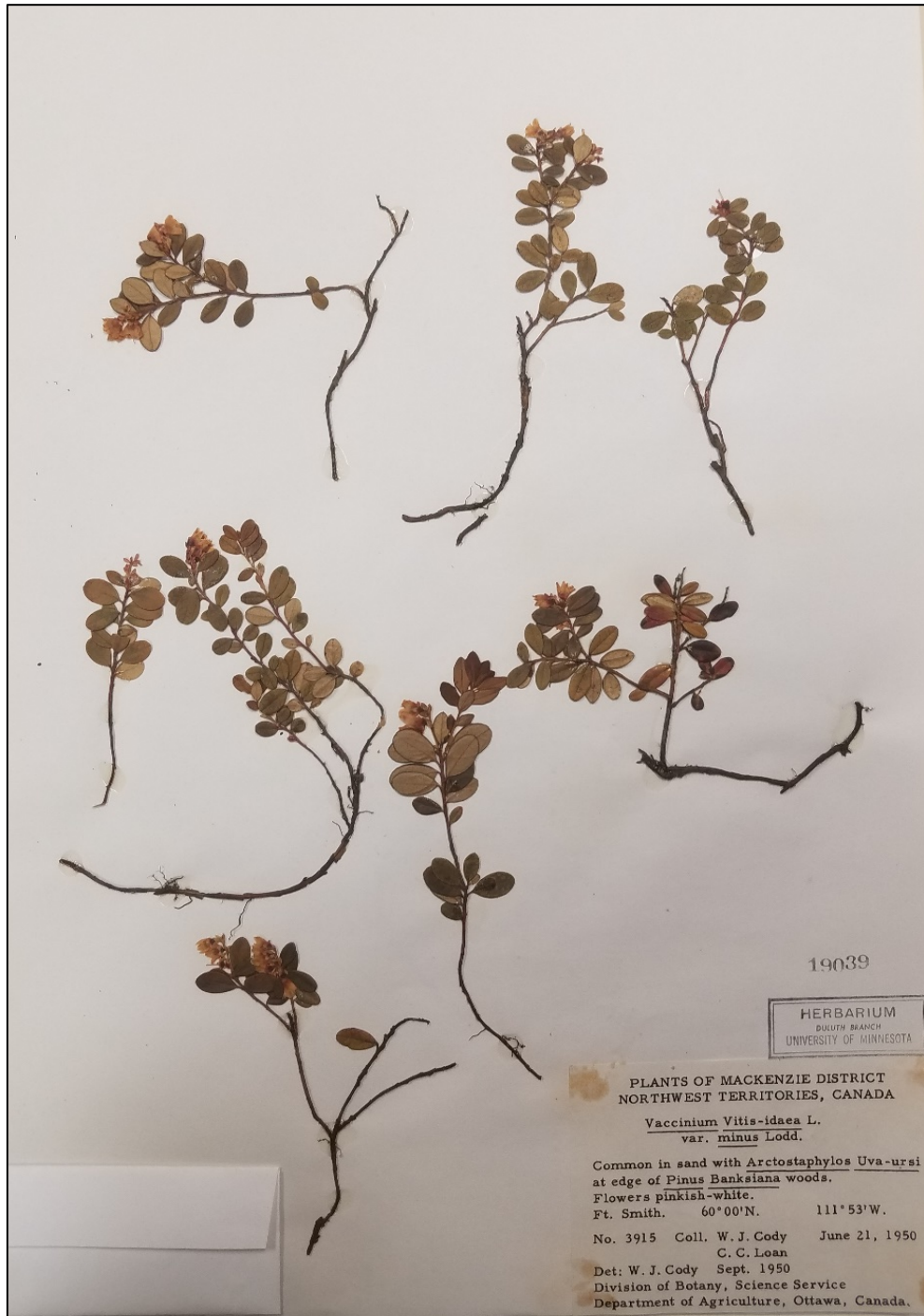
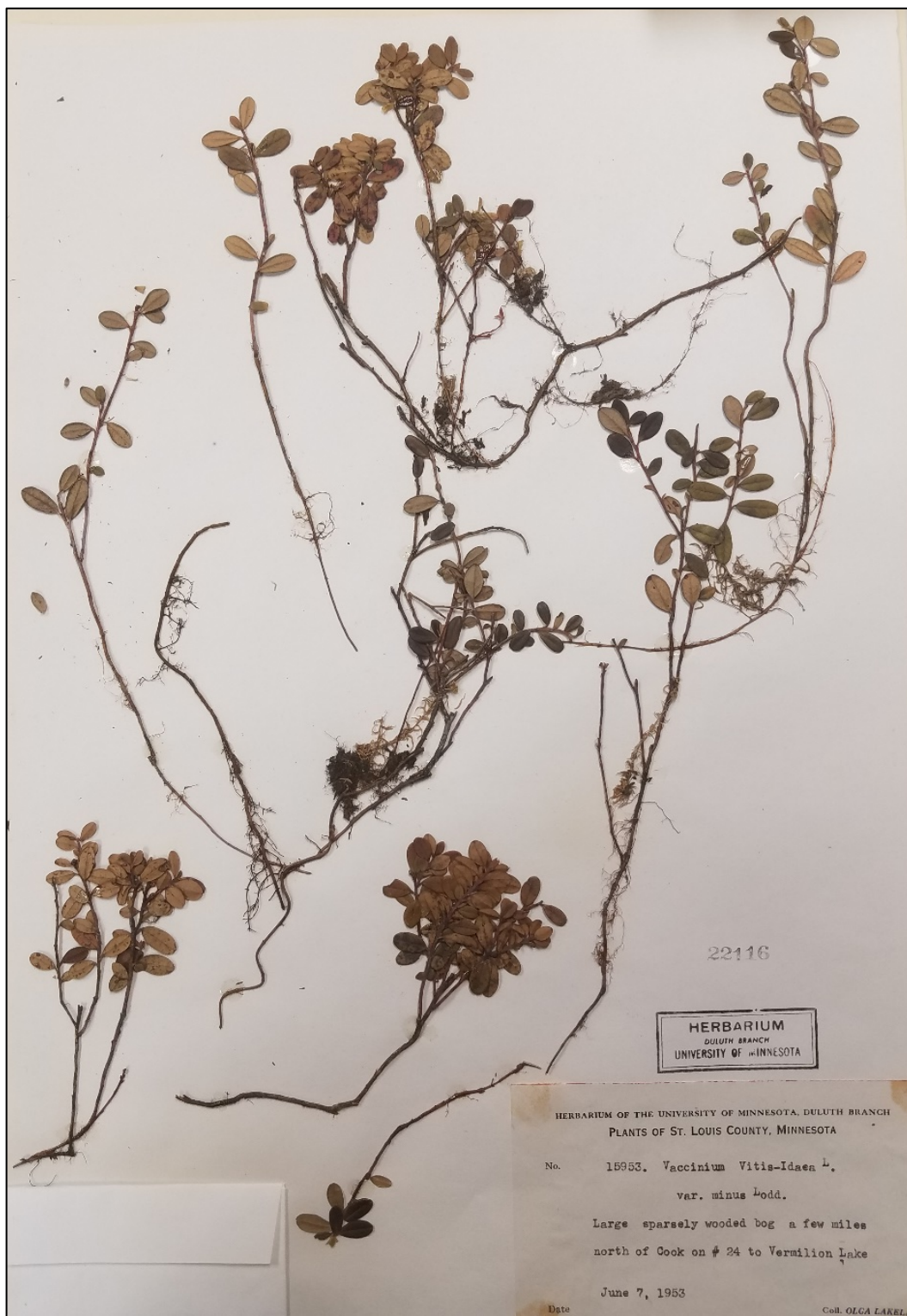


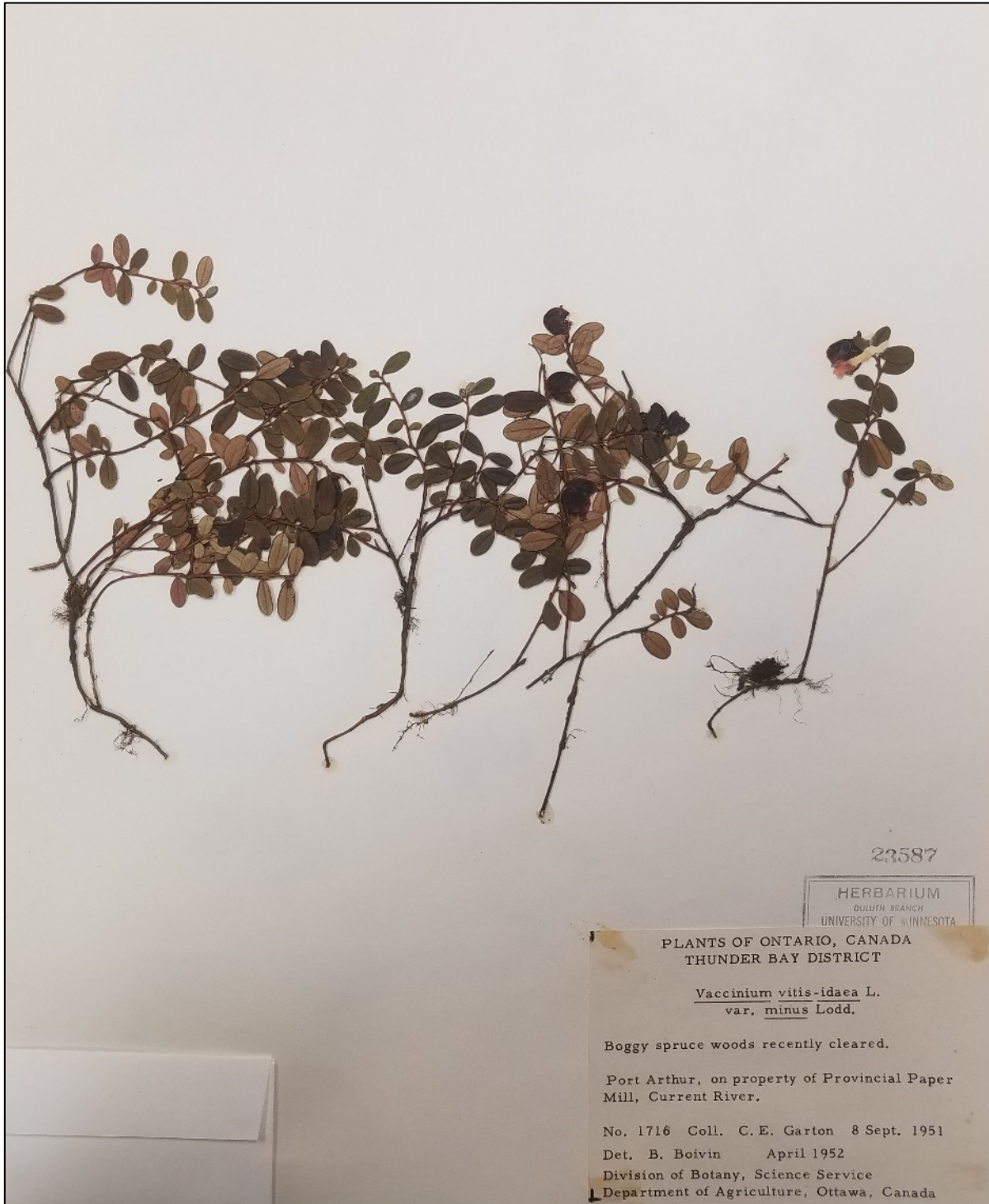
The following specimens were donated by the Olga Lakela Herbarium at the University of Minnesota Duluth to undergo destructive sampling for this research:



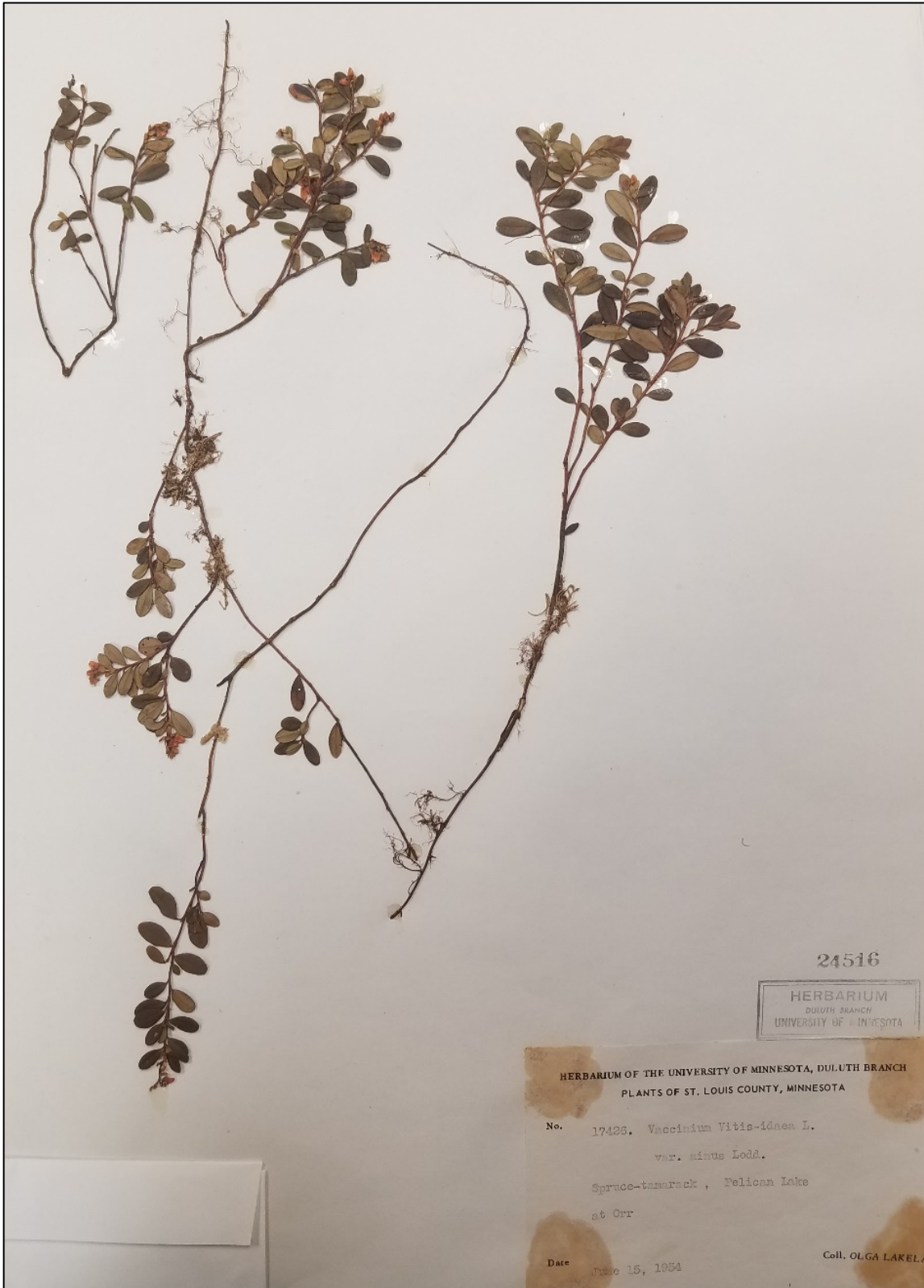
Olga Lakela Herbarium Accession 19039: Mackenzie District, Northwest Territories Canada. Ft Smith. 60°N, 111°53'W. Common in sand with *Arctostaphylos uva-ursi* at edge of *Pinus banksiana* woods. Flowers pinkish-white. Division of Botany, Science Service and Department of Agriculture in Ottawa, Canada. Collected June 21, 1950 by W.J. Cody and C.C. Loan. Determined September 1950 by W.J. Cody.



