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RARE LICHEN SURVEY
OF
SUPERIOR NATIONAL FOREST

FINAL REPORT

Submitted by
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University of Minnesota
St. Paul, MN

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INTRODUCTION

This survey was to survey the Superior National Forest outside of the BWCA for rare lichens, note any additional rare lichens found, and provide lists of other lichens associated with the rare lichens.

Ten weeks were spent during June, July, and August, 1999 on the field work. Preliminary plane flights were made to locate likely sites. These sites and many additional ones were then to be checked on the ground. Complete collections were to be made of all lichens at sites where rare species were found.

The final report is to include species found, localities, associated species lists, habitat descriptions and locations of rare lichen discoveries.

METHODS

Preliminary air flights were made of all districts except the La Croix. All located potential sites were ground checked where possible and many additional sites were located with the help of vegetational maps provided by USFS districts. At each site a walk-through type of survey was done covering at least two acres. As soon as a rare was found all species of lichens found at the site were collected. Field photographs were taken of the rare species when possible. Some additional photographs were taken at the herbarium. GPS locations for latitude and longitude were made at all sites within or very near the area surveyed.

At the University of Minnesota Herbarium all species were identified and the collection vouchers deposited. After computerization of the collections the report was written. Throughout this report the northern white cedar is referred to as Thuja because there are many different trees called "cedars" and none of them are really cedar (Cedrus).

RESULTS

For this survey 130 sites were investigated in most vegetational types and ages throughout all of Superior National Forest (outside of the BWCA) (TABLE 1). Over 1600 lichen collections were made. Rare lichens were found at 28 localities (TABLE 2). Four species on the state protected list were found (Caloplaca parvula, Catraria aurescens, Lobaria quercizans, Sticta fuliginosa) and four other rare lichens that should be added to the list (Arctoparmelia

centrifuga, Menegazzia terebrata, Ramalina thrausta and Usnea longissima) The Ramalina thrausta is a new record for the state. See TABLE 3 for the species and the localities where they were found.

The lists of associated species at localities with rare species are in APPENDIX 1.

The forms "Botanical Field Reconnaissance Report" and "Plant Occurrence Discovery Record" are attached as APPENDIX 2.

APPENDIX 3 are distribution maps of the species found and include the new records found during this study.

CONCLUSIONS

Most of the rare species were found on old growth forests (about 100 years or more). Because of this, the vegetation maps provided by the USFS were especially useful. There are still some localities that could not be reached by ground travel and will need plane or ATV access on logging roads.

Arctoparmelia centrifuga is a rare lichen in our area and has its main distribution further north and at high elevations in the mountains. It occurs on sunny rocks and talus slopes.

Caloplaca parvula occurs in very specific habitats. It has only been found at the bases of smooth bark black ash in Minnesota and only in black ash bogs within 50 feet of lakes. In Michigan it was reported on the smooth bark of sugar maple.

Cetraria aurescens occurs a only one or two thalli at very scattered locations. Not enough is known about its habitat requirements but the localities where it occurs are usually humid.

Of the state listed species Lobaria quercizans should be delisted. It is quite common in the old sugar maple forests. It will not be threatened unless there is widespread logging of the old sugar maple forests.

Although Menegazzia terebrata was found at six localities, it is still worthy of protection because of its federal listing and rarity in other parts of the North America. It only occurs in the interior parts of very old growth Thuja bogs. Any disturbance of the integrity of these stands would threaten the species.

Ramalina thrausta is a new record for the state and occurs in old humid Thuja bogs. In Michigan it occurs on Isle Royale in very humid cool places. The habitat requirements are uncertain but it may require sites with frequent fog.

Sticta fuliginosa is known from scattered humid old growth forests and usually on old yellow birch. It is rare throughout the upper Great Lakes.

Usnea longissima is another rare species in Minnesota that is threatened throughout the world. It seems to require moist old growth forests with more or less continuous habitat. It disperses by thallus fragments a few inches long and cannot be blown far from the parent plant by the wind.

Other rare species on the state and USFS list were not found during this survey.

Further information on these species can be obtained from the Species Viability report recently completed by the USFS.

TABLE 1
SURVEY PLOTS FOR RARE LICHEN STUDY

Localities in **bold** indicate rare lichens found there. Latitude/longitude readings were by Garmin GPS40 and have been rounded to the nearest second. Most GPS readings were taken within the area surveyed. The number at the end of each locality are the collection numbers of C. Wetmore for this study.

Laurentian District - 20 localities

L-1 St. Louis County, N of Skibo, red pine and white pine over 85 years old, on ridge. Skibo Quad, Sec. 21, T57N,R13W. 47°29'24"N, 92°00'07"W. 15 June 1999.

L-2 St. Louis County, E of Hoyt Lakes, Thuja bog, S side, scattered Thuja along stream with alder and some spruce trees. Skibo Quad, Sec. 23, T58N, R13W. 47°29'16"N, 92°04'09"W. 15 June 1999.

L-3 Lake County, E of Marble Lake, white birch stand over 85 years old with balsam fir and low areas of old black ash. Legler Quad, Sec. 23, T56N, R10W. 47°19'18"N, 91°34'35"W. 16 June 1999.

L-4 Lake County, Sugar maple stand over 85 years old with some yellow birch on flat hilltop. Legler Quad Sec. 20, T56N, R9W. 47°19'24"N, 91°30'23"W. 16 June 1999.

L-5 Lake County, Thuja bog along West Fork Split Rock River, mixed middle age Thuja, balsam fir, black spruce, white birch and alder. Legler Quad, Sec. 35, T56N, R10W. 47°17'38"N, 91°34'10"W. 16 June 1999.

L-6 Lake County, 14 mi NW of Silver Bay on USFS 397. Sugar maple stand over 85 years old on rolling hilltop with few old quaking aspen, yellow birch and basswood. L. quercizans present on about 8-10 old sugar maple trees. Photo taken. Legler Lake Quad & Whyte Quad, Sec. 36, T57N, R10W. 47°22'20"N, 91°32'17"W. 16 June 1999 #82210-82241.

L-7 St. Louis County, 14 mi NW of Silver Bay on USFS 397. Thuja bog with some black spruce and alder. Legler Lake Quad & Wythe Quad, Sec. 36, T57N, R10W.

47°22'23"N, 91°32'30"W. 16 June 1999.

L-8 St. Louis County, 2 miles east of Hoyt Lakes along USFS 110. Old quaking aspen stand with some white birch, balsam fir and spruce on rolling land. Poor quality mixed stand. Allen Quad, Sec. 15, T58N, R14W. 47°30'28"N, 92°06'23"W. 20 June 1999.

L-9 Lake County, 2 miles E of Pine Lake. Old Thuja bog with leaning old Thuja, alder and few black spruce. Menegazzia terebrata. Toimi Quad, Sec. 32, T58N, R11W. 47°27'51"N, 91°45'26"W. 21 June 1999 #82242-82286.

L-10 St. Louis County, East of Bassett Lake, south of highway 16. In black ash bog along small stream with alder. Lobaria quercizans. Brimson Quad, Sec. 33, T57N, R12W. 47°22'23"N, 91°51'25"W. 21 June 1999 #82287-82326.

L-11 St. Louis County, East of Bassett Lake, N of highway 16. Mixed ash bog with balsam fir, birch, aspen and alder. Toimi Quad, Sec. 28, T57N, R12W. 47°23'14"N, 91°51'53"W. 21 June 1999.

L-12 St. Louis County, 4 miles east of Hoyt Lakes. In old mixed quaking aspen stand with white birch and balsam fir on hill. Bird Lake Quad, Sec. 22, T58N, R14W. 47°29'34"N, 92°04'51"W. 21 June 1999.

L-13 St. Louis County, 6 miles north of Whiteface Reservoir on USFS road 130. Thuja bog with scattered Thuja, tamarack and alder. Turpela Quad, Sec. 31, T67N, R14W. 47°23'02"N, 92°09'29"W. 22 June 1999.

L-14 St. Louis County, 8 miles south of Hoyt Lakes on USFS road 130 at junction of Norway Point Road. In middle age jack pine but very wet ground. Turpela Quad, Sec. 7, T57N, R52W. 47°26'19"N 92°09'19"W. 22 June 1999. #82327

L-15 St. Louis County, North of Pfeifer Lake Campground north of highway 22/1 on old highway 1. In Thuja bog with balsam fir, tamarack and alder. Sassas Creek Quad, Sec. 3, T61N, R17W. 47°47'42"N, 92°30'05"W. 23 June 1999.

L-16 St. Louis County, North of Big Rosendahl Lake off highway 22/1. In ash bog with balsam poplar at edge. Not old enough for rare lichens. Sassas Creek Quad, Sec. 12, T61N, R18W. 47°46'58"N, 92°34'14"W. 23 June 1999.

L-17 St. Louis County, Just north of Pfeifer Lake. In mixed black ash and Thuja bog with some old yellow birch and alder. Yellow birch and Thuja 10-16" diam. Rare: Lobaria quercizans, Sticta fuliginosa. Lost Lake Quad, Sec. 23, T61N, R17W.

47°45'24"N, 92°27'56"W. 23 June 1999. #82328-82371.

L-18 St. Louis County, 12 miles N of Chisholm 0,6 mi S of highway 65. In old jack pine stand (8-15" diam.) and scattered small quaking aspen. Dark Lake Quad, Sec. 25, T60N, R20W. 47°39'02"N, 92°47'58"W. 24 June 1999. #82372-82407.

L-19 St. Louis County, East of Perch Lake (?) just west of Shannon River. On ridge with old quaking aspen (15-20" diam.), old black spruce. Dewey Lake NW Quad, Sec. 20, T60N, R24W. 47°40'32"N, 92°54'07"W. 24 June 1999.

L-20 St. Louis County, 12 miles N of Chisholm on highway 73, south of highway 65. East of road on ridge in old growth with mixed jack pine, quaking aspen, white birch and black spruce. Dark Lake Quad, Sec. 22, T60N, R20W. 47°39'59"N, 92°51'58"W. 24 June 1999.

La Croix District - 16 localities

C-1 St. Louis County, Northwest of Ash Lake on 518. Young to middle age ash bog (4-8") with willow and alder. Ash Lake Quad, Sec. 12, T66N, R21W. 48°13'35"N, 92°59'09"W. 25 June 1999.

C-2 St. Louis County, North of Pearl Lake on 529. Bog with young open Thuja (4-8"), tamarack, black spruce, alder. Ray SE Quad, Sec. 17, T67N, R21W. 48°17'48"N, 93°04'05"W. 25 June 1999.

C-3 St. Louis County, Southeast bay of Elephant Lake. North facing shaded cliff/ledges with big old white pine and red pines (15-24"). Elephant Lake Q, Sec. 24, T66N, R19W. 48°10'56"N, 92°43'58"W. 25 June 1999. #82408-82460.

C-4 St. Louis County, Southeast corner of Johnson Lake. Ash bog with some big old ash to 30" and some alder and big old quaking aspen. Johnson Lake Quad, Sec. 6, T67N,

R17W. 48°19'07"N, 92°34'40"W. 26 June 1999.

C-5 St. Louis County, 1.5 mile south of Johnson Lake. Rock ledges and gully with old upland Thuja (18-20"), white pine (to 20") and old aspen. Johnson Lake Quad, Sec. 7, T67N, R17W. 48°18'09"N, 92°34'12"W. 26 June 1999. #82461.

C-6 St. Louis County, Ridge west of The Chute on Vermilion River. Old quaking aspen 10-18" & some black spruce. Johnson Lake Quad, Sec. 19, T67N, R17W. 48°16'01"N, 92°33'57"W. 27 June 1999.

C-7 St. Louis County, Half mile west of 491 crossing of Vermilion River. On hill with jack pines 8-10" and some young balsam fir and old quaking aspen. Johnson Lake Quad, Sec. 19, T67N, R17W. 48°16'07"N, 92°34'33"W. 27 June 1999.

C-8 St. Louis County, 2 miles SSW of Crane Lake Road on USFS 491. North facing cliffs with young jack pine on top and brush below. Kabustansa Lake Quad, Sec. 34, T67N, R33W. 48°14'18"N, 92°31'06"W. 27 June 1999.

C-9 St. Louis County, North of Echo Trail 2.5 mi SE of Echo Lake. Old quaking aspen stand 10-12" with some jack pine and black spruce. Echo Lake Quad, Sec. 33, T66N, R16W. 48°09'45"N, 92°24'04"W. 27 June 1999.

C-10 St. Louis County, Echo Trail NE of Pauline Lake. Ridge with young jack pine & quaking aspen. Lake Jeanette Quad, Sec. 11, T65N, R16W. 48°07'36"N, 92°21'03"W. 27 June 1999.

C-11 - see K-28

C-12 St. Louis County, SE of Marion Lake on 203. Ash-Thuja bog with some old trees 16-24", tamarack & alder. Marion Lake Quad, Sec. 22, T67N, R18W. 48°16'27"N, 92°38'24"W. 29 June 1999. Lobaria quercizans. #82465-82511.

C-13. St. Louis County, Marion Creek S of 203. At edge of stream lowland with scattered old Thuja 18-26", black ash 16-18", old white birch, black spruce and alder and balsam poplar. Lobaria quercizans. Marion Lake Quad, Sec. 28, T67N, R18W. 48°15'59"N, 92°39'13"W. 29 June 1999. #82512-82543.

C-14 St. Louis County, S of Marion Lake W of 203.. Hillside with middle age jack

pine, red pine, white pine 8-18". Marion Lake Quad, Sec. 28, T67N, R18W. 48°15'18"N, 92°40'16"W. 29 June 1999.

C-15 St. Louis County, SW of Marion Lake. On ridge with rocks and red pine and white pine 10-24". Marion Lake Quad, Sec. 30, T67N, R18W. 48°15'46"N, 92°42'01"W. 29 June 1999.

C-16 St. Louis County, NE of Elephant Lake on 203 1.4 mi N of junction. Mature jack pine on ridge with rock outcrops. Jack pine 8-18", black spruce 6-12", old quaking aspen. Elephant Lake Quad, Sec. 6, T66N, R18W. 48°14'07"N, 92°42'30"W. 29 June 1999.
#82544.

Kawishiwi District - 27 localities

K-1 St. Louis County, Ridge S of Bass Lake (4 mi N of Ely). On ridge with old red pines (15"), quaking aspen (9"), black spruce, white birch & young balsam fir. Ely Quad, Sec. 10, T63N, R12W. 47°57'19"N, 91°51'35"W. 10 July 1999. #82545-82600.

K-2 St. Louis County, N facing hillside on S side of Bass Lake (4 mi N of Ely). On N facing hillside near small stream in stand of old Thuja with Thuja (20"), balsam fir, white birch, quaking aspen. Ely Quad, Sec. 10, T63N, R12W. 47°57'22"N, 91°51'30"W. 10 July 1999. #82601-82633.

K-3 St. Louis County, SW side of Bass Lake. On ridge with old quaking aspen (18"), red pine (14") & young balsam fir. Ely Quad, Sec. 9, T63N, R12W. 47°57'20"N, 91°51'56"W. 10 July 1999.

K-4 St. Louis County, NW of Fenske Lake. On ridge with red pine (12"), and some jack pine. Anglemorm Lake Quad, Sec. 18 & 19, T64N, R12W. 48°00'16"N, 91°55'03"W. 10 July 1999.

K-5 St. Louis County, NE of Birch Lake Campground. In Thuja bog with Thuja (15"), black spruce & alder. Kangas Bay Quad, Sec. 13, T61N, R12W. 47°46'00"N, 91°48'00"W. 11 July 1999.

K-6 Lake County, Birch Lake Campground. Along stream at E end with old ash (15"),

quaking aspen (21"), alder and rocks. Kangas Bay Quad, Sec. 19, T61N, R11W. 47°45'35"N 91°46'41"W. 11 July 1999.

K-7 Lake County, Birch Lake Campground. N of camp in young ash bog with ash (8") and alder. Kangas Bay Quad, Sec. 19, T61N, R11W. 47°45'38"N 91°46'47"W. 11 July 1999.

K-8 Lake County, N of Birch Lake Campground. On flat rock outcrops with jack pine (12"), quaking aspen (11") and young quaking aspen. Kangas Bay Quad, Sec. 18, T61N, R11W. 47°45'40"N, 91°47'35"W. 11 July 1999. #82634-82675.

K-9 Lake County, W of Birch Lake. Old quaking aspen stand with quaking aspen (12") and some black spruce, and rocks. Kangas Bay Quad, Sec. 18, T61N, R11W. 47°46'27"N, 91°47'39"W. 11 July 1999. #82676-82709.

