Report for Field Season 1994 Status survey for *Caltha natans* and *Sparganium glomeratum* in Minnesota

For the Minnesota Department of
Natural Resources Natural Heritage
Program, Conservation Biology Research

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Survey conducted for the Minnesota Department of Natural Resources, Natural Heritage Program under a grant by:

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Introduction

1. The purpose of this study is to relocate historical populations of *Caltha natans* and *Sparganium glomeratum* in Minnesota and to also locate new populations of these species. In 1994 field work was done in St. Louis and Carlton counties from May until September under a grant provided through the Conservation Biology Research Program of the Minnesota Department of Natural Resources Natural Heritage Program. At the end of this report is a list giving township, range, and section, landmarks such as roads, number of plants present or area covered, habitat descriptions, and associated species of all observed or collected specimens of *S. glomeratum* (permit #7131) and *C. natans*.

Status survey for *Sparganium glomeratum*

Counties searched

St. Louis
Carlton

Historical *S. glomeratum* sites revisited

2. Three historical sites, HWY 53, Park Point, and Knife River, in St. Louis County were revisited in 1994. The colony on HWY 53 had been discovered last year and was suspected of being one of Lakela's sites. A more thorough investigation of the habitat plus its distance of 17 miles north of Duluth on HWY 53 have lead me to believe that this site is the same one where Olga Lakela collected *S. glomeratum* (Lakela #18779 DUL) in 1954. Her description is of a pond with a floating vegetation mat and that is indeed present. But it is not on the mat where *S. glomeratum* occurs. Instead, it grows in the soft black silt of small streams that flow from the pond. This type of soil has found at nearly all of the sites discovered in 1994. Beavers maintain the pond and also have created channels where *S. glomeratum* and *S. chlorocarpum* grow. A small stream flows from the main dam east through a culvert under HWY 53 into another large beaver pond. While *S. chlorocarpum* was extremely abundant here only 1 *S. glomeratum* plant with fruit was seen.

3. No populations of *S. glomeratum* were found on Park Point or Knife River. Lakela described the site on Park Point as a small bog in Sec. 19 formerly attached to the harbor. No such bogs exist on the Point now. There is a small depression in Sec. 19 but it was searched without success. The Point was searched from Sec. 12 to 20. A historical collection of *Petasites sagittatus* relocated in Sec. 12 during this searches is significant as this species also occurs with *S. glomeratum* in Superior, Wisconsin and at one site in Carlton County.

4. No populations of *S. glomeratum* were found at Knife River. The site description given by Lakela for the Knife River site was a wet area filling with water after road construction. Apparently, this site has been further altered by later construction. A black ash swamp across HWY 61 at Knife River was searched but without success. This swamp did not appear to have any areas of open water such as pools, channels, or streams, places where *S. glomeratum* has been recently observed (discussed below with new sites).

New *S. glomeratum* site: found In 1993 and revisited In 1994

5. These are in Skelton, Carlton County (Walton 1055, Sept. 1, 1993) and Duluth Heights in Duluth, St. Louis County (Walton #1089, Sept. 2, 1993). The Skelton discovery was made while collecting specimens of Sium suave and other aquatics from a ditch an the north side of Gilbert Road. This road cuts through a large black ash/conifer swamp. Besides *S. glomeratum*, several other species of plants collected are county records. The Skelton colony was revisited on June 16, 1994 and found to be in full flower and fruit. The swamp was searched for about 100 feet around the colony of *S. glomeratum* in the ditch. No additional colonies were found here. This is a large swamp, about 1 mile long and 1/4 mile wide, so it is entirely possible that *S. glomeratum* is present elsewhere within it. A second visit in July found that some of the fruit was maturing and abscising. This early blooming is at variance with previously held ideas. Other colonies on HWY 53 and in Superior, Wisconsin were also found to bloom early.