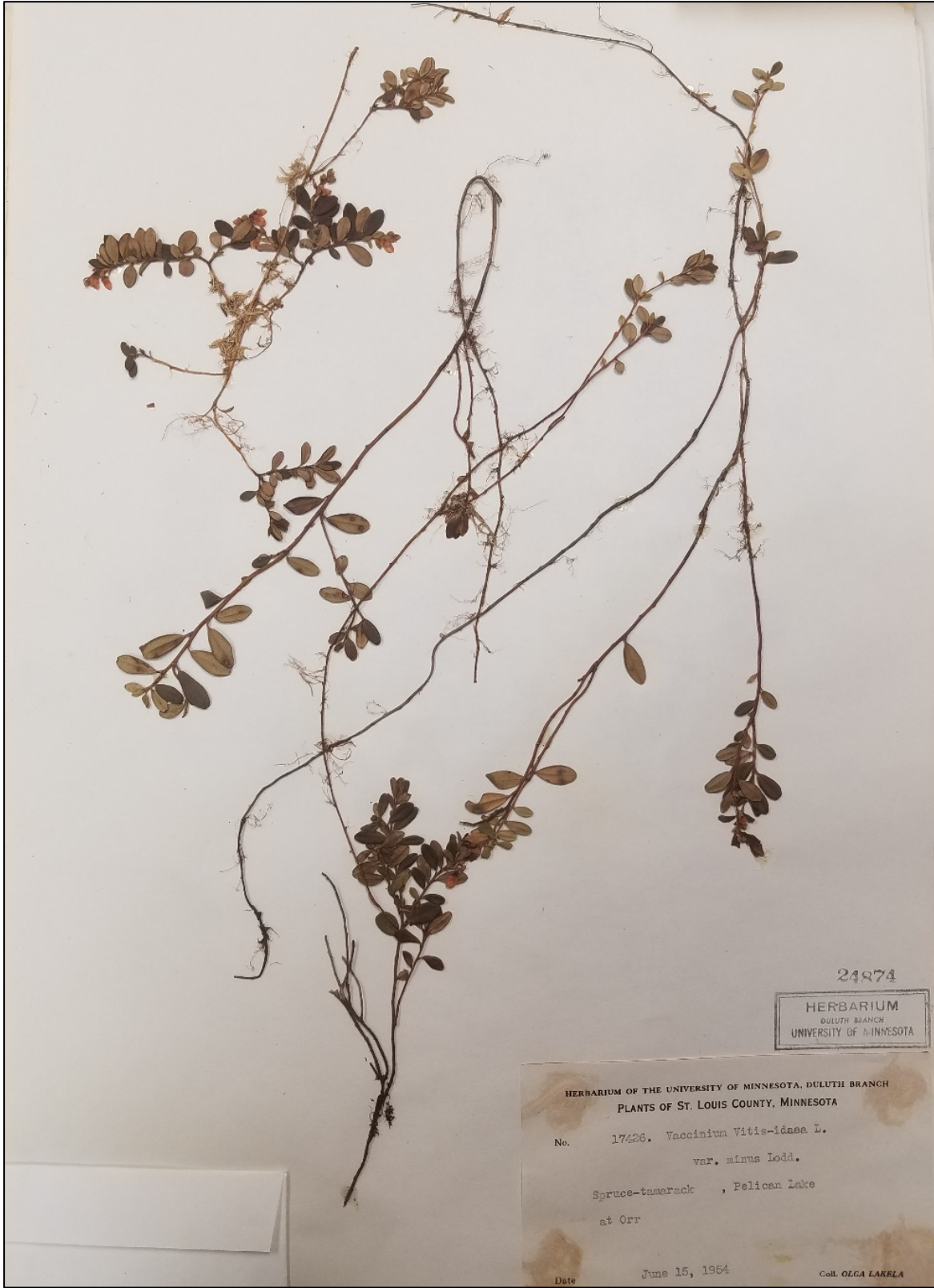
Olga Lakela Herbarium Accession 22116: St Louis County, MN. A few miles north of Cook on 24 to Vermillion Lake. Large sparsely wooded bog a few miles north of Cook on 24 to Vermillion Lake. Collected June 7, 1953 by Olga Lakela.