K-10 Lake County, S of South Kawishiwi River. On hill with old pines, jack pine (18"), red pine (20"), white pine (13"), and young balsam fir. Bogberry Lake Quad, Sect. 23, T62N, R11W. 47°49'58"N, 91°41'46"W. 12 July 1999. Chem. #82710-82740.

K-11 Lake County, S of Filson Creek. On N facing hillside with balsam fir (8"), spruce, quaking aspen and white birch. Bogberry Lake Quad, Sec. 19, T62N, R10W. 47°50'30"N, 91°39'06"W. 12 July 1999. #82741-82774.

K-12 Lake County, 2 mi east of Highway 1 on 181. Old pine stand with white pine (30"), red pine (28"), spruce (26"), balsam fir. Bogberry Quad, Sec. 2, T62N, R11W. 47°49'27"N, 91°41'49"W. 12 July 1999.

K-13 St. Louis County, 6 mi W of Ely on highway 169. Black spruce bog with black spruce (8"), and alder. Shagawa Quad, Sec. 3, T62N, R13W. 47°52'47"N, 91°58'27"W. 13 July 1999.

K-14 St. Louis County, E of Bear Island Lake on 21. Small ash bog 1 mi N of USFS 684 with black ash (18-20") and alder. Bear Isl. Lake Quad, Sec. 7, T61N, R12W. 47°46'54"N, 91°55'27"W. 13 July 1999.

K-15 Lake County, W of Heart Lake along highway 1, 5 mi S of S Kawishiwi River. On rocks and cliffs along road with jack pine (12"). Bogberry Lake Quad, Sec. 13, T61N,

R11W. 47°46'37"N, 91°40'52"W. 13 July 1999. #82775-82818.

K-16 Lake County, 1 mi S of Birch Lake along road 178. In red pine stand (18-20"), white pine (20-31"). Babbitt NE Quad, Sec. 31, T61N, R11W. 47°43'18"N, 91°47'05"W. 14 July 1999.

K-17 Lake County, Point on S side of Birch Lake. Old stand of quaking aspen (21"), white spruce (21"), white pine (14"). Babbitt NE Quad, Sec. 30. T61N, R11W. 47°44'13"N, 91°47'03"W. 14 July 1999. #82819-82858.

K-18 Lake County, Road 428 near Pear Lake. Shaded cliffs along NS valley with red pine (12"), jack pine (11"). Slate Lake Quad, Sec. 4, T60N, R11W. 47°42'56"N, 91°43'30"W. 14 July 1999.

K-19 Lake County, N of Chow Lake on 424. Small Thuja bog with Thuja (18"), black spruce, small white birch and alder. Slate Lake West Quad, Sec. 2, T60N, R11W. 47°42'22"N, 91°42'13"W. 14 July 1999. #82859-82880.

K-20 St. Louis County, W end of Little Long Lake. Young black ash bog (3-9"). Shagawa Lake Quad, Sec. 19, T63N, R12W. 47°56'00"N, 91°54'56"W. 15 July 1999. Caloplaca parvula. #82881-82920.

[Complete collections at C-11 15 July 1999. 82921-82954]

K-21 St. Louis Co. Fenske Lake CG. On hill SE of camp with old jack pine (12"), white pine (20"). Bad blowdown. Shagawa Lake Quad, Sec. 30, T64N, R12W. 47°59'35"N, 91°54'44"W. 15 July 1999. #82955-82959.

K-22 Lake Co. S of Jasper Lake between 18 & 1542. Mixed Thuja (22") & ash (18") and little alder. Ojibway Lake Quad, Sec. 12, T63N, R10W. 47°57'45"N, 91°32'32"W. 16 July 1999. #82960-83014.

K-23 Lake Co. S of Moose Lake on 438 by power lines. Ash bog (6-8") with alder. Too wet for good check. Ojibway Lake Quad, Sec. 6, T63N, R9W. 47°57'49"N, 91°31'08"W. 16 July 1999.

K-24 Lake Co. S of Snowbank Lake. In old aspen stand with quaking aspen (20-22"), black spruce. Snowbank Lake Quad, Sec. 35, T64N, R9W. 47°58'01"N, 91°27'50"W. 16

July 1999.

K-25 Lake Co Fall Lake CG S of camp. Ash bog just S of camp. Very wet, ash (8-12"). Farm Lake Quad, Sec. 10, T63N, R11W. 47°57'09"N, 91°43'04"W. 16 July 1999.

K-26 Lake Co. W of Baird Lake on Tomahawk Road (377) 0.5 mi E of highway 1. In Thuja bog (13-15"). Hardly any lichens at all. Slate Lake West Quad, Sec. 32, T61N, R10W. 47°43'50"N, 91°37'52"W. 17 July 1999.

K-27 Lake Co. 0.25 mi E of highway 1 on Tomahawk Road (377). Ash bog (10-14"). Slate Lake W Quad, Sec. 32, T61N, R10W. 47°43'59"N, 91°37'57"W. 17 July 1999.

K-28-1 (was C-11-1) St. Louis County, West side of Ed Shave Lake. West facing shaded cliffs with old pine on top. Angleworm Quad, Sec. 36, T65N, R13W. 48°04'48"N, 91°57'18"W. 27 June 1999. (Not USFS) #82463-82464.

K-28-2 (was C-11-2) St. Louis Co. W of Shave Lake. W and N facing shaded cliffs. Menegazzia terebrata. Angleworm Quad, Sec. 36, T65N, R13W. 48°04'48"N, 91°57'18"W. 15 July 1999. (Not USFS) #82921-82954.

Tofte Dist. - 31 localities

T-1 Cook County, Sawbill Trail above Temperence River. On W facing slope with sugar maple (18-22"), yellow birch (25"), and some white birch (25"). Lobaria quercizans. Honeymoon Mt. Quad, Sec. 33, T60N, R7W. 47°38'12"N, 90°50'42"W. 27 July 1999. #83019-83044.

T-2 Cook County, N of Tofte on Sawbill Trail. Dry ash bog with black ash (8-14"), balsam poplar and alder. Honeymoon Quad, Sec. 20, T60N, R72W. 47°39'42"N, 90°51'10"W. 27 July 1999.

T-3 Cook County, N edge of Marsh Lake. Along stream from Baker Lake in ash (8"), white birch and Thuja. Sawbill Quad, Sec. 22, T62N, R4W. 47°50'17"N, 90°48'46"W. 27 July 1999.

T-4 Cook County, N side of Marsh Lake. Thuja bog back from lake (15"). Sawbill Camp Quad, Sec. 22, T61N, R4W. 47°50'06"N, 90°49'10"W. 27 July 1999. #83045-83079.

T-5 Cook County, SW of Sawbill Camp. In black spruce area but not very wet. Beth Lake Quad, Sec. 18, T61N, R4W. 47°46'49"N, 90°53'01"W. 27 July 1999. #83080-83083.

T-6 Cook County, Temperence River Road. Thuja bog along stream with Thuja (29"), yellow birch (29"), and few black ash (18"). Schroeder Quad, Sec. 24, T59N, R5W. 47°35'28"N, 90°54'42"W. 28 July 1999. Lobaria quercizans. #83084-83117.

T-7 Cook County, Heartbreak Hill. Old sugar maple stand with sugar maple (35"), yellow birch (32"). Lots of Lobaria quercizans. Schroeder Quad, Sec. 12, T59N, R5W. 47°36'51"N, 90°54'13"W. 28 July 1999. #83118-83136.

T-8 Cook County, Old 600 road (USFS 166) W of Sawbill Trail. Hill with old quaking aspen (20"), yellow birch (8"), and some balsam fir and white spruce. Tofte Quad, Sec. 32, T60N, R4W. 47°37'59"N, 90°52'03"W. 28 July 1999.

T-9-A Cook County, SW of Richey Lake. Thuja bog (20-25") but very shady. Toohey Quad, Sec. 20, T60N, R5W. 47°39'45"N, 90°59'39"W. 28 July 1999.

T-9-B Lake County, East of Hare Lake. In mature sugar maple stand (8-12") with some old yellow birch. Cramer Lake Quad, Sec. 12 & 13, T59N, R6W. 47°36'04"N, 91°02'11"W. 28 July 1999. Lobaria quercizans on many trees and very abundant. #83137-83139 (Not USFS).

T-10 Lake County, S of Kelly Landing. In red pines (15-18 ") on hill. Sawbill Landing Quad, Sec. 21, T60N, R8W. 47°40'02"N, 91°20'10"W. 29 July 1999.

T-11 Lake County, Kelly Landing. Red pine stand (16-22"). Sawbill Landing Quad, Sec. 15, T60N, R8W. 47°40'44"N, 91°20'10"W. 29 July 1999.

T-12 Lake County, W of Little Isabella River CG on highway 1. Mixed red pine (18-24"), white pine (18-24"), spruce and balsam fir. Mitawan Quad, Sec. 26, T60N, R9W. 47°38'48"N, 91°26'03"W. 29 July 1999.

T-13 Lake County, SE corner of Grouse Lake. On N facing hill with old quaking aspen (12-15"), jack pine and red pine (both 15-18") and balsam fir. Mitawan Quad, Sec. 14, T60N, R9W. 47°41'15"N, 91°26'40"W. 29 July 1999.

T-14 Cook County, USFS 342 N of Dyers Lake, 4 mi WNW of Schroeder. Sugar maple on ridgetop. Few old sugar maple (18-22") with good maple regeneration, some quaking aspen (15") and yellow birch (15-20"). Schroeder Quad, Sec. 29, T59N, R5W. 47°33'34"N, 90°59'23"W. 30 July 1999. Lobaria quercizans. #83140-83167.

T-15 Cook County, USFS road 342 2 miles S of 166. Sugar maple stand (18-22") with Thuja (26") and few old white spruce (22"). Schroeder Quad, Sec. 20, T59N, R5W. 47°34'40"N, 90°59'55"W. 30 July 1999. Lobaria quercizans. #83168-83204.

T-16 Cook County, Amenda Creek at USFS 342. Thuja (27-34") along edge of bog with sugar maple, balsam fir and spruce on upper edge. Cramer Quad, Sec. 19, T59N, R6W, 47°34'02"N, 91°00'05"W. 30 July 1999. Lobaria quercizans. #83205-83226.

T-17 Cook County, N of Tofte on Sawbill Trail. Ash along Caribou Creek (11-13"). Tofte Quad, Sec. 21, T59N, R4W. 47°35'20"N, 90°50'55"W. 31 July 1999.

T-18 Cook County, USFS 164 (Honeymoon Trail) E of 2. Thuja bog (18-20"), black spruce (18") and alder. Honeymoon Quad, Sec. 33, T61N, R4W. 47°43'04"N, 90°51'05"W. 31 July 1999.

T-19 Cook County, S of Sawbill Camp on Sawbill Trail. Black spruce stand (6") with Sphagnum carpet but no standing water. Beth Lake Quad, Sec. 18, T61N, R4W. 47°46'52"N, 90°52'57"W. 31 July 1999. Cetraria aurescens locality of WP75 #83227-83247.

T-20 Cook County, Sawbill Trail N of Plouff Creek. Jack pine stand (6-8"). Beth Lake Quad, Sec. 18, T61N, R4W. 47°46'19"N, 90°53'46"W. 31 July 1999.

T-21 Cook County, Nine Mile Lake CG. Thuja bog along lakeshore with Thuja (26"), white spruce (18"), black ash (18"), and yellow birch (23"). Cramer Quad, Sec. 22, T57N, R6W. 47°34'54"N, 91°04'19"W. 1 Aug. 1999. Lichens probably disturbed by campground.

T-22 Cook County, Wanless Trail (7) SE of Dam Five Lake. Hill with quaking aspen (15-22"), balsam fir (8"), red pine (14"), and white birch. Wilson Lake Quad, Sec. 33, T60N, R6W. 47°38'22"N, 91°05'32"W. 1 Aug. 1999.

T-23 Cook County, Wanless Creek. Thuja bog along seepage and stream, Thuja

(18-20"), black spruce (18"), yellow birch (16"). Wilson Lake Quad, Sec. 34, T60N, R6W. 47°38'18"N, 91°04'52"W. 1 Aug. 1999. Menegazzia terebrata, Cetraria aurescens, Usnea longissima. #83248-83292.

T-24 Cook County, S shore of South Wigwam Lake. Black spruce (4"), balsam fir (4") along shore. Wilson Lake Quad, Sec. 12, T60N, R6W. 47°41'41"N, 91°01'37"W. 1 Aug. 1999. #83293-83295.

T-25 Cook County, N side of Fourmile Lake. Ash bog with alder, mountain maple, brush, black ash (8-16"). Toohey Quad, Sec. 9, T60N, R5W. 47°41'36"N, 90°58'35"W. 1 Aug. 1999.

T-26 Cook County, Oberg Mountain. Top with old sugar maple (20") with some old quaking aspen (17") and white birch (19"). Honeymoon Mt. Quad, Sec. 1, T59N, R4W. 47°37'38"N, 90°46'35"W. 2 Aug. 1999. Lobaria quercizans. #83296-83321.

T-27 Cook County, 1.5 mi N of Oberg Mountain. Thuja bog (27"), with some black spruce (18"), white birch (22"). Honeymoon Mt. Quad, Sec. 25, T60N, R4W. 47°38'56"N, 90°47'16"W. 2 Aug. 1999. Menegazzia terebrata. #83322-83358.

T-28 Cook County, E of Mistletoe Lake. Mixed Thuja (20") and black ash (8-10") and lots of alder. Tait Lake Quad, Sec. 15, T1N, R3W. 47°45'53"N, 90°41'24"W. 2 Aug. 1999.

T-29 Cook County, N of Lake Clara on 340. Old quaking aspens (16-20") and scattered white pine (17-19"). Tait Lake Quad, Sec. 6, T61N, R3W. 47°47'49"N, 90°44'55"W. 3 Aug. 1999.

T-30 Cook County, N of Tait Lake. Old quaking aspen stand (16-19") with white birch (8-10") and black spruce (8"). Tait Lake Quad, Sec. 21, T62N, R3W. 47°50'05"N, 90°42'14"W. 3 Aug. 1999.

T-31 Cook County, E of Tait Lake. Thuja bog (24") with many dead balsam fir and black spruce and openings. Dry. Tait Lake Quad, Sec. 25, T62N, R3W. 47°49'28"N, 90°39'25"W. 3 Aug. 1999. Ramalina thrausta, Cetraria aurescens. #83359-83403.

Gunflint District - 32 localities

G-1 Cook County, S of Deer Yard Lake. Upland (?) Thuja in scattered clumps, Thuja (19"), white birch (18"), few black ash (8"). Deer Yard Lake Quad, Sec. 18, T60N, R2W. 47°40'46"N, 90°37'01"W. 4 Aug. 1999. #83404-83434.

G-2 Cook County, Hill W of Cascade River on Co. 45. Sugar maple stand (24") & few white birch (22"). Deer Yard Quad, Sec. 23, T60N, R2W. 47°44'46"N, 90°32'07"W. 4 Aug. 1999. Lobaria quercizans #83435-83456.

G-3 Cook County, E end of Pike Lake. White birch stand (12-14") with few live black spruce (15") and mostly dead balsam fir. Mark Lake Quad, Sec. 15, T61N, R2W. 47°45'58"N, 90°33'34"W. 4 Aug. 1999.

G-4 Cook County, Mark Creek NE of Pike Lake on USFS 157. N hillside in old open quaking aspen (18") and lots of dead balsam fir. Mark Lake Quad, Sec. 2, T61N, R2W. 47°47'32"N, 90°32'32"W. 4 Aug. 1999. Usnea longissima #83457-83484.

G-5 Cook County, Thompson Creek E of Cascade River. N facing hillside with jack pine (18-22"), balsam fir and black spruce. Mark Lake Quad, Sec. 25, T62N, R2W. 47°49'54"N, 90°31'04"W. 5 Aug. 1999.

G-6 Cook County, S side of Thompson Lake. Old quaking aspen stand back from lake (16-22"). Devil Track Lake Quad, Sec. 20, T62N, R1W. 47°49'57"N, 90°29'08"W. 5 Aug. 1999.

G-7 Cook County, S of Ball Club Lake on USFS 323. Valley by road and S facing hillside with Thuja (12-20"), white birch (16") & black spruce (14"). Lima Mountain Quad, Sec. 31, T63N, R1W. 47°54'07"N, 90°29'26"W. 5 Aug. 1999. Cetraria aurescens, Usnea longissima #83485-83521.

G-8 Cook County, W of Elbow Lake. Old quaking aspen (24") & dead and living white spruce (9"). Grand Marais Quad, Sec. 15, T62N, R1E. 47°51'38"N, 90°19'00"W. 6 Aug. 1999.