6. The site in Duluth Heights is a small pool in a sugar maple/basswood forest. The pool is roughly circular, about three feet deep in the spring but by July most of the water has drained away. The substrate is a fine black silt containing a large number of diatom shells. This pool is one of several in the forest but the only one with *S. glomeratum*. All of the pools are part of a black ash/white cedar swamp which runs through this forest. The black ash/white cedar swamp is connected to the West Branch of the Chester Creek. Two fruiting stems were seen in 1993 and again in 1994. The colony seems to have increased and now occupies about 4 square feet.

New *S. glomeratum* sites In 1994

7. Nine new sites were discovered in 1994. Seven of these are in St. Louis County (5 in Duluth, 1 in Rice Lake Township, 1 in Peyla). One of the most common habitat features uniting these sites is the presence of black ash: This type of swamp was selected after *S. glomeratum* had been found again in a black ash swamp complex near Duluth Heights on Miller Hill. Black ash swamps are numerous in Duluth, occurring along streams, as isolated swamps in maple/basswood associations, and as extensive wetlands complexes.

8. Previous descriptions of *S. glomeratum* habitat have stressed bogs with floating vegetation mats composed of sedges and ericaceous shrubs. This habitat type was not observed in the black ash swamps. Instead, shallow, ephemeral pools or streams with deep deposits of fine black silt were the preferred habitat. These were seen in Duluth Heights (2 sites, ephemeral pool and silty stream) and Piedmont Heights (2 sites, ephemeral pool). One of the Duluth Heights sites has already been described above. The other is in the same black ash swamp but near the beginning of the West Branch of Chester Creek. At this point the creek is only a silt-clogged track that flows in the spring. As the season progresses it nearly dries up but the soil is saturated and some puddles of water remain.

9. There are 2 sites in Piedmont Heights, Duluth. The Trinity Avenue site is a series of shallow ponds in a black ash swamp. Two of the ponds are deep, but the *S. glomeratum* colony is in a very shallow pool that is nearly dry by late summer. It is choked with vegetation including *S. chlorocarpum*. The site near Chambersburg Avenue is a black ash swamp that is connected to a conifer swamp. *S. glomeratum* occurs in both but there is more (58 plants compared to 12) in the black ash swamp. These plants are in a large shallow pool with black silt similar to that found in other black ash sites. The conifer swamp colony of *S. glomeratum* is in an opening in the *Sphagnum* moss.

10. A variation on the silty pool/silty stream habitat is the site near Oak Bend Drive in Duluth. This pond remains filled with water all summer long and is deep enough for small fish to live in. The pond is at the north edge of forested swamp with black ash, yellow birch, tamarack, black spruce, white cedar, balsam fir, labrador tea, small cranberry and *Sphagnum* moss. Tree cover is fairly thick in the swamp and the ground is well shaded. There are few really wet areas with standing water although the soil is saturated. The upland vegetation is sugar maple/basswood association.

S. angustifolium covers about 40% of the pond's surface with *Potamogeton natans (?) and* other aquatic plants; *Typha latifolia* forms a thick stand on the west end where a few *S. glomeratum* plants were seen growing.

11. Another unusual site is an artificial pool on Woodland Avenue, Duluth. According to the owners, the pool was dug a few years ago in a natural depression and allowed to fill with water. No soils or plants except for a pitcher plant, Siberian iris, and day lily were deliberately brought in. The native associated species could have come in by the wind or animals but if this was formerly a natural depression they could have been there already. It seems likely that *S. glomeratum* was previously present since this pool is near a black ash swamp with silty patches similar to what has been observed in other *S. glomeratum* sites. The owners have given permission to search the black ash swamp next year.

12. A small colony of *S. glomeratum* was discovered in water tracks of a black ash swamp in Rice Lake township on Sept. 20, 1994. Continued filling of the wetland for a parking lot and playing field will eventually eliminate this colony.

13. A new population of 30 *S. glomeratum* plants discovered on Sept. 18, 1994 near Lake Vermilion in Peyla, Minnesota, occurs in a wetland complex of black ash/ conifer swamp, shrub swamp, cattail marsh, and beaver ponds. This wetland is probably about 60 acres.

