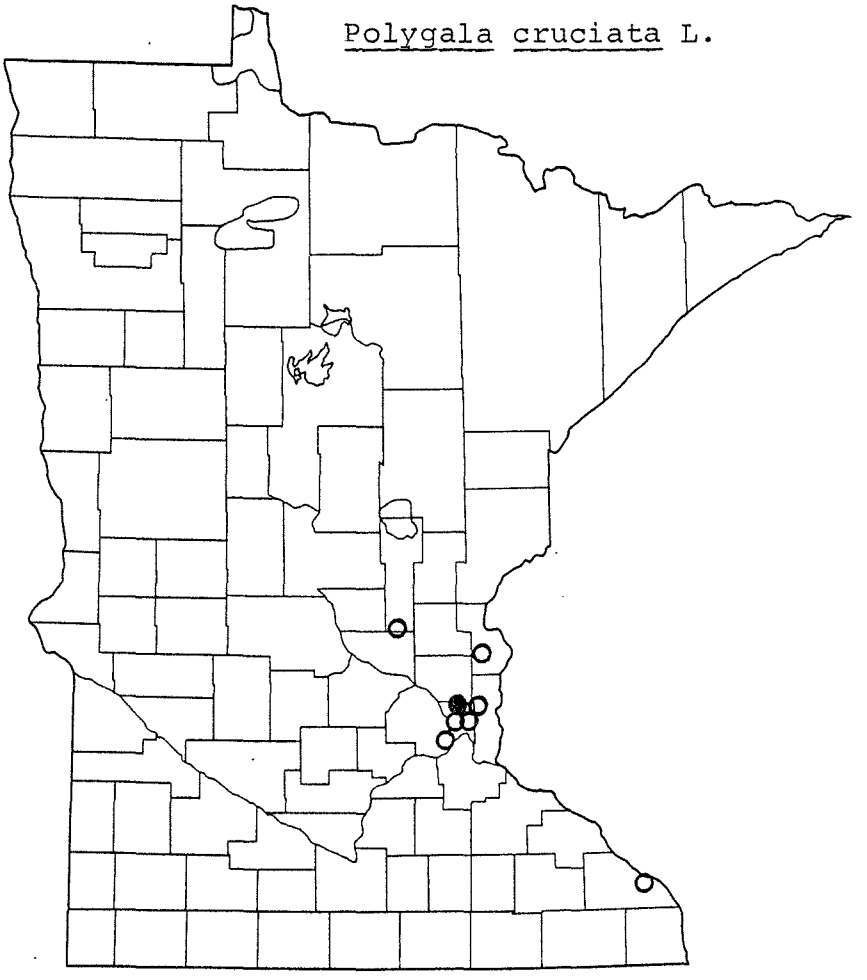
RECOMMENDATIONS: Future searches should include habitats in Carlos Avery Wildlife Management Area, Allison Savanna Scientific and Natural Area and other protected lands in Anoka County.

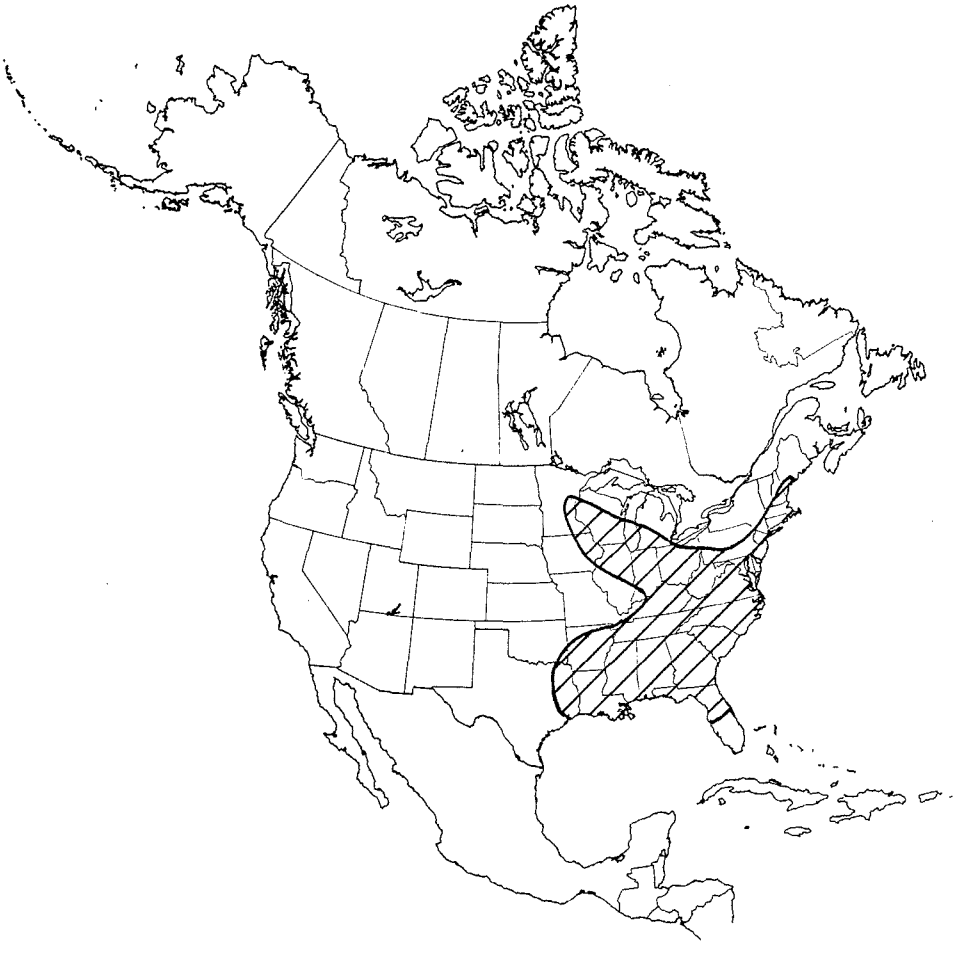
SELECTED REFERENCES:

Moore, J. W. 1973. A Catalog of the Flora of Cedar Creek Natural History Area, Anoka and Isanti Counties, Minnesota. Bell Museum of Natural History, Occasional Paper Number 12.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Polygala cruciata L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Polystichum braunii* (Spenner) Fee var. *purshii* Fern.

FAMILY: Polypodiaceae

COMMON NAME: Braun's Holly Fern

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was discovered in Minnesota during a geological survey of Cook County in 1966. The population is quite small and consists of only a few individuals. The site is in public ownership and efforts are being made to preserve it. This species occurs in Minnesota at the periphery of its range and it appears to be rare or infrequent throughout the region. All other varieties of *P. braunii* are limited to Alaska and British Columbia.

PREFERRED HABITAT IN MINNESOTA: The single Minnesota population occurs on the vertical walls of a steep, narrow ravine. The typical habitat for this species in the Great Lakes Region is hardwood forests.

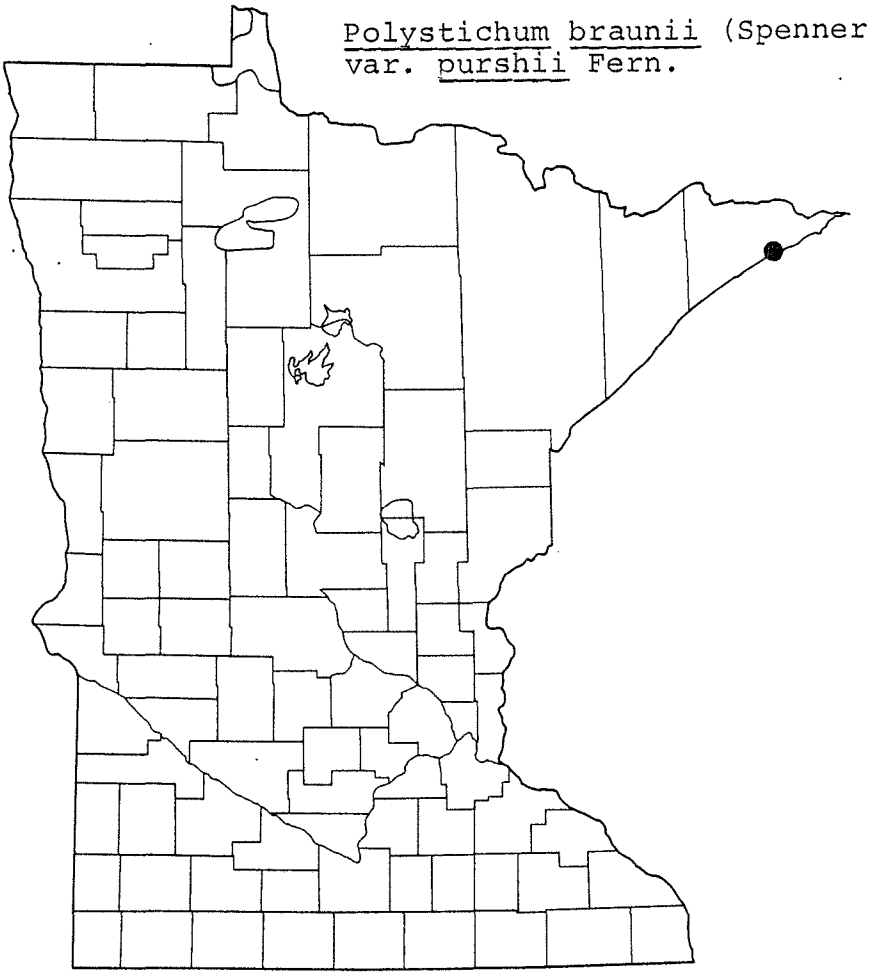
RECOMMENDATIONS: Efforts should continue to protect the site where the only Minnesota population occurs.

SELECTED REFERENCES:

Green, J. C. and D. R. Engstrom. 1975. A new locality for Braun's Holly Fern in Minnesota. Am. Fern. Jour. 65(2):61.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Polystichum braunii (Spenner)
var. purshii Fern.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Potamogeton lateralis* Morong

FAMILY: Potamogetonaceae

COMMON NAME: a species of Pondweed

STATE STATUS: Endangered

FEDERAL STATUS: Currently under review by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973, amended 1978. Federal Register 45(242):82480, December 15, 1980.)

BASIS FOR MINNESOTA STATUS: This aquatic species appears to be rare or local throughout its range. It was unknown in Minnesota until 1974 when it was collected in Squaw Lake by E. O. Beal. Because Squaw Lake is in Itasca State Park the population of *P. lateralis* appears to be protected from direct human disturbance. Potential threats from acid rain and other forms of pollution have not been assessed.

PREFERRED HABITAT IN MINNESOTA: This is an aquatic species that prefers shallow quiet waters in lakes and ponds. The population at Squaw Lake occurs with another rare aquatic species, *Utricularia gibba*.

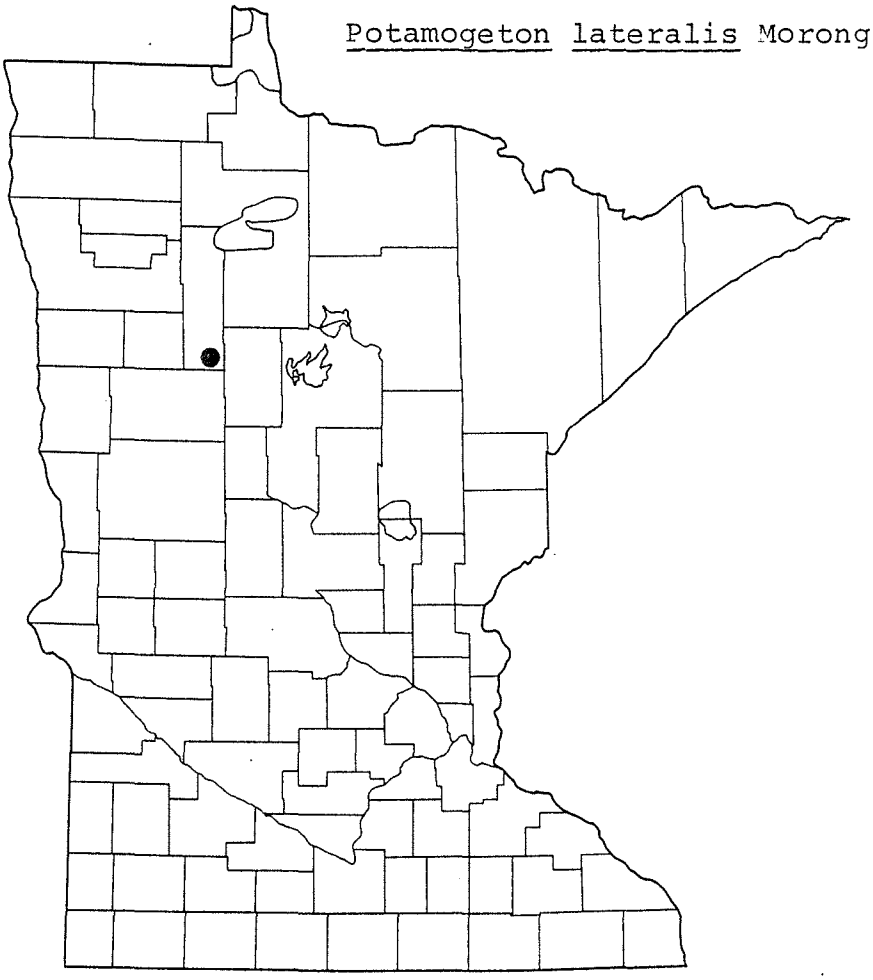
RECOMMENDATIONS: Because of the extreme rarity of this species, its population and habitat warrant special preservation efforts.

SELECTED REFERENCES:

Fernald, M. L. 1932. The linear-leaved North American species of *Potamageton* section Axillaries. Mem. Am. Acad. Arts. Sci. 17:1-183.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Potamogeton lateralis Morong



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Rhynchospora capillacea* Torr.

FAMILY: Cyperaceae

COMMON NAME: Hair-like Beak-rush

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although the species occurs over a relatively large portion of Minnesota, it is entirely restricted to small, fragile fen habitats. These habitats are often only a few acres in size and are maintained by local discharge of cold, calcareous groundwater. The groundwater is critical to the survival of these habitats, and several of the sites are currently threatened with disruption or contamination of their groundwater supply. The population in Blue Earth County was destroyed by industrial development and one of the two populations in Dakota County was recently destroyed by road construction.

PREFERRED HABITAT IN MINNESOTA: *R. capillacea* is apparently restricted to calcareous fens where it frequently occurs with other obligate fen species such as *Carex sterilis* and *Scleria verticillata*. Within fens it prefers the margins of fen pools and marl flats where the extreme environmental conditions keep competition minimal.

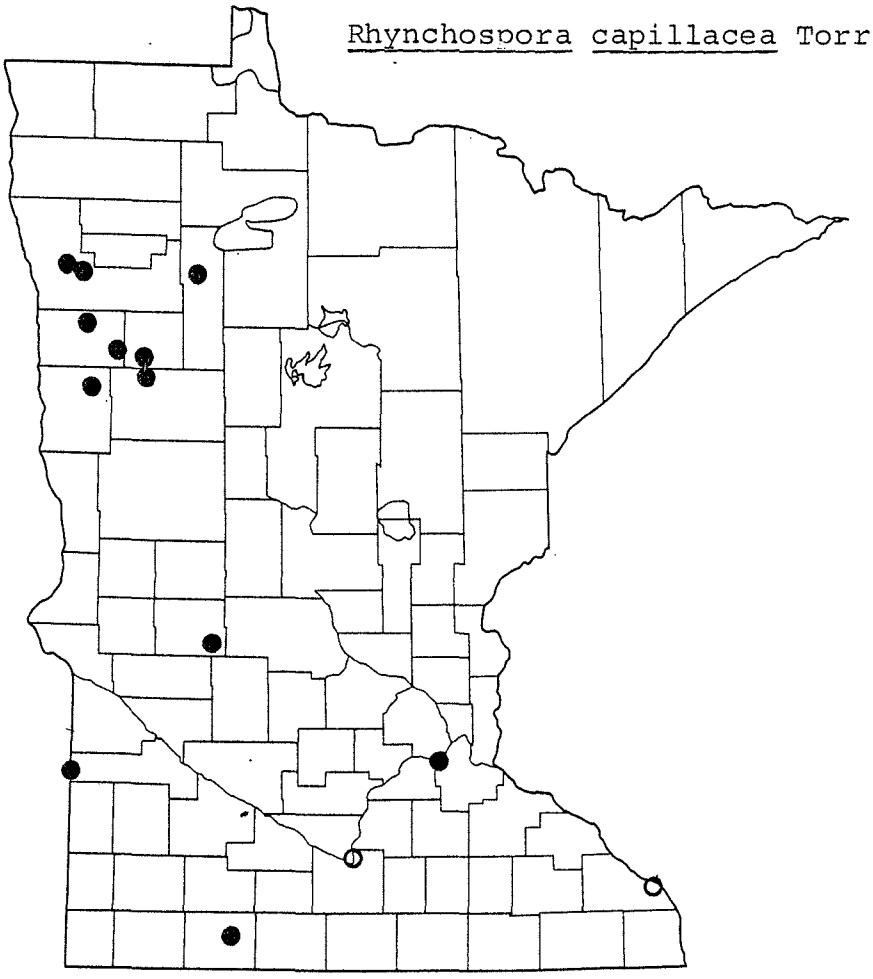
RECOMMENDATIONS: Groundwater levels should be closely monitored at critical sites.

SELECTED REFERENCES:

Gale, S. 1944. *Rhynchospora*, section *eurhynchospora* in Canada, the United States and the West Indies. Rhodora 46:89-134; 159-197; 207-249; 255-278.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Rhynchospora capillacea Torr.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Rubus chamaemorus L.

FAMILY: Rosaceae

COMMON NAME: Baked-apple-berry

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This boreal species reaches the southern limit of its range in Minnesota, and is absent from the other Great Lakes States. The population at Basswood Lake was discovered in 1954 and has been recently verified. The population at Snow Bank Lake was discovered in 1969 but has never been relocated and its current status is unknown. Previous and subsequent botanical searches in northern Minnesota have failed to locate any additional populations.

PREFERRED HABITAT IN MINNESOTA: This species occurs in sphagnum bogs dominated by black spruce.

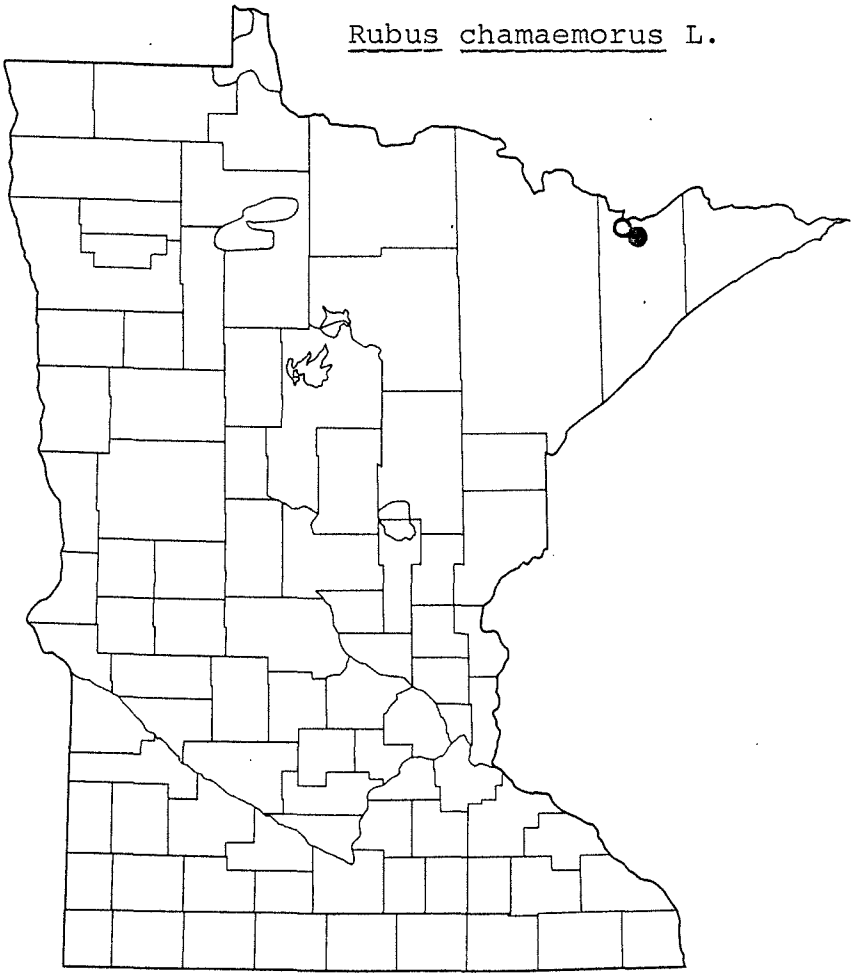
RECOMMENDATIONS: No recommendations can be made at this time.