G-9 Cook County, N of Elbow Lake. On W facing hill with white pine (16-32"), quaking aspen (12"). Pine Mt. Quad, Sec. 3, T62N, R1E. 47°52'45"N, 90°18'11"W. 6 Aug.

1999.

G-10 Cook County, N of Pine Mt. Lake at junction of Gunflint Trail and 154. White birch stand (9-12"), quaking aspen (12-16"). Pine Mt. Quad, Sec. 22, T63N, R1E. 47°55'08"N, 90°18'05"W. 6 Aug. 1999.

G-11 Cook County, E side of Brule River near South Brule River. Hill with jack pine (9-11") & black spruce (14"). Pine Mt. Quad, Sec. 15, T63N, R1E. 47°56'03"N, 90°18'27"W. 6 Aug. 1999.

G-12 Cook County, Along branch of Kimball Creek. Mixed Thuja (20-26"), white birch (14"), spruce and quaking aspen. Kadunce River Quad, Sec. 3, T61N, R2E. 47°47'42"N, 90°10'58"W. 8 Aug. 1999.

G-13 Cook County, USFS 303 (Co. 60) W of Co. 14. Mixed stand of Thuja (22"), yellow birch (21"), black ash (10-12"), sugar maple and white birch. Kadunce River Quad, Sec. 32, T62N, R2E. 47°48'49"N, 90°12'46"W. 8 Aug. 1999. Lobaria quercizans. #83523-83547.

G-14 Cook County, 1 mile W of Co. 14 on Co. 60. Hardwood stand with old quaking aspen (22"), white birch (26"), young sugar maple (8"). Kadunce River Quad, Sec. 28 & 33, T62N, R2E. 47°48'58"N, 90°12'04"W. 8 Aug. 1999. (at road - S of loc.).

G-15 Cook County, 2.5 miles S of Trout Lake. Black ash (10-20"), yellow birch (22"), white birch, sugar maple and alder. Scattered ash in low areas with old sugar maple higher. Too brushy and shady. Kadunce River Quad, Sec. 27, T62N, R2E. 47°49'49"N, 90°11'00"W. 8 Aug. 1999. #83548-83460.

G-16 Cook County, SE of Trout Lake. N facing hillside with rock cliffs, scattered sugar maple (10-14"), white birch (8-14"). Kadunce River Quad, Sec. 14, T62N, R2E. 47°51'18"N, 90°08'49"W. 8 Aug. 1999. Lobaria quercizans #83561-83600.

G-17 Cook County, E of Kadunce River, SE of Trout Lake. Low area with ash (14") and some Thuja (17-24") and lots of alder and brush and balsam fir. Too shady. Kadunce River Quad, Sec. 24, T62N, R2E. 47°49'54"N, 90°08'31"W. 17 Aug. 1999.

G-18 Cook County, E of Kadunce River, SE of Trout Lake. Thuja (20-28"), black

spruce, and alder. Kadunce River Quad, Sec. 25, T62N, R2E. 47°49'46"N, 90°08'25"W. 17 Aug. 1999.

G-19 Cook County, S of Trout Lake. Hill with old quaking aspen (12") and young sugar maple (4-6"). Kadunce River Quad, Sec. 14, T62N R2E. 47°51'33"N, 90°09'49"W. 17 Aug. 1999. #83601.

G-20 Cook County, W of Trout Lake. Mixed stand of sugar maple (13"), white birch (12"), white pine (17-27"), white spruce (13"). Kadunce River Quad, Sec. 9, T62N, R2E. 47°52'26"N, 90°12'10"W. 17 Aug. 1999.

G-21 Cook County, E end of Mink Lake. Thuja bog (17-27") with black ash and lots of alder. Kadunce River Quad, Sec. 8, T62N, R2E. 47°52'03"N, 90°13'01"W. 17 Aug. 1999. Menegazzia terebrata #83602-83641.

G-22 Cook County, SW of Asinika Lake on 309. Thuja (21") bog with black spruce and some alder. Pine Mt. Quad, Sec. 12, T63N, R1E. 47°57'11"N, 90°15'56"W. 18 Aug. 1999. Ramalina thrausta. #83642-83688.

G-23 Cook County, S side of Greenwood Lake. Ash bog (16") with Thuja (18") and alder. Very shady. Northern Light Lake Quad, Sec. 34, T64N, R2E. 47°59'14"N, 90°11'16"W. 18 Aug. 1999.

G-24 Cook County, W of Kindle Lake. Old hardwood stand with white birch (13"), quaking aspen (16"), white spruce (14"), and jack pine (17"). Pine Mt. Quad, Sec. 35, T64N, R1E. 47°59'13"N, 90°16'47"W. 18 Aug. 1999.

G-25 Cook County, W of Greenwood Lake 1.4 mi N of USFS 144. Steep W facing cliffs with quaking aspen (14") and white birch (11"). Northern Light Lake Quad, Sec. 30, T64N, R2E. 48°00'02"N, 90°14'33"W. 18 Aug. 1999. #83689-83740.

G26 Cook County, Kekekabic Trailhead on Gunflint Trail (marked Paulson minesite). Black Spruce (8") swamp with Sphagnum carpet. Long Island Lake Quad, Sec. 27, T65N, R4W. 48°05'21"N, 90°49'18"W. 19 Aug. 1999. (not USFS).

G27 Cook County, S side of Gunflint Lake. Steep shady N facing cliffs shaded by white pine (30-30") and white birch and quaking old aspen with lots of windfall at base. Gun-

flint Lake Quad, Sec. 27, T65N, R3W. 48°05'12"N, 90°42'17"W. 19 Aug. 1999. #83742-83754.

G-28 Cook County, NW of Otter Lake on Arrowhead Trail. Thuja (17-20"), black ash (9") and lots of alder. Tom Lake Quad, Sec. 26, T64N, R3E. 47°59'41"N, 90°01'07"W. 20 Aug. 1999.

G-29 Cook County, Arrowhead Trail S of Stump River. Thuja (20") and ash (9-12") and some alder. Pine Lake Quad, Sec. 22, T64N, R3E. 48°00'18"N, 90°02'14"W. 20 Aug. 1999.

G-30 Cook County, Cliffs at SW corner of South Fowl Lake. On talus slopes and base of lower cliffs with some shade of white birch (13") and quaking aspen (14"). Pine Lake East Quad, Sec. 11 & 12, T64N, R3E. 48°02'47"N, 90°00'40"W at east end of collections, 48°02'33"N, 90°00'43"W at west end. 20 Aug. 1999. Arctoparmelia centrifuga. #83755-83817.

G-31 Cook County, S of Kimball Lake on USFS 304. Thuja (19-22") bog with some black spruce (20"), dead balsam fir and little alder. Kadunce River Quad, Sec. 20, T62N, R2E. 47°49'59"N, 90°13'38"W. 21 Aug. 1999. Menegazzia terebrata, Usnea longissima. #83818-83860.

G-32 Cook County, N of Maple Hill on Gunflint Trail. Red pines (17-20") and scattered spruce with thick understory of young balsam fir. Grand Marais Quad, Sec. 34, T62N, R1E. 47°48'58"N, 90°18'24"W. 21 Aug. 1999.

TABLE 2
HABITATS SURVEYED

The habitat types are followed by the locality number listed in the list of survey plots. Plot numbers in **bold** indicate plots where rare species were found.

THUJA ("white cedar")

Thuja bog - L2, L5, L7, **L9**, L13, L15, K5, K19, K26, T4, **T6**, T9A, **T16**, T18, T21, **T23**, **T27**, **T31**, G1, **G7**, **G21**, **G22**, **G31**

Upland Thuja - K2

Thuja/tamarack/black spruce - C2

BIRCH/ASPEN

Old white birch - L3, G3

Old quaking aspen - L8, L19, C6, C9, K3, K9, K17, K24, T8, T29, T30, **G4**, G6, G8

Quaking aspen/white birch - L12, T22, G10, G19

SUGAR MAPLE

Old sugar maple - L4, **L6**, **T1**, **T7**, **T14**, **T15**, **T26**, **G2**

Sugar maple/white birch/white pine/white spruce - G20

BLACK ASH

Black ash bog - **L10**, L16, C1, C4, K7, K14, **K20**, K23, K25, K27, T2, T17, T25, G23

Black ash/balsam fir - L11

Black ash/Thuja - **L17**, **C12**, **C13**, K22, T3, T28, **G13**, G28, G29

Black ash/quaking aspen - K6

PINE

Jack pine - L14, L18, C16, T20, G5

Old jack & red pine - K21, T13

Young jack pine & quaking aspen - C10

Jack pine, black spruce, aspen/birch - L20, C7, C15, G24, K8, K10, G11

Old red pine - L1, K1, T10, T11, G32

Old white & red pine - K12, K16, T12 G9

Middle age jack/red/white pine - C14, K4

ROCK CLIFF

Rock cliff - C3, C5, C8, **C11-2**, K15, K18, K-28-2 (was C11-2), **G16**, G25, G27, G30

BALSAM FIR/SPRUCE

Balsam fir/spruce/white birch/aspens/Thuja - K11, T24, **G7**, G12

BLACK SPRUCE

Black spruce bog - K13, T5, **T19**, G26

Table 3

LOCALITIES OF RARE SPECIES

Arctoparmelia centrifuga

G-30 Cook County, Cliffs at SW corner of South Fowl Lake. On talus slopes and base of lower cliffs with some shade of white birch (13") and quaking aspen (14"). Pine Lake East Quad, Sec. 11 & 12, T64N, R3E. 48°02'47"N, 90°00'40"W at east end of collections, 48°02'33"N, 90°00'43"W at west end. 20 Aug. 1999.

Caloplaca parvula

K-20 St. Louis County, W end of Little Long Lake. Young black ash bog (3-9"). Shagawa Lake Quad, Sec. 19, T63N, R12W. 47°56'00"N, 91°54'56"W. 15 July 1999.

Cetraria aurescens

T19 Cook County, S of Sawbill Camp on Sawbill Trail. Black spruce stand (6") with Sphagnum carpet but no standing water. Beth Lake Quad, Sec. 18, T61N, R4W. 47°46'52"N, 90°52'57"W. 31 July 1999.

T-23 Cook County, Wanless Creek. Thuja bog along seepage and stream, Thuja (18-20"), black spruce (18"), yellow birch (16"). Wilson Lake Quad, Sec. 34, T60N, R6W. 47°38'18"N, 91°04'52"W. 1 Aug. 1999.

T-31 Cook County, E of Tait Lake. Thuja bog (24") with many dead balsam fir and black spruce and openings. Dry. Tait Lake Quad, Sec. 25, T62N, R3W. 47°49'28"N, 90°39'25"W. 3 Aug. 1999.

G-7 Cook County, S of Ball Club Lake on USFS 323. Valley by road and S facing hillside with Thuja (12-20"), white birch (16") & black spruce (14"). Lima Mountain Quad, Sec. 31, T63N, R1W. 47°54'07"N, 90°29'26"W. 5 Aug. 1999.

Lobaria quercizans

L-6 Lake County, 14 mi NW of Silver Bay on USFS 397. Sugar maple stand over 85 years old on rolling hilltop with few old quaking aspen, yellow birch and basswood. L. quercizans present on about 8-10 old sugar maple trees. Legler Lake Quad & Whyte Quad, Sec. 36,

T57N, R10W. 47°22'20"N, 91°32'17"W. 16 June 1999

L-10 St. Louis County, East of Bassett Lake, south of highway 16. In black ash bog along small stream with alder. Brimson Quad, Sec. 33, T57N, R12W. 47°22'23"N, 91°51'25"W. 21 June 1999

L-17 St. Louis County, Just north of Pfeifer Lake. In mixed black ash and Thuja bog with some old yellow birch and alder. Yellow birch and Thuja 10-16" diam. Lost Lake Quad, Sec. 23, T61N, R17W. 47°45'24"N, 92°27'56"W. 23 June 1999.

C-12 St. Louis County, SE of Marion Lake on 203. Ash-Thuja bog with some old trees 16-24", tamarack & alder. Marion Lake Quad, Sec. 22, T67N, R18W. 48°16'27"N, 92°38'24"W. 29 June 1999.

C-13. St. Louis County, Marion Creek S of 203. At edge of stream lowland with scattered old Thuja 18-26", black ash 16-18", old white birch, black spruce and alder and balsam poplar. Marion Lake Quad, Sec. 28, T67N, R18W. 48°15'59"N, 92°39'13"W. 29 June 1999.

T-1 Cook County, Sawbill Trail above Temperence River. On W facing slope with sugar maple (18-22"), yellow birch (25"), and some white birch (25"). Honeymoon Mt. Quad, Sec. 33, T60N, R7W. 47°38'12"N, 90°50'42"W. 27 July 1999.

T-6 Cook County, Temperence River Road. Thuja bog along stream with Thuja (29"), yellow birch (29"), and few black ash (18"). Schroeder Quad, Sec. 24, T59N, R5W. 47°35'28"N, 90°54'42"W. 28 July 1999.

T-7 Cook County, Heartbreak Hill. Old sugar maple stand with sugar maple (35"), yellow birch (32"). Schroeder Quad, Sec. 12, T59N, R5W. 47°36'51"N, 90°54'13"W. 28 July 1999.

T-9-B Lake County, East of Hare Lake. In mature sugar maple stand (8-12") with some old yellow birch. Cramer Lake Quad, Sec. 12 & 13, T59N, R6W. 47°36'04"N, 91°02'11"W. 28 July 1999.

T-14 Cook County, USFS 342 N of Dyers Lake, 4 mi WNW of Schroeder. Sugar maple on ridgetop. Few old sugar maple (18-22") with good maple regeneration, some quaking

aspen (15") and yellow birch (15-20"). Schroeder Quad, Sec. 29, T59N, R5W. 47°33'34"N, 90°59'23"W. 30 July 1999.

T-15 Cook County, USFS road 342 2 miles S of 166. Sugar maple stand (18-22") with Thuja (26") and few old white spruce (22"). Schroeder Quad, Sec. 20, T59N, R5W. 47°34'40"N, 90°59'55"W. 30 July 1999.

T-16 Cook County, Amenda Creek at USFS 342. Thuja (27-34") along edge of bog with sugar maple, balsam fir and spruce on upper edge. Cramer Quad, Sec. 19, T59N, R6W, 47°34'02"N, 91°00'05"W. 30 July 1999.

T-26 Cook County, Oberg Mountain. Top with old sugar maple (20") with some old quaking aspen (17") and white birch (19"). Honeymoon Mt. Quad, Sec. 1, T59N, R4W. 47°37'38"N, 90°46'35"W. 2 Aug. 1999.

G-2 Cook County, Hill W of Cascade River on Co. 45. Sugar maple stand (24") & few white birch (22"). Deer Yard Quad, Sec. 23, T60N, R2W. 47°44'46"N, 90°32'07"W. 4 Aug. 1999.

G-13 Cook County, USFS 303 (Co. 60) W of Co. 14. Mixed stand of Thuja (22"), yellow birch (21"), black ash (10-12"), sugar maple and white birch. Kadunce River Quad, Sec. 32, T62N, R2E. 47°48'49"N, 90°12'46"W. 8 Aug. 1999.

G-16 Cook County, SE of Trout Lake. N facing hillside with rock cliffs, scattered sugar maple (10-14"), white birch (8-14"). Kadunce River Quad, Sec. 14, T62N, R2E. 47°51'18"N, 90°08'49"W. 8 Aug. 1999.

Menegazzia terebrata

L-9 Lake County, 2 miles E of Pine Lake. Old Thuja bog with leaning old Thuja, alder and few black spruce. Toimi Quad, Sec. 32, T58N, R11W. 47°27'51"N, 91°45'26"W. 21 June 1999

K-28-2 (was C-11-2) St. Louis Co. W of Shave Lake. W and N facing shaded cliffs. Angleworm Quad, Sec. 36, T65N, R13W. 48°04'48"N, 91°57'18"W. 15 July 1999.

T-23 Cook County, Wanless Creek. Thuja bog along seepage and stream, Thuja (18-20"), black spruce (18"), yellow birch (16"). Wilson Lake Quad, Sec. 34, T60N, R6W.

47°38'18"N, 91°04'52"W. 1 Aug. 1999.

T-27 Cook County, 1.5 mi N of Oberg Mountain. Thuja bog (27"), with some black spruce (18"), white birch (22"). Honeymoon Mt. Quad, Sec. 25, T60N, R4W. 47°38'56"N, 90°47'16"W. 2 Aug. 1999.