14. Of three sites in Carlton County 2 (1 in Skelton and 1 in Blackhoof) are associated with black ash/conifer swamps. A site in Skelton not directly associated with a forested swamp is found in a ditch at the junction of Gilbert Road and HWY 61. This ditch flows under HWY 61 from a large wetland complex with forested swamps, shrub swamps, wet meadows, emergent wetlands, and beaver ponds, and is several miles long as indicated by maps. Vegetative plants of a *Sparganium,* either S. *glomeratum* or *S. chlorocatpum,* were seen in this swamp directly across HWY 61 at the edge of the beaver pond being drained by the ditch. Both S. *glomeratum* and S. *chlbrocarpum* grow together in the ditch along the south side Gilbert Road. The Blackhoof population was removed to Hearding Island in St. Louis Bay in an effort to save this colony from road construction. Success of the transplant is unknown at this time.

15. Eight black ash swamp complexes were searched without success. Some apparently had suitable habitat but no species of *Sparganium* were found. Others definitely lacked pools and other small bodies of water where *Sparganium* species could grow.

16. *S. glomeratum* occurs more often in native habitat than in artificial habitats such as ditches. Of the 9 sites discovered this year all were associated with forested swamps. Six were actually in black ash/conifer swamps and 1 was in an artificial pool near a black ash swamp. Of the 3 that were found in ditches, 2 were along roads that cross large black ash/conifer swamps, and 1 was in a ditch that drains from a diverse wetland complex.

Status survey for *Caltha natans*

Counties searched
St. Louis
Carlton

***Calthna natans* sites visited and found In 1994**

17. No historical *Caltha natans* sites were visited this year by me. *Caltha natans w*as not seen in any of the black ash wetlands. I did exp
(sterile *Sparganium* plants resembling vegetative shoots of S. *glomeratum* were seen in the wetland). This shrub swamp is part of a wetland complex that includes a black ash swamp. So far only one *C. natans* colony has been discovered on the site. It measures about 18 by 8 feet in a slough shaded by willow shrubs. At the time of discovery on Aug. 30, 1994 the plants were covered with flowers and fruit. Some of the flowers had a pink tinge.

18. Further searches for *C. natans* were made in the Duluth area after finding it along Miller Creek. These were all in black ash swamps farther upstream on Miller Creek. *C. natans* was not found but these swamps are very extensive and so should be more thoroughly searched.

19. *C. natans* was searched for along one reach of the West Fork of the Moose Horn River in Skelton Township (T47N, R19W, Sec. 28) in Carlton County but was not found. This section of the river was chosen because it is a meandering stream that flows through shrub swamps and black ash swamps and because there are many beaver dams, sloughs and channels where *C. natans* could grow. Habitat of this kind was observed at the *C. natans* sites on Wynne Creek near Biwabik last year**.** Other reaches (T47N, R19W, Sec. 4, 9, 15, 16) farther upstream will be

searched next year because they contain flooded black ash/conifer swamps. A similar black ash/conifer swamp in Blackhoof (T47N, R17W, Sec. 30 and 31) will also be searched. Blackhoof is about 12 miles west of the only Wisconsin *C. natans* site (in Foxboro).

20. A visit on May 26, 1994 to Biwabik to check *C. natans* discovered last year on Wynne Creek revealed that this plant begins blooming and producing fruit before the end of May, much earlier than was previously thought. Two additional colonies (111 and 28 plants, respectively, many in flower and fruit) were discovered on Wynne Creek while working on another project in early June.

Is *S. glomeratum* "common"?

21. Twenty-two populations of *S. glomeratum* have been discovered at new locations in Minnesota and Wisconsin since 1990. These 22 populations of various sizes (from 2 to 150 plants) in four Minnesota counties (Clearwater, Cass, St. Louis, and Carlton) and one Wisconsin county (Douglas) represent an extremely small total acreage amounting to well under 0.1 acres. The actual number of secure populations is 12 out of 22 in Minnesota and 1 out of 2 in Wisconsin. The most recently discovered sites are listed below:

1990:
Two sites discovered in Clearwater County, Minnesota.