SELECTED REFERENCES:

Lakela, O. 1954. The occurrence of Rubus chamaemorus in Minnesota. Rhodora 56:272-273.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Rubus chamaemorus L.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Ruellia humilis* Nutt.

FAMILY: Acanthaceae

COMMON NAME: Wild-petunia

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Only one population of this species is known to occur in Minnesota. It was discovered in 1974 in Afton State Park (Washington County). It is disjunct 200 miles from the northern edge of its range in Iowa and Wisconsin. The Minnesota population has not been adequately surveyed, and its current status is not known.

PREFERRED HABITAT IN MINNESOTA: This species occurs in dry prairies and open woods.

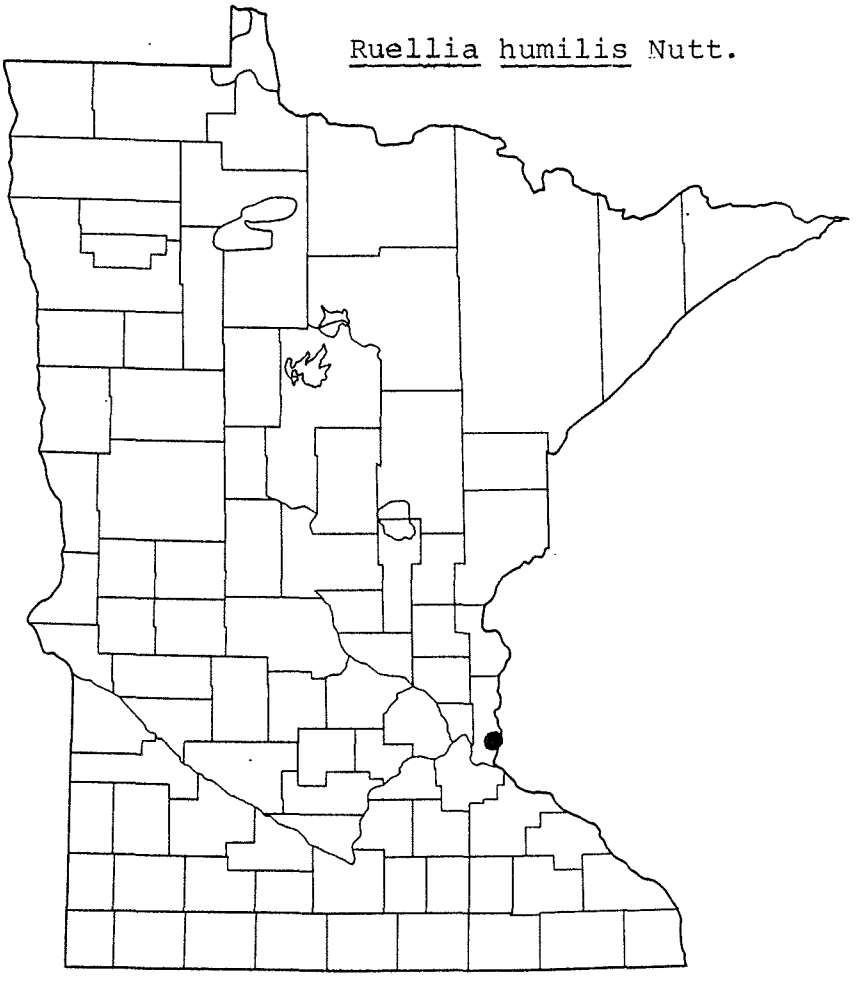
RECOMMENDATIONS: Further inventory of the population at Afton State Park is needed. Searches for undiscovered populations should be conducted on goat prairies in the Mississippi and St. Croix Valleys.

SELECTED REFERENCES:

Fernald, M. L. 1945. *Ruellia* in the eastern United States. Rhodora 47:1-38; 47-63; 69-90.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Ruellia humilis Nutt.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Sagina nodosa (L.) Fenzl ssp. borealis Crow

FAMILY: Caryophyllaceae

COMMON NAME: Knotty Pearlwort

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The populations of this subarctic species which occur on the north shore of Lake Superior may be separated from the main range of the species by 400 miles. The Minnesota populations are restricted to localized habitats on Pigeon Point and nearby Susie Island (Cook County). The Susie Island population was located in 1981, but the Pigeon Point population has not been located since 1940. The sites are largely protected from human disturbance by the remoteness of their habitat, but they may be threatened by an increasing population of nesting gulls.

PREFERRED HABITAT IN MINNESOTA: This species occurs in crevices of exposed shore rocks, where it may occur with other rare species such as Tofieldia pusilla and Selaginella selaginoides.

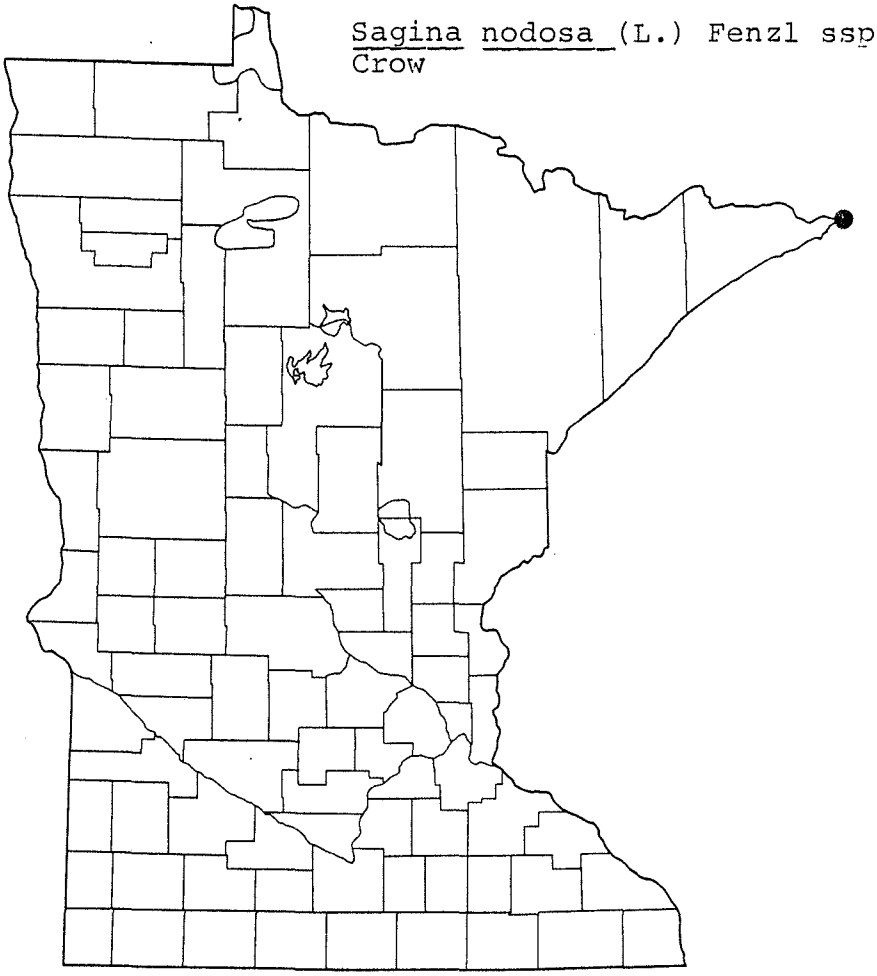
RECOMMENDATIONS: The populations of this species should be closely monitored as should the expanding gull colony wich may threaten them.

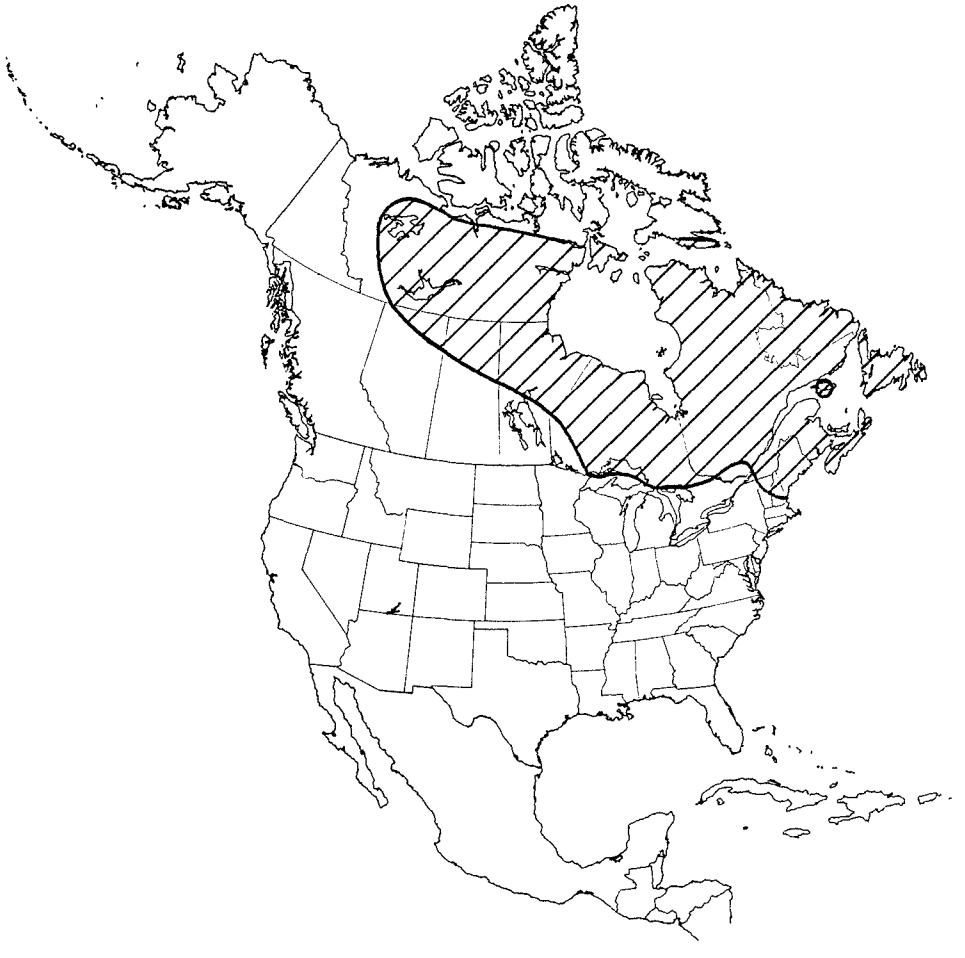
SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Sagina nodosa (L.) Fenzl ssp. borealis Crow





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Salicornia rubra* Nelson

FAMILY: Chenopodiaceae

COMMON NAME: Glasswort

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species occurs in Minnesota at the extreme eastern periphery of its range and has very restrictive habitat requirements. Populations are typically small and local, and suitable habitat has been largely eliminated by agriclutural activity. There are undocumented reports of this species from Wilkin and Polk Counties.

PREFERRED HABITAT IN MINNESOTA: Typical habitat for this species is alkaline depressions in prairies and dry creek bottoms. The population in Lac Qui Parle County occurs at Salt Lake, where it inhabits the salt encrusted silt at the margin of the water.

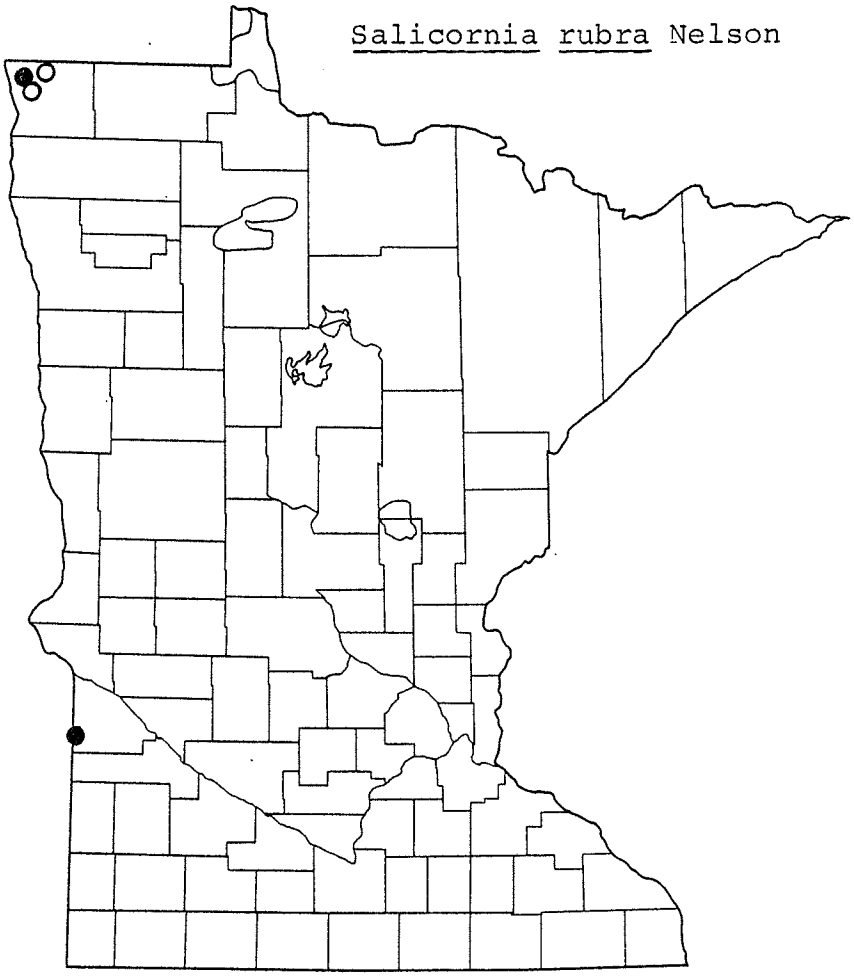
RECOMMENDATIONS: It is possible that this species will be discovered on public land in Kittson County. In that event, management of the site should consider the perpetuation of this species a priority.

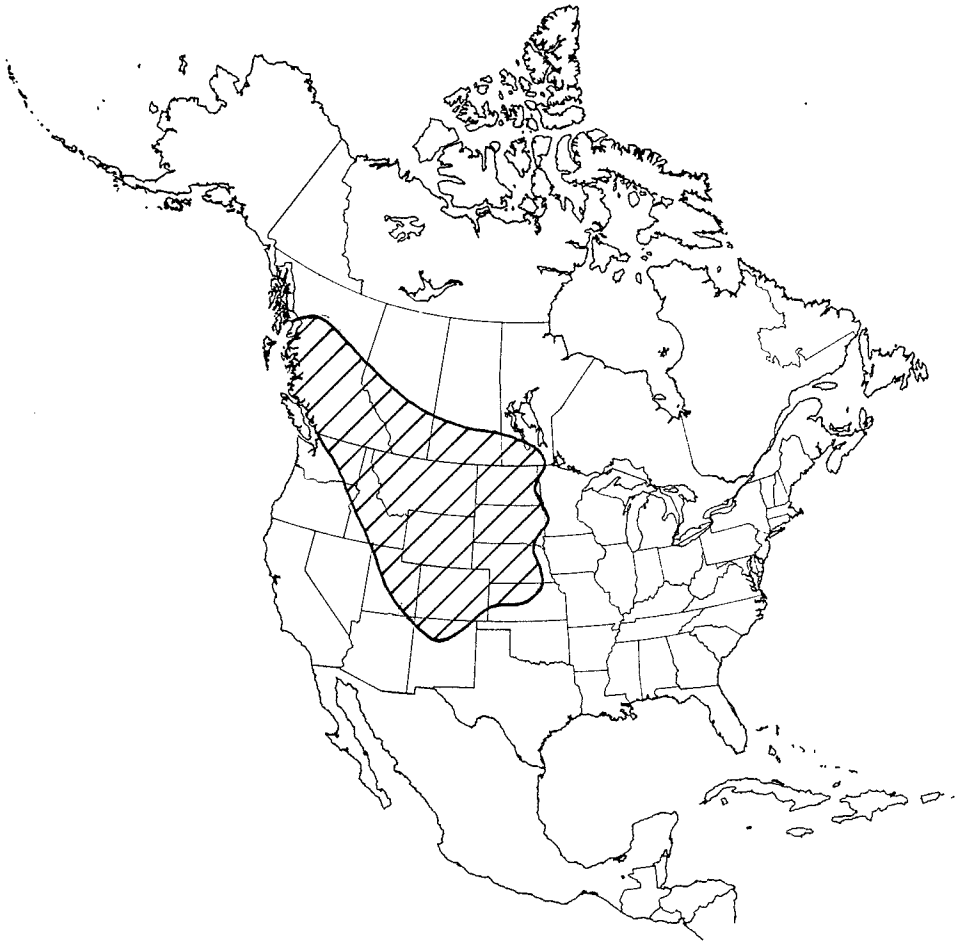
SELECTED REFERENCES:

Moore, J.W. 1966. A Provisional List of Flowering Plants, Ferns and Fern Allies of Kittson County, Minnesota. Dept. of Botany, Univ. of Minn., Minneapolis.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Salicornia rubra Nelson





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Saxifraga aizoon* Jacq. var. *neogaena* Butters

FAMILY: Saxifragaceae

COMMON NAME: a species of Saxifrage

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The Minnesota populations of this arctic-alpine species are part of the isolated Lake Superior range, which is far removed from the main range of the species. Approximately eight distinct populations are known in Minnesota. All are located along 18 miles of border lakes. Several of these populations are known to contain numerous plants, but some contain only a few plants and may have difficulty persisting.

PREFERRED HABITAT IN MINNESOTA: This species occurs on small ledges on north-facing diabase cliffs. It occurs with other rare species such as *Woodsia scopulina* and *Saxifraga cernua*.