G-21 Cook County, E end of Mink Lake. Thuja bog (17-27") with black ash and lots of alder. Kadunce River Quad, Sec. 8, T62N, R2E. 47°52'03"N, 90°13'01"W. 17 Aug. 1999.

G-31 Cook County, S of Kimball Lake on USFS 304. Thuja (19-22") bog with some black spruce (20"), dead balsam fir and little alder. Kadunce River Quad, Sec. 20, T62N, R2E. 47°49'59"N, 90°13'38"W. 21 Aug. 1999.

Ramalina thrausta

T-31 Cook County, E of Tait Lake. Thuja bog (24") with many dead balsam fir and black spruce and openings. Dry. Tait Lake Quad, Sec. 25, T62N, R3W. 47°49'28"N, 90°39'25"W. 3 Aug. 1999.

G-22 Cook County, SW of Asinika Lake on 309. Thuja (21") bog with black spruce and some alder. Pine Mt. Quad, Sec. 12, T63N, R1E. 47°57'11"N, 90°15'56"W. 18 Aug. 1999.

Sticta fuliginosa

L-17 St. Louis County, Just north of Pfeifer Lake. In mixed black ash and Thuja bog with some old yellow birch and alder. Yellow birch and Thuja 10-16" diam. Lost Lake Quad, Sec. 23, T61N, R17W. 47°45'24"N, 92°27'56"W. 23 June 1999.

Usnea longissima

T-23 Cook County, Wanless Creek. Thuja bog along seepage and stream, Thuja (18-20"), black spruce (18"), yellow birch (16"). Wilson Lake Quad, Sec. 34, T60N, R6W. 47°38'18"N, 91°04'52"W. 1 Aug. 1999.

G-4 Cook County, Mark Creek NE of Pike Lake on USFS 157. N hillside in old open quaking aspen (18") and lots of dead balsam fir. Mark Lake Quad, Sec. 2, T61N, R2W. 47°47'32"N, 90°32'32"W. 4 Aug. 1999.

G-7 Cook County, S of Ball Club Lake on USFS 323. Valley by road and S facing hillside with Thuja (12-20"), white birch (16") & black spruce (14"). Lima Mountain Quad, Sec. 31, T63N, R1W. 47°54'07"N, 90°29'26"W. 5 Aug. 1999.

G-31 Cook County, S of Kimball Lake on USFS 304. Thuja (19-22") bog with some black spruce (20"), dead balsam fir and little alder. Kadunce River Quad, Sec. 20, T62N, R2E. 47°49'59"N, 90°13'38"W. 21 Aug. 1999.

APPENDIX 1

Lists of associated species at localities with rare lichens. Locality # refers to locality numbers in TABLE 1.

Species by Locality

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
<i>Vegetation type:</i> Aspen/W birch				
COOK	G4	MARK CREEK NE OF PIKE LAKE	47°47'32	90°32'32

BRYORIA CAPILLARIS
 BRYORIA FURCELLATA
 BRYORIA TRICHODES
 CALOPLACA CHRYSOPHTHALMA
 CALOPLACA HOLOCARPA
 CETRARIA AMERICANA
 EVERNIA MESOMORPHA
 FLAVOPARMELIA CAPERATA
 HETERODERMIA SPECIOSA
 HYPOGYMNIA PHYSODES
 LECANORA ALLOPHANA
 LECANORA WISCONSINENSIS
 MELANELIA EXASPERATULA
 PARMELIA SULCATA
 PHYSCIA AIPOLIA
 PHYSCONIA LEUCOLEIPTES
 PLATISMATIA TUCKERMANII
 RAMALINA DILACERATA
 USNEA CAVERNOSA
 USNEA FILIPENDULA
 USNEA LONGISSIMA
 USNEA SUBFLORIDANA
 XANTHORIA HASSEANA

Vegetation type: Black ash

ST. LOUIS	K20	W END OF LITTLE LONG LAKE	47°56'00	91°54'56
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BACIDIA POLYCHROA
 BACIDIA SUFFUSA
 CALOPLACA HOLOCARPA
 CALOPLACA PARVULA
 CLADONIA CHLOROPHAEA
 COLLEMA SUBFLACCIDUM
 EVERNIA MESOMORPHA
 FLAVOPARMELIA CAPERATA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		GRAPHIS SCRIPTA		
		HETERODERMIA SPECIOSA		
		LECANORA ALLOPHANA		
		LECANORA THYSANOPHORA		
		LECIDELLA EUPHOREA		
		LEPTOGIUM SATURNINUM		
		LOBARIA PULMONARIA		
		MEGASPORA VERRUCOSA		
		MELANELIA ALBERTANA		
		MELANELIA SUBARGENTIFERA		
		MYCOBILIMBIA SABULETORUM		
		MYELOCHROA AURULENTA		
		PARMELIA SQUARROSA		
		PELTIGERA ELISABETHAE		
		PELTIGERA EVANSIANA		
		PELTIGERA NECKERI		
		PERTUSARIA CONSOCIANS		
		PERTUSARIA VELATA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCIA AIPOLIA		
		PHYSCONIA LEUCOLEIPTES		

ST. LOUIS L10 EAST OF BASSETT LAKE

47°22'23 91°51'25

ARTHONIA RADIATA
 BACIDIA SUFFUSA
 BIATORA EPIXANTHOIDES
 BUELLIA STILLINGIANA
 CANDELARIA CONCOLOR
 CANDELARIELLA XANTHOSTIGMA
 CLADONIA CHLOROPHAEA
 COLLEMA FLACCIDUM
 DENDRISCOCAULON INTRICATULU
 EVERNIA MESOMORPHA
 FLAVOPARMELIA CAPERATA
 HETERODERMIA SPECIOSA
 LECANORA IMPUDENS
 LECANORA SYMMICTA
 LECANORA THYSANOPHORA
 LEPTOGIUM CYANESCENS
 LEPTOGIUM SATURNINUM
 LOBARIA PULMONARIA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		LOBARIA QUERCIZANS		
		MELANELIA SEPTENTRIONALIS		
		MYELOCHROA AURULENTA		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PELTIGERA EVANSIANA		
		PELTIGERA NECKERI		
		PERTUSARIA VELATA		
		PHAEOPHYSCIA HIRTELLA		
		PHAEOPHYSCIA PUSILLOIDES		
		PHYSCIA AIPOLIA		
		PHYSCONIA LEUCOLEIPTES		
		PLACYNTHIELLA ICMALEA		
		PUNCTELIA RUDECTA		
		RINODINA SUBMINUTA		
		TRAPELIOPSIS FLEXUOSA		
		XANTHORIA ULOPHYLLODES		

Vegetation type: Black ash/Thuja

ST. LOUIS C12 SE OF MARION LAKE

48°16'27 92°38'24

BACIDIA POLYCHROA
 BACIDIA ROSELLA
 BRYORIA FURCELLATA
 CALOPLACA CHRYSOPHTHALMA
 CALOPLACA FLAVORUBESCENS
 CATAPYRENIUM TUCKERMANII
 CHAENOTHECA CHRYSOCEPHALA
 CHAENOTHECA LAEVIGATA
 CHAENOTHECA TRICHIALIS
 CLADONIA SUBULATA
 COLLEMA SUBFLACCIDUM
 CRESPONEA CHLOROCONIA
 DENDRISCOCAULON INTRICATULU
 EVERNIA MESOMORPHA
 FLAVOPUNCTELIA SOREDICA
 GRAPHIS SCRIPTA
 HETERODERMIA SPECIOSA
 HYPOGYMNIA PHYSODES
 LECANORA ALBELLA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		LECANORA ALLOPHANA		
		LECANORA MERIDIONALIS		
		LECANORA THYSANOPHORA		
		LEPTOGIUM SATURNINUM		
		LITHOTHELIUM PHAEOSPORUM		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MYELOCHROA GALBINA		
		OPEGRAPHA VARIA		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PELTIGERA ELISABETHAE		
		PELTIGERA NECKERI		
		PHAEOPHYSCIA HISPIDULA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		
		RAMALINA SINENSIS		
		USNEA CAVERNOSA		
		USNEA SUBFLORIDANA		
		XANTHORIA HASSEANA		

ST. LOUIS C13 MARION CREEK S OF 203

48°15'59 92°39'13

- BACIDIA SCHWEINITZII
- CALOPLACA CHRYSOPHTHALMA
- CANDELARIA CONCOLOR
- COLLEMA SUBFLACCIDUM
- EVERNIA MESOMORPHA
- FLAVOPARMELIA CAPERATA
- HETERODERMIA SPECIOSA
- LECANORA THYSANOPHORA
- LEPTOGIUM SATURNINUM
- LOBARIA PULMONARIA
- LOBARIA QUERCIZANS
- LOXOSPORA PUSTULATA
- MELANELIA SUBAURIFERA
- MYCOBILIMBIA SABULETORUM
- NEPHROMA HELVETICUM
- OCHROLECHIA TROCHOPHORA
- OPEGRAPHA VARIA
- PARMELIA SQUARROSA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PELTIGERA CANINA		
		PELTIGERA EVANSIANA		
		PELTIGERA POLYDACTYLON		
		PHYSCIA AIPOLIA		
		PHYSCONIA LEUCOLEIPTES		
		PUNCTELIA RUDECTA		
		STENOCYBE PULLATULA		
		USNEA CAVERNOSA		
		USNEA SUBFLORIDANA		
		XANTHORIA ULOPHYLLODES		
COOK	G13	CO. 60 8 MI NE OF GRAND MARAI	47°48'49	90°12'46

BACIDIA POLYCHROA
 BACIDIA SCHWEINITZII
 CHAENOTHECA LAEVIGATA
 CLADONIA CONIOCRAEA
 CRESPONEA CHLOROCONIA
 FLAVOPARMELIA CAPERATA
 HETERODERMIA SPECIOSA
 LEPTOGIUM CORTICOLA
 LEPTOGIUM CYANESCENS
 LOBARIA PULMONARIA
 LOBARIA QUERCIZANS
 MYELOCHROA AURULENTA
 PARMELIA SQUARROSA
 PELTIGERA ELISABETHAE
 PERTUSARIA AMARA
 PERTUSARIA CONSOCIANS
 PHAEOPHYSCIA RUBROPULCHRA
 PHYSCONIA DETERSA
 PHYSCONIA LEUCOLEIPTES
 PUNCTELIA RUDECTA

ST. LOUIS L17 NORTH OF PFEIFER LAKE 47°45'24 92°27'56

BACIDIA SCHWEINITZII
 BIATORA EPIXANTHOIDES
 CANDELARIA CONCOLOR
 CETRELIA OLIVETORUM
 CHAENOTHECA BRUNNEOLA
 CLADONIA CENOTEA
 CLADONIA PYXIDATA
 CLADONIA SQUAMOSA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		FLAVOPARMELIA CAPERATA		
		HYPOGYMNNIA PHYSODES		
		LECANORA IMPUDENS		
		LECANORA THYSANOPHORA		
		LEPTOGIUM SATURNINUM		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		LOPADIUM PEZIZOIDEUM		
		MYCOBILIMBIA BERENGERIANA		
		MYCOCALICIUM SUBTILE		
		MYELOCHROA AURULENTA		
		NEPHROMA HELVETICUM		
		OCHROLECHIA TROCHOPHORA		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMOTREMA CRINITUM		
		PELTIGERA ELISABETHAE		
		PERTUSARIA AMARA		
		PHYSCIA AIPOLIA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PUNCTELIA RUDECTA		
		PYXINE SOREDIATA		
		STICTA FULIGINOSA		
		STRIGULA STIGMATELLA		
		USNEA CAVERNOSA		
		USNEA SUBFLORIDANA		

Vegetation type: Black spruce

COOK T19 S OF SAWBILL CAMP

47°46'52 90°52'57

BRYORIA FURCELLATA
 BRYORIA TRICHODES
 CALICIUM SALICINUM
 CETRARIA AMERICANA
 CETRARIA AURESCENS
 CETRARIA PINASTRI
 CLADINA RANGIFERINA
 EVERNIA MESOMORPHA
 FLAVOPARMELIA CAPERATA
 HYPOGYMNNIA PHYSODES

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		LECANORA WISCONSINENSIS		
		MYCOBLASTUS SANGUINARIUS		
		OCHROLECHIA PSEUDOPALLESCE		
		PARMELIA SULCATA		
		PARMELIOPSIS AMBIGUA		
		PARMELIOPSIS HYPEROPTA		
		PERTUSARIA OPHTHALMIZA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		USNEA CAVERNOSA		

Vegetation type: Rock cliff

COOK G16 SE OF TROUT LAKE

47°51'18 90°08'49

BUELLIA STILLINGIANA
 CALOPLACA SUBSOLUTA
 CETRARIA PINASTRI
 CETRELIA OLIVETORUM
 CLADONIA RAMULOSA
 CONOTREMA URCEOLATUM
 DIMERELLA LUTEA
 FLAVOPARMELIA CAPERATA
 FUSCOPANNARIA LEUCOPHAEA
 FUSCOPANNARIA LEUCOSTICTA
 HETERODERMIA SPECIOSA
 HYPOGYMNIA PHYSODES
 LECANORA ARGENTEA
 LECANORA CAESIORUBELLA
 LEPTOGIUM CYANESCENS
 LEPTOGIUM SATURNINUM
 LOBARIA PULMONARIA
 LOBARIA QUERCIZANS
 MYCOBILIMBIA SABULETORUM
 MYELOCHROA GALBINA
 NEPHROMA HELVETICUM
 NEPHROMA PARILE
 PARMELIA SQUARROSA
 PELTIGERA ELISABETHAE
 PELTIGERA HORIZONTALIS
 PELTIGERA POLYDACTYLON
 PERTUSARIA VELATA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		
		PUNCTELIA RUDECTA		
		PYXINE SOREDIATA		
		RHIZOCARPON CINEREOVIRENS		
COOK	G30	SW CORNER OF SOUTH FOWL LA	48°02'40	90°00'42
		AMANDINEA PUNCTATA		
		ARCTOPARMELIA CENTRIFUGA		
		ASPICILIA CAESIOCINEREA		
		ASPICILIA CINEREA		
		BIATORA EFFLORESCENS		
		CALOPLACA FLAVOVIRESCENS		
		CALOPLACA SUBSOLUTA		
		CLADINA MITIS		
		CLADINA RANGIFERINA		
		CLADINA STELLARIS		
		CLADINA STYGIA		
		CLADONIA AMAUROCRAEA		
		CLADONIA CRISPATA		
		CLADONIA PYXIDATA		
		CLADONIA SQUAMOSA		
		CLADONIA UNCIALIS		
		DERMATOCARPON MINIATUM		
		FLAVOPARMELIA CAPERATA		
		FUSCOPANNARIA LEUCOPHAEA		
		IONASPIS LACUSTRIS		
		LECANORA CENISIA		
		LECANORA OPINICONENSIS		
		LEPTOGIUM CYANESCENS		
		MELANELIA SOREDIATA		
		NEPHROMA PARILE		
		NEPHROMA RESUPINATUM		
		PARMELIA FRAUDANS		
		PARMELIA OMPHALODES		
		PARMELIA SULCATA		
		PARMELIELLA TRIPTOPHYLLA		
		PARMOTREMA CRINITUM		
		PELTIGERA CANINA		
		PELTIGERA ELISABETHAE		
		PELTIGERA LEUCOPHLEBIA		

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PHYSCIA CAESIA		
		PSILOLECHIA LUCIDA		
		PUNCTELIA RUDECTA		
		PUNCTELIA SUBRUDECTA		
		RAMALINA INTERMEDIA		
		RHIZOCARPON CINEREOVIRENS'		
		RHIZOCARPON PLICATILE		
		SCOLICIOSPORUM UMBRINUM		
		STEREOCAULON PASCHALE		
		STEREOCAULON PILEATUM		
		STEREOCAULON SAXATILE		
		UMBILICARIA AMERICANA		
		UMBILICARIA MUEHLENBERGII		
		XANTHOPARMELIA SOMLOENSIS		
		XANTHORIA ELEGANS		

ST. LOUIS K28-2 WEST SIDE OF ED SHAVE LAKE 48°04'48 91°57'18

BIATORA EFFLORESCENS
 BUELLIA STILLINGIANA
 CETRELIA CHICITAE
 CETRELIA OLIVETORUM
 CHAENOTHECOPSIS DEBILIS
 CLADONIA AMAUROCRAEA
 CLADONIA DIGITATA
 CLADONIA SQUAMOSA
 FLAVOPARMELIA CAPERATA
 LASALLIA PAPULOSA
 LECANORA THYSANOPHORA
 LEPTOGIUM CYANESCENS
 LOBARIA PULMONARIA
 MENEGAZZIA TEREBRATA
 MICAREA PELIOCARPA
 MYCOBILIMBIA HYPNORUM
 NEPHROMA HELVETICUM
 NEPHROMA PARILE
 OCHROLECHIA MEXICANA
 PARMELIA SQUARROSA
 PELTIGERA APHTHOSA
 PELTIGERA CANINA
 PELTIGERA EVANSIANA
 PELTIGERA POLYDACTYLON