1992:
Four sites discovered in Clearwater County, Minnesota.
One site discovered in Cass County, Minnesota.

1993:
Two sites discovered in St. Louis County, Minnesota.
One historical site relocated in St. Louis County, Minnesota (confirmed in 1994).
One site discovered in Carlton County, Minnesota.
One site discovered in Superior, Douglas County, Wisconsin.

1994:
Two sites discovered in Carlton County, Minnesota. Seven sites discovered in St. Louis County, Minnesota. One site discovered in Superior, Douglas County, Wisconsin.

22. The 22 sites discovered in Minnesota and Wisconsin in 1990, 1992, 1993 and 1994 may give the impression that *S. glomeratum is* more common than previously thought. Despite 23 sites in Minnesota and Wisconsin to date, the actual total acreage is still very small. Some colonies are very small and it is possible that they have recently established themselves, but they may also be on the decline. So far wherever it has been collected the numbers and area covered are not very large. The total number of fruiting plants counted in 1994 is about 347 (297 in Minnesota, 50 in Wisconsin). I have estimated that if for every colony discovered there is another 500 square feet somewhere else that has not been found then the total acreage of *S. glomeratum* in these two states is about 0.33 acres. In order to increase that amount to 1,000 acres we must assume that there are about 44 acres undiscovered for each colony discovered. Twenty-two small colonies scattered across Minnesota and Wisconsin, thirteen of which are in danger of being destroyed in the next two years, is not sufficient evidence to say that *S. glomeratum* is common. There are more square feet of cattails in almost any roadside ditch anywhere in Duluth than there are known for *S. glomeratum* in all of North America.

List of *Sparganium glomeratum* sites

Historical *Sparganium glomeratum* sites revisited In 1994:

•T51N, R16W, ne 1/4, ne 1/4 of Sec. 8, HWY 53, about 17 miles north of Duluth, St. Louis County, Minnesota. First recorded Aug. 22, 1993, G. B. Walton 989 (DUL). Next collection record July 7, 1994, G. B. Walton 1403. Twenty-seven fruiting plants in stream at base of beaver dam blocking exit of pond. Also in soft mud of beaver channel and stream along east side of pond. A floating mat of willows, sedges, ericaceous shrubs around north and west sides of pond. Tamarack swamp on south and west sides. Site description and distance from Duluth given by Lakela for collection Lakela #18779 (DUL) match with this one.

Associated species: *Sphagnum* sp.*, Typha latifolia, Calla palustris, Lemna minor, Sparganium chlorocarpum, S. c.* forma *acaule, Carex rostrata, C. hystericina, Salix dicolor, Alnus rugosa, Betula pumila, Hypericum majus, H. mutilum, H. canadense, Lysimachia terrestris, Chamaedaphne calyculata, Utricularia intermedia, Lycopus uniflorus.*

Knife River- no *Sparganium glomeratum* found.
Park Point- no *Sparganium glomeratum* found.

New Sparganium glomeratum sites discovered In 1993 and revisited In 1994:

•T50W, R14W, ne 1/4 of se 1/4 of Sec. 20, ephemeral pool, maple/basswood forest behind Robin Ave. in Duluth Heights, Duluth, St. Louis County, Minnesota. First recorded Sept. 2, 1993, G. B. Walton 1089 (DUL) revisited and still present in 1994 with 2 fruiting stems observed.