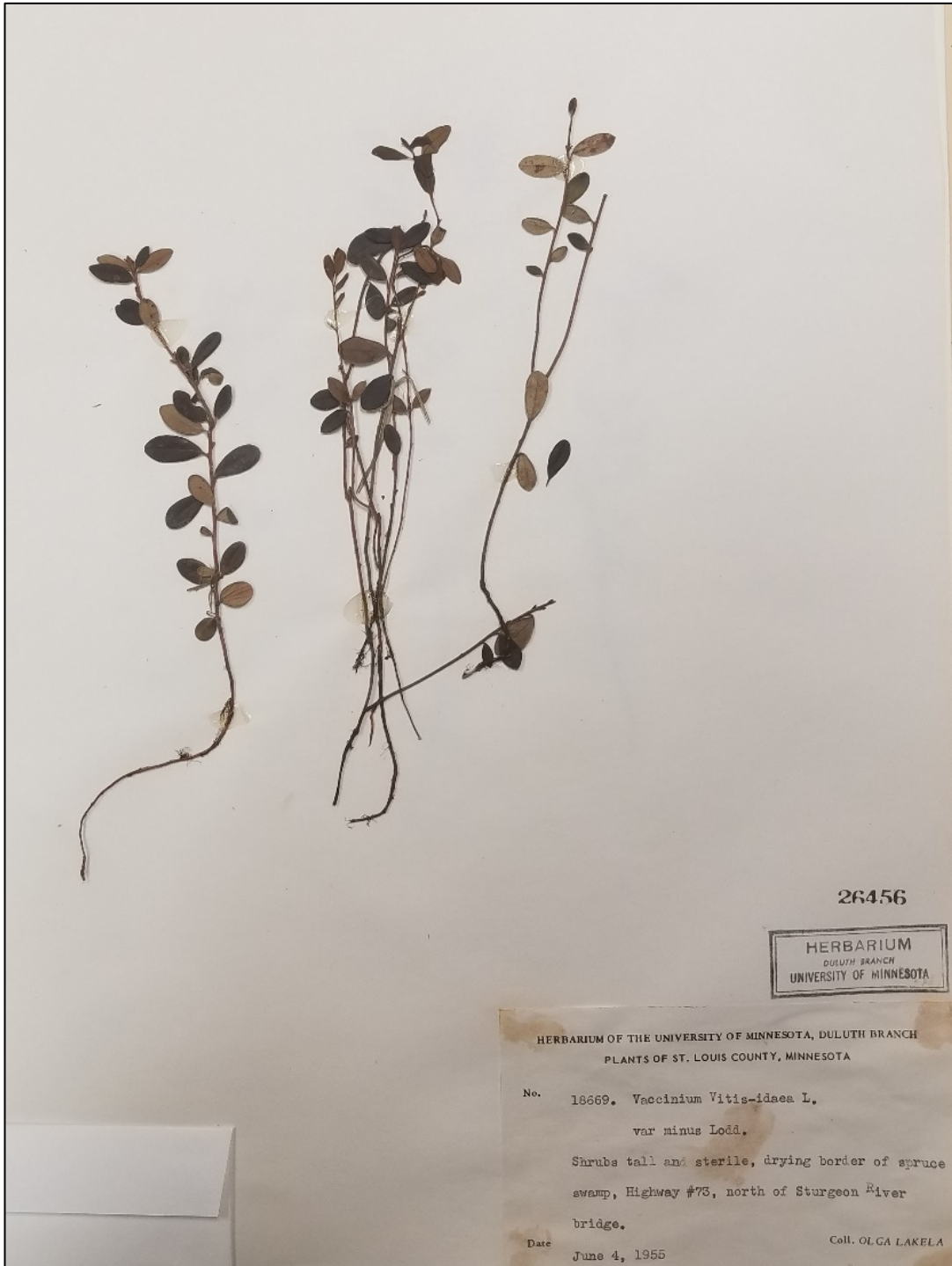
Olga Lakela Herbarium Accession 23587: Thunder Bay District, Ontario, Canada. Boggy spruce woods recently cleared. Port Arthur, on property of Provincial Paper Mill, Current River. Division of Botany, Science Service and Department of Agriculture, Ottawa, Canada. Collected Sept 8, 1951 by C.E. Garton. Determined by B. Boivin in April 1952.



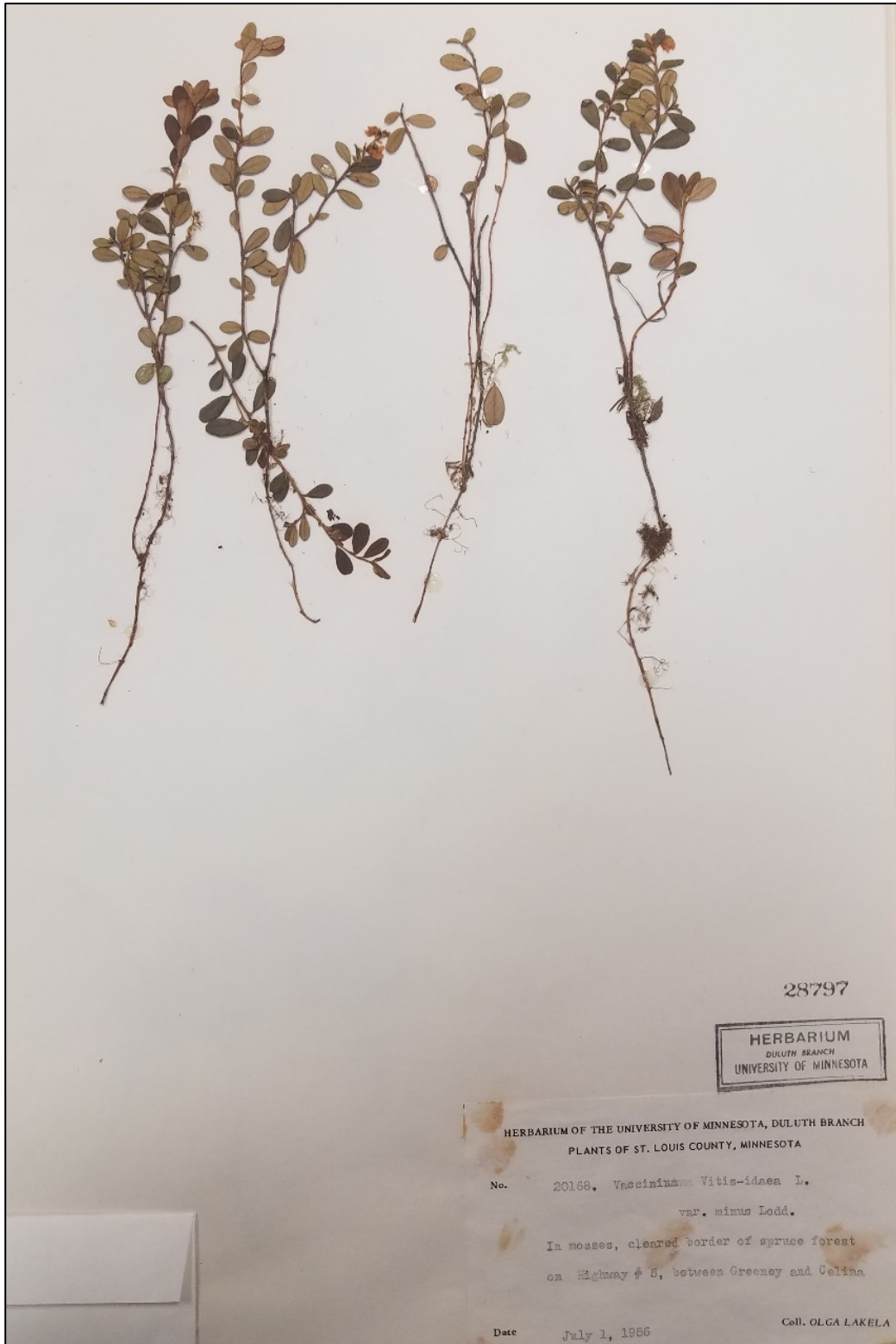
Olga Lakela Herbarium Accession 24516: St Louis County, MN. Pelican Lake at Orr in spruce-tamarack. Collected June 15, 1954, by Olga Lakela.