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PERTUSARIA PLITTIANA		
		PORPIDIA CRUSTULATA		
		PUNCTELIA RUDECTA		
		PYXINE SOREDIATA		
		RAMALINA INTERMEDIA		

Vegetation type: Sugar maple

COOK G2 W OF CASCADE RIVER ON CO. 45 47°44'46 90°32'07

COLLEMA SUBFLACCIDUM
 CONOTREMA URCEOLATUM
 CRESPONEA CHLOROCONIA
 EOPYRENULA INTERMEDIA
 GRAPHIS SCRIPTA
 HETERODERMIA SPECIOSA
 LECANORA IMPUDENS
 LECANORA THYSANOPHORA
 LOBARIA PULMONARIA
 LOBARIA QUERCIZANS
 MYELOCHROA AURULENTA
 PARMELIA SQUARROSA
 PERTUSARIA MACOUNII
 PHAEOPHYSCIA RUBROPULCHRA
 PHYSCIA AIPOLIA
 PHYSCONIA DETERSA
 PHYSCONIA LEUCOLEIPTES
 PUNCTELIA RUDECTA
 RIMULARIA CAECA

LAKE L6 14 MI NW OF SILVER BAY

47°22'20 91°32'17

CALOPLACA CERINA
 CALOPLACA HOLOCARPA
 CANDELARIA CONCOLOR
 CANDELARIELLA EFFLORESCENS
 CHAENOTHECOPSIS DEBILIS
 COLLEMA SUBFLACCIDUM
 CONOTREMA URCEOLATUM
 FLAVOPARMELIA CAPERATA
 GRAPHIS SCRIPTA
 HETERODERMIA SPECIOSA
 LECANORA ALLOPHANA
 LECANORA THYSANOPHORA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		LEPTOGIUM CYANESCENS		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MEGASPORA VERRUCOSA		
		MELANELIA SUBARGENTIFERA		
		MYELOCHROA AURULENTA		
		OCHROLECHIA TROCHOPHORA		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PERTUSARIA MACOUNII		
		PERTUSARIA VELATA		
		PHAEOPHYSCIA IMBRICATA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCIA AIPOLIA		
		PHYSCONIA LEUCOLEIPTES		
		XANTHORIA HASSEANA		
		XANTHORIA ULOPHYLLODES		
COOK	T1	SAWBILL TR ABOVE TEMPEREN	47°38'12	90°50'42

BIATORA EPIXANTHOIDES
 CANDELARIA CONCOLOR
 CLADONIA CONIOCRAEA
 CLADONIA FIMBRIATA
 COLLEMA SUBFLACCIDUM
 CONOTREMA URCEOLATUM
 FLAVOPARMELIA CAPERATA
 GRAPHIS SCRIPTA
 LECANORA IMPUDENS
 LECANORA THYSANOPHORA
 LEPTOGIUM SATURNINUM
 LOBARIA PULMONARIA
 LOBARIA QUERCIZANS
 MYELOCHROA AURULENTA
 OCHROLECHIA TROCHOPHORA
 PARMELIA SQUARROSA
 PERTUSARIA ALPINA
 PERTUSARIA MACOUNII
 PHAEOPHYSCIA PUSILLOIDES
 PHAEOPHYSCIA RUBROPULCHRA
 PHYSCONIA LEUCOLEIPTES
 PUNCTELIA RUDECTA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		STRIGULA SUBMURIFORMIS		
COOK	T14	N OF DYERS LAKE	47°33'34	90°59'23
		BUELLIA DISCIFORMIS		
		CANDELARIA CONCOLOR		
		CLADONIA SUBULATA		
		COLLEMA SUBFLACCIDUM		
		CONOTREMA URCEOLATUM		
		EOPYRENULA INTERMEDIA		
		EVERNIA MESOMORPHA		
		FLAVOPARMELIA CAPERATA		
		GRAPHIS SCRIPTA		
		HETERODERMIA SPECIOSA		
		LECANORA THYSANOPHORA		
		LEPTOGIUM CYANESCENS		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MELANELIA SEPTENTRIONALIS		
		MYELOCHROA AURULENTA		
		OCHROLECHIA TROCHOPHORA		
		PARMELIA SQUARROSA		
		PERTUSARIA VELATA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCIA STELLARIS		
		PHYSCONIA DETERSA		
		PHYSCONIA LEUCOLEIPTES		
		PUNCTELIA RUDECTA		
		RAMALINA AMERICANA		
		SPHINCTRINA TURBINATA		
COOK	T15	2 MI S OF 166, 8 MI W OF TOFTE	47°34'40	90°59'55
		BIATORA EPIXANTHOIDES		
		BUELLIA STILLINGIANA		
		CANDELARIA CONCOLOR		
		CETRELIA OLIVETORUM		
		CHAENOTHECA TRICHIALIS		
		CLADONIA CORNUTA		
		COLLEMA FLACCIDUM		
		CONOTREMA URCEOLATUM		
		EOPYRENULA INTERMEDIA		
		EVERNIA MESOMORPHA		
		FLAVOPARMELIA CAPERATA		

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		GRAPHIS SCRIPTA		
		HETERODERMIA SPECIOSA		
		LECANORA THYSANOPHORA		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MELANELIA SUBAURIFERA		
		MYCOBILIMBIA SABULETORUM		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PERTUSARIA CONSOCIANS		
		PERTUSARIA VELATA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		
		PUNCTELIA RUDECTA		
		RAMALINA AMERICANA		
		SPHINCTRINA TURBINATA		
		USNEA SUBFLORIDANA		

COOK T26 OBERG MOUNTAIN

47°37'38 90°46'35

BUELLIA DISCIFORMIS
 CANDELARIA CONCOLOR
 COLLEMA SUBFLACCIDUM
 CONOTREMA URCEOLATUM
 EOPYRENULA INTERMEDIA
 FLAVOPARMELIA CAPERATA
 GRAPHIS SCRIPTA
 ICMADOPHILA ERICETORUM
 LECANORA IMPUDENS
 LECANORA THYSANOPHORA
 LOBARIA PULMONARIA
 LOBARIA QUERCIZANS
 MYELOCHROA AURULENTA
 PARMELIA SQUARROSA
 PERTUSARIA ALPINA
 PERTUSARIA MACOUNII
 PHAEOPHYSCIA RUBROPULCHRA
 PHYSCIA AIPOLIA
 PHYSCONIA LEUCOLEIPTES
 PUNCTELIA RUDECTA
 XANTHORIA ULOPHYLLODES

COOK T7 HEARTBREAK HILL

47°36'51 90°54'13

Thursday, May 04, 2000

Page 13 of 23

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		CLADONIA CHLOROPHAEA		
		CLADONIA RAMULOSA		
		COLLEMA SUBFLACCIDUM		
		CONOTREMA URCEOLATUM		
		GRAPHIS SCRIPTA		
		HETERODERMIA SPECIOSA		
		LECANORA THYSANOPHORA		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MYELOCHROA AURULENTA		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PERTUSARIA MACOUNII		
		PHAEOPHYSCIA ORBICULARIS		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		

Vegetation type: Thuja

COOK G21 E END OF MINK LAKE

47°52'03 90°13'01

BIATORA EFFLORESCENS
 BIATORA EPIXANTHOIDES
 BIATORA VERNALIS
 CETRELIA CHICITAE
 CHAENOTHECA CHRYSOCEPHALA
 CHAENOTHECA XYLOXENA
 CLADONIA SQUAMOSA
 CRESPONEA CHLOROCONIA
 DIMERELLA LUTEA
 FLAVOPARMELIA CAPERATA
 FUSCOPANNARIA AHLNERI
 HETERODERMIA SPECIOSA
 HYPOGYMNIA PHYSODES
 IMSHAUGIA ALEURITES
 LECANORA MERIDIONALIS
 LOBARIA PULMONARIA
 LOPADIUM PEZIZOIDEUM
 LOXOSPORA PUSTULATA
 MENEGAZZIA TEREBRATA
 MICAREA PELIOCARPA
 NEPHROMA HELVETICUM

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PARMELIA SQUARROSA		
		PARMOTREMA CRINITUM		
		PELTIGERA ELISABETHAE		
		PELTIGERA LEUCOPHLEBIA		
		PERTUSARIA AMARA		
		PERTUSARIA CONSOCIANS		
		PHLYCTIS ARGENA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		RAMALINA INTERMEDIA		
		SPHINCTRINA TURBINATA		
		STRIGULA STIGMATELLA		
		USNEA CAVERNOSA		
		USNEA LAPPONICA		
		USNEA SUBFLORIDANA		

COOK G22 SW OF ASINIKA LAKE ON 309 47°57'11 90°15'56

BIATORA EFFLORESCENS
 BRYORIA FURCELLATA
 CETRARIA PINASTRI
 CHAENOTHECA BRUNNEOLA
 CHAENOTHECA STEMONEA
 CHAENOTHECOPSIS PUSILLA
 CLADINA RANGIFERINA
 CLADONIA SQUAMOSA
 CRESPONEA CHLOROCONIA
 DIMERELLA LUTEA
 FLAVOPARMELIA CAPERATA
 HETERODERMIA SPECIOSA
 HYPOGYMNA PHYSODES
 IMSHAUGIA ALEURITES
 LECANORA ALBELLA
 LECANORA RUGOSELLA
 LECANORA THYSANOPHORA
 LECANORA WISCONSINENSIS
 LEPRARIA LOBIFICANS
 LOBARIA PULMONARIA
 LOXOSPORA PUSTULATA
 MICAREA MELAENA
 MYCOBILIMBIA BERENGERIANA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		MYCOBLASTUS SANGUINARIUS		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMELIOPSIS HYPEROPTA		
		PARMOTREMA ARNOLDII		
		PELTIGERA CANINA		
		PELTIGERA HORIZONTALIS		
		PELTIGERA POLYDACTYLON		
		PERTUSARIA AMARA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		RAMALINA INTERMEDIA		
		RAMALINA THRAUSTA		
		STRIGULA STIGMATELLA		
		USNEA CAVERNOSA		
		USNEA FILIPENDULA		
		USNEA LAPPONICA		

COOK G31 S OF KIMBALL LAKE ON USFS 304 47°49'59 90°13'38

BACIDIA SCHWEINITZII
BIATORA VERNALIS
BUELLIA ARNOLDII
CETRELIA CHICITAE
FLAVOPARMELIA CAPERATA
FUSCOPANNARIA AHLNERI
HETERODERMIA SPECIOSA
HYPOGYMNIA PHYSODES
IMSHAUGIA ALEURITES
LECANORA ALBELLA
LECANORA WISCONSINENSIS
LOBARIA PULMONARIA
LOXOSPORA PUSTULATA
MENEGAZZIA TEREBRATA
MICAREA PELIOCARPA
MYCOBILIMBIA TETRAMERA
MYCOBLASTUS SANGUINARIUS
NORMANDINA PULCHELLA
OPEGRAPHA VARIA
PARMELIA SQUARROSA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PARMELIA SULCATA		
		PARMELIELLA TRIPTOPHYLLA		
		PARMOTREMA CRINITUM		
		PELTIGERA ELISABETHAE		
		PELTIGERA EVANSIANA		
		PERTUSARIA AMARA		
		PERTUSARIA TRACHYTHALLINA		
		PHLYCTIS ARGENA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		STRIGULA STIGMATELLA		
		USNEA CAVERNOSA		
		USNEA LAPPONICA		
		USNEA LONGISSIMA		
		USNEA SUBFLORIDANA		
COOK	G7	S OF BALL CLUB LAKE	47°54'07	90°29'26

BIATORA SPHAEROIDES
 BRYORIA FURCELLATA
 BRYORIA NADVORNIKIANA
 BRYORIA TRICHODES
 BUELLIA STILLINGIANA
 CETRARIA AMERICANA
 CETRARIA AURESCENS
 CETRARIA PINASTRI
 CHAENOTHECA FERRUGINEA
 CLADINA RANGIFERINA
 CLADONIA BOREALIS
 CLADONIA CHLOROPHAEA
 CLADONIA CRISPATA
 CLADONIA PHYLLOPHORA
 CLADONIA SQUAMOSA
 EVERNIA MESOMORPHA
 GRAPHIS SCRIPTA
 HYPOGYMNIA PHYSODES
 IMSHAUGIA ALEURITES
 LECANORA ARGENTATA
 LECANORA WISCONSINENSIS
 LOXOSPORA PUSTULATA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		MYCOBLASTUS SANGUINARIUS		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PELTIGERA APHTHOSA		
		PELTIGERA LEUCOPHLEBIA		
		PLATISMATIA TUCKERMANII		
		TRAPELIOPSIS GRANULOSA		
		USNEA CAVERNOSA		
		USNEA FILIPENDULA		
		USNEA LONGISSIMA		
		USNEA SUBFLORIDANA		

LAKE L9 E OF PINE LAKE

47°27'51 91°45'26

CETRELIA CHICITAE
 CHAENOTHECA CHRYSOCEPHALA
 CLADONIA CENOTEA
 CLADONIA CHLOROPHAEA
 CLADONIA SQUAMOSA
 CRESPONEA CHLOROCONIA
 DIMERELLA LUTEA
 FLAVOPARMELIA CAPERATA
 HETERODERMIA SPECIOSA
 HYPOGYMNIA PHYSODES
 HYPOTRACHYNA REVOLUTA
 IMSHAUGIA ALEURITES
 LECANORA ALBELLA
 LECANORA MERIDIONALIS
 LECANORA RUGOSELLA
 LECANORA WISCONSINENSIS
 LECANORA WISCONSINESIS
 LOPADIUM PEZIZOIDEUM
 LOXOSPORA PUSTULATA
 MENEGAZZIA TEREBRATA
 MICAREA PELIOCARPA
 MYCOBILIMBIA TETRAMERA
 MYCOBLASTUS SANGUINARIUS
 PANNARIA CONOPLEA
 PANNARIA PEZIZOIDES
 PARMELIA SQUARROSA
 PARMOTREMA ARNOLDII
 PARMOTREMA CRINITUM

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		PERTUSARIA AMARA		
		PERTUSARIA LEIOPLACA		
		PHLYCTIS ARGENA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		RAMALINA INTERMEDIA		
		SPHINCTRINA ANGLICA		
		SPHINCTRINA TURBINATA		
		USNEA HIRTA		
COOK	T16	AMENDA CREEK AT USFS 342	47°34'02	91°00'05
		CRESPONEA CHLOROCONIA		
		FLAVOPARMELIA CAPERATA		
		HETERODERMIA SPECIOSA		
		LECANORA THYSANOPHORA		
		LEPRARIA LOBIFICANS		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		LOXOSPORA PUSTULATA		
		MELANELIA SUBAURIFERA		
		MYCOBILIMBIA BERENGERIANA		
		OCHROLECHIA ANDROGYNA		
		OCHROLECHIA TROCHOPHORA		
		PARMELIA SQUARROSA		
		PERTUSARIA AMARA		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		
		PUNCTELIA RUDECTA		
		SPHINCTRINA TURBINATA		
		STRIGULA STIGMATELLA		
		XANTHORIA ULOPHYLLODES		
COOK	T23	WANLESS CREEK	47°38'18	91°04'52
		BACIDIA SCHWEINITZII		
		BIATORA VERNALIS		
		CETRARIA AURESCENS		
		CETRARIA PINASTRI		
		CETRELIA OLIVETORUM		
		CHAENOTHECA FERRUGINEA		
		CHAENOTHECA TRICHIALIS		

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		CLADONIA SQUAMOSA		
		CRESPONEA CHLOROCONIA		
		DIMERELLA LUTEA		
		EVERNIA MESOMORPHA		
		FLAVOPARMELIA CAPERATA		
		HETERODERMIA SPECIOSA		
		HYPOGYMNIA PHYSODES		
		LECANORA WISCONSINENSIS		
		LOBARIA PULMONARIA		
		LOXOSPORA PUSTULATA		
		MENEGAZZIA TEREBRATA		
		MYCOBILIMBIA BERENGERIANA		
		MYCOBILIMBIA SABULETORUM		
		MYCOBLASTUS SANGUINARIUS		
		OCHROLECHIA TROCHOPHORA		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMELIELLA TRIPTOPHYLLA		
		PARMOTREMA CRINITUM		
		PELTIGERA ELISABETHAE		
		PERTUSARIA AMARA		
		PHLYCTIS ARGENA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		RAMALINA INTERMEDIA		
		STRIGULA STIGMATELLA		
		USNEA LONGISSIMA		
		USNEA SUBFLORIDANA		
COOK	T27	1.5 MI N OF OBERG MOUNTAIN	47°38'56	90°47'16
		BACIDIA SCHWEINITZII		
		BIATORA EFFLORESCENS		
		BIATORA VERNALIS		
		BRYORIA CAPILLARIS		
		BRYORIA TRICHODES		
		CETRELIA CHICITAE		
		CETRELIA OLIVETORUM		
		CHAENOTHECA FURFURACEA		
		CHAENOTHECA TRICHIALIS		