Associated species around pool: *Thuja occidentalis, Pinus strobus, Onoclea sensibilis, Equisetum sylvaticum, Gymnocarpium dryopteris, Athryium filix-femina, Osmunda claytonia,* and *Dryopteris spinulosa, Salix discolor, S. humilis, Populus tremuloides, Alnus rugosa, Corylus cornuta, Cornus stolonifera, Fraxinus nlgra, Viburnum trilobum, Betula papyrifera, B. lutes, Acer rubrum, A. spicatum, A. saccharum, Tilia americana.*

Associated species in pool: *Calamagrostis canadensis, Glyceria grandis, Scirpus cyperinus, Carex lupulina, Carex intumescens, Sium suave.*

• *T*47N, R19W, se 1/4, se 1/4 of Sec. 23, Gilbert Road, Skelton Township, Carlton County, Minnesota. First record Sept. 1, 1993, G. B. Walton 1055. June 16, 1994, G. B. Walton 1293 and July 3, 1994, G. B. Walton 1368. In drainage ditch along road through mixed conifer-hardwood swamp (tamarack, white cedar, black spruce, and black ash). About 60 fruiting plants, emergent, in full sun observed in 1994.

Associated species: *Sphagnum sp., Equisetum fluviatile, Lemna minor, Alisma plantago-aquatica, Carex leptalea, C. disperma, C. comosa, C. lacustris, C. paupercula, C. tenera, C. stipata, C. intumescens, C. brunnescens, Eleochads obtusa, Typha latifolia, Smilacina trifolia, Iris versicolor, Salix serissima, S. planifolia, S. pedicellaris, Alnus rugosa, Ranunculus gmelinil* var. *hookeri, R. pensylvanicus, Potentilla palustris, Callitriche verna, Lysimachia thyrsiflora, Utricularia vulgarls, Sium suave, Petasites sagittatus, Bidens frondosa, B. cernua.*

New Sparganlum glomeratum sites discovered In 1994:

•T47N, R19W, ne 1/4, ne 1/4 of Sec. 25, Gilbert Road, Skelton Township, Carlton County, Minnesota. July 3, 1994, G. B. Walton 1372. Thirteen flowering and fruiting plants, drainage ditch leading from a beaver pond on east side of HWY 61 in Sec. 30, 15 more plants downstream where ditch joins Moose Horn River.

Associated species: *Phalaris arundinacea, Sparganium chlorocarpum, Potamogeton sp., Utricularia intermedia, Callitriche vema.*

•T50N, R14W, sw 1/4 of nw 1/4 of Sec. 20 at Sec. 19-20 line, Duluth, St. Louis Co., Minnesota. July 10, 1994, G. B. Walton 1414 and Aug. 23, 1994, G. B. Walton 1521. Twenty fruiting plants, numerous vegetative plants among willows and *Sparganium chlorocarpum* at margins of small, shallow pool in black ash swamp surrounded by maple-basswood forest where Trinity Avenue and Central Entrance intersect.

Associated species: *Sphagnum sp., Equisetum fluviatile, Athyrium filix-femina, Onoclea sensibilis, Dryopteris cristata, D. spinulosa, Potamogeton obtusifolius, Typha latifolia, Sparganium chlorocarpum, Glyceria grandis, Carex tenera, C. leptalea, C. retrorsa, C. stipata, C. comosa, Eleocharis obtuse, Scirpus cyperinus, Lemna minor, Spirodela polyrhiza, Salix lucida, S. planifolia, S. discolor, S. gracilis, Alnus rugosa, Rumex verticillatus, Caltha palustris, Potentilla norvegica, Rubus strigosus, R. pubescens, Fraxinus nigra, Impatiens* sp.*, Viola* sp.*, Utricularia vulgaris, Galium trifidum, Aster punicaus, Bidens* sp.

•T50N, R14W, ne 1/4 of nw 1/4 of Sec. 20, Maple Grove Road, Duluth Heights, Duluth, St. Louis Co., Minnesota. Aug. 12, 1994, G. B. Walton 1477. About 21 plants in puddles of water between clumps of grass and in muddy areas of a drying stream under shrubs and trees of an extensive black ash/white cedar swamp.