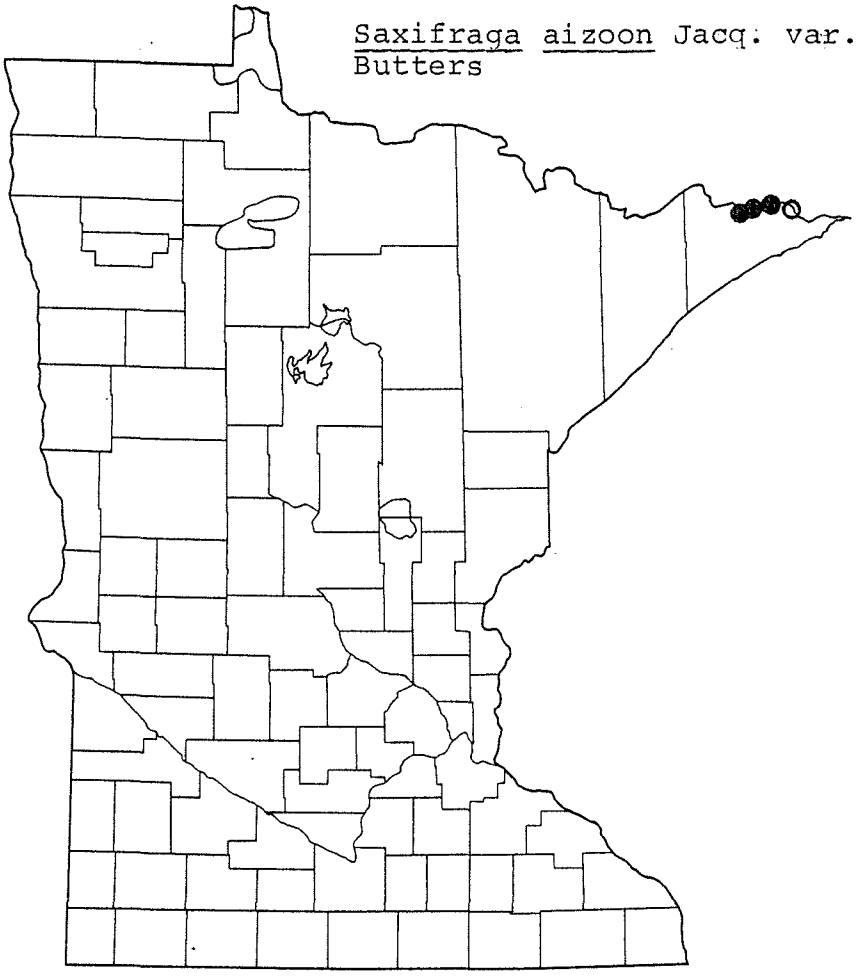
RECOMMENDATIONS: No recommendations can be made at this time.

SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Saxifraga aizoon Jacq. var. neogaena Butters



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Saxifraga cernua* L. var. *latibracteata* Fern.

FAMILY: Saxifragaceae

COMMON NAME: Nodding Saxifrage

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The only population of this arctic-alpine species in the midwest occurs at a single site in Cook County. It was discovered in 1930 and successfully relocated in 1980. The population is small and precariously located in a fragile habitat. It appears to be protected from human disturbance by its remoteness, but it may be threatened by natural forces such as erosion.

PREFERRED HABITAT IN MINNESOTA: This species occurs on small ledges on a sheer north-facing diabase cliff. It occurs with other rare species such as *Woodsia scopulina* and *Saxifraga aizoon*.

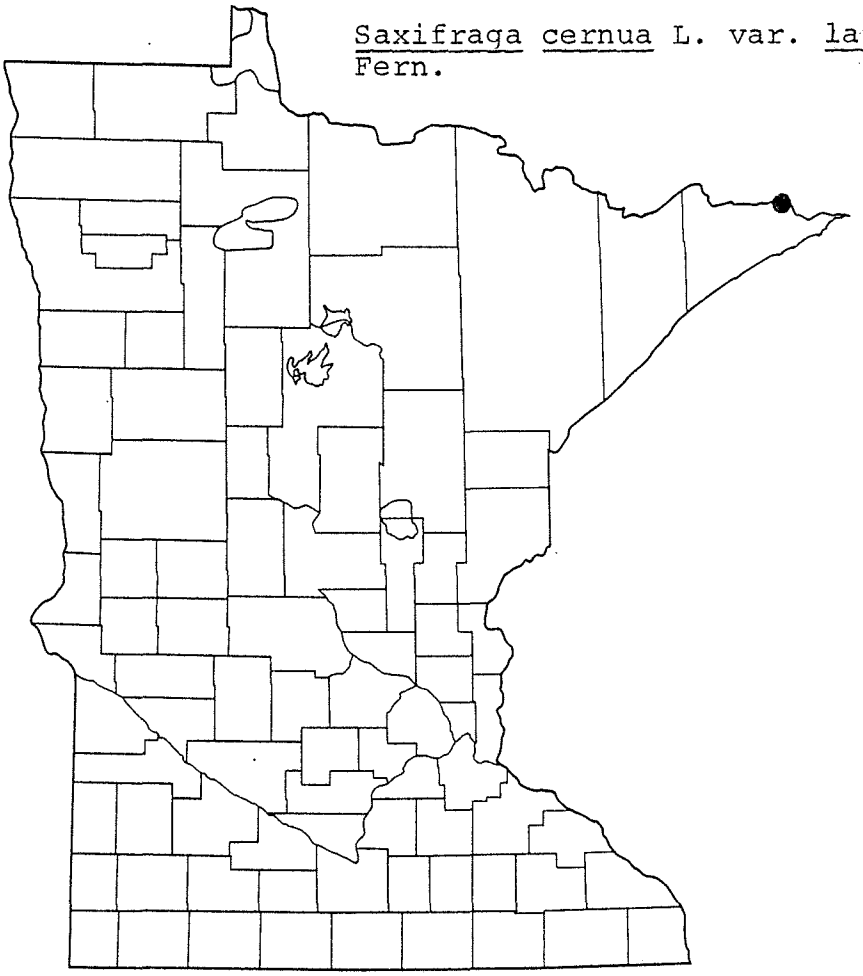
RECOMMENDATIONS: Because of the extreme rarity of this species in the midwest, its population should be closely monitored to determine potential threats.

SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Saxifraga cernua L. var. latibracteata Fern.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Scleria triglomerata* Michx.

FAMILY: Cyperaceae

COMMON NAME: Tall Nut-rush

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: There are several historical records of this species occurring in the Anoka Sandplain area. Native habitats in this region, however, are under increasing development pressure and few of them remain in undisturbed condition. A large population which occurred at the Moore Lake Dunes was destroyed in 1960 by the construction of Fridley High School. The sites in Hennepin and Ramsey Counties are believed to have been destroyed by expansion of the metropolitan area. The only populations known to be extant in Minnesota occurs at Allison Savanna Scientific and Natural Area and Cedar Creek Natural History Area (Anoka County).

PREFERRED HABITAT IN MINNESOTA: This species occurs along the margins of swales in sandy prairies, savannas and dunes.

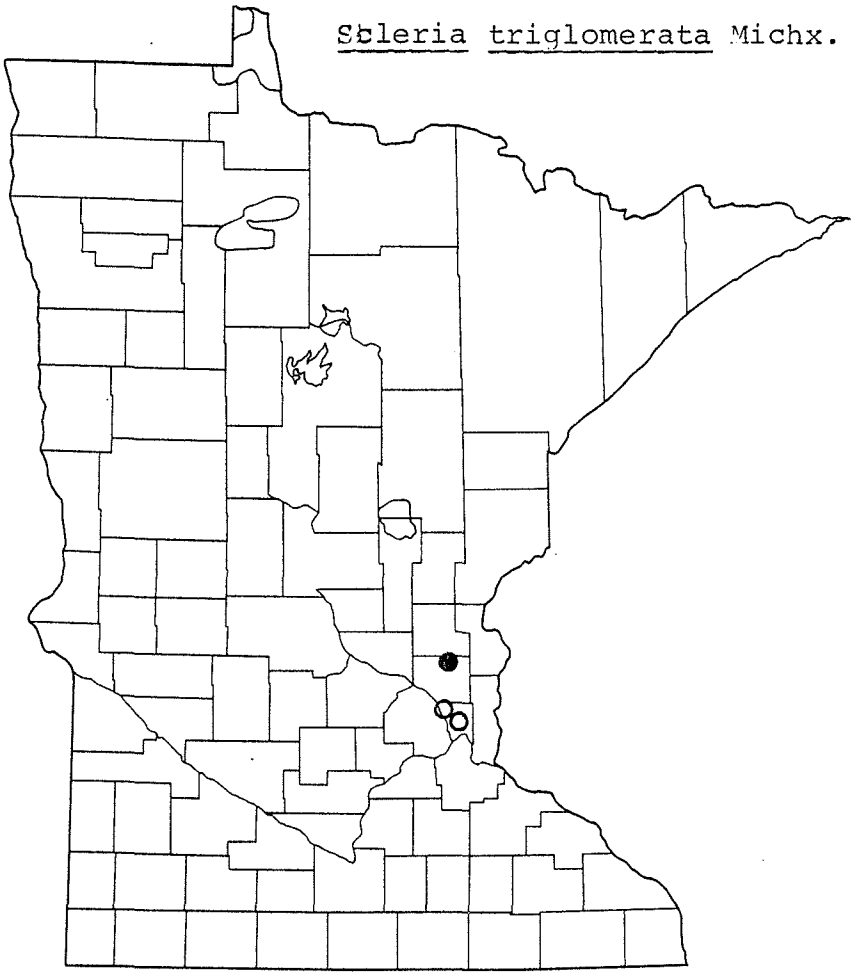
RECOMMENDATIONS: The surviving populations should be monitored to determine their response to the fire management regime currently in use.

SELECTED REFERENCES:

Core, E.L. 1936. The American species of *Scleria*. Brittonia 2:1-105.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Scleria triglomerata Michx.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Scleria verticillata* Muhl.

FAMILY: Cyperaceae

COMMON NAME: Whorled Nut-rush

STATE STATUS: Threatened

FEDERAL STATUS: None

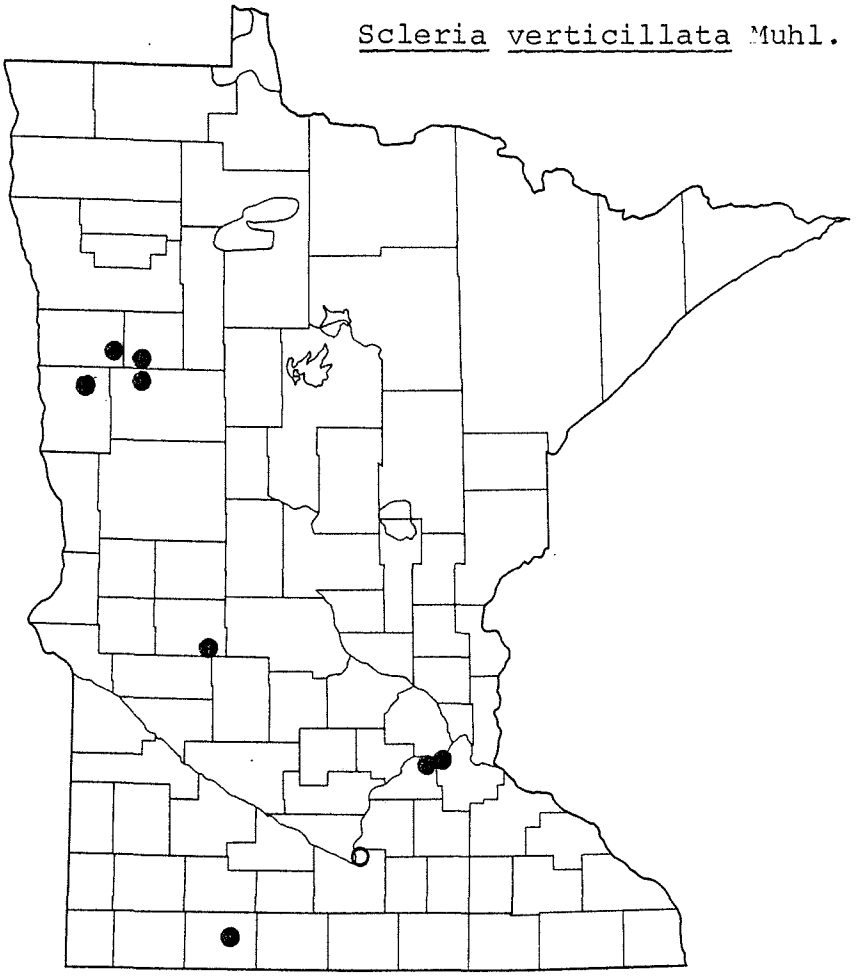
BASIS FOR MINNESOTA STATUS: This calciphile is generally rare or local throughout the region. This is largely because of unusual and restrictive habitat requirements that limit its occurrence to calcareous fens. For this reason it is extremely vulnerable to changes in groundwater level. Several of the known populations are currently threatened by commercial and agricultural activities which may draw down the groundwater and dry out the supporting habitat. The population in Blue Earth County was destroyed by industrial development and one of the two populations in Dakota County was recently destroyed by road construction.

PREFERRED HABITAT IN MINNESOTA: In Minnesota, *S. verticillata* is entirely restricted to calcareous fens. Within fens it acts as a pioneer on exposed marl and along the margins of pools. It is typically found in association with other obligate fen species such as *Rhynchospora capillacea* and *Carex sterilis*.

RECOMMENDATIONS: Additional information is needed on the hydrology of fens and the recovery potential of degraded fen habitats.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Scleria verticillata Muhl.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Sedum rosea (L.) Scop. var. leedyi Rosend. & Moore

FAMILY: Crassulaceae

COMMON NAME: Roseroot

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The two main ranges of this species are the mountainous regions of western North America, and ledges and beaches on the east coast. The single midwest population occurs on a rugged cliff in Olmsted County. It is believed to represent a relict population that survived the most recent glaciation in the "Driftless Area" of southeastern Minnesota. Because of its long isolation, it has developed morphological characteristics different from other known forms and has been described as a distinct variety. It is named for John L. Leedy who discovered the population in 1936 while a graduate student at the University of Minnesota. The population occurs on private land and may be threatened by housing development and road building.

PREFERRED HABITAT IN MINNESOTA: Small crevices and ledges on a steep north-facing limestone cliff overlooking the Root River. It occurs there with a disjunct population of Draba arabisans.

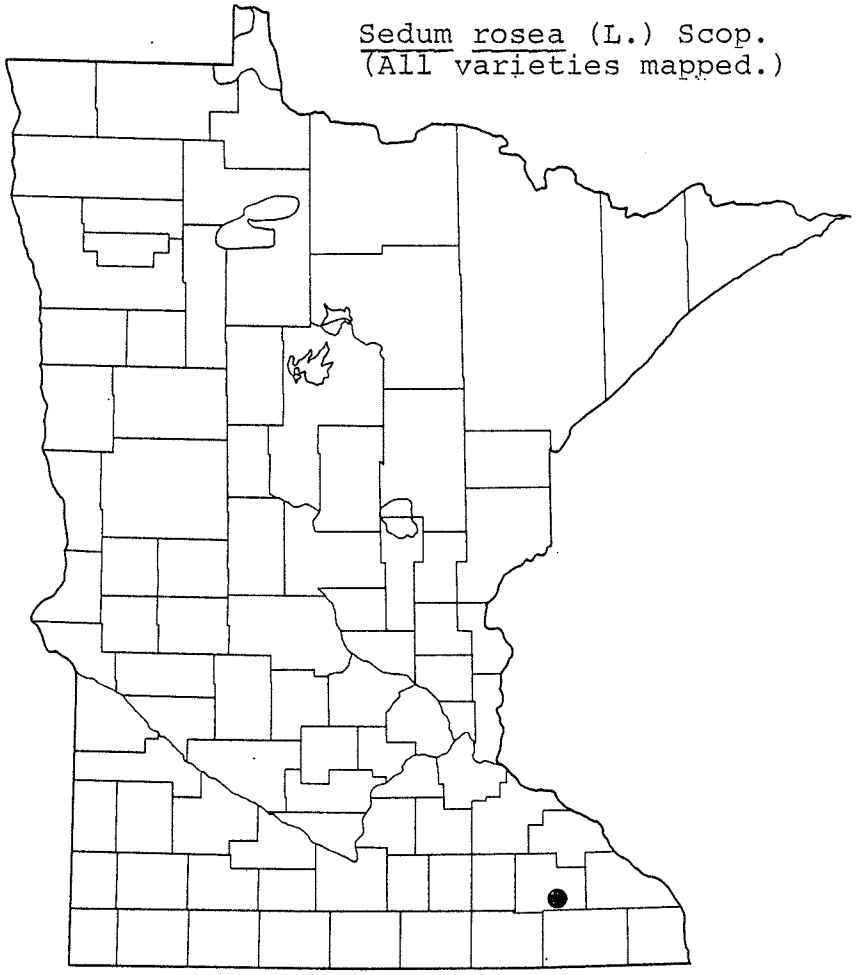
RECOMMENDATIONS: A high priority should be given to the protection of this population by whatever means available.

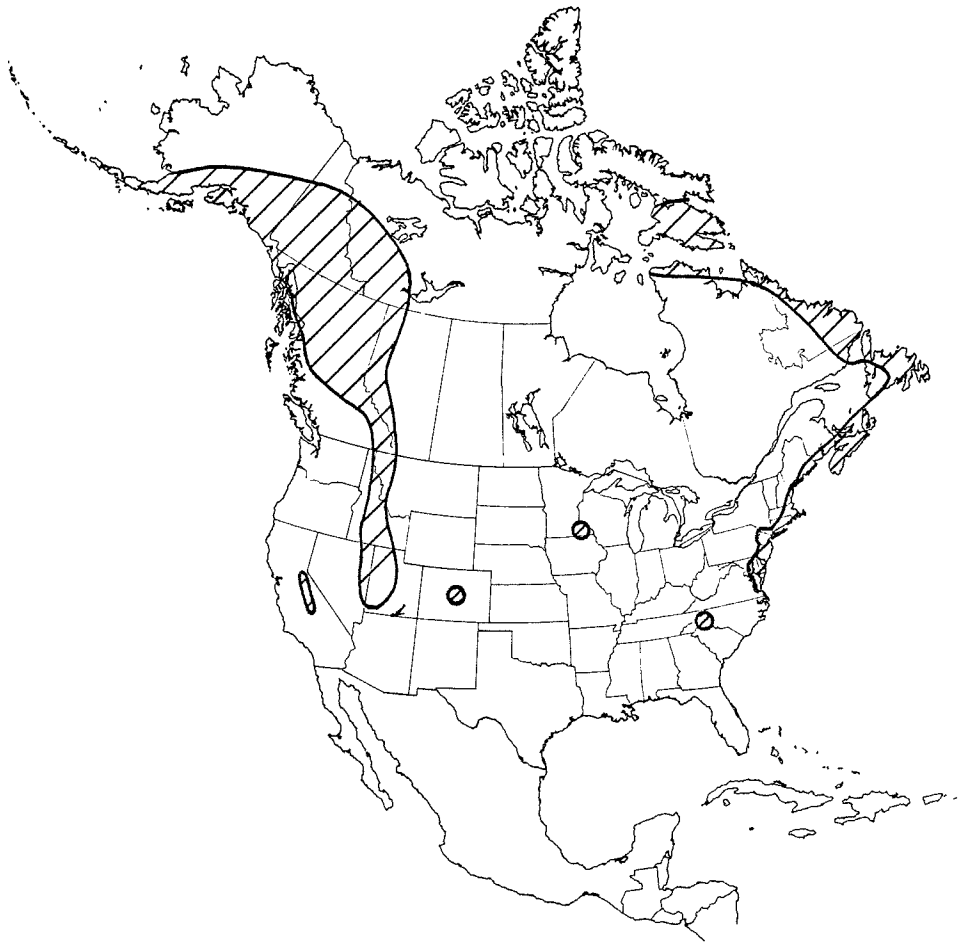
SELECTED REFERENCES:

Rosendahl, C. O. and J. W. Moore. 1947. A new variety of Sedum rosea from southeastern Minnesota and additional notes on the flora of the region. Rhodora 49:197-202.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Sedum rosea (L.) Scop.
(All varieties mapped.)





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sparganium glomeratum* Laest.

FAMILY: Sparganiaceae

COMMON NAME: Clustered Bur Reed

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The distribution of this species in the western hemisphere is apparently limited to northeastern Minnesota and Saguenay County, Quebec. One of the collections from St. Louis County is from a small colony on Minnesota Point in Duluth. The persistance of this colony has not been verified since 1944, and it may have since been destroyed by land development.

PREFERRED HABITAT IN MINNESOTA: This species has been collected in a *Sphagnum* bog, a "floating bog", and in marshes.