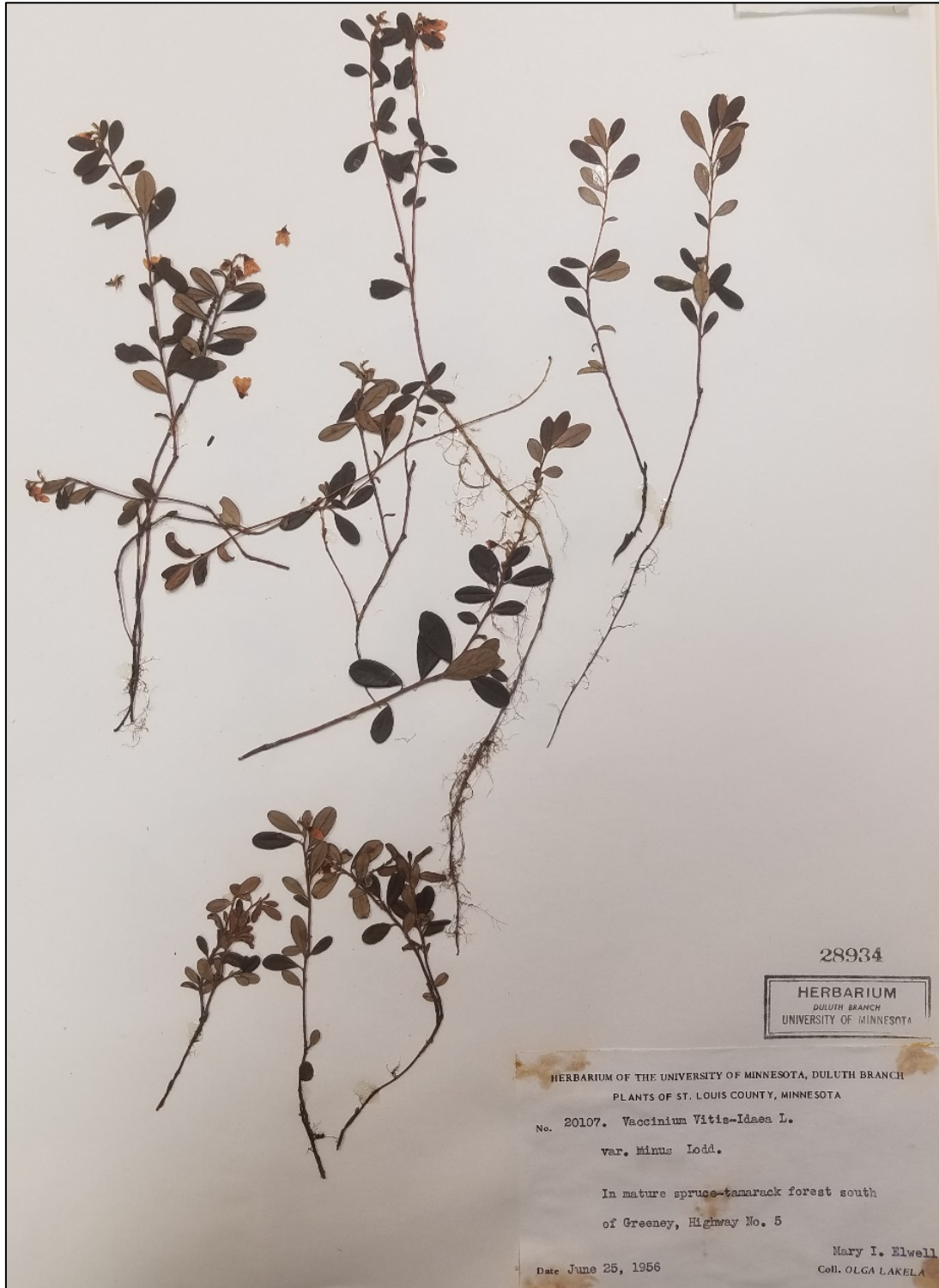
Olga Lakela Herbarium Accession 24874: St Louis County, MN. Pelican Lake at Orr in spruce-tamarack. Collected June 15, 1954 by Olga Lakela.



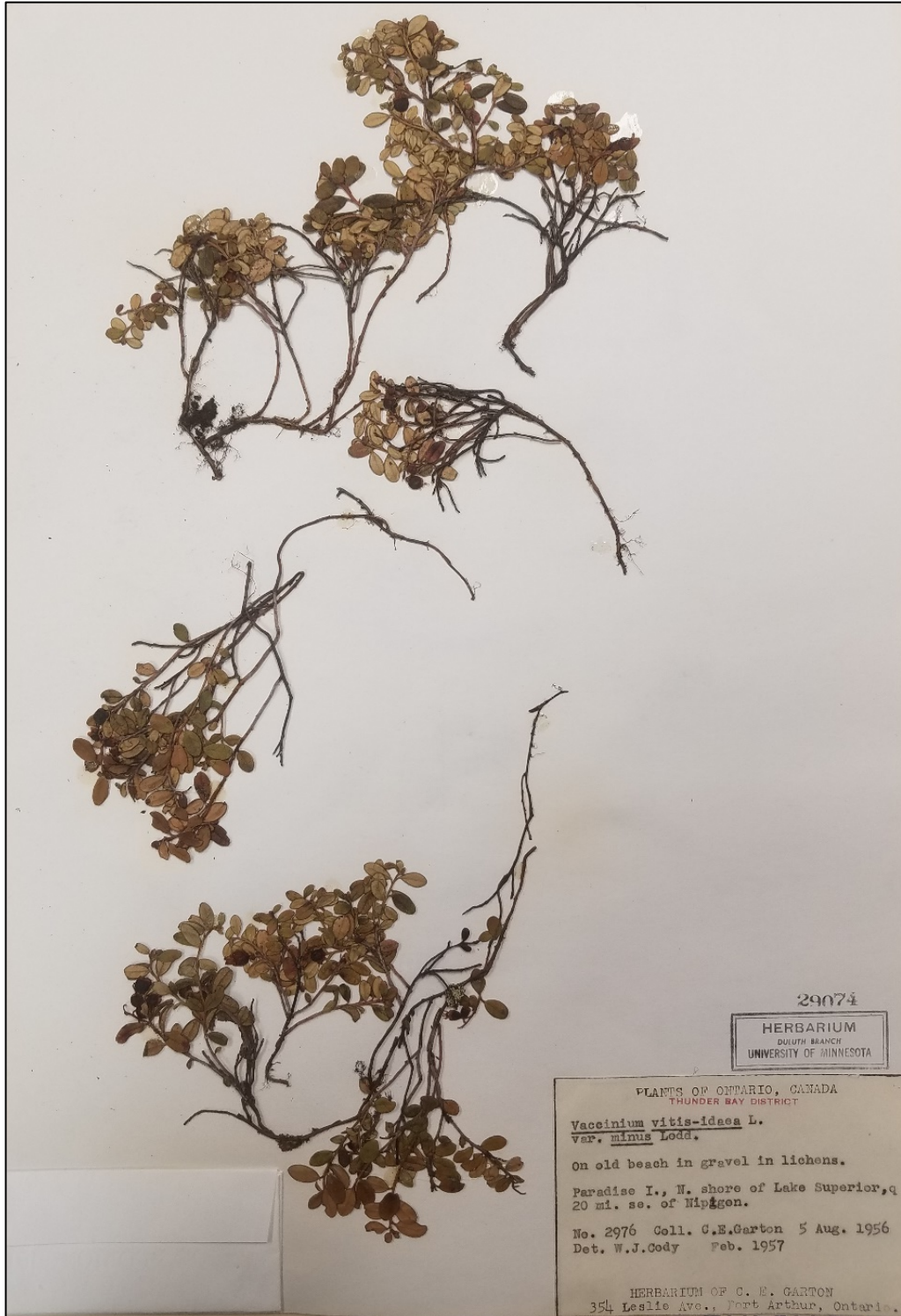
Olga Lakela Herbarium Accession 26456: St Louis County, MN. Shrubs tall and sterile, drying border of spruce swamp, Highway 73, north of Sturgeon River bridge. Collected June 4, 1955 by Olga Lakela. DNA failed to amplify.