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		CLADONIA CENOTEA		
		CLADONIA CHLOROPHAEA		
		CLADONIA SQUAMOSA		
		CRESPONEA CHLOROCONIA		
		DIMERELLA LUTEA		
		FLAVOPARMELIA CAPERATA		
		HETERODERMIA SPECIOSA		
		HYPOGYMNIA PHYSODES		
		LOBARIA PULMONARIA		
		LOXOSPORA ELATINA		
		MENEGAZZIA TEREBRATA		
		MYCOBILIMBIA BERENGERIANA		
		NEPHROMA HELVETICUM		
		PARMELIA SQUARROSA		
		PARMOTREMA ARNOLDII		
		PARMOTREMA CRINITUM		
		PELTIGERA EVANSIANA		
		PERTUSARIA AMARA		
		PHLYCTIS ARGENA		
		PHYSCONIA DETERSA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		PUNCTELIA RUDECTA		
		RAMALINA INTERMEDIA		
		STRIGULA STIGMATELLA		
		USNEA FILIPENDULA		

COOK T31 E OF TAIT LAKE

47°49'28 90°39'25

BIATORA HELVOLA
 BIATORA VERNALIS
 BRYORIA CAPILLARIS
 CETRARIA AMERICANA
 CETRARIA AURESCENS
 CETRARIA PINASTRI
 CETRELIA CHICITAE
 CHAENOTHECA BRUNNEOLA
 CLADINA RANGIFERINA
 CLADONIA CHLOROPHAEA
 CLADONIA MULTIFORMIS
 EVERNIA MESOMORPHA
 FLAVOPARMELIA CAPERATA

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		HETERODERMIA SPECIOSA		
		HYPOGYMNIA PHYSODES		
		HYPOGYMNIA TUBULOSA		
		HYPOTRACHYNA REVOLUTA		
		LECANORA CIRCUMBOREALIS		
		LOBARIA PULMONARIA		
		LOXOSPORA PUSTULATA		
		MYCOBLASTUS SANGUINARIUS		
		NEPHROMA HELVETICUM		
		OCHROLECHIA TROCHOPHORA		
		PANNARIA CONOPLEA		
		PARMELIA SQUARROSA		
		PARMELIA SULCATA		
		PELTIGERA APHTHOSA		
		PELTIGERA CANINA		
		PELTIGERA POLYDACTYLON		
		PERTUSARIA AMARA		
		PERTUSARIA OPHTHALMIZA		
		PHYSCONIA DETERSA		
		PHYSCONIA MUSCIGENA		
		PLATISMATIA TUCKERMANII		
		PSEUDEVERNIA CONSOCIANS		
		RAMALINA DILACERATA		
		RAMALINA INTERMEDIA		
		RAMALINA THRAUSTA		
		STRIGULA STIGMATELLA		
		USNEA CAVERNOSA		
		USNEA FILIPENDULA		
		USNEA SUBFLORIDANA		
COOK	T6	TEMPERANCE RIVER ROAD	47°35'28	90°54'42
		BACIDIA SCHWEINITZII		
		BUELLIA STILLINGIANA		
		CALOPLACA HOLOCARPA		
		CETRELIA CHICITAE		
		CETRELIA OLIVETORUM		
		CHAENOTHECA BRUNNEOLA		
		CLADONIA CORNUTA		
		CLADONIA SQUAMOSA		
		CRESPONEA CHLOROCONIA		
		FLAVOPARMELIA CAPERATA		

<i>County</i>	<i>Locality #</i>	<i>Locality</i>	<i>Lat</i>	<i>Long</i>
		GRAPHIS SCRIPTA		
		LECANORA ARGENTATA		
		LECANORA THYSANOPHORA		
		LOBARIA PULMONARIA		
		LOBARIA QUERCIZANS		
		MYCOBILIMBIA BERENGERIANA		
		MYCOBILIMBIA SABULETORUM		
		MYCOCALICIUM SUBTILE		
		PARMELIA SQUARROSA		
		PARMOTREMA CRINITUM		
		PELTIGERA ELISABETHAE		
		PERTUSARIA AMARA		
		PHAEOPHYSCIA PUSILLOIDES		
		PHAEOPHYSCIA RUBROPULCHRA		
		PHYSCONIA DETERSA		

APPENDIX 2

Field data sheets for localities where rare lichens were found. Numbers in upper right corner are the site numbers in **bold** in TABLE 1.

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

Lans Co
L 6

SCIENTIFIC NAME: Lobaria quercivora DISCOVERY DATE: 17 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 57N R 10W 1/4 1/4 SEC 36; QUAD: Legler & W hysle

COMPARTMENT: _____ LOCATION (attach map): WP 11

RANGER DISTRICT: Lantern NATIONAL FOREST: Superior NF COUNTY: Lake

LAND OWNERSHIP: USFS

OCCURRENCE: Size: medium to small Density: 8-10 thalli

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: rolling hilltop Slope: _____

% Shaded: 100 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: rolling hilltop

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

Ed growth sugar maple forest with some yellow birch and basswood

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 32237 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

L6

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 17 June 1998

Job Title: _____ District: Laurentian Compartment: _____

Legal subdivision: _____

Quad: Legler + Whyte Location: W P 11

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.

Area indicated on attached map(s) was surveyed for the following rare species:

all lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercizans

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

sugar maple forest over 85 years old

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Menegazzia trebrata DISCOVERY DATE: 21 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 58N R 11W _____ 1/4 _____ 1/4 SEC 32; QUAD: Toimi

COMPARTMENT: _____ LOCATION (attach map): WP14

RANGER DISTRICT: Laurentian NATIONAL FOREST: Superior NF COUNTY: Lake

LAND OWNERSHIP: USFS

OCCURRENCE: Size: on 5 trees Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: partial 50% Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

On Thuja in center of ^{over 5 years} old Thuja bog with some black spruce

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82172 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 21 June 1999

Job Title: ~~DNR~~ District: Laurentia Compartment: _____

Legal subdivision: _____

Quad: Toine Location: W P14

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Menegazzia trebrata

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

white cedar bog over 85 years old

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria querciana DISCOVERY DATE: 21 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 57N R 12W _____ 1/4 _____ 1/4 SEC 33 ; QUAD: Toisni

COMPARTMENT: _____ LOCATION (attach map): WP15

RANGER DISTRICT: Laurentia NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: 6 thalli on 5 trees Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
old black ash bog with old black ash & some black spruce

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82324 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 2 June 1999

Job Title: _____ District: Laurentian Compartment: _____

Legal subdivision: _____

Quad: T 01 N 1 Location: WP 15

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercizans

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: ash bog Community description: old ash and some black spruce

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lebaria quercifera DISCOVERY DATE: 23 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 61W R 17W 1/4 1/4 SEC 23 ; QUAD: Lost Lake

COMPARTMENT: _____ LOCATION (attach map): WP 22

RANGER DISTRICT: Laurentian NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: 3 thallion 3 trees Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 50 Humus/Duff (depth & cover): _____

Ecological Classification (LTA, ELT, ELTP) old mixed Thuya - black ash bog with alder
(consult Forest Service)

Topography of Area: swamp

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

on black ash + Thuya + yellow birch

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82358 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Stictis fuliginosa DISCOVERY DATE: 23 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 61N R 17W 1/4 1/4 SEC 23 ; QUAD: Lost Lake

COMPARTMENT: _____ LOCATION (attach map): WP 22

RANGER DISTRICT: Laurel NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: 4 thalli on one tree Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 100 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) old mixed Thuja-black ash bog with alder
(consult Forest Service)

Topography of Area: swamp

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

on base of old yellow birch 12-16" diam among mosses

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82346 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 23 June 1994

Job Title: _____ District: Laurentian Compartment: _____

Legal subdivision: _____

Quad: Lost Lake Location: sect 23, T61N, R17W WP22

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria queiroziana, Stictis fuliginosa

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:

Community description:

Cedar-black ash bog mixed old trees with areas of alder,
trees 10" + diam, over 85 years old

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

212

SCIENTIFIC NAME: Lobaria quercizans DISCOVERY DATE: 29 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 67N R 18W 1/4 1/4 SEC 22; QUAD: Marion Lake

COMPARTMENT: _____ LOCATION (attach map): W P 38

RANGER DISTRICT: La Croix NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: 6-8 thalli on 8 trees Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 60 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: hwy

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

old mixed black ash & Thuja bog with some tamarack taller

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82414 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

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9

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 29 June 1999

Job Title: _____ District: La Crosse Compartment: _____

Legal subdivision: _____

Quad: Marion Lake Location: WP 38

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercizans

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Ash/Thuja bog mixed black ash and Thuja 16-24" + young ones

some alder + tamarack

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

013

SCIENTIFIC NAME: Lobaria querciana DISCOVERY DATE: 29 June 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 67N R 18W 1/4 1/4 SEC 28 ; QUAD: Marion Lake

COMPARTMENT: _____ LOCATION (attach map): WP39

RANGER DISTRICT: La Crosse NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: 2 thalli on 2 trees Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 50 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

mixed lowland with old Thujas 20-26", blackack 18-20", whitebirch,
black spruce, alder

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 2543 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 29 June 1999

Job Title: _____ District: La Croix Compartment: _____

Legal subdivision: _____

Quad: Marion Lake Location: WP39

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercizans

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:	Community description:
<u>old ash/Thuja lowland</u>	<u>Very mixed Thuja, black ash, black spruce, white</u>
	<u>birch, alder, ash + Thuja old and large 18-26" + old</u>
	<u>balsam poplar</u>

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Calopogon parvulus DISCOVERY DATE: 15 July 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 63N R 12W 1/4 1/4 SEC 19 ; QUAD: Shagawa Lake

COMPARTMENT: _____ LOCATION (attach map): W P 62

RANGER DISTRICT: Kaweshim' NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

in black ash bog trees 3" - 9" . This one at base of 3" ash

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82915 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 15 July 1999

Job Title: _____ District: Kemishini Compartment: _____

Legal subdivision: _____

Quad: Shagawa Lake Location: WP62

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Caloplicca parvula

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

ash bog tree 3-9" open at end of lake

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Menziesia tuberculata DISCOVERY DATE: 15 July 1994

OCCURRENCE #: _____ (Consult Biologist for #)

T 65 N R 13 W 1/4 1/4 SEC 36; QUAD: Anglemom Lake

COMPARTMENT: _____ LOCATION (attach map): WP 37

RANGER DISTRICT: La Croix NATIONAL FOREST: Superior NF COUNTY: St Louis

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 90
% Shaded: 50 Humus/Duff (depth & cover): 0

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on rock cliff (not USFS)

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 82941 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 15 July 1999

Job Title: _____ District: La Croix Compartment: _____

Legal subdivision: _____

Quad: Angluern Lake Location: WP 37

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Menegazzia tuberculata

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

rock cliff w facing cliffs shaded on lower parts,
old pines on top

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Scleria quadrata DISCOVERY DATE: 27 July

OCCURRENCE #: _____ (Consult Biologist for #)

T 6/2 R 4W 1/4 1/4 SEC 33 ; QUAD: Honeyman Int

COMPARTMENT: _____ LOCATION (attach map): W P 71

RANGER DISTRICT: Tofta NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: slight to W
% Shaded: 90 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
rugosa spher 18-22" yellow birch 25" some white birch
many thalli + many trees some poor health - shading?

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83030 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore ⁸³⁰³⁵ JOB TITLE: Rare Lichen Survey

77

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 27 July 1974

Job Title: _____ District: Tolt Compartment: _____

Legal subdivision: _____

Quad: Honeyman Dist Location: WP 71

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.

Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria querciana

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:

Community description:

Sugar maple Sugar maple 18-22, yellow birch 25"

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria quercipes DISCOVERY DATE: 29 Jul, 1989

OCCURRENCE #: _____ (Consult Biologist for #)

T 59N R 5W 1/4 1/4 SEC 24 ; QUAD: Schroeder

COMPARTMENT: _____ LOCATION (attach map): WP 76

RANGER DISTRICT: Tofta NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: few

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: slight
% Shaded: 40 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
Tree hollow on 2 trees. Mostly too shady

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83085 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore ⁸³⁰⁹⁶ JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 28 July 1999

Job Title: _____ District: Tolpe Compartment: _____

Legal subdivision: _____

Quad: Schroeder Location: W P 76

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria guerrieriana

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Thymus has mixed yellow bird Thymus 29" yellow bird 29" black and 18"
very shaded but bird's here

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria guerraeana DISCOVERY DATE: 28 July, 1994

OCCURRENCE #: _____ (Consult Biologist for #)

T 59N R 5W 1/4 1/4 SEC 12; QUAD: Schroeder

COMPARTMENT: _____ LOCATION (attach map): WP 77

RANGER DISTRICT: Toffie NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: flat
% Shaded: 80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
Frequent on old sugar maple

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83134 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 28 July 1949

Job Title: _____ District: Toft Compartment: _____

Legal subdivision: _____

Quad: Schroder Location: WP 77

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria gussoneana

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

old sugar maple sugar maple 35" yellow birch 32"

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria querciana DISCOVERY DATE: 28 July 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 59N R 6W 1/4 1/4 SEC 12+13; QUAD: Cramer Lake

COMPARTMENT: _____ LOCATION (attach map): WP80

RANGER DISTRICT: Tofte NATIONAL FOREST: Superior NF COUNTY: Lake

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 90 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
Abundant on many old sugar snags (not USFS)

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83137 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 28 July 1999

Job Title: _____ District: Tofte Compartment: _____

Legal subdivision: _____

Quad: Cramer Lake Location: WP80

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercizans

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Sugar maple Old sugar maple forest on level ground

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

T14

SCIENTIFIC NAME: Lobaria querciana DISCOVERY DATE: 30 July 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 59N R 5W 1/4 1/4 SEC 29; QUAD: Lohrstedt

COMPARTMENT: _____ LOCATION (attach map): WP85

RANGER DISTRICT: Tpt NATIONAL FOREST: Superior NF COUNTY: _____

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA, ELT, ELTP) _____
(consult Forest Service)
Topography of Area: flat

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
many thalli on many trees

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83147 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

T14

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 30 July 1999

Job Title: _____ District: Tofta Compartment: _____

Legal subdivision: _____

Quad: Schroeder Location: WP85

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.

Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercigena

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:

Community description:

sugar maple Some maple 18-22", much regeneration, some

old quaking aspen 15" + yellow birch 15-20"

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

715

SCIENTIFIC NAME: Lobelia quercifolia DISCOVERY DATE: 30 July 1900

OCCURRENCE #: _____ (Consult Biologist for #)

T 59 R 56 1/4 1/4 SEC 20; QUAD: L. 1. 1. 1. 1.

COMPARTMENT: _____ LOCATION (attach map): W 186

RANGER DISTRICT: T. 1. 1. NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA, ELT, ELTP) _____
(consult Forest Service)

Topography of Area: flat

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

on many old maple 18-22"

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83180 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

T75

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 30 July 1999

Job Title: _____ District: TST Compartment: _____

Legal subdivision: _____

Quad: Sbrock Location: WPSG

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.

Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria praecox

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Sugar maple maple 18-22, upland + high 26" White spruce 22

lots of maple regeneration

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria quercigena DISCOVERY DATE: 30 July 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 59 R 6w 1/4 1/4 SEC 19; QUAD: Cramer

COMPARTMENT: _____ LOCATION (attach map): WP 87

RANGER DISTRICT: Toft NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) flat
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
only on one tree, poor growth

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83224 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 30 July 1990

Job Title: _____ District: Toft Compartment: _____

Legal subdivision: _____

Quad: Cramer Location: W P 87

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria pumila

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Thujin etc at edge of bog 27-34" also red & sugar maple, balsam fir & spruce

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

T19

SCIENTIFIC NAME: Cetraria americana DISCOVERY DATE: 3/27/1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 6 R 4 1/4 1/4 SEC 18 ; QUAD: Beth Lake

COMPARTMENT: _____ LOCATION (attach map): WP90

RANGER DISTRICT: T19 NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 50 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on small shrubs, on low branches of black spruce

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83227 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 31 July 1998

Job Title: _____ District: Todd Compartment: _____

Legal subdivision: _____

Quad: Beth Lake Location: WP 90

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Peltaria americana

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:	Community description:
<u>Shrub spruce</u>	<u>6' black spruce, fairly dense, Sphagnum</u>
_____	<u>ground cover, no standing water</u>
_____	_____
_____	_____
_____	_____

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Cetraria aurea DISCOVERY DATE: 1 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 60N R 6W 1/4 1/4 SEC 34 ; QUAD: Wilson Lake

COMPARTMENT: _____ LOCATION (attach map): WP 94

RANGER DISTRICT: Toft NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: ~~S~~ % Slope: 0
% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on thallus on leaning Thuja

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83275 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Urena longissima DISCOVERY DATE: 1 Aug 1994

OCCURRENCE #: _____ (Consult Biologist for #)

T 60N R 6W 1/4 1/4 SEC 34; QUAD: Wilson Lake

COMPARTMENT: _____ LOCATION (attach map): WP 94

RANGER DISTRICT: Tofte NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
fallen piece on T. hirsuta branch

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83265 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Meroglossia terbracki DISCOVERY DATE: 1 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 60N R 6W 1/4 1/4 SEC 34; QUAD: Wilson Lake

COMPARTMENT: _____ LOCATION (attach map): WP94

RANGER DISTRICT: Tofto NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 50 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
7" diam. thallus on leaning Thuja, many thalli

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83284 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 1 Aug 1990

Job Title: _____ District: Tofta Compartment: _____

Legal subdivision: _____

Quad: Wilson Lake Location: W P 94

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Meneziesia tenella, Lecanora aurea, Usnea longissima

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:

Community description:

Thin bog

Slight slope along swamp & stream

scattered birch, black spruce, balsam poplar, yellow birch

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria gireoudiana DISCOVERY DATE: 2 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 59a R 4w 1/4 1/4 SEC 1; QUAD: Honeyman Trct.

COMPARTMENT: _____ LOCATION (attach map): ~~Close boundary~~ w P 97

RANGER DISTRICT: Tofta NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

on an example, several trees but only very old trees

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83296 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore ⁸³³¹⁹ JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 2 Aug 1941

Job Title: _____ District: Tyler Compartment: _____

Legal subdivision: _____

Quad: Honeyman Mt Location: ~~Strong Mountain~~ WP97

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: _____

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

sugar maple sugar maple 20" white birch 14" spruce

aspen 17" on hilltop

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

T27

SCIENTIFIC NAME: Honeygyia subrot DISCOVERY DATE: 2 Aug, 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 60W R 4N _____ 1/4 _____ 1/4 SEC 25 ; QUAD: Honeygyia Int

COMPARTMENT: _____ LOCATION (attach map): W P 98

RANGER DISTRICT: Tofta NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: slight
% Shaded: 50 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
several thalli on different things, trunk & branches

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83353 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 2 Aug 1999

Job Title: _____ District: TMP Compartment: _____

Legal subdivision: _____

Quad: Honeycreek Mt Location: W P 98

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: _____

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Thuja bog Thuja 27' black spruce 18" white birch 22

+ scattered alder

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Ranalinia thrausta DISCOVERY DATE: 3 Aug. 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 62N R 3W _____ 1/4 _____ 1/4 SEC 25; QUAD: Tait Lake

COMPARTMENT: _____ LOCATION (attach map): WP102

RANGER DISTRICT: Toft NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 20 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on lower branches of black spruce

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83361 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Cetraria aurescens DISCOVERY DATE: 3 Aug. 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 62N R 3W 1/4 1/4 SEC 25 ; QUAD: Tait Lake

COMPARTMENT: _____ LOCATION (attach map): WP 102

RANGER DISTRICT: Tofte NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 20 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on lower branches of balsam fir

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83364 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichens Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: _____

Job Title: _____ District: Toft Compartment: _____

Legal subdivision: _____

Quad: Tait Lake Location: W P 102

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Ramalina thrausta, Cetraria aurea

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Thyris bog open with thyr 24", lots of dead balsam fir and

black spruce

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

62

SCIENTIFIC NAME: Lobaria querciana DISCOVERY DATE: 4 Aug 1990

OCCURRENCE #: _____ (Consult Biologist for #)

T 60 R 2W 1/4 1/4 SEC 23; QUAD: Wood pond Lake

COMPARTMENT: _____ LOCATION (attach map): WP 104

RANGER DISTRICT: Kimberly NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: _____

% Shaded: _____ Humus/Duff (depth & cover): _____

Ecological Classification (LTA, ELT, ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

abundant on old sugar maple 10-24"

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83450 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

G-2

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 4 Aug 1994

Job Title: _____ District: Gunflint Compartment: _____

Legal subdivision: _____

Quad: Deeryard Lake Location: WP 104

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria quercigena

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Sugar maple scattered old sugar maple 24" & few old

white birch 22"

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Urena longissima DISCOVERY DATE: 4 Aug. 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 61N R 2W _____ 1/4 _____ 1/4 SEC 2 ; QUAD: Mark Lake

COMPARTMENT: _____ LOCATION (attach map): WP106

RANGER DISTRICT: Kunflict NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 20
% Shaded: 0 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on top of dead balsam fir & blown pieces on other trees

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 3479 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 4 Aug. 1999

Job Title: _____ District: Dunfiat Compartment: _____

Legal subdivision: _____

Quad: Mark Lake Location: WP106

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Usnea longissima

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST
COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

old gnawing aspen lots of dead balsam fir

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Cetraria aurea DISCOVERY DATE: 5 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 63N R 1W 1/4 1/4 SEC 31; QUAD: Lima Mt

COMPARTMENT: _____ LOCATION (attach map): WP109

RANGER DISTRICT: Gunflint NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
2 thalli on one Thuja^{tr} branches in valley

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83504 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Usnea longissima DISCOVERY DATE: 5 Aug. 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 63NR 1W 1/4 1/4 SEC 31; QUAD: Lima Mt

COMPARTMENT: _____ LOCATION (attach map): WP 109

RANGER DISTRICT: Sunlist NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 30 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

fairly abundant on black spruce in valley

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83519 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 5 Aug 1979

Job Title: _____ District: Keonick Compartment: _____

Legal subdivision: _____

Quad: Leino Det. Location: WP 109

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Usnea longissima, Atraria aurea

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

rice Thins 12-20, white bark 16" black bark 14"

species hillside + valley

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Lobaria gaurigiana DISCOVERY DATE: 8 Aug 1990

OCCURRENCE #: _____ (Consult Biologist for #)

T 624 R 2E 1/4 1/4 SEC 32; QUAD: Madame River

COMPARTMENT: _____ LOCATION (attach map): WP 116

RANGER DISTRICT: Quailist NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: _____

% Shaded: _____ Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

few thalli on old yellow birch

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83547 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 8 Aug 1994

Job Title: _____ District: Grandport Compartment: _____

Legal subdivision: _____

Quad: Kaduna River Location: W P 116

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.

Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Isobaria furcigera

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type:

Community description:

Mixed hardwood Scattered Thuya 22', yellow birch 21" black

ash 10-12", sugar maple & white birch

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

616

SCIENTIFIC NAME: Lobaria quercipes DISCOVERY DATE: 8 Aug 1990

OCCURRENCE #: _____ (Consult Biologist for #)

T 62N R 2E 1/4 1/4 SEC 14 ; QUAD: Kedron River

COMPARTMENT: _____ LOCATION (attach map): WP119

RANGER DISTRICT: Eastlist NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: _____
% Shaded: _____ Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
On rock cliffs + oldest sugar maple 14"

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83565 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichens Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 8 Aug 1949

Job Title: _____ District: Superior Compartment: _____

Legal subdivision: _____

Quad: Kadwan Rim Location: WP 119

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Lobaria querciana

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Hardwood stand + cliff Rock cliffs 11 feet high with scattered old stumps

rough 10-14', white bark 8-14'

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Menegazzia turbinata DISCOVERY DATE: 17 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 624 R 2E 1/4 1/4 SEC 8 ; QUAD: Kaduna River

COMPARTMENT: _____ LOCATION (attach map): WP124

RANGER DISTRICT: Quillint NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 60 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks(microhabitat, timber type, plant associates within microhabitat, etc):
7 thalli on 5 trees, ^{7 thalli} thallus 6-10 diam.

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
none

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83640 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 17 Aug 1999

Job Title: _____ District: Dunfries Compartment: _____

Legal subdivision: _____

Quad: Kaduna River Location: WP 124

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

all rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Menegazzia tuberculata

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: _____ Community description: _____

Thunberg _____ Thunberg 17-22", black ash, alder

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Ramalina zbrants DISCOVERY DATE: 18 Aug 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 63 NR 1E 1/4 1/4 SEC 12; QUAD: Pine Mt.

COMPARTMENT: _____ LOCATION (attach map): WP 125

RANGER DISTRICT: Kunflict NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):

NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0

% Shaded: 60 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)

Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):

on dead balsam fir branch

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):

None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83675 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 1 & Aug 1999

Job Title: _____ District: Gunflint Compartment: _____

Legal subdivision: _____

Quad: Pine Mt. Location: WP # 125

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2
Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: X Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Ramalina thrausta

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

Community Type: Thuja bog Community description: Thuja 21", black spruce, some alder

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Usnea longissima DISCOVERY DATE: 21 Aug. 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 62N R 2E 1/4 _____ 1/4 SEC 20 ; QUAD: Kadunce River

COMPARTMENT: _____ LOCATION (attach map): _____

RANGER DISTRICT: Gunflint NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: _____
% Shaded: 60 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
on dead balsam fir

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83826 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

PLANT OCCURRENCE DISCOVERY RECORD
Superior National Forest

SCIENTIFIC NAME: Menezesia Turbata DISCOVERY DATE: 21 Aug, 1999

OCCURRENCE #: _____ (Consult Biologist for #)

T 62N R 2E 1/4 1/4 SEC 20 ; QUAD: Kaluna River

COMPARTMENT: _____ LOCATION (attach map): WP136

RANGER DISTRICT: Dundell NATIONAL FOREST: Superior NF COUNTY: Cook

LAND OWNERSHIP: USFS

OCCURRENCE: Size: _____ Density: _____

Description (Phenology incl. # flower or fruit, # plants, age class, etc.):
NA

Monitoring recommendations: _____

HABITAT: Elevation: _____ Aspect: _____ % Slope: 0
% Shaded: 40-80 Humus/Duff (depth & cover): _____

Ecological Classification (LTA,ELT,ELTP) _____
(consult Forest Service)
Topography of Area: _____

Remarks (microhabitat, timber type, plant associates within microhabitat, etc):
6-8 Thallicia or 4-5 trees (7 trees)

DISTURBANCE: (is plant found in disturbed areas; nature of disturbance?):
None

How is it responding? _____

SPECIMEN COLLECTED X COLLECTOR Clifford Wetmore
COLLECTION NUMBER 83854 REPOSITORY FOR VOUCHER SPECIMEN MIN

REPORTER: Clifford Wetmore JOB TITLE: Rare Lichen Survey

BOTANICAL FIELD RECONNAISSANCE REPORT
Superior National Forest

Rare Lichen Survey
Project Name

Reporter(s): Clifford Wetmore Dates of field work: 21 Aug 1990

Job Title: _____ District: Quilling Compartment: _____

Legal subdivision: _____

Quad: Kaduna Riv Location: WP136

RECONNAISSANCE:

Size of project area (acres): _____ Number of acres surveyed: 2

Attach maps showing survey paths or areas actually receiving field coverage.
Area indicated on attached map(s) was surveyed for the following rare species:

All rare lichens

The following type of reconnaissance was conducted in the project area:

Cursory: _____ General: Complete: _____ Intuitive controlled: _____

The reconnaissance was conducted in the following manner: _____

Walked through area looking for lichens

Species located: Menegazzia terebrata, Usnea longissima

OCCURRENCE RECORD IS ON FILE WITH DISTRICT BIOLOGIST

COMMUNITY TYPES INVESTIGATED:

See "Superior National Forest Rare Plants -- Community Associations and Search Times" for listing of community types (from Minnesota DNR).

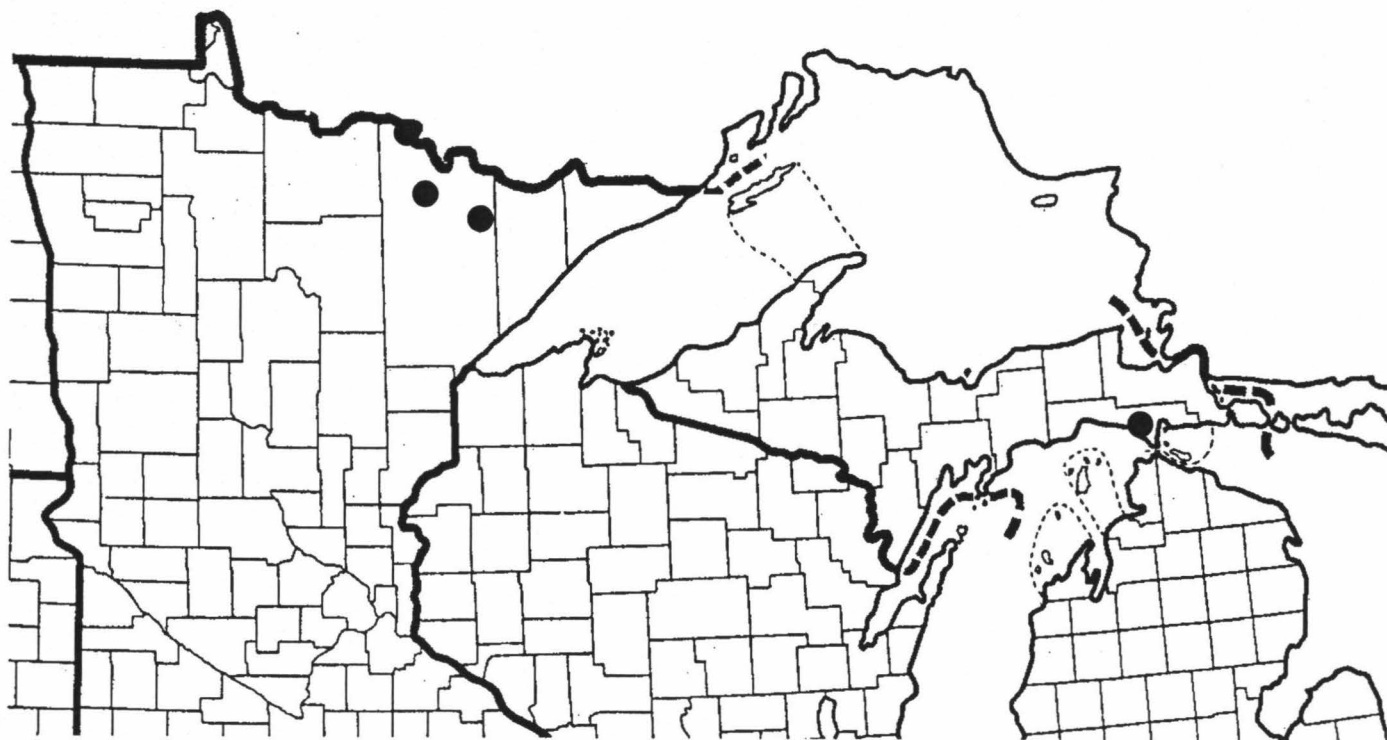
Community Type: _____ Community description: _____

Thuja bog Thuja 19-22", black spruce 20", patches

_____ Thuja with areas of alder

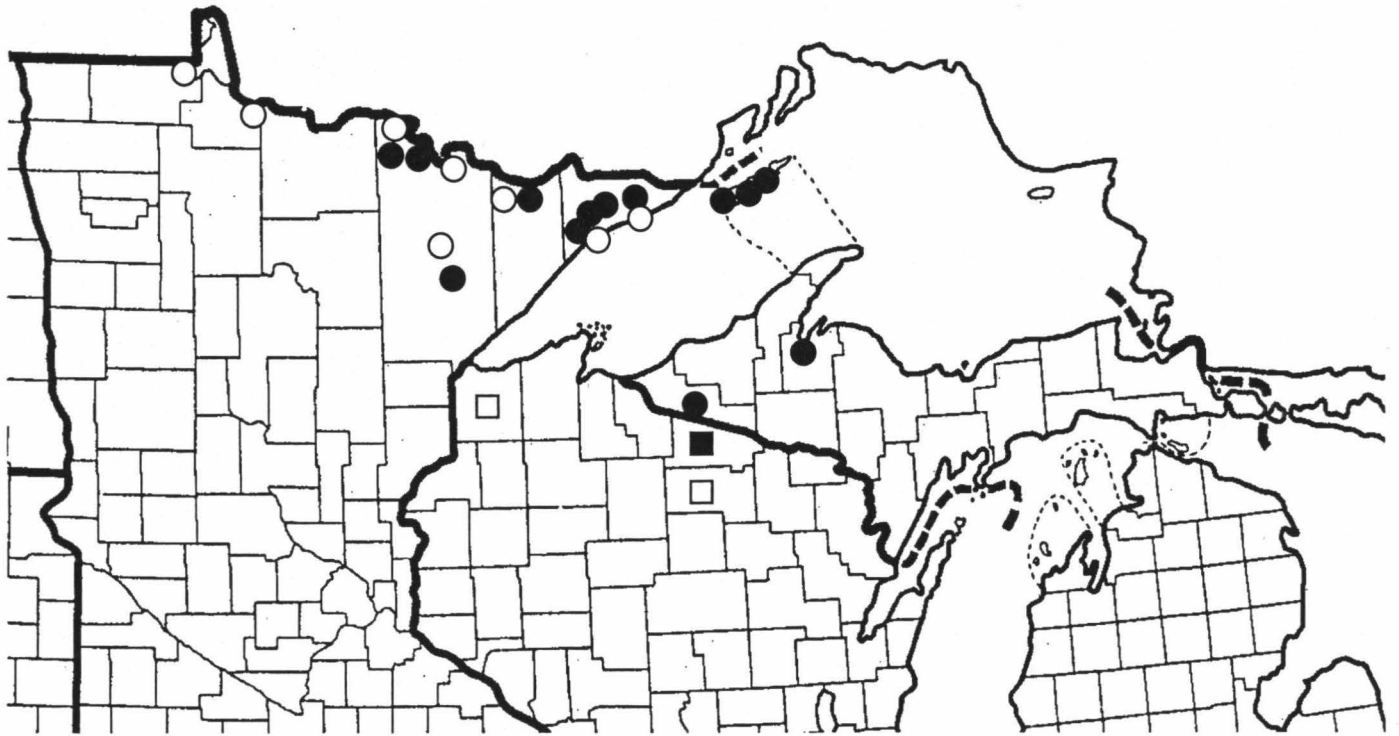
APPENDIX 3

Distribution maps of the species found during this study including the new records found during this study.