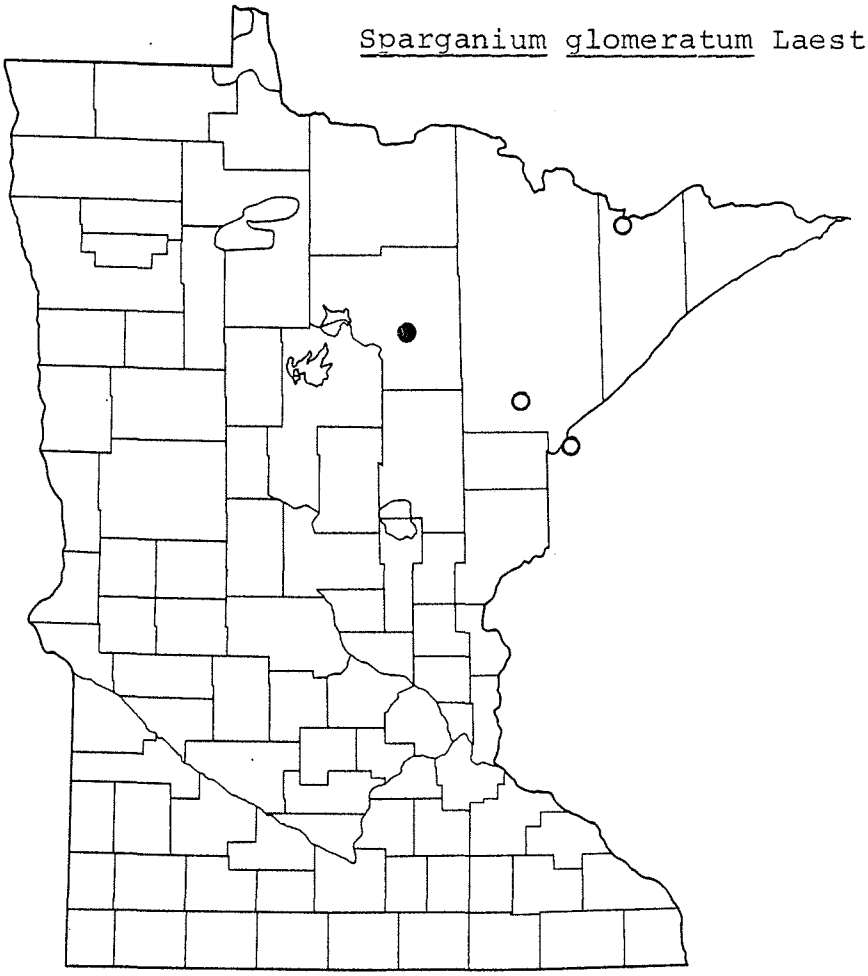
RECOMMENDATIONS: Because of the extreme rarity of this species, efforts should be made to relocate all of the vouchered populations and assess their protection needs.

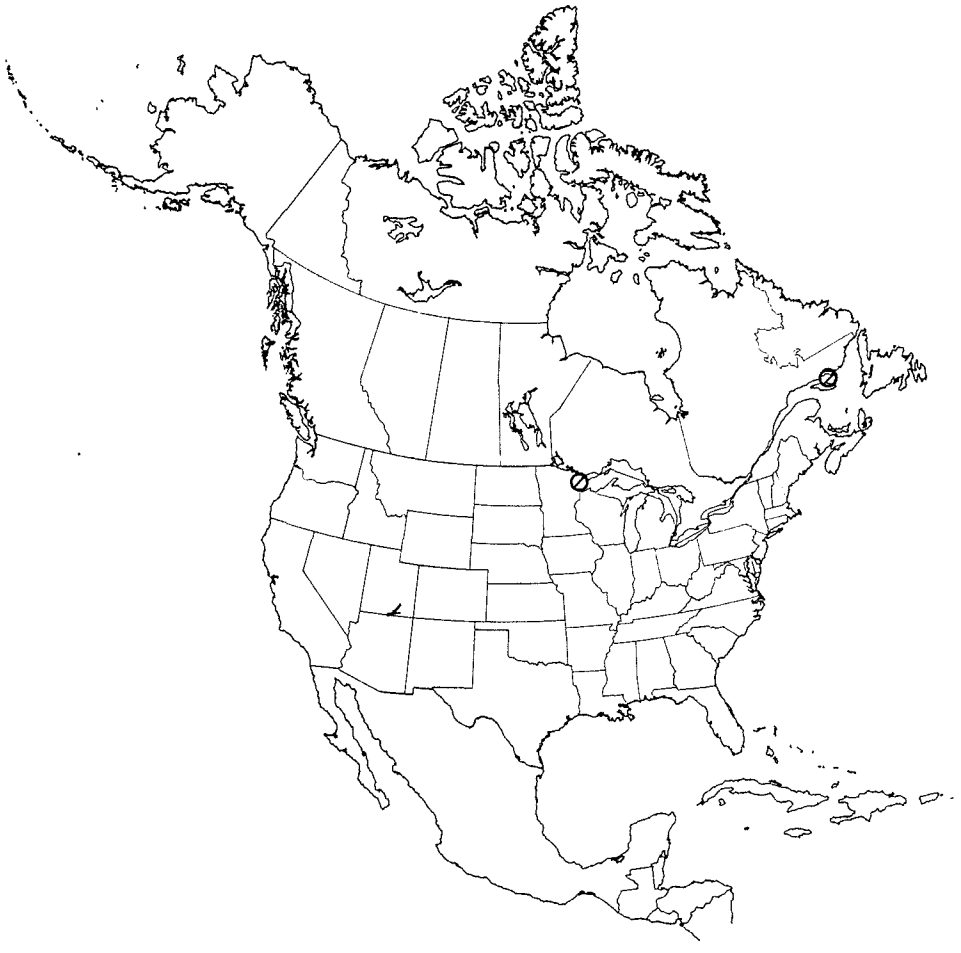
SELECTED REFERENCES:

Lakela, O. 1941. *Sparganium glomeratum* in Minnesota. Rhodora 43:83-85.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Sparganium glomeratum Laest.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Subularia aquatica* L.

FAMILY: Brassicaceae

COMMON NAME: Awlwort

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although this small aquatic species has wide distribution in North America, it is uncommon or local over most of its range. It is considered to be rare, threatened or absent in states and provinces adjacent to Minnesota. It was discovered in Minnesota in Poplar Lake (Cook Co.) in 1944. During the 1950's it was found at Snow Bank Lake, Basswood Lake (Lake Co.) and Trout Lake (St. Louis Co.). The population at Snow Bank Lake was relocated in 1982. It survives as a small remnant population after most of its habitat was eliminated by the construction of retaining walls. The population in Trout Lake has also suffered a decline, and in 1982 only four plants could be located.

PREFERRED HABITAT IN MINNESOTA: *Subularia aquatica* is an aquatic species that occurs in shallow lake margins. It has also been found stranded on sandy beaches and in rock pools. It may occur with another rare aquatic species, *Littorella americana*.

RECOMMENDATIONS: No recommendations can be made at this time.

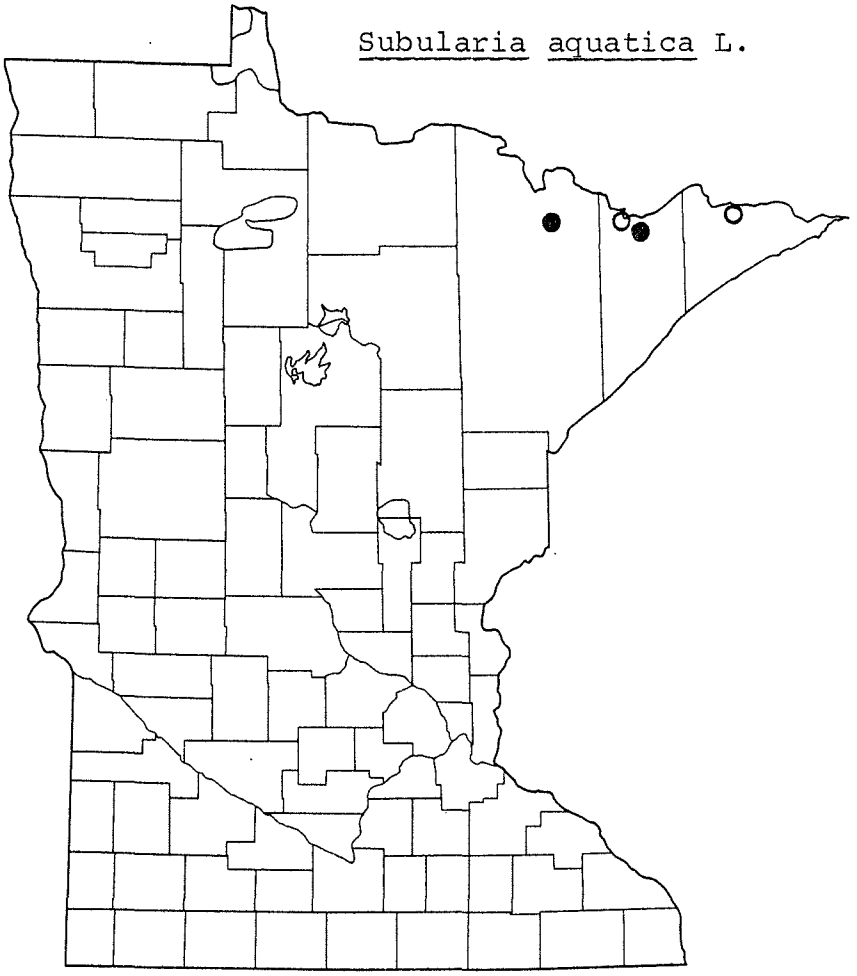
SELECTED REFERENCES:

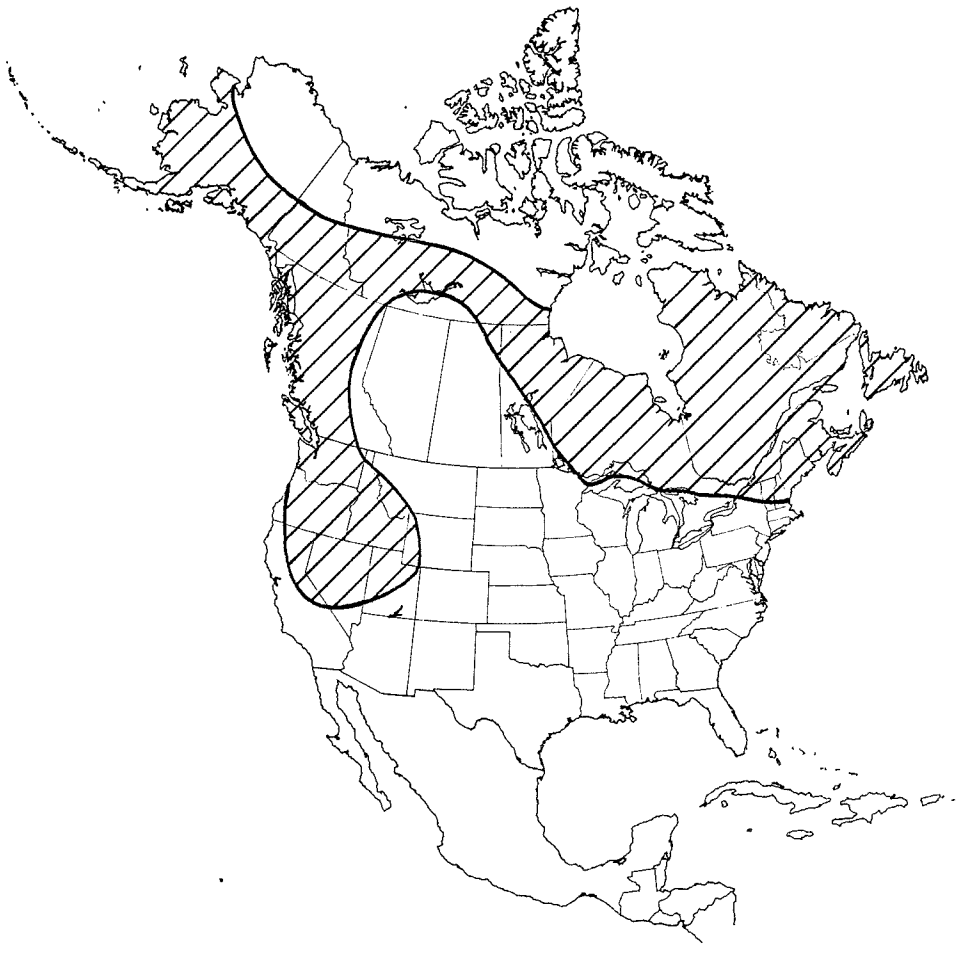
Lakela, O.L. 1965. A Flora of Northeastern Minnesota. Univ. of Mn. Press, Minneapolis.

Mulligan, G. A. & J. A. Calder. 1964. The genus *Subularia* (cruciferae). Rhodora 66:127-135.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Subularia aquatica L.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Sullivantia renifolia* Rosend.

FAMILY: Saxifragaceae

COMMON NAME: Golden Saxifrage

STATE STATUS: Endangered

FEDERAL STATUS: Previously considered by the Department of Interior for listing as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205, enacted December 28, 1973; amended 1978. Federal Register 40(127):27859, July 1, 1975). Not currently being considered for listing because it has proven to be more abundant than previously believed (Fed. Register 45(242)82480, December 15, 1980).

BASIS FOR MINNESOTA STATUS: The essential habitat of this species is very limited in extent. Even where conditions appear suitable, the species rarely occurs. Only three populations are currently known to be extant in Minnesota and the total number of plants is no more than 250. This pattern of small remote populations is consistent throughout the range of the species and it is considered rare or uncommon wherever it occurs. Threats from human activity appear to be minimal because of the inaccessible nature of its habitat. Potential threats do exist, however, from road building, mining and commercial development.

PREFERRED HABITAT IN MINNESOTA: This species is limited to northeast-facing cliffs of calcareous or circumneutral sedimentary rock in the "driftless area" in southeastern Minnesota. The plants require cool water seeping from porous rock, and the protection of an overhanging ledge.

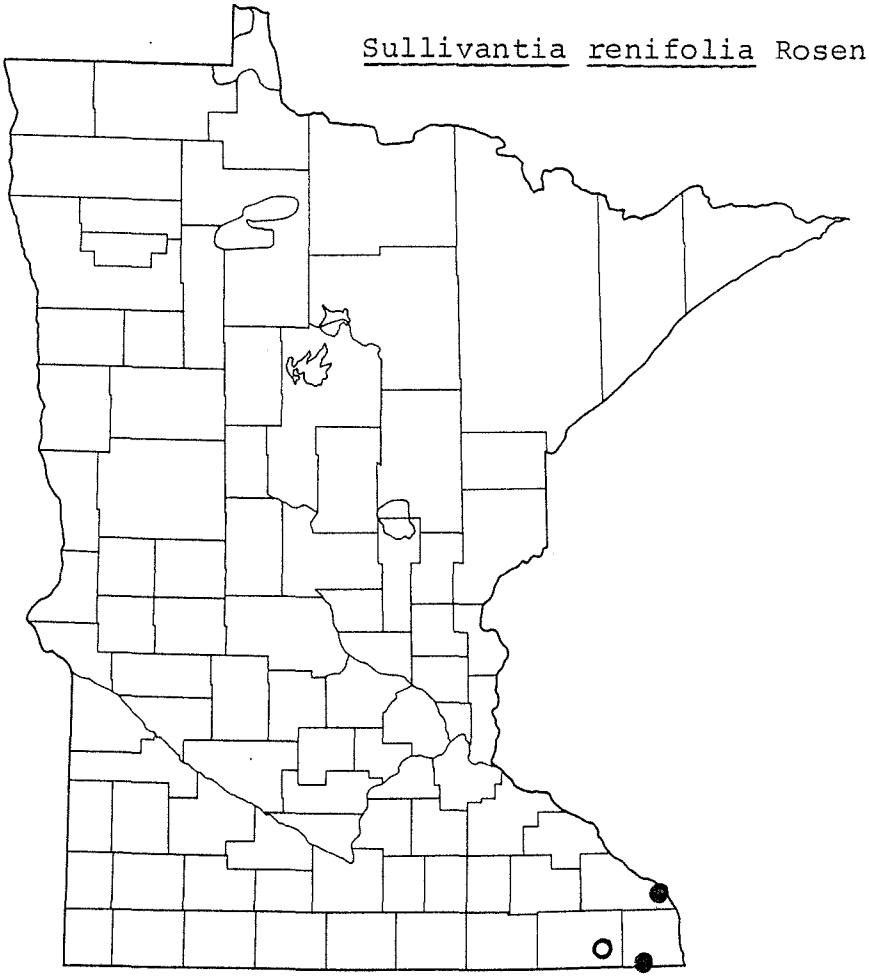
RECOMMENDATIONS: Searches for additional populations should be centered in the Root River Valley in Fillmore County.

SELECTED REFERENCES:

Rosendahl, C. O. 1927. A revision of the genus *Sullivantia*. Minnesota Studies in Plant Sciences, No. 6.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Sullivantia renifolia Rosend.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Talinum rugospermum* Holzinger

FAMILY: Portulacaceae

COMMON NAME: Rough-seeded Fameflower

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species is a midwestern endemic and is rare or local throughout its limited range. Its restricted pattern of occurrence may be the result of its specialized ecological requirements. It is currently known to occur at three sites in Minnesota, two of which are in public ownership. There is strong reason to believe that a population persists near Taylors Falls (Chisago County) where it was first collected by Douglas Houghton in 1832. The last report, however, was in 1894 and its current status is unknown.

PREFERRED HABITAT IN MINNESOTA: This is a species of zeric habitats, typically dunes, barrens and limestone outcrops. It frequently occurs with other rare species such as *Asclepias amplexicaulis* and *Tephrosia virginiana*.

RECOMMENDATIONS: The historical collection sites of this species on the outcrops in the St. Croix Valley should be investigated.

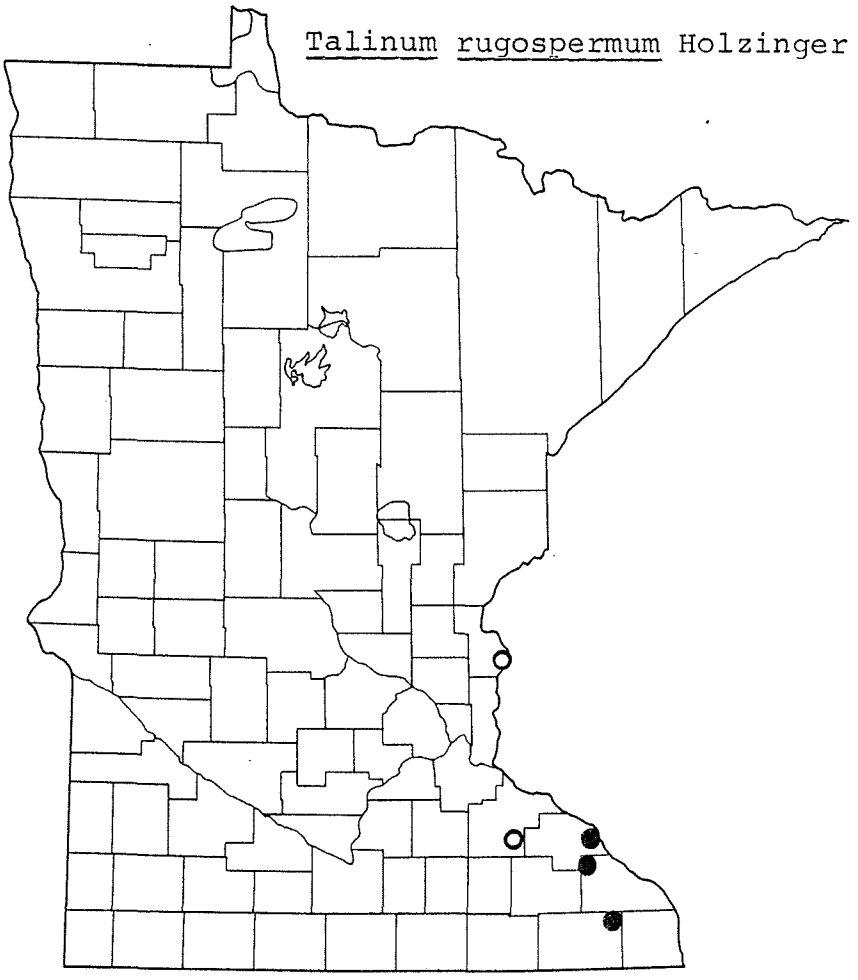
SELECTED REFERENCES:

Fassett, N. C. 1928. Notes from the herbarium of the University of Wisconsin - III. Rhodora 30:205-207.