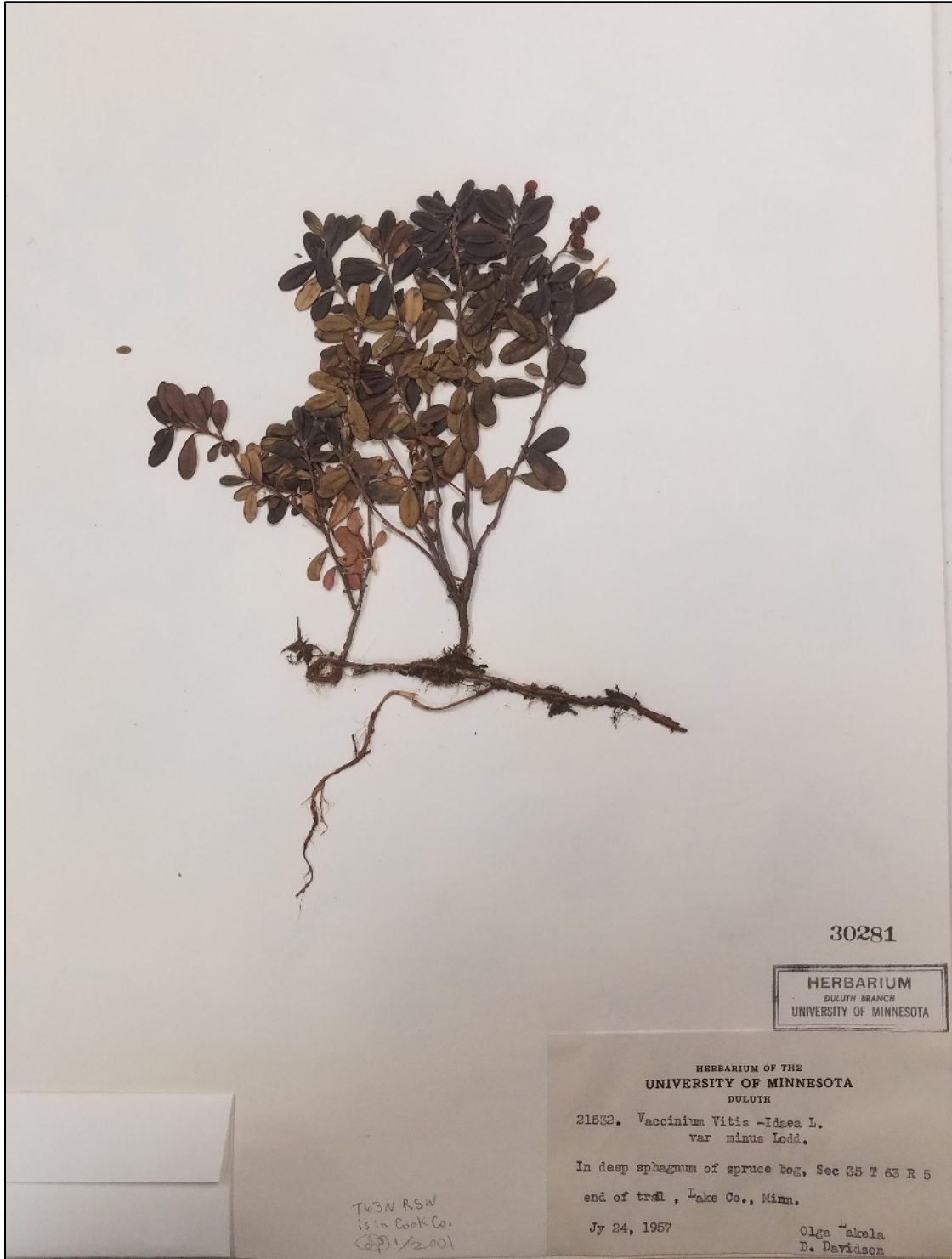
Olga Lakela Herbarium Accession 28797: St. Louis County, MN. In mosses, cleared border of spruce forest on Highway 5 between Greeney and Celina. Collected July 1, 1956 by Olga Lakela.