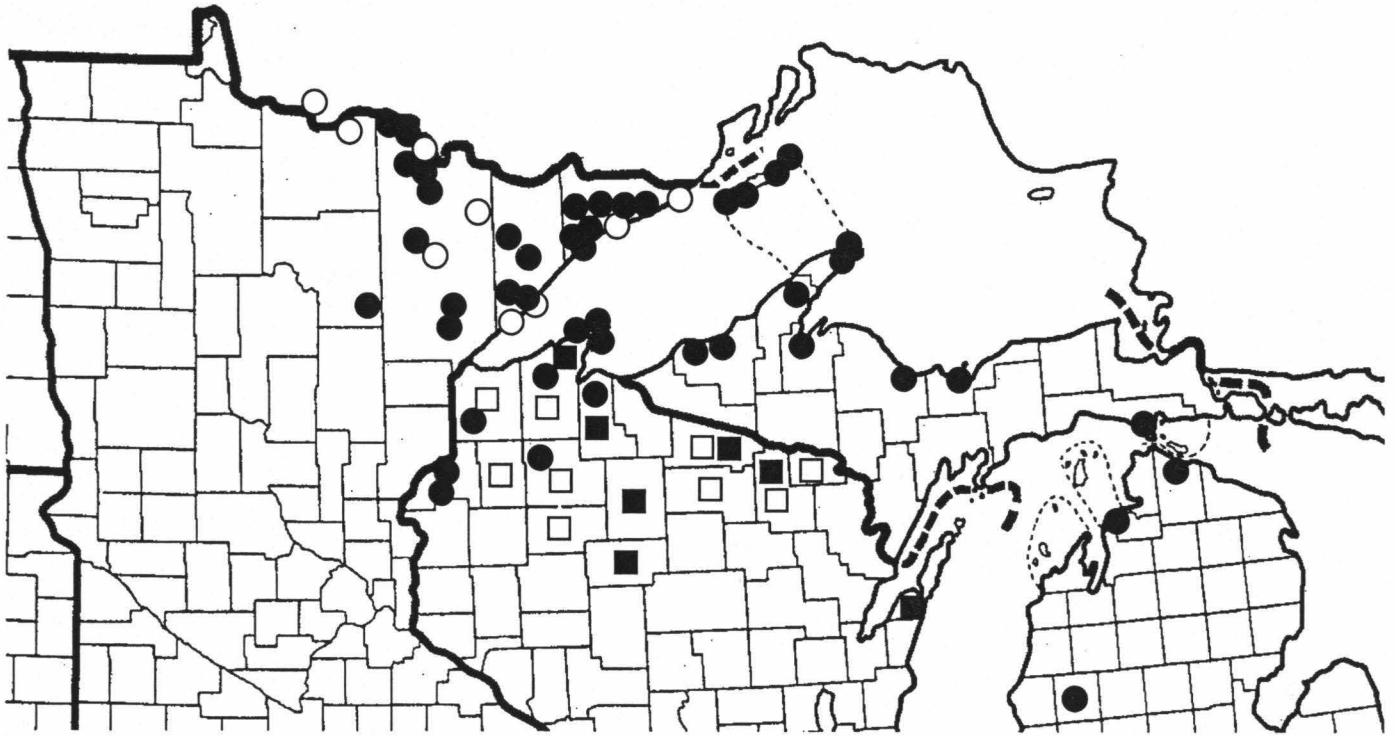
Caloplaca parvula

● = MIN herbarium specimens after 1970



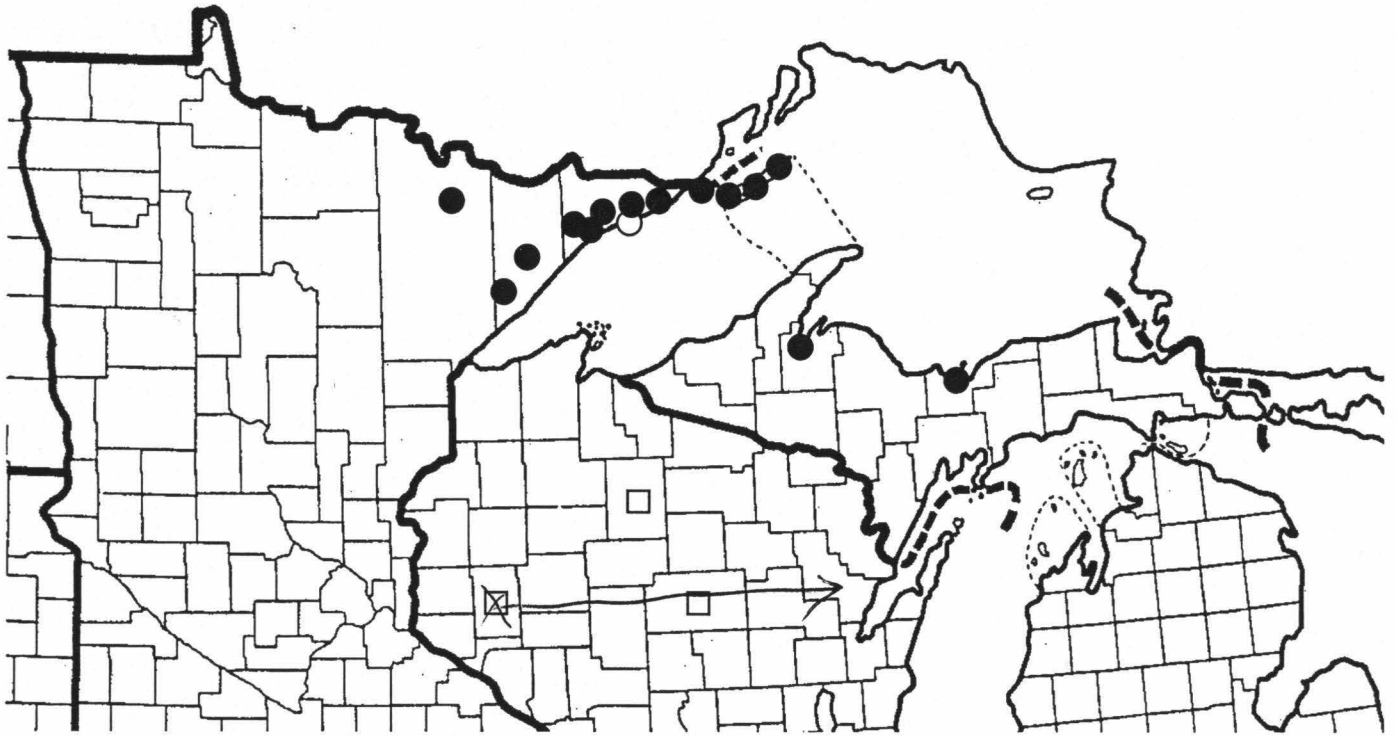
Cetraria aurescens

- = MIN herbarium specimens after 1970
- = MIN herbarium specimens before 1970
- = records from Univ. of Wisconsin after 1970
- = records from Univ. of Wisconsin before 1970



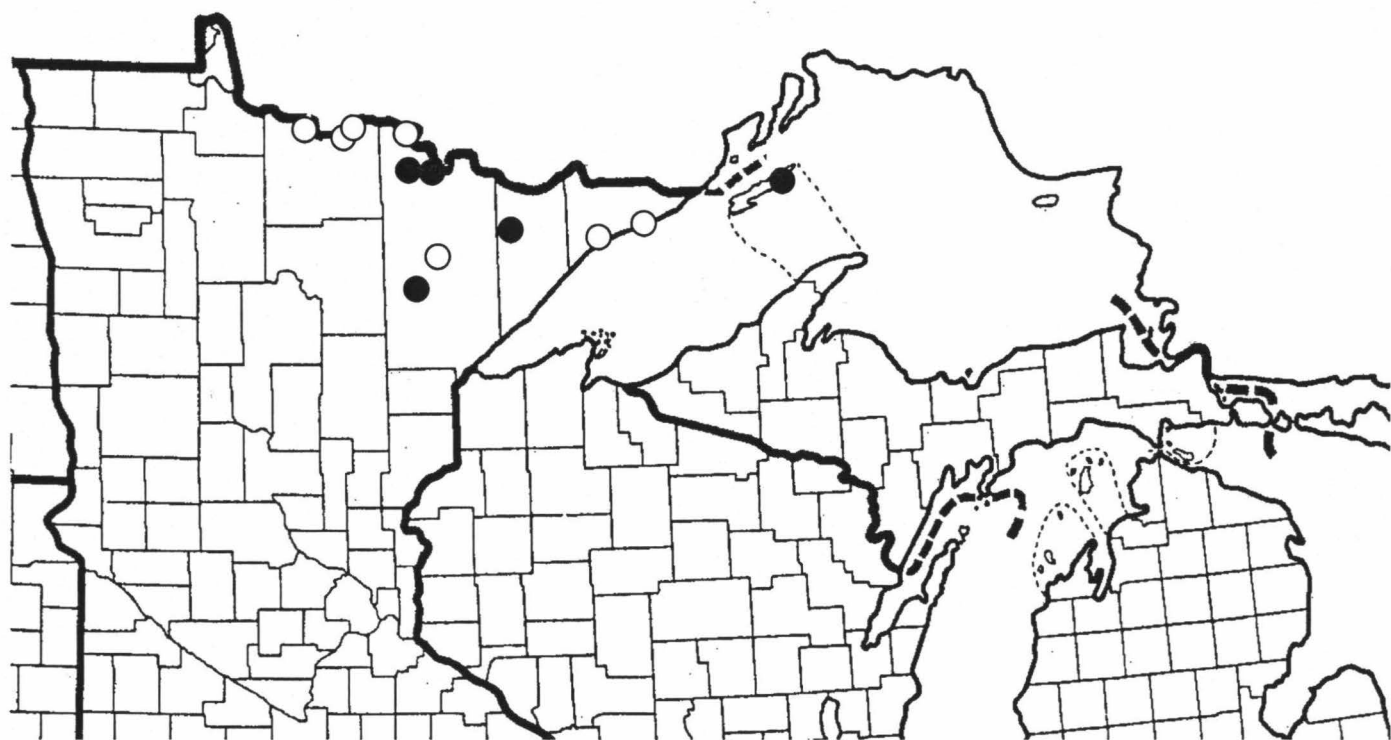
Lobaria quercizans

- = MIN herbarium specimens after 1970
- = MIN herbarium specimens before 1970
- = records from Univ. of Wisconsin after 1970
- = records from Univ. of Wisconsin before 1970



Menegazzia terebrata

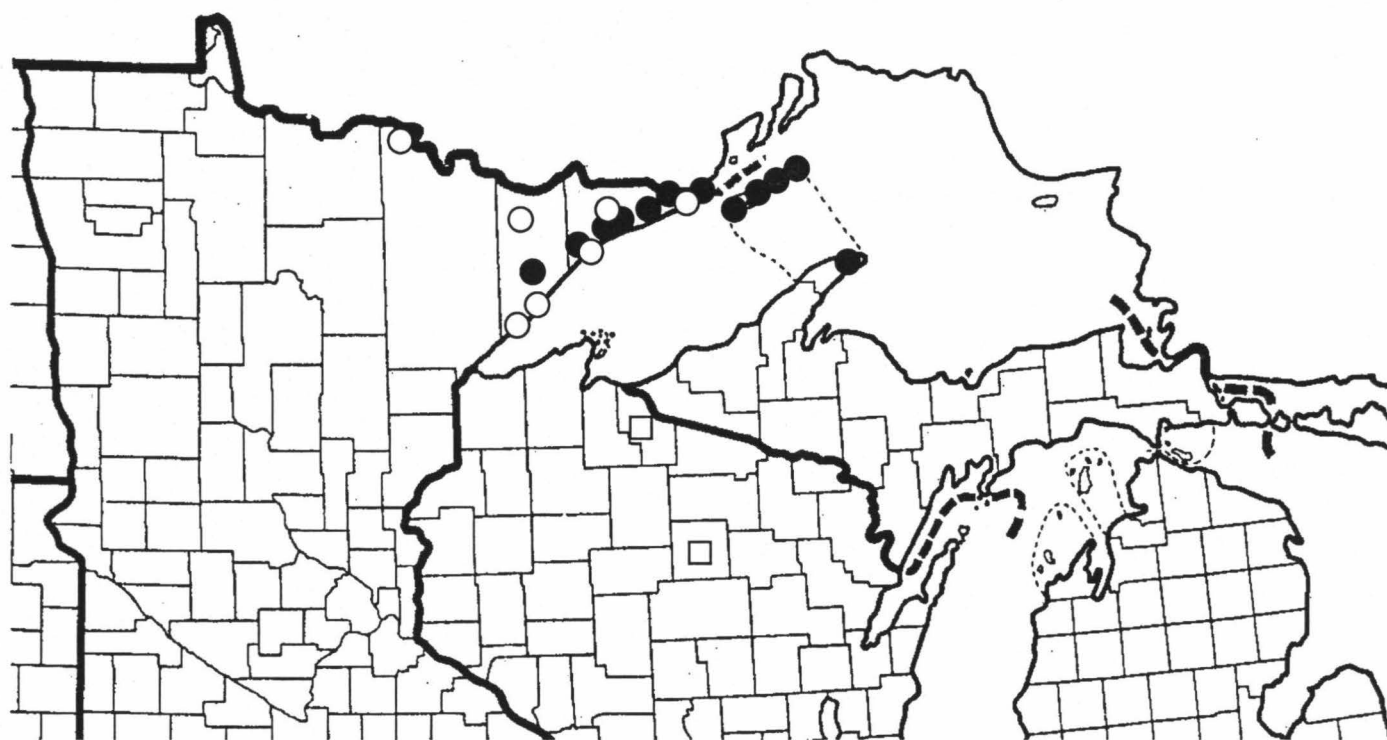
- = MIN herbarium specimens after 1970
- = MIN herbarium specimens before 1970
- = records from Univ. of Wisconsin after 1970
- = records from Univ. of Wisconsin before 1970



Sticta fuliginosa

● = MIN herbarium specimens after 1970

○ = MIN herbarium specimens before 1970



Usnea longissima

- = MIN herbarium specimens after 1970
- = MIN herbarium specimens before 1970
- = records from Univ. of Wisconsin after 1970
- = records from Univ. of Wisconsin before 1970