Hill, E. J. 1891. Notes on the flora of the St. Croix region. Bot. Gaz. 91:108-113.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Talinum rugospermum Holzinger



SPECIES STATUS SHEET

SCIENTIFIC NAME: Tofieldia pusilla (Michx.) Pers.

FAMILY: Liliaceae

COMMON NAME: Small False Asphodel

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: The populations of this arctic species which occur on the north shore of Lake Superior and Isle Royale are isolated from the main range of the speces by 400 miles. All the Minnesota populations are small and occur in fragile habitats. The population in Lake County is known only by a collection dated 1891 and labeled "Two Harbors". The population near Grand Marais is small and may be threatened by over-collecting. The third site contains only 30 individuals and may be threatened by quarrying of Thompsonite.

PREFERRED HABITAT IN MINNESOTA: This species occurs in mats of Scirpus cespitosus which occur at the margins of pools on the shore rocks of Lake Superior. It may occur with other rare species such as Selaginella selaginoides, Polygonum viviparum and Carex media.

RECOMMENDATIONS: No recommendations can be made at this time.

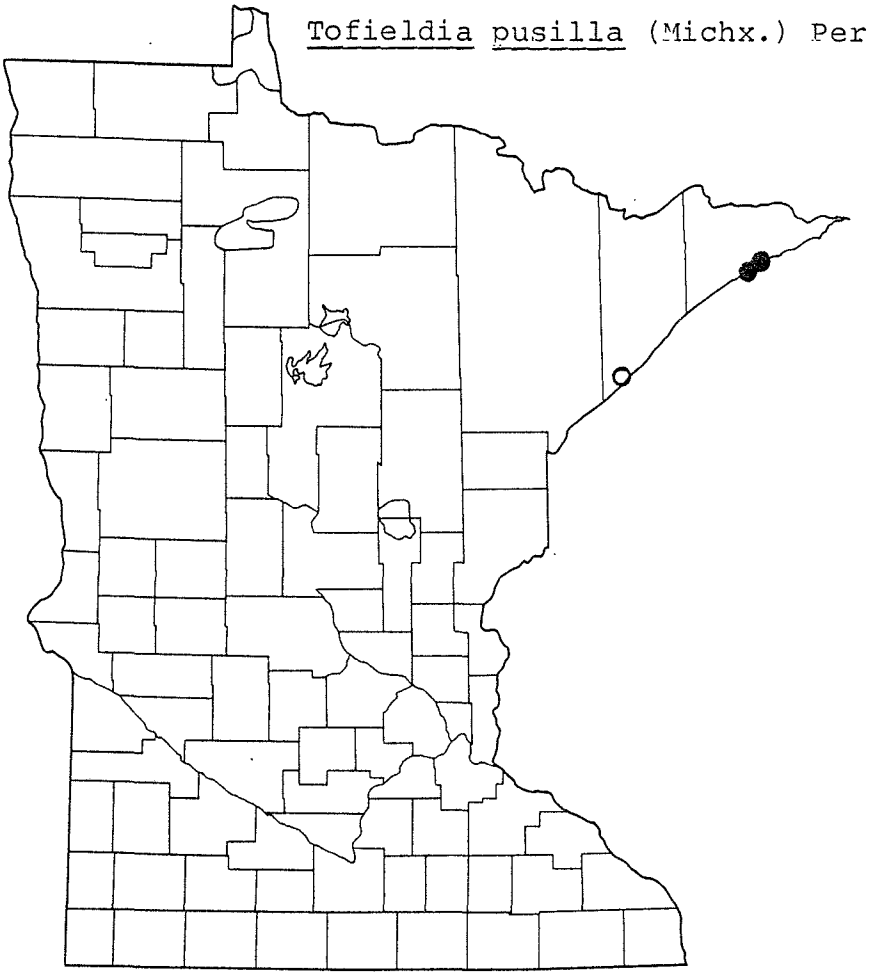
SELECTED REFERENCES:

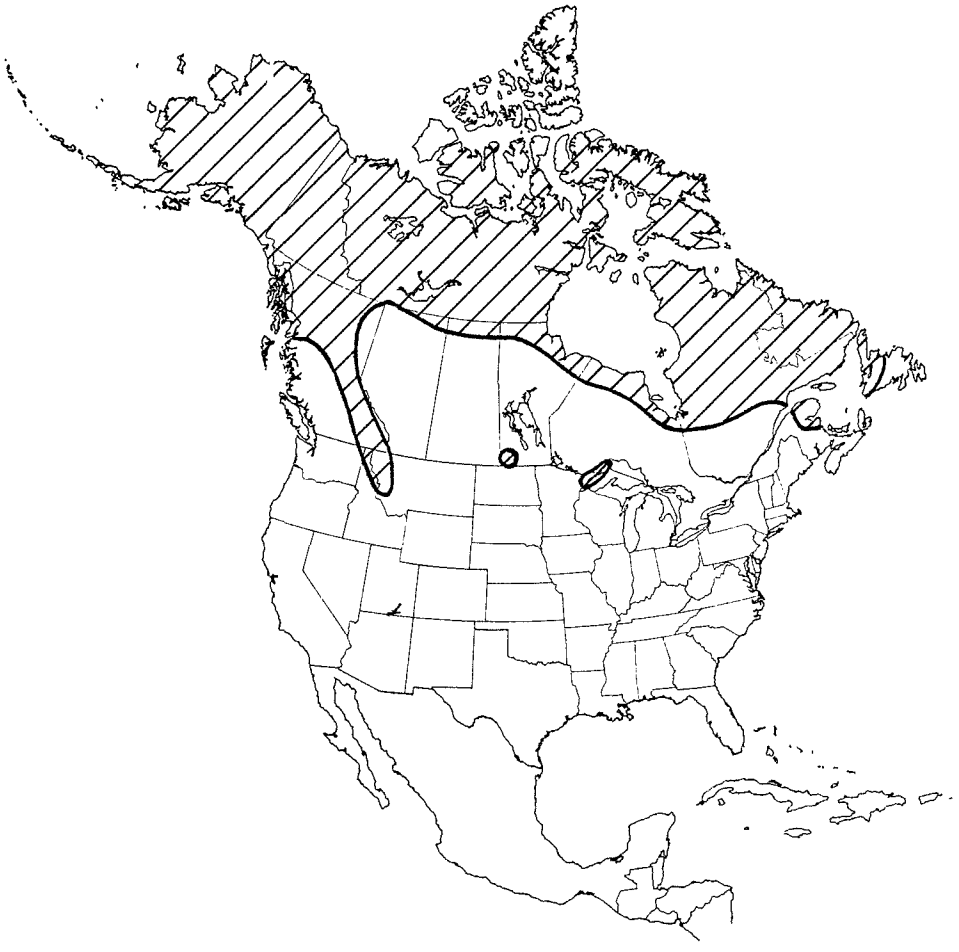
Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154; 161-201.

Given, D. R. and J. H. Soper. 1981. The Arctic-Alpine Element of the Vascular Flora at Lake Superior. Nat. Mus. Can. Pub. in Bot. #10.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Tofieldia pusilla (Michx.) Pers.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Vaccinium uliginosum L. var. alpinum Bigel

FAMILY: Ericaceae

COMMON NAME: Alpine Bilberry

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Alpine bilberry is a characteristic shrub of tundra and muskeg in boreal, arctic and alpine regions. In Minnesota it is currently known from a single location where there are eight to ten individuals. There are historical collections from Long Island and Grand Portage (Cook County), but intensive searches in 1980 failed to locate any plants at those sites. In spite of this, plants may still survive in the Susie Island chain or in other protected regions on the North Shore.

PREFERRED HABITAT: This species occurs along forest margins and crevices in barren rocks on the shore of Lake Superior.

RECOMMENDATIONS: Searches should continue in the Susie Islands and Grand Portage areas for surviving populations.

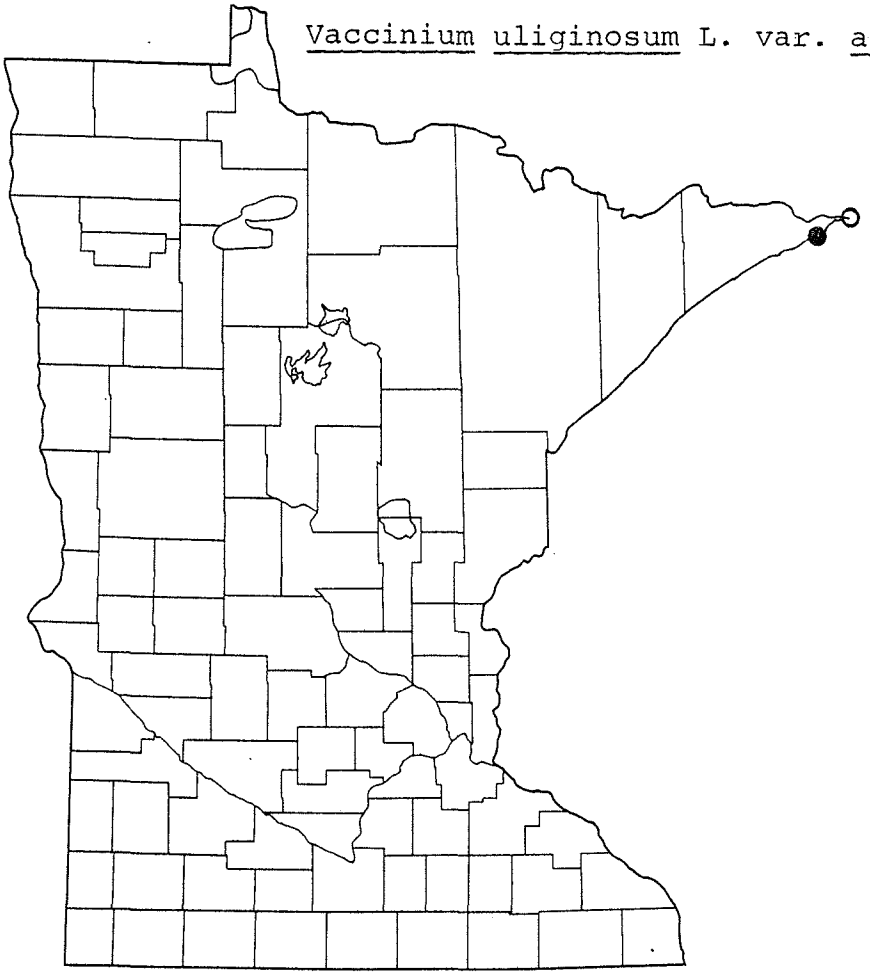
SELECTED REFERENCES:

Rosendahl, C. O. 1955. Trees and Shrubs of the Upper Midwest. Univ. of Minn. Press, Minneapolis.

Young, S. B. 1970. On the taxonomy and distribution of Vaccinium uliginosum. Rhodora 72:439-457.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Vaccinium uliginosum L. var. alpinum Begel



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Valeriana edulis* Nutt. ssp *ciliata* (T. & G.) Meyer
[*Valeriana ciliata* T. & G.]

FAMILY: Valerianaceae

COMMON NAME: Valerian

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although this species was not formerly rare in Minnesota, the nearly total destruction of prairie and fen habitats has reduced its populations to a few isolated colonies. Most of the recent collections are from remnant prairie strips on railroad right-of-ways. These right-of-ways are rapidly being sold by the railroad companies, and are invariably bought by adjacent landowners for conversion to crop land. Two populations occurring in calcareous fens in the Minnesota Valley have recently been destroyed by road construction and commercial development. Populations of Valerian are currently protected at Wild Indigo, Queen's Bluff and Black Dog Fen Scientific and Natural Areas. The typical subspecies occurs in western United States.

PREFERRED HABITAT IN MINNESOTA: This species occurs in three distinct habitats in Minnesota: deep soil mesic prairies, calcareous fens and limestone bluffs. It seems, however, to be most widely occurring on prairies where it may be found with other rare species such as *Parthenium integrifolium*, *Cacalia tuberosa* and *Asclepias sullivantii*.

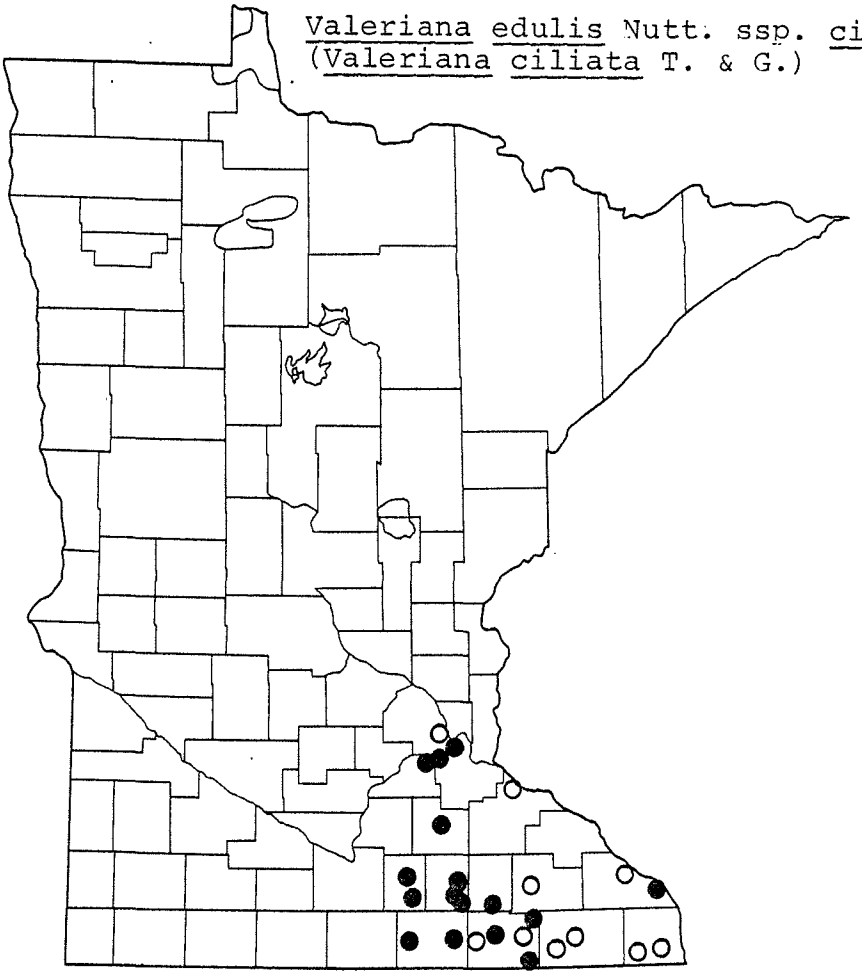
RECOMMENDATIONS: Attempts should be made to protect prairie habitats on right-of-ways from being converted to agricultural land.

SELECTED REFERENCES:

Meyer, F. G. 1951. *Valeriana* in North America and the West Indies (Valerianacene). Ann. Mo. Bot. Gard. 38(4):377-503.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Valeriana edulis Nutt. ssp. ciliata (T.&G.)
(Valeriana ciliata T. & G.)



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Woodsia glabella* R. Br.

FAMILY: Polypodiaceae

COMMON NAME: Smooth Woodsia

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species is known in Minnesota by collections from Pigeon Point and nearby Grand Portage (Cook County), and from an undetermined location on the Gooseberry River (Lake County). The most recent report is from Pigeon Point where one colony of 13 plants was observed in 1977. All of the Minnesota populations are part of an isolated Lake Superior range that is disjunct from the main range of the species.

PREFERRED HABITAT IN MINNESOTA: This species occurs on ledges on north-facing slate cliffs, and crevices in calcareous outcrops.

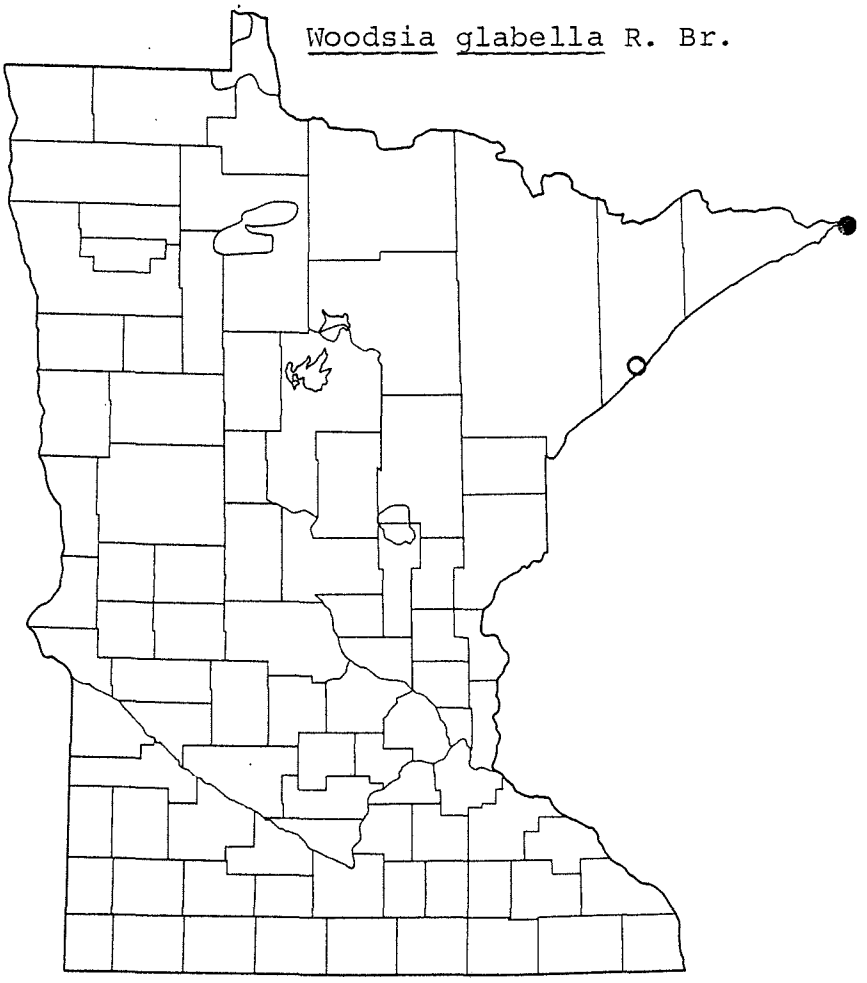
RECOMMENDATIONS: As in the case of the following species, our knowledge of *Woodsia glabella* would benefit greatly by renewed inventory efforts in the area of Pigeon Point.

SELECTED REFERENCES:

Butters, F. K. and E. C. Abbe. 1953. A floristic study of Cook County, northeastern Minnesota. Rhodora 55:21-55; 63-101; 116-154, 161-201.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Woodsia glabella R. Br.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Woodsia scopulina D.C. Eat.