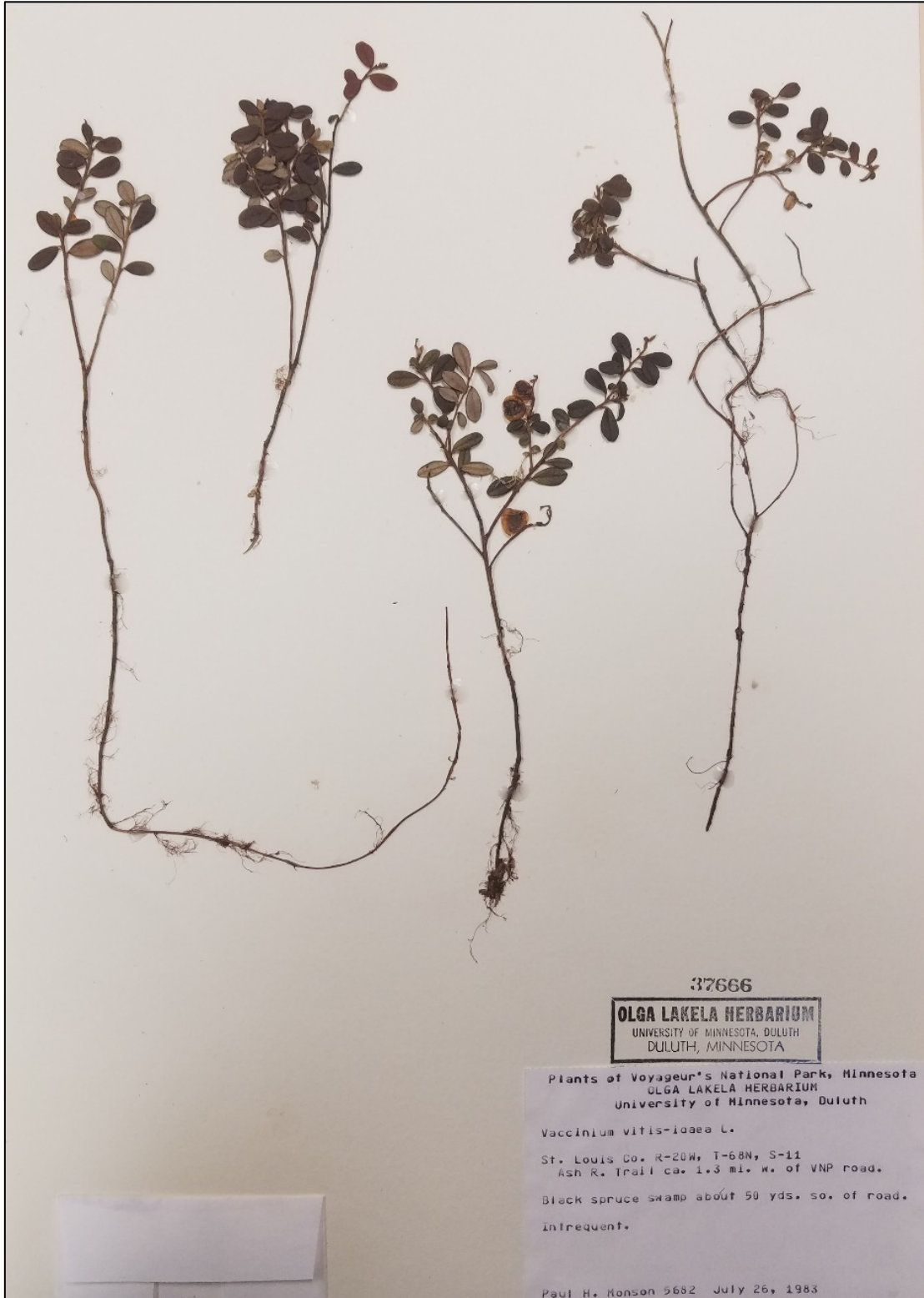
Olga Lakela Herbarium Accession 28934: St Louis County. In mature spruce-tamarack forest south of Greeney on Highway 5. Collected June 25, 1956, by Olga Lakela. **DNA failed to amplify.**



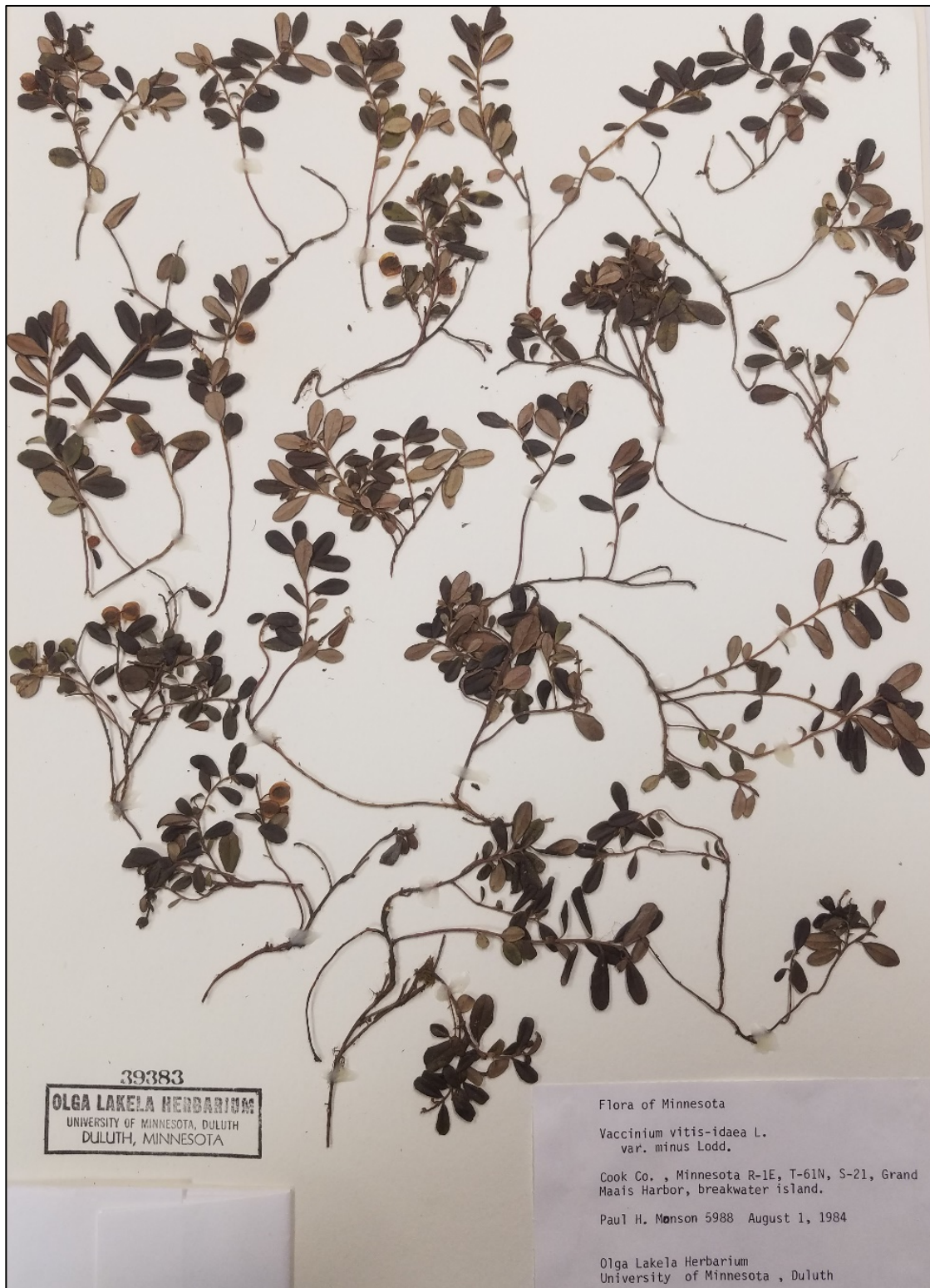
Olga Lakela Herbarium Accession 29074: Thunder Bay, Ontario. On old beach in gravel in lichens. Paradise Island, North shore of Lake Superior, 20 mi SE of Nipagin. Collected Aug 5, 1956, by C.E. Garton. Determined in February 1957, by W.J. Cody.