Associated species: *Thuja occidentalis, Abies balsamea, Potamogeton* sp.*, Calla palustris, Lemna minor, Glyceria grandis, Phalaris arundinacea, Calamagrostis canadensis, Juncus effusus, Salix planifolia, S. discolor, Alnus rugosa, Spirea alba, Chrysosplenium americanum, Fraxinus nigra, Bidens cemua, Aster puniceus, A. umbellatus.*

•T50N, R14W, nw 1/4 of Sec. 30, south of Anderson Road, between Decker Road and Chambersburg Road, Duluth, St. Louis County, Minnesota. Aug. 22, 1994, G. B. Walton 1518. Several small groups, about 18 sq. ft., 52 fruiting plants, 6 in flower, under willows and alders. Flat-bottomed depression within aspen woodland with other hardwoods. Some black ash present in wetlands, most cut down, thick shrub cover. *S. glomeratum* also present in open water of nearby wetlands (shallow pool and black spruce swamp) associated hydrologically with this one.

Associated species: *Sphagnum* sp., *Equisetum fluviatile, Typha ladfolia, Alisma plantago-aquatica, Lemna minor, Carex intumescens, C. tuckermanii, C. retrorsa, Scirpus cyperinus, Calamagrostis canadensis, Juncus effusus, Iris versicolor, Salix gracilis, S. lucida, Alnus rugosa, Fraxinus nigra, Gallum tinctorium, Lycopus uniflorus, Sium suave, Bidens frondosa.*

•T50N, R14W, nw 1/4 of Sec. 21, Oak Bend Drive, St. Louis Co., Minnesota. Aug. 27, 1994. No specimens collected but photograph of site and specimen made. About 10 fruiting plants on margin of shallow pond between mixed hardwood/conifer swamp (black ash, yellow birch, tamarack, black spruce, white cedar) and upland hardwood forest (sugar maple, red oak, basswood, aspen, Ostrya). *Sparganium angustifolium* very common in pond.

Associated species: *Typha latifolla, Potamogeton natans* (?), *Sparganium angustifolium*, and several other species of aquatic plants, *Salix discolor, S. gracilis, Alnus rugosa*.

•T47N, R17W, sw 1/4, se 1/4 of Sec. 30, County Highway 6, Blackhoof, Carlton County, Minnesota. Sept. 9, 1994, G. B. Walton 1560. Ditch between black ash swamp and road. About 87 fruiting plants, many more vegetative shoots. Adjacent wetlands a mature black ash swamp with balsam fir, white cedar, red maple, alder. Site destroyed by road work soon after specimens collected.

Associated species: *Lemna minor, Typha latifolia, Carex leptalea, Caltha palustris, Impatiens* sp.*, Bidens cernua, B. frondosa, Aster puniceus, A. umbellatus.*

•T51N, R14W, as 1/4 Sec. 35, 4801 Woodland Ave (about 8/10 mile north from junction of Calvary Road and Woodland Ave.), Duluth, St. Louis Co., Minnesota. Sept. 13, 1994, G. B. Walton 1577. Thirty-one fruiting stems, numerous vegetative shoots covering about 10 square feet in an artificial pool created when low area excavated. Owners reported that *S. glomeratum* was not planted here but was part of the natural vegetation that grew after the pool was excavated. Black ash swamp in adjacent maple/basswood forest.

Associated species: *Typha latifolia, Potamogeton* sp., *Callitriche verna, Glyceria grandis, Carex* sp.

•T61N, R16W, ne 1/4, ne 1/4 of Sec. 4, St. Louis Co., Minnesota. Sept. 18, 1994, G. B. Walton 1578. About 1/2 mile north of Pike River bridge on CSAH 77 in wetland across road from Pike Bay, Lake Vermilion. Thirty fruiting stems counted along edges of mixed wetland complex (black ash, conifer, and willow swamps, floating ericaceous mats with *Myrica gale, Alnus rugosa*, and *Safix* spp., and *Typha* marsh) flooded by beaver dams. Plants growing in water tracks under ash trees and also in full sun in drying beaver pond.