FAMILY: Polypodiaceae

COMMON NAME: Rocky Mountain Woodsia

STATE STATUS: Threatened

FEDERAL STATUS: None

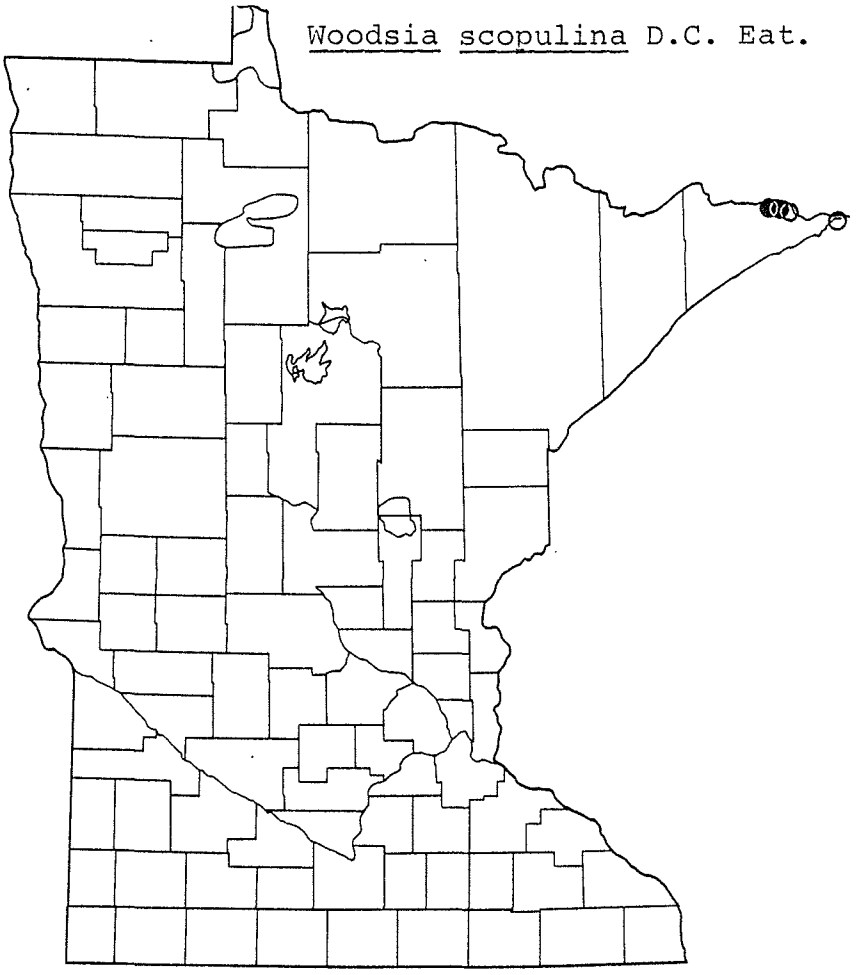
BASIS FOR MINNESOTA STATUS: The Minnesota populations of this species are limited to the region of a few border lakes and Pigeon Point (Cook County). Like the preceeding species, these populations are part of an isolated Lake Superior range that is disjunct from the main range of the species. Although these populations are apparently not subject to human disturbances, threats from natural forces are unknown.

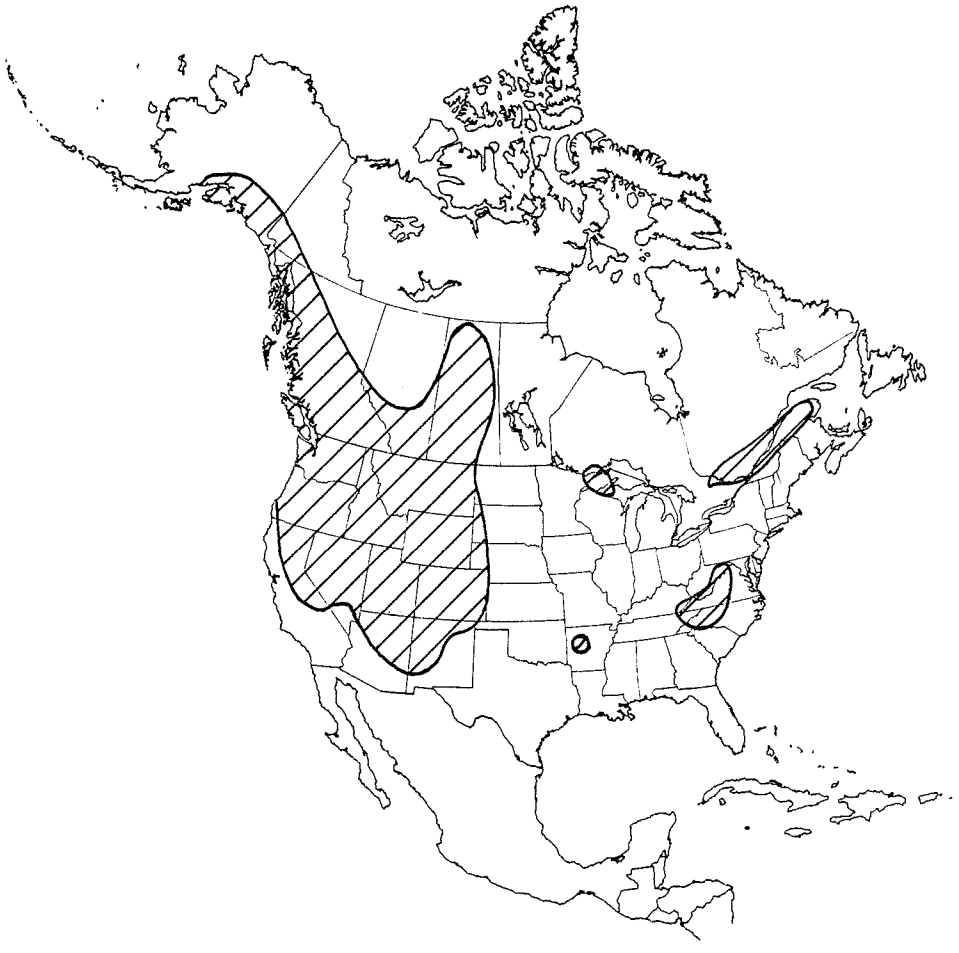
PREFERRED HABITAT IN MINNESOTA: This species occurs on ledges on north-facing cliffs of calcareous or basic rock.

RECOMMENDATIONS: A systematic botanical inventory of Pigeon Point has not been conducted since the 1930's. Such an undertaking today would serve not only to verify historical occurrences of this species, but also of several other rare peripheral and disjunct species.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Woodsia scopulina D.C. Eat.





SPECIES STATUS SHEET

SCIENTIFIC NAME: *Xyris torta* Sm.

FAMILY: Xyridaceae

COMMON NAME: Twisted Yellow-eyed Grass

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: Although there are five collections of this species from Minnesota, none have been made since 1960. There are two collections from Hennepin County dated 1889 with no recorded location. One of the three Anoka County collections was from the Moore Lake dunes which were largely destroyed in 1960 by the construction of Fridley High School. The two remaining sites were searched unsuccessfully in 1980. The major threat to this species and its habitat is the rapid land development occurring in Anoka County.

PREFERRED HABITAT IN MINNESOTA: This species occurs in low sandy meadows and swales in sand dunes. It may occur with other rare species such as *Viola lanceolata*, *Juncus marginatus* and *Scleria triglomerata*.

RECOMMENDATIONS: It is possible that undiscovered populations occur on protected public land in Anoka County, particularly Allison Savanna Scientific and Natural Area, Carlos Avery Wildlife Management Area, Cedar Creek Natural History Area and Boot Lake Scientific and Natural Area. These areas should be inventoried for populations of this species.

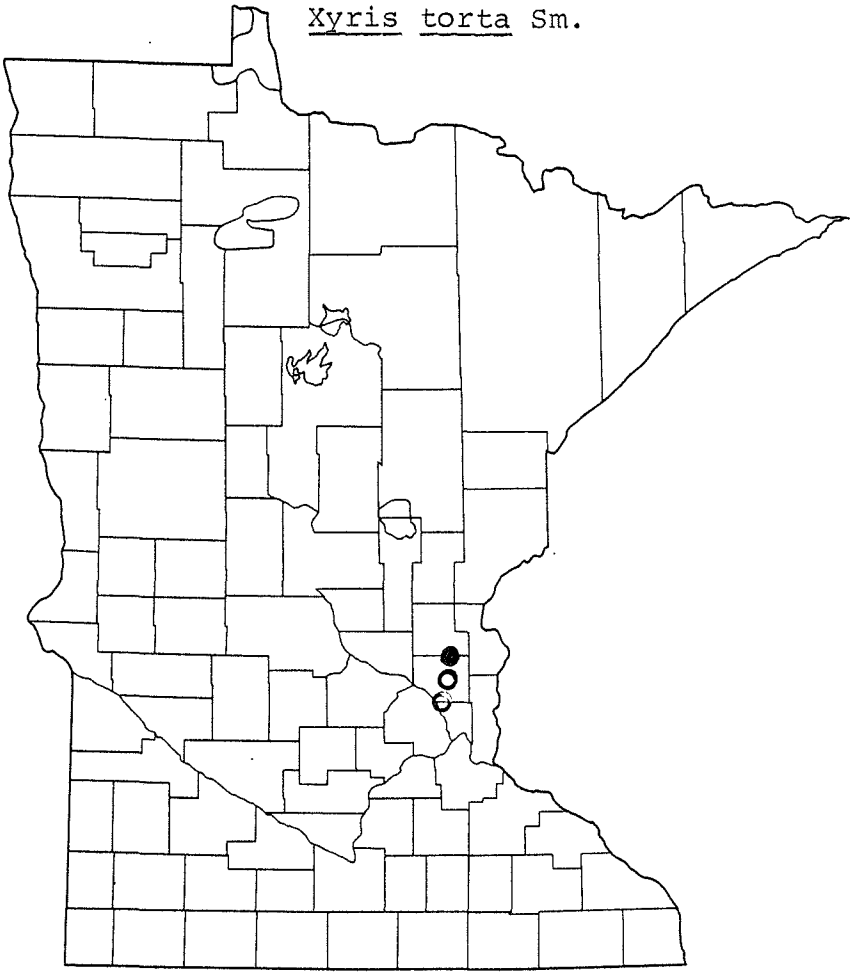
SELECTED REFERENCES:

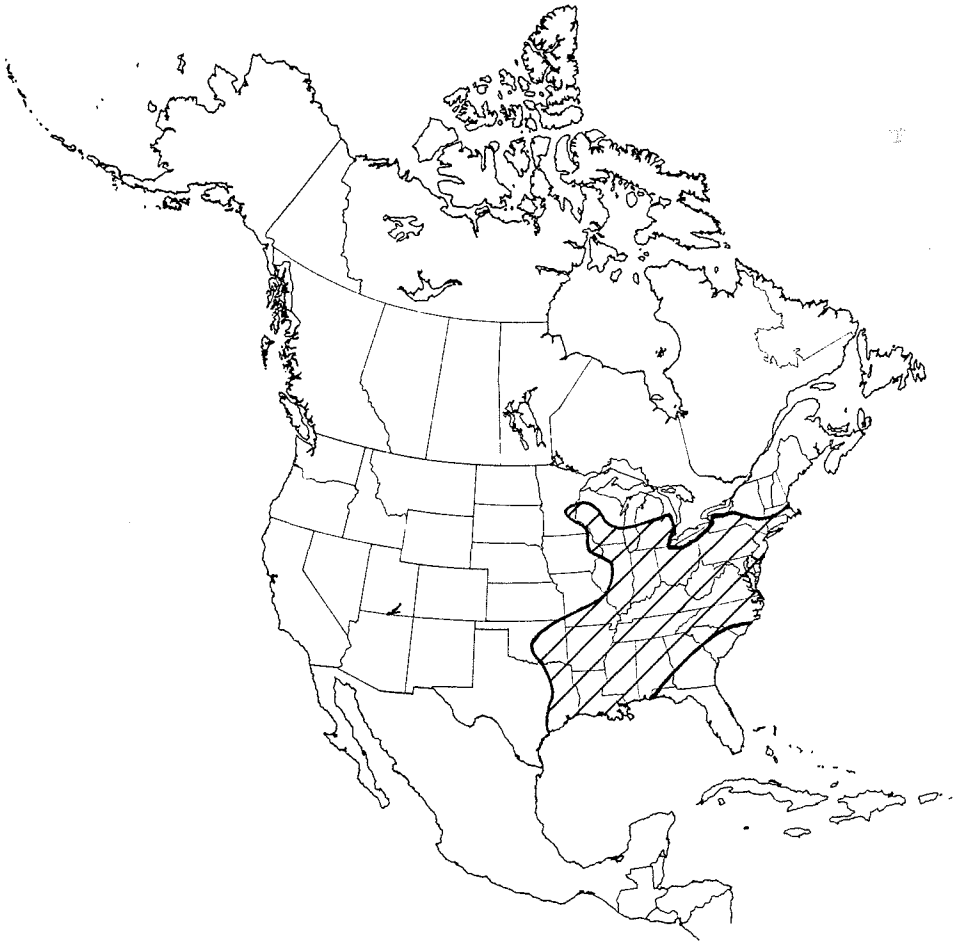
Kral, R. 1966. *Xyris* (Xyridaceae) of the continental United States and Canada. Sida 2(3):177-260.

Moore, J. W. 1973. A Catalog of the Flora of Cedar Creek Natural History Area, Anoka and Isanti Counties, Minnesota. Bell Museum of Natural History, Univ. of Minn., Minneapolis.

PREPARED BY: Welby Smith, Botanist, Natural Heritage Program

Xyris torta Sm.





Lichens and Mosses

Proposed List of Lichens Classified as
Endangered, Threatened or Special Concern
by the Plant Group Committee

ENDANGERED

Buellia nigra (Fink) Sheard (*Rinodina nigra* Fink)
Dermatocarpon moulinsii (Mont.) Zahlbr.
Leptogium apalachense (Tuck.) Nyl.
Lobaria scrobiculata (Scop.) DC
Parmelia stictica (Del.) Nyl.
Pseudocyphellaria crocata (L.) Vain.

THREATENED

Lobaria quercizans Michx.

SPECIAL CONCERN

Cetraria aurescens Tuck.
Cetraria oakesiana Tuck.
Cladonia pseudorangiformis Asah.
Coccocarpia cronia (Tuck.) Vain.
Parmelia stuppea Tayl.
Sticta fuliginosa (Dicks.) Ach.
Umbilicaria torrefacta (Lightf.) Schrad.

SPECIES STATUS SHEET

SCIENTIFIC NAME: *Buellia nigra* (Fink) Sheard [*Rinodina nigra* (Fink)]

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: There are only five known collections of this species, four of them from Minnesota. The only recent collections are from Winona County (two collections from the same locality). If this area is logged the habitat may be lost and this species may be lost from the flora.

PREFERRED HABITAT IN MINNESOTA: This species grows on exposed granite or other non-calcareous rocks near hardwood forests.

RECOMMENDATIONS: A search should be made for other populations of this species in southern Minnesota and at the historic localities.

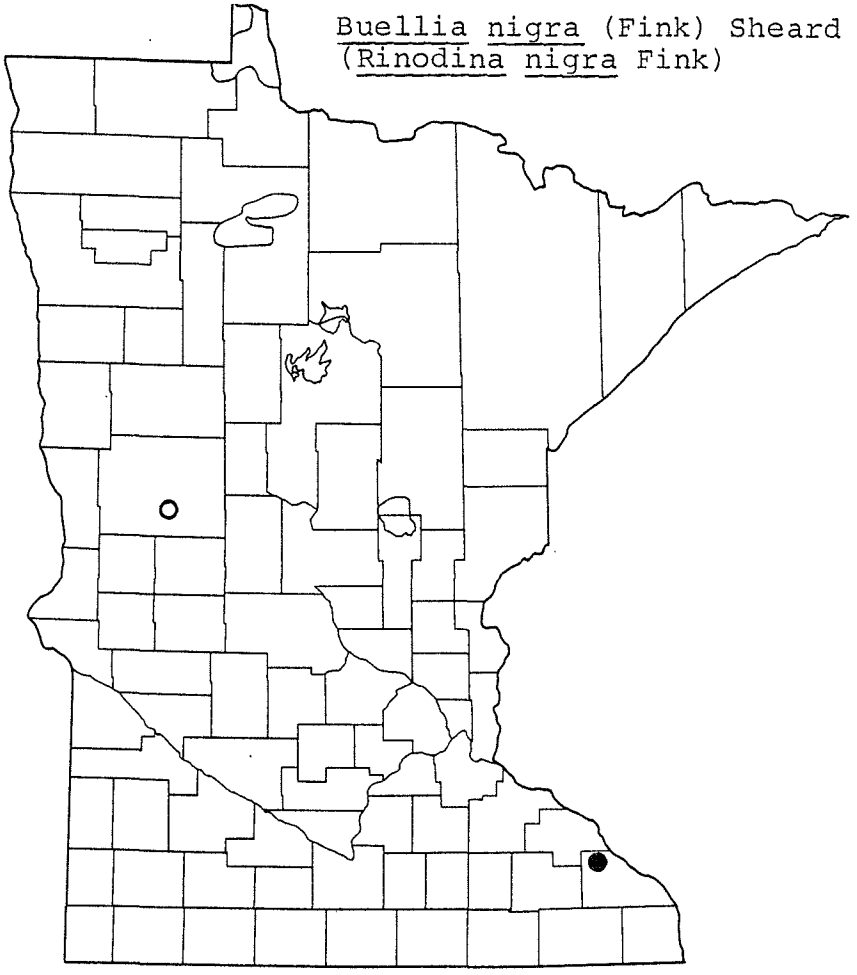
SELECTED REFERENCES:

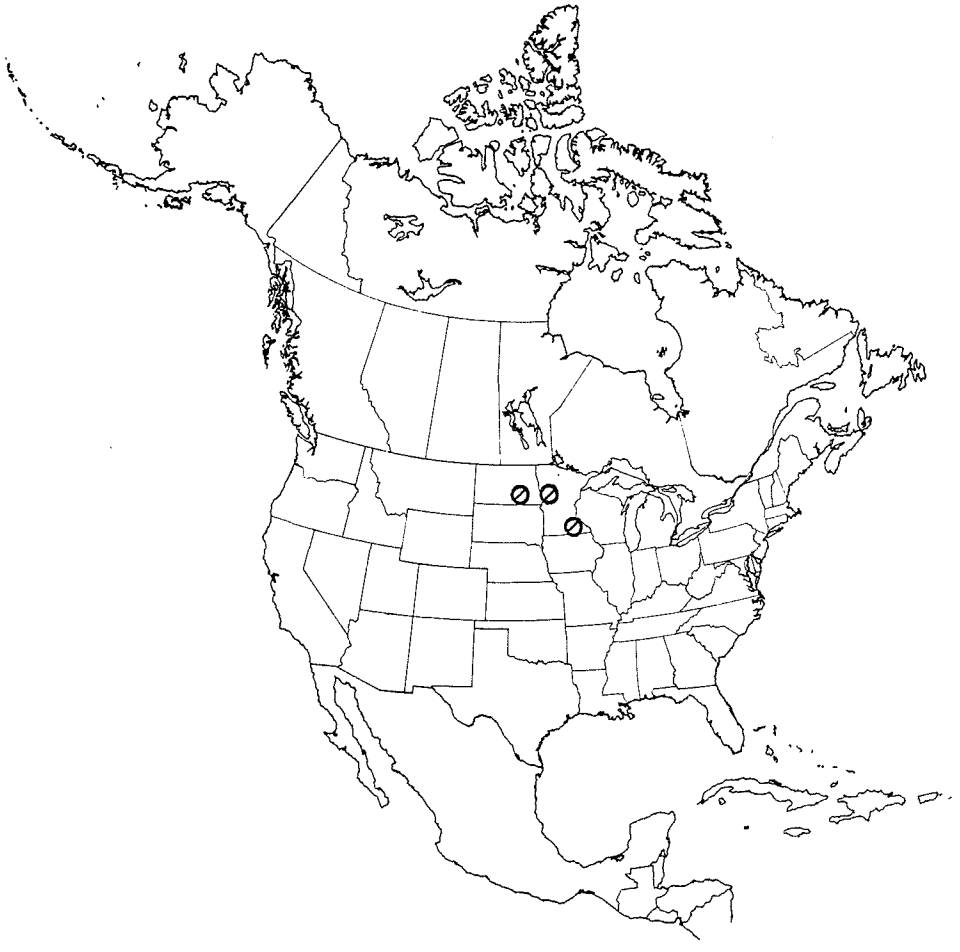
Sheard, J. W. 1969. Four previously misinterpreted *Buellia* species from North America. Bryologist 72:220-224.

Fink, B. 1910. The lichens of Minnesota. Contr. Nat. Herb. 14(1):1-250.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota.

Buellia nigra (Fink) Sheard
(Rinodina nigra Fink)





SPECIES STATUS SHEET

SCIENTIFIC NAME: Dermatocarpon moulinsii (Mont.) Zahlbr.

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species has been collected only once in the state and that was in 1896. The locality was "Minneapolis area". It may have been found along the river bluffs and the population may have been eliminated by the expansion of the city.

PREFERRED HABITAT IN MINNESOTA: This species grows on calcareous rocks, probably along rivers.

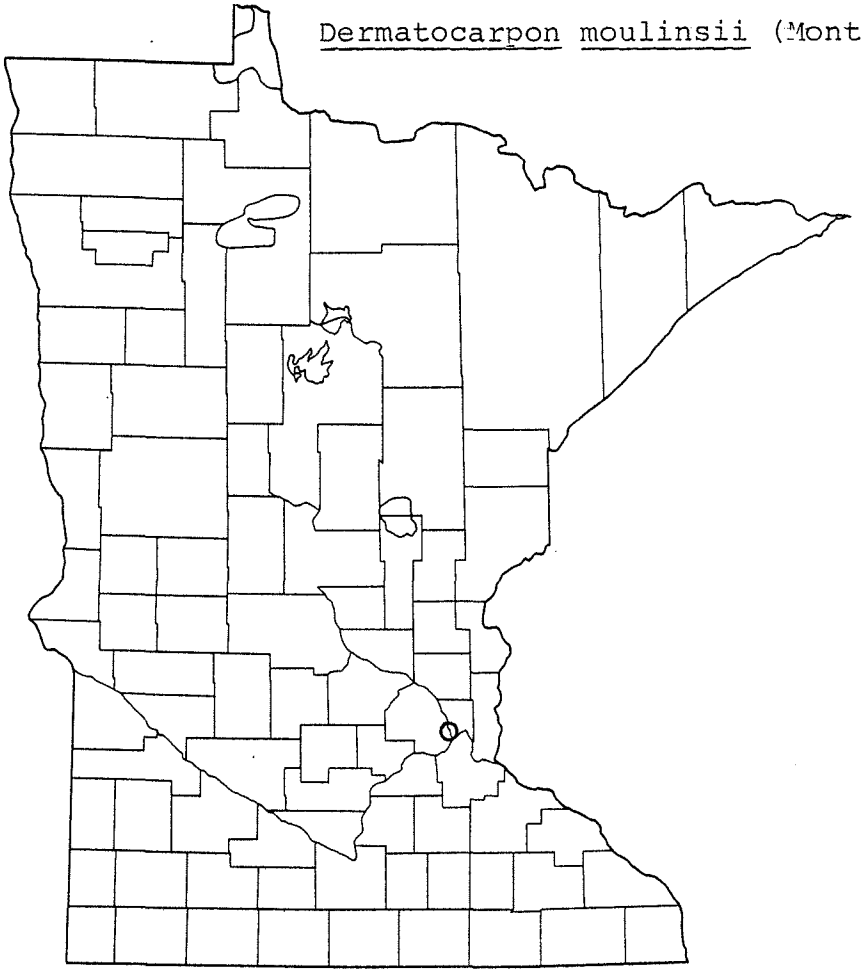
RECOMMENDATIONS: Other populations of this species may still be found along the river bluffs in the southern part of the state. A search should be made for this species in localities where it may still occur.

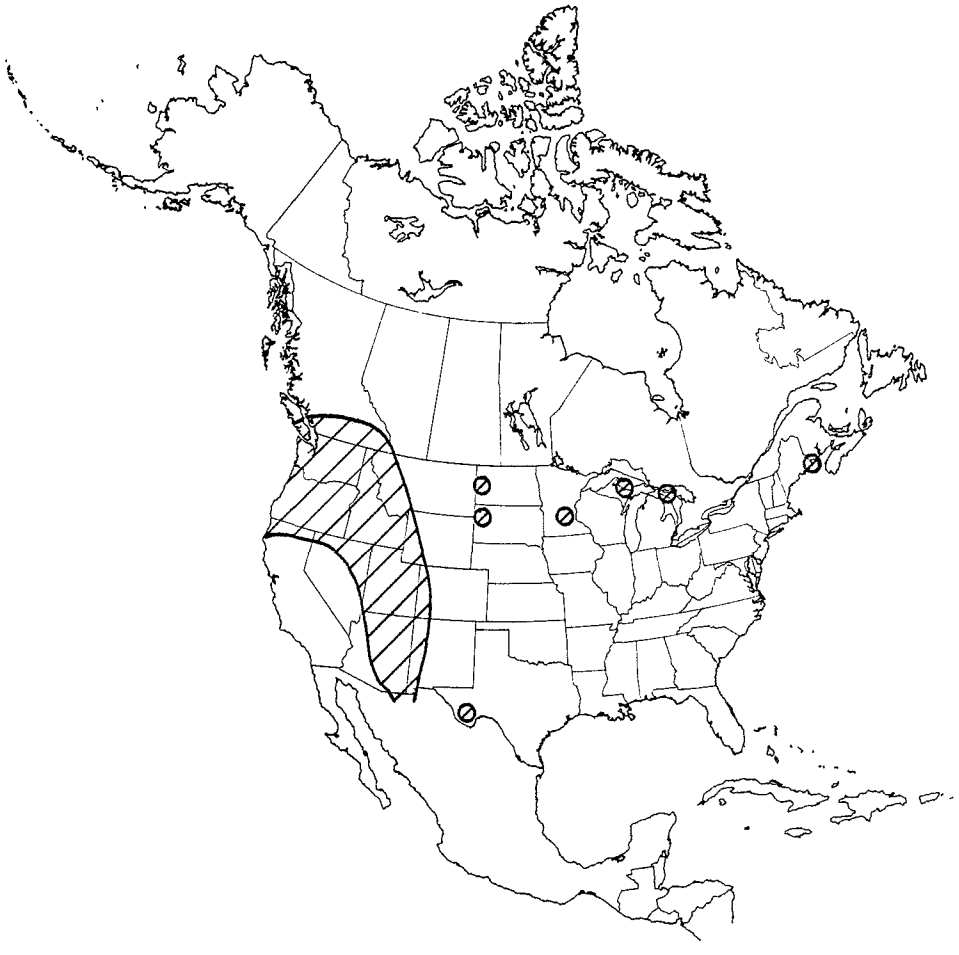
SELECTED REFERENCES:

Hale, M.E. 1979. How To Know The Lichens. W. C. Brown, Dubuque, Iowa.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Dermatocarpon moulinsii (Mont.) Zahlbr.





SPECIES STATUS SHEET

SCIENTIFIC NAME: Leptogium apalachense (Tuck.) Nyl.

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This plant is only known from one collections made at Mankato in 1899 and has not been found since. The expansion of the city may have eliminated the original population but it may still survive at other locations along the river.

PREFERRED HABITAT IN MINNESOTA: This species grows on calcareous rocks, probably along the rivers.

RECOMMENDATIONS: A search should be made for other populations of this species along the rivers in southern Minnesota.

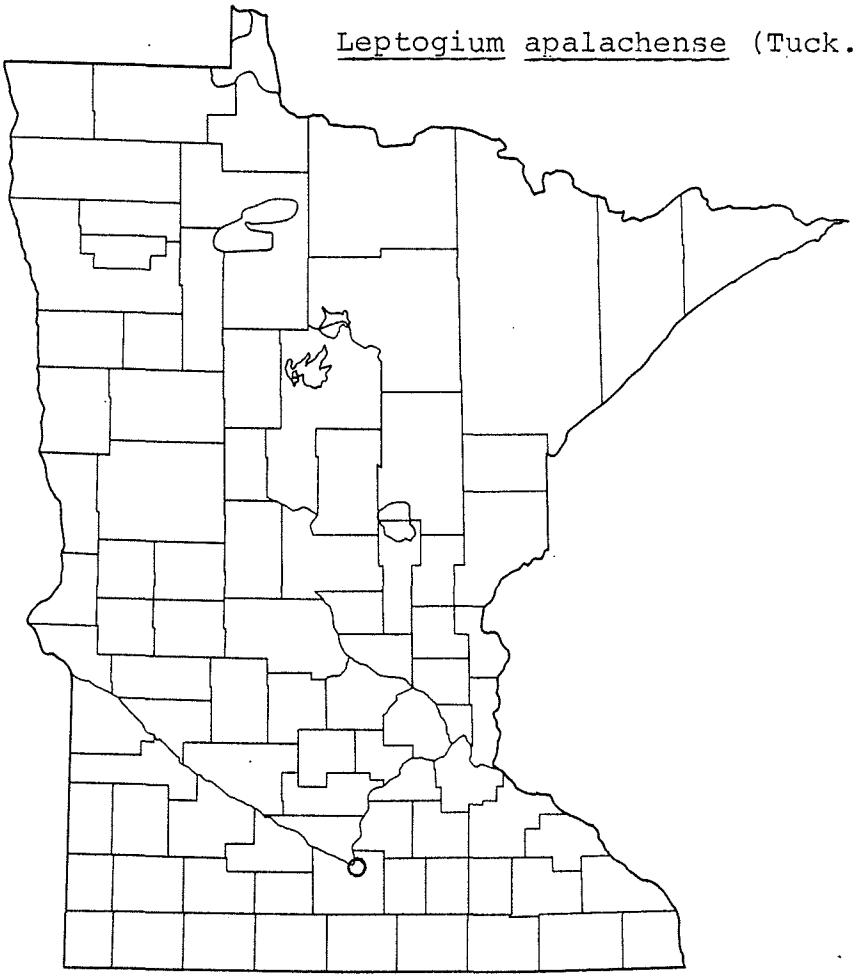
SELECTED REFERENCES:

Hale, M. E. 1979. How To Know Lichens. W. C. Brown, Dubuque, Iowa.

Sierk, H. A. 1964. The genus Leptogium in North America North of Mexico. Bryologist 67:245-317.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Leptogium apalachense (Tuck.) Nyl.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Lobaria quercizans Michx.

COMMON NAME: None

STATE STATUS: Threatened

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was formerly known from 10 localities in the northeastern part of the state but is now very rare due to logging and development. It has been collected in recent times from only four localities in St. Louis County.

PREFERRED HABITAT IN MINNESOTA: This species occurs on mature yellow birch and maples in wet localities in northern Minnesota, especially in ash bogs and cedar swamps.

RECOMMENDATIONS: Most of the old forests of Minnesota where this species grew have been cut. It still occurs in a few old ash bogs and additional localities should be looked for in the northern part of the state.

SELECTED REFERENCES:

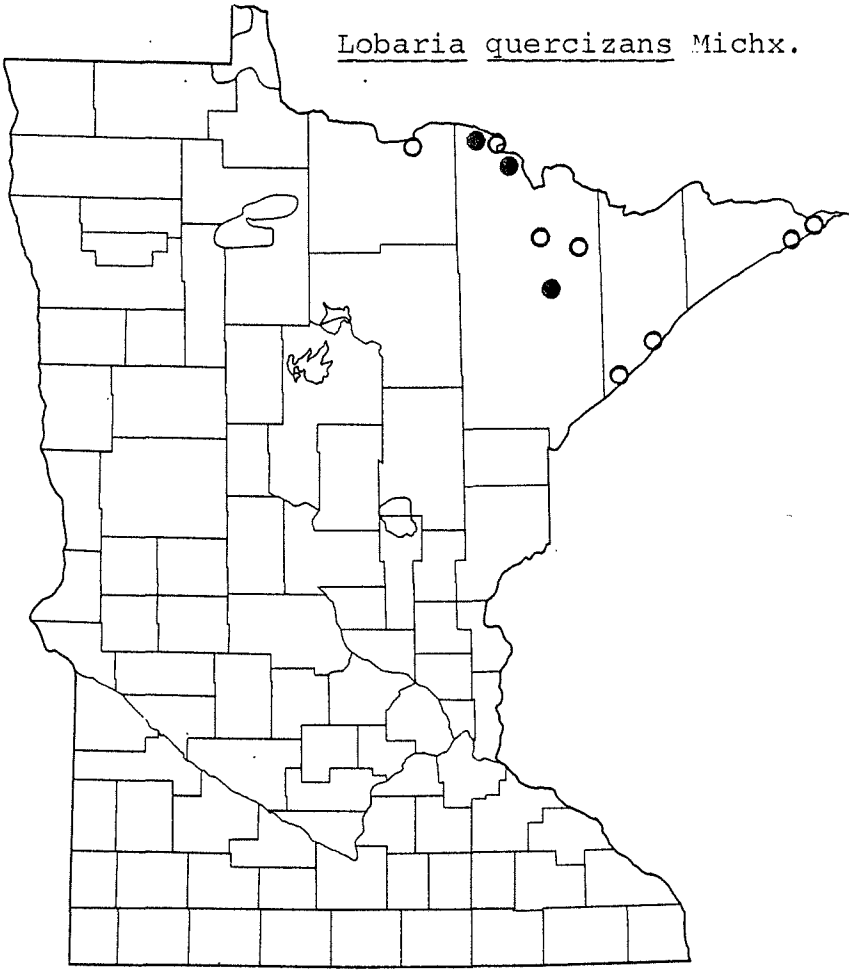
Hale, M. E. 1979. How To Know The Lichens. W. C. Brown, Dubuque, Iowa.

Fink, B. 1910. The Lichens of Minnesota. Contr. Nat. Herb. 14(1):1-250.

Jordan, W. P. The genus Lobaria in North America North of Mexico. Bryologist 76:225-251

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Lobaria quercizans Michx.



SPECIES STATUS SHEET

SCIENTIFIC NAME: Lobaria scrobiculata (Scop.) DC.

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This plant was collected three times around 1900 in Cook County but has been found recently in only one locality. The destruction of moist mature forests in northern Minnesota has threatened this species with elimination from the state.

PREFERRED HABITAT IN MINNESOTA: This grows on moist mossy rocks in swamps and near the shore of Lake Superior in undisturbed habitats.

RECOMMENDATIONS: Further localities should be looked for along the shore in northern Minnesota.

SELECTED REFERENCES:

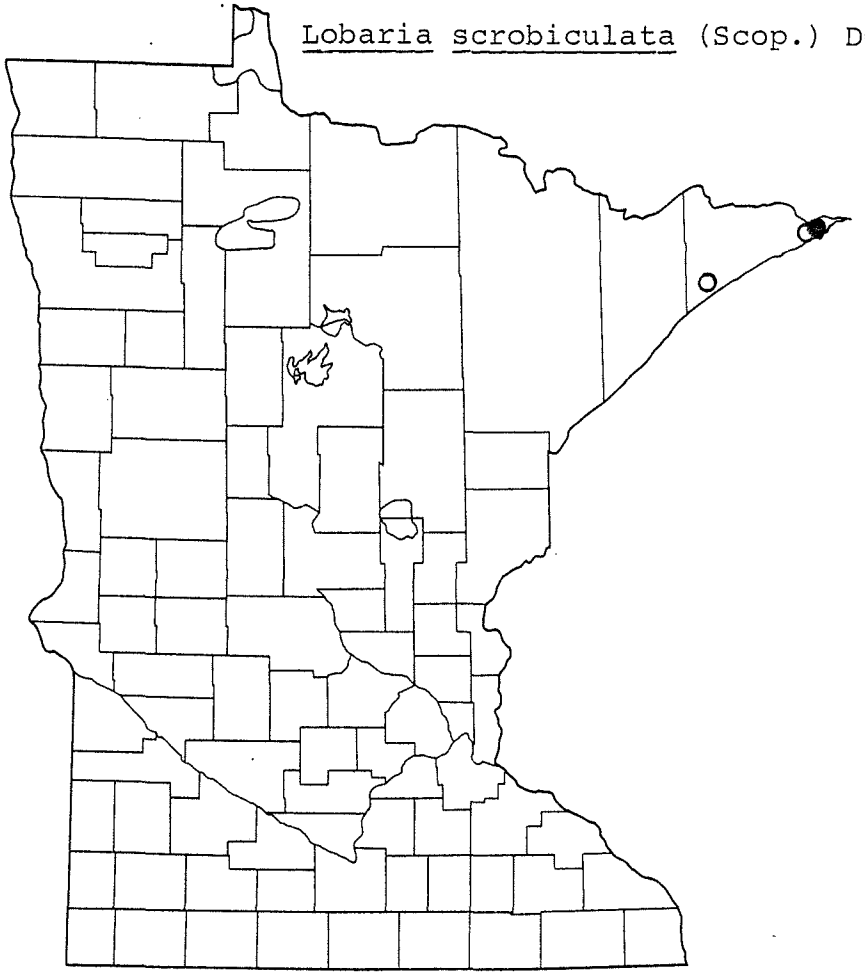
Hale, M. E. 1979. How To Know the Lichens. W. C. Brown, Dubuque, Iowa.

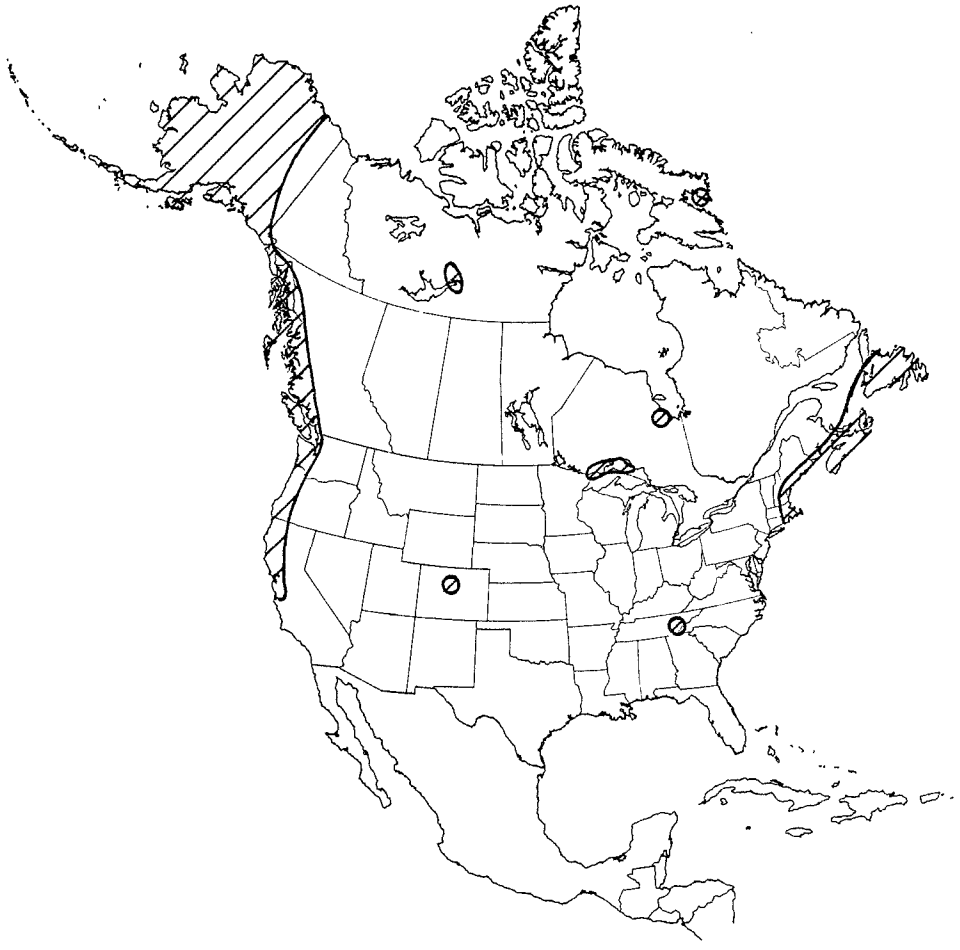
Fink, B. 1910. The Lichens of Minnesota. Contr. Nat. Herb. 14(1):1-250

Jordan, W. P. The genus Lobaria in North America north of Mexico. Bryologist 76:225-251.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Lobaria scrobiculata (Scop.) DC





SPECIES STATUS SHEET

SCIENTIFIC NAME: Parmelia stictica (Del.) Nyl.