Associated species: *Sphagnum* sp., *Typha latifolia, Calla palustris, Lemna minor, Carex comosa, Eleocharis sp., Calamagrostis canadensis, Acorus calamus, Iris versicolor, Ranunculus gmelinii, Potentilia palustris, Hypericum majus, Fraxinus nigra, Cicuta bulbifera, Scutellaria lateriflora, Lycopus uniflorus, Galium trifidum, Epilobium leptophyllum, Bidens frondosa, B. cernua.*

•T51N, R14W, se 1/4 of Sec. 28. Howard Gnesen Road, Rice Lake Township, St. Louis Co., Minnesota. Sept. 20, 1994, G. B. Walton 1581. Twenty fruiting plants in shallow water tracks of small black ash swamp.

Associated species: *Sphagnum* sp., *Equisetum sylvaticum, Dryapteris spinulosa, Onoclea sensibilis, Typha latifolia, Calamagrostis canadensis, Carex tenera, C. intumescens, Clintonia borealis, Safixpurpurea, Alnus rugosa, Rumex orbiculatus, Coptis groenlandica, Rubus pubescens, R. strigosus, Epilobium coloratum, Fraxinus nigra, Acer rubrum, Cornus stolonifera, C. canadensis, Chelone glabra, Lycopus uniflorus, Scutellaria lateriflora, Eupatorium maculatum, Bidens carnua, B. frondosa, Aster umbellatus, A. punicaus.*

List of Caltha natans sites

1993 *Caltha natans* sites revisted In 1994

•T59N, R16W, nw 1/4 of ne 1/4 of Sec. 24. May 26, 1994, G. B. Walton 1227 (DUL). Colony in and along Wynne Creek at base of beaver dam, plants in flower and fruit. Wetland with black ash.

***New Caltha natans* sites discovered In 1994**

•T59N, R16W, sw 1/4 of See. 19, Biwabik, St. Louis Co., Minnesota. June 6, 1994, G. B. Walton 1255 (DUL) and July 7, 1994, G. B. Walton 1402 (DUL). Meandering part of Wynne Creek on muddy shores, 111 eleven plants counted, seedlings plus many in flower and fruit. Sterile plants of *Sparganium* present. Wetland is *Calamagrostis canadensis* and *Carex* spp. meadow and alder swamp, upland is aspen forest.

Associated species: Sphagnum, *Calamagrostis canadensis, Glyceria grandis, Carex stricta,* other unidentified *Carex* spp., *Eleocharis* sp., *Potamogeton epihydrus, Iris versicolor, Ranunculus pensylvanicus, Caltha palustris, Salix* spp., *Alnus rugosa, Potentilla palustris,*
Spirea alba, Mentha arvense, Lycopus sp*., Hypericum* sp*., Impatiens* sp.

•T59N, R16W, Sec. 19, Biwabik, St. Louis Co., Minnesota. June 10, 1994, 28 plants counted (seedlings and in flower and fruit) along Wynne Creek at the base of a beaver dam downhill from ski hill maintenance shed. Surrounding upland forest of *Abies balsamea, Populus tremuloides, Populus grandidentata,* and *Betula papyrifera.*

Associated species: *Alnus rugosa, Caltha palustris, Polygonum sagittatum, Callitriche verna*.

•T50N, R14W, nw 1/4 of sw 1/4 of Sec. 18, Duluth, St. Louis Co., Minnesota. August 30, 1994, G. B. Walton 1536 (DUL). First record of this species from Duluth. Colony about 15 x 8 feet in slough near straightened portion of Miller Creek between HWY 53 and Sundby Road. Water shaded by shrubby willows which grow in the slough. Flowers white, some tinged pink, fruit abundant. *Calamagrostis canadensis* and *Carex* spp. meadow/shrub swamp with some aspen, balsam poplar. Some black ash present on other side of creek.

Associated species: *Calamagrostis canadensis, Phalaris arundinacea, Carex lacustris, Elodea canadensis, Callitriche verna, Safix discolor, S. gracilis.*