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This plant is known from only one locality in Minnesota. It was collected on the shore of Lake Superior in Lake County in 1974. Although numerous other shoreline localities have been checked, this species has not been found. Because of cabin building along the shores the remaining localities are few where this could grow.

PREFERRED HABITAT IN MINNESOTA: This grew on rocks along the lakeshore in mixed hardwood forests.

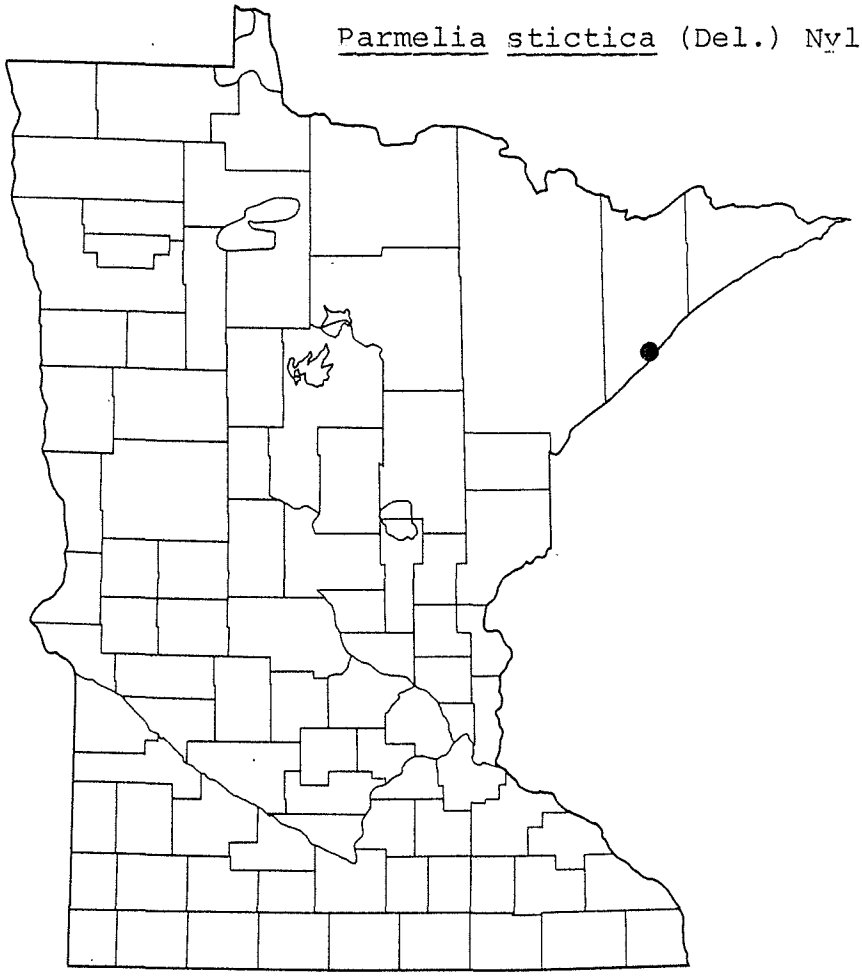
RECOMMENDATIONS: A search should be made for additional localities where this species might be found along the Lake Superior shore in Lake and Cook Counties.

SELECTED REFERENCES:

Hale, M. E. 1979. How To Know The Lichens. W. C. Brown, Dubuque, Iowa.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Parmelia stictica (Del.) Nyl.



SPECIES STATUS SHEET

SCIENTIFIC NAME: *Pseudocyphellaria crocata* (L.) Vain.

COMMON NAME: None

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: This species was collected by Fink around 1900 in seven localities in the northern part of the state but has been found only once in recent times and that in St. Louis County. The elimination of mature moist forests by logging and developments has seriously reduced the occurrence of this species in the state.

PREFERRED HABITAT IN MINNESOTA: This species is found on rocks and trees in shady moist habitats in mature forests.

RECOMMENDATIONS: Additional localities should be looked for in areas of mature forests.

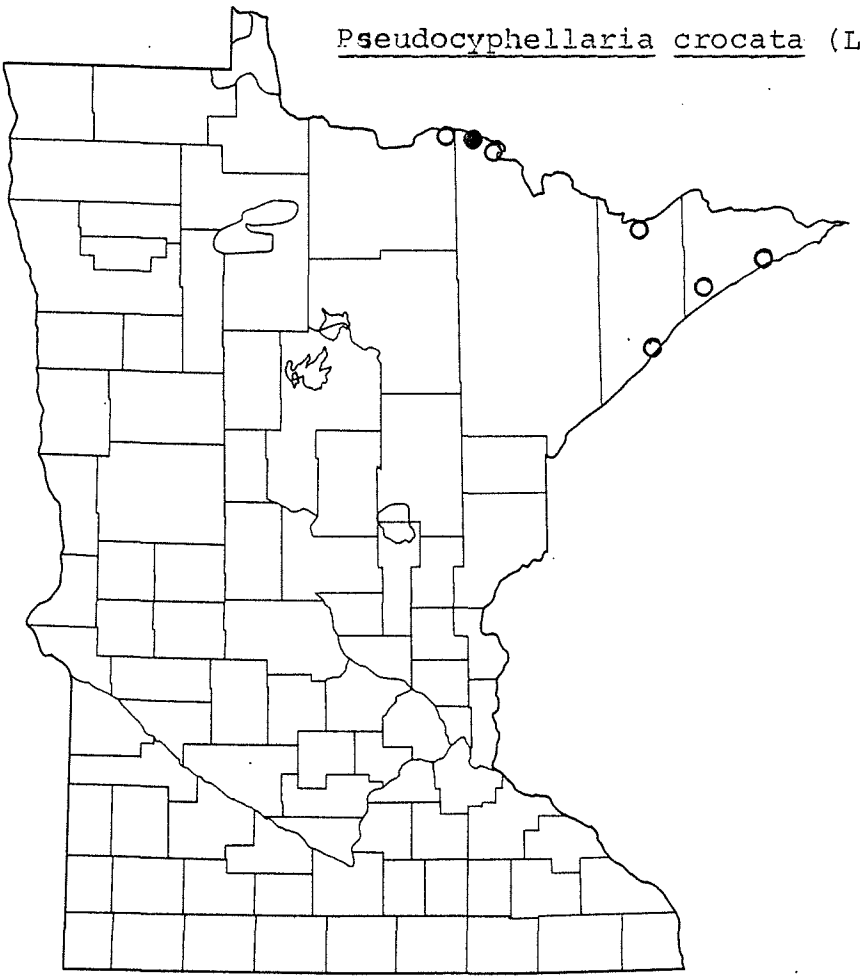
SELECTED REFERENCES:

Hale, M. E. 1979. How To Know The Lichens. W. C. Brown, Dubuque, Iowa.

Fink, B. 1910. The Lichens of Minnesota. Contr. Nat. Herb. 14(1):1-250.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Pseudocyphellaria crocata (L.) Vain.



Proposed List of Mosses Classified As Endangered, Threatened or Special Concern by the Plant Group Committee

ENDANGERED

Schistostegia pennata (Hedw.) Web. & Mohr

THREATENED

None

SPECIAL CONCERN

Bryoxiphium norvegicum (Brid.) Mitt.
Tomenthypnum falcifolium (Ren ex. Nich.) Tuom.

SPECIES STATUS SHEET

SCIENTIFIC NAME: Schistostegia pennata (Hedw.) Web. & Mohr

COMMON NAME: Luminous Moss

STATE STATUS: Endangered

FEDERAL STATUS: None

BASIS FOR MINNESOTA STATUS: There is only one known collection of this species and it is from Cook County made in 1975. It only occurs rarely throughout its range and has very specific habitat requirements.

PREFERRED HABITAT IN MINNESOTA: S. pennata grows inside caves or in narrow cracks in protected rock cliffs in wet habitats.

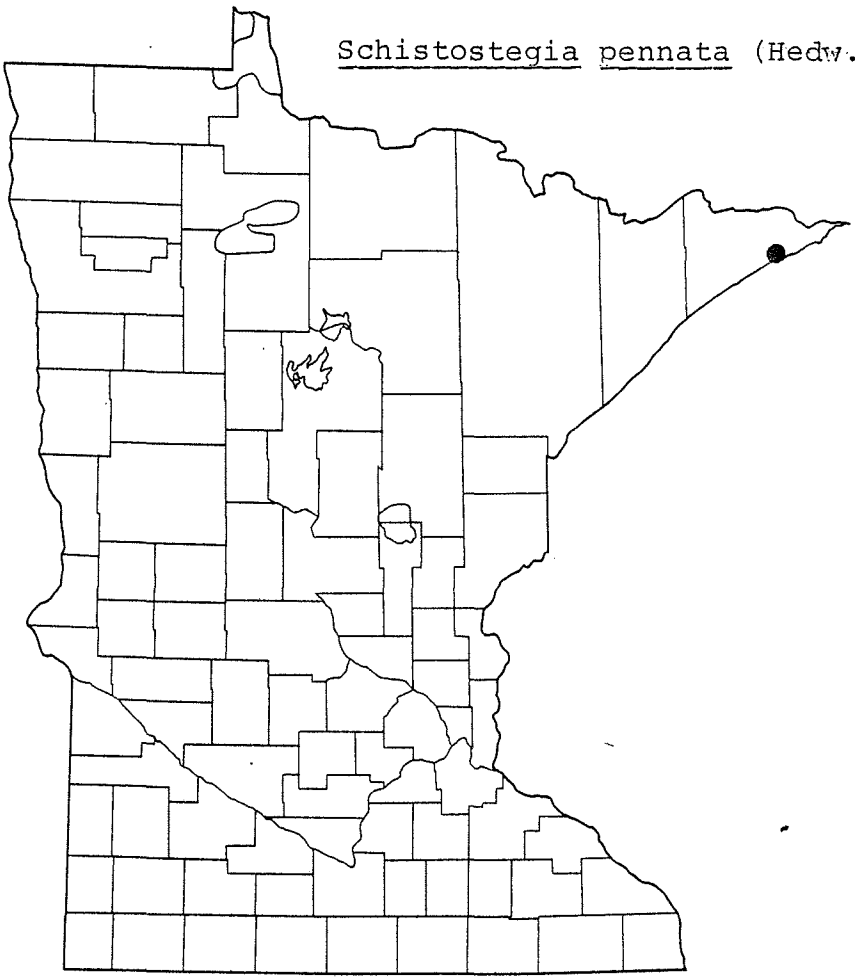
RECOMMENDATIONS: The localities where this species is found should be protected from further development and other localities with similar habitats should be checked for the presence of this rare plant.

SELECTED REFERENCES:

Crum, H. 1973. Mosses of the Great Lakes Forest. University of Michigan, Ann Arbor.

PREPARED BY: Dr. Clifford Wetmore, Botany Department, University of Minnesota

Schistostegia pennata (Hedw.) Web. & Mohr



APPENDICES

APPENDIX A

97.488 PROTECTION OF THREATENED AND ENDANGERED SPECIES.

Subdivision 1. **Prohibition.** Notwithstanding any other provision of law, the taking, import, transport, or sale of any endangered species of wild animal, plant or parts thereof, or the sale or possession with intent to sell any article made in whole or in part from the skin, hide, or any parts of any endangered species of wild animal or plant is prohibited, except as provided in subdivisions 1a and 6.

Subd. 1a. **Application.** The provisions of subdivision 1 do not apply to plants on land classified for property tax purposes as class 3 or 3b agricultural land pursuant to section 273.13, or on ditches and roadways. The provisions of subdivision 1 do not apply to noxious weeds designated pursuant to sections 18.171 to 18.315 or to weeds otherwise designated as troublesome by the department of agriculture. When control of noxious weeds is necessary, it takes priority over the protection of endangered plant species, as long as reasonable effort is taken to preserve the endangered plant species first.

The taking or killing of an endangered plant species on land adjacent to class 3 or 3b agricultural land as a result of the application of pesticides or other agricultural chemical on the class 3 or 3b land shall not be a violation of subdivision 1, as long as reasonable care is taken in the pesticide or other chemical application to avoid impact on adjacent lands.

The accidental taking of an endangered plant, where the existence of the plant is not known at the time of the taking, shall not be a violation of subdivision 1.

For the purpose of this subdivision, class 3 or 3b agricultural land does not include timber land, waste land, or any land for which the owner receives a state paid wetlands or native prairie tax credit.

Subd. 2. **Designation.** The commissioner of natural resources, not later than January 1, 1984, by adoption of rules pursuant to chapter 14, shall designate any species of wild animal or plant as:

(1) Endangered, upon a showing that such species is threatened with extinction throughout all or a significant portion of its range; or

(2) Threatened, upon a showing that such species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range; or

(3) Species of special concern, upon a showing that while a species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range which are not listed as threatened may be included in this category along with those species which were once threatened or endangered but now have increasing or protected, stable populations.

For purposes of this section, the range of the species in Minnesota shall be a factor in determining its status as endangered, threatened or of special concern. A designation by the secretary of the interior that a species is threatened or endangered shall be a prima facie showing for the purpose of this section. Until the commissioner adopts rules, those species designated as endangered by Section 4 (c) (3) of the Endangered Species Act of 1973 (PL 93-205) at the time of enactment thereof shall be considered endangered within the meaning of this section.

The commissioner shall reevaluate the designated species list every three years after it is first adopted and make appropriate changes. In particular, the review shall consider the need for further protection of species on the species of special concern list. Species may be withdrawn from designation in the same manner that species are designated pursuant to this subdivision.

Subd. 3. **Studies.** The commissioner of natural resources may conduct such investigations as he shall deem appropriate to determine the status and requirements for survival of any resident species of wild animal or plant.

Subd. 4. **Management.** Notwithstanding any other provision of law, whenever any resident species of wild animal or plant has been designated as threatened or endangered pursuant to this section, the commissioner of natural resources may undertake management programs and in connection therewith may issue orders, related to wild animals, and adopt rules as he deems necessary to bring the species to a point at which it is no longer threatened or endangered. Subject to the provisions of subdivision 6, management programs for endangered or threatened species may include, but need not be limited to, methods and procedures such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, transplantation and regulated taking.

Subd. 5. **Enforcement.** Any peace officer or conservation officer, pursuant to chapter 626, may execute a warrant to search for and seize any goods, merchandise, plant or animal taken, sold or offered for sale in violation of this section, or any thing used in connection with a violation of this section. Seized property shall be held pending judicial proceedings. Upon conviction, seized property is forfeit. Goods, merchandise, plants or animals shall be offered to a scientific or educational institution or destroyed.

Subd. 6. **General exceptions.** The commissioner may permit, on prescribed conditions, any act otherwise prohibited by subdivision 1 if:

(1) The act is for the purpose of zoological, educational or scientific study;

(2) The act enhances the propagation or survival of the affected species;

(3) The act prevents injury to persons or property; or

(4) The social and economic benefits of the act outweigh the harm caused by it.

No member of an endangered species may be destroyed pursuant to clause (3) or (4) until all alternatives, including but not limited to live trapping and transplantation, have been evaluated and rejected. The commissioner may permit, on prescribed conditions, the propagation of a species or subspecies for its preservation. A member of a threatened or endangered species may be captured or destroyed without permit by any person when necessary in an emergency to avoid an immediate and demonstrable threat to human life or property.

The commissioner shall give any approval under this subdivision for forest management, including as part of a permit, sale, or lease of land for timber harvesting.

Subd. 7. **Application.** This section shall not apply retroactively or so as to prohibit importation into this state and subsequent possession, transport and sale of wild animals or, wild plants or parts thereof legally imported into the United States or legally acquired and exported from another territory, state, possession or political subdivision of the United States.

Subd. 8. **Violations.** A violation of this section is a misdemeanor.

History: *1971 c 825 s 1; 1974 c 465 s 1; 1981 c 285 s 1; 1982 c 424 s 17,130*

Appendix B: Laws of Minnesota 1981, Chapter 285, Section 2 *

Sec. 2. TECHNICAL COMMITTEE

The commissioner shall appoint a technical committee of not more than 30 persons with knowledge and experience in botany, zoology, and other relevant disciplines to recommend criteria for determining the special concern, endangered or threatened status of species and those species appropriate for designation. For purposes of these recommendations, the commissioner shall organize appropriate working subcommittees in various species areas. In addition, the committee shall generally advise the commissioner regarding administration of this section and shall review current programs of the department and recommend appropriate changes and new programs for restoration, recovery, habitat improvement and habitat protection for designated species. The committee shall be appointed not later than July 1, 1981, and shall recommend its list of species for designation to the commissioner and the legislature not later than January 1, 1983, and shall make a written report to the commissioner and the legislature on program recommendations prior to January 1, 1984. Members of the committee shall serve without compensation but shall be reimbursed for expenses in the same manner and amount as state employees. The committee shall terminate upon the adoption of rules designating animal species and the proposal of designated plant species to the legislature under section 97.488, subdivision 2, but in no event later than January 1, 1984.

* This provision is part of the same legislation currently codified as Minnesota Statutes Section 97.488 (1982). This provision is not included in the statutory codification because it is of temporary effect, i.e., the technical committee's existence terminates upon adoption of the rule.

APPENDIX C

MEMBERS OF THE COMMISSIONER'S
ENDANGERED SPECIES TECHNICAL ADVISORY COMMITTEE
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Chairman: Dr. Harrison Tordoff
DNR Liaison: Barbara Coffin

Fish Group

Dr. James C. Underhill, Chairman
Dept. of Ecology Behavioral Biology
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Minneapolis, Minnesota 55455

Dr. Bob Bellig
Deaprtment of Biology
Gustavus Adolphus College
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Department of Biology
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Herp Group

Dr. Jeffrey W. Lang, Chairman
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University of North Dakota
Grand Forks, North Dakota 58202

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Mr. Daryl Karns
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Mr. Mike Nehl
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Lindstrom, Minnesota

Herp Group (con't)

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Department of Natural Resources
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Windom, Minnesota 56101

Mammal Group

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Minneapolis, Minnesota 55455

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Duluth, Minnesota 55812

Dr. Evan B. Hazard
Department of Biology
Bemidji State University
Bemidji, Minnesota 56601

Ms. Gerda Nordquist
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Ms. Katie Hirsch, DNR Liaison
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Invertebrate Group

Dr. Bruce Cutler, Chairman
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St. Paul, Minnesota 55113

Mr. Robert Dana
2618 16th Avenue South
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ENDANGERED SPECIES TECHNICAL ADVISORY COMMITTEE - continued

Invertebrate Group (con't)

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Department of Botany
220 Biological Science Center
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Dr. Clifford Wetmore
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Mr. Mark Heitlinger
The Nature Conservancy
Midwest Regional Office
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Dr. Paul Munson
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Mr. Welby Smith, DNR Liaison
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Natural Heritage Program
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Dr. Daniel Svedarsky
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APPENDIX D

Pursuant to its mandate under laws of Minnesota 1981, Chapter 285, Section 2 (see Appendix B) the Endangered Species Technical Advisory Committee developed the following criteria to use in its assessment of wild animal and plant species of Minnesota.

Endangered:	a species threatened with extinction throughout all or a significant portion of its range.
	a species threatened with extirpation within Minnesota and dependent on a scarce, sensitive and/or exploited habitat in Minnesota and neighboring states.
Threatened:	a species likely to become endangered (based on the criteria listed for the endangered category) within the foreseeable future.
Special concern:	a species, that although not endangered or threatened, is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status.
	a species on the periphery of its range which is not listed as threatened or endangered.
	a species which was once threatened or endangered but now has increasing or protected, stable populations.
	a species whose breeding biology is affected by human activities.