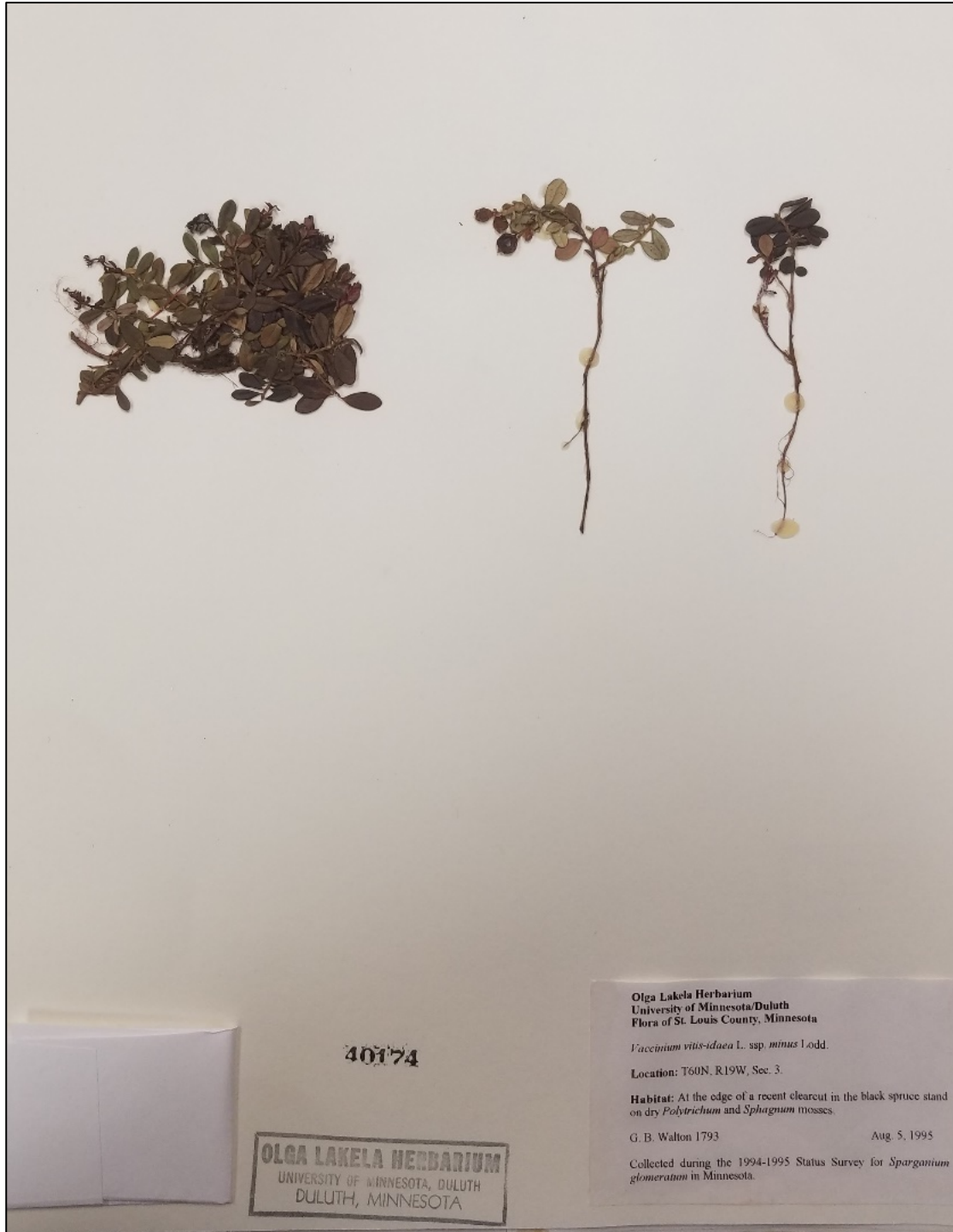
Olga Lakela Herbarium Accession 30281: Lake County [Correction: Cook County], MN. In deep sphagnum of spruce bog, Sec 35 T63 R5. Collected July 24, 1957, by Olga Lakela and D. Davidson.



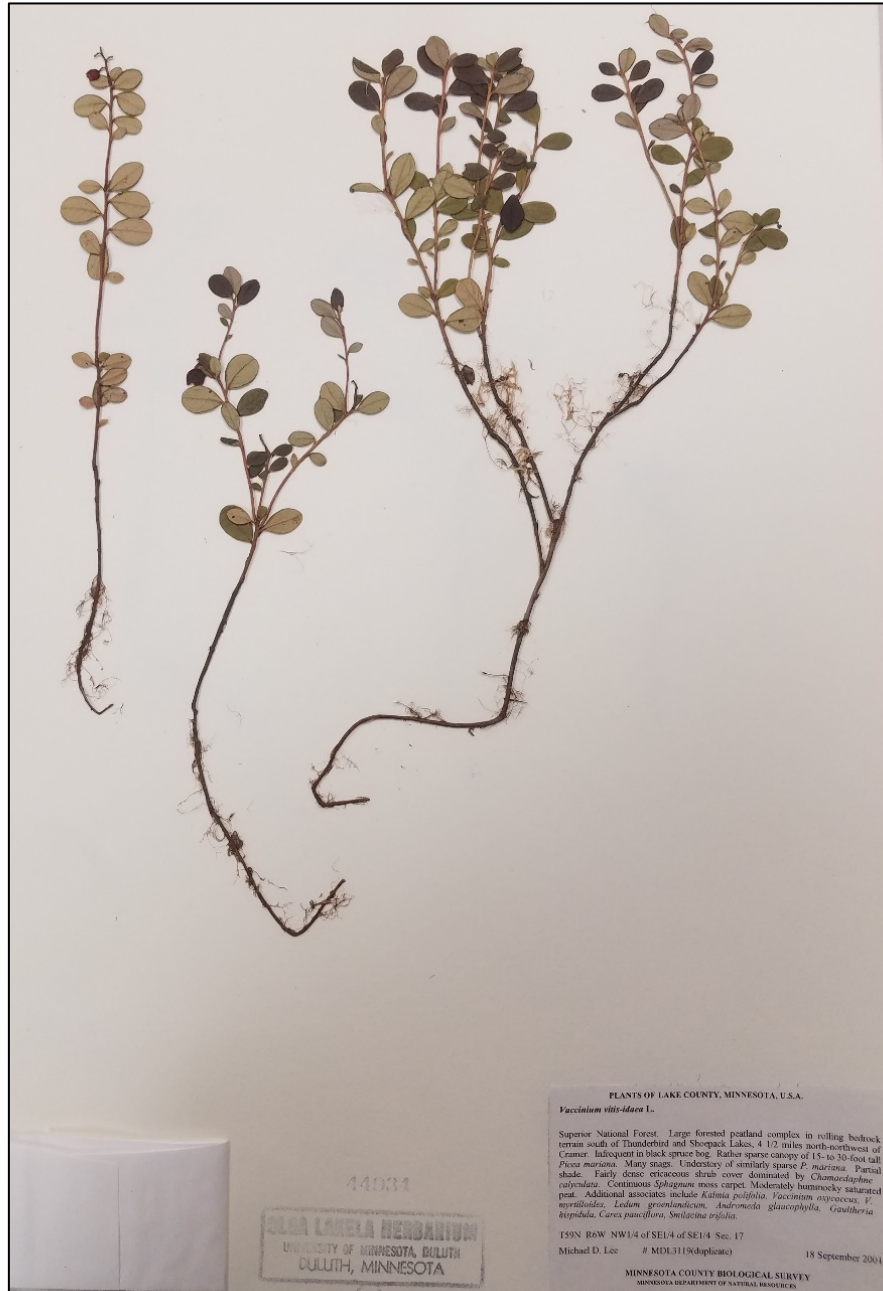
Olga Lakela Herbarium Accession 37666: St Louis County. R20W, T68N, S11. Ash Road Trail 1.3 miles W of Voyager National Park Road. Black spruce swamp about 50 yards south of road. Infrequent. Collected July 26, 1986 by Paul H. Monson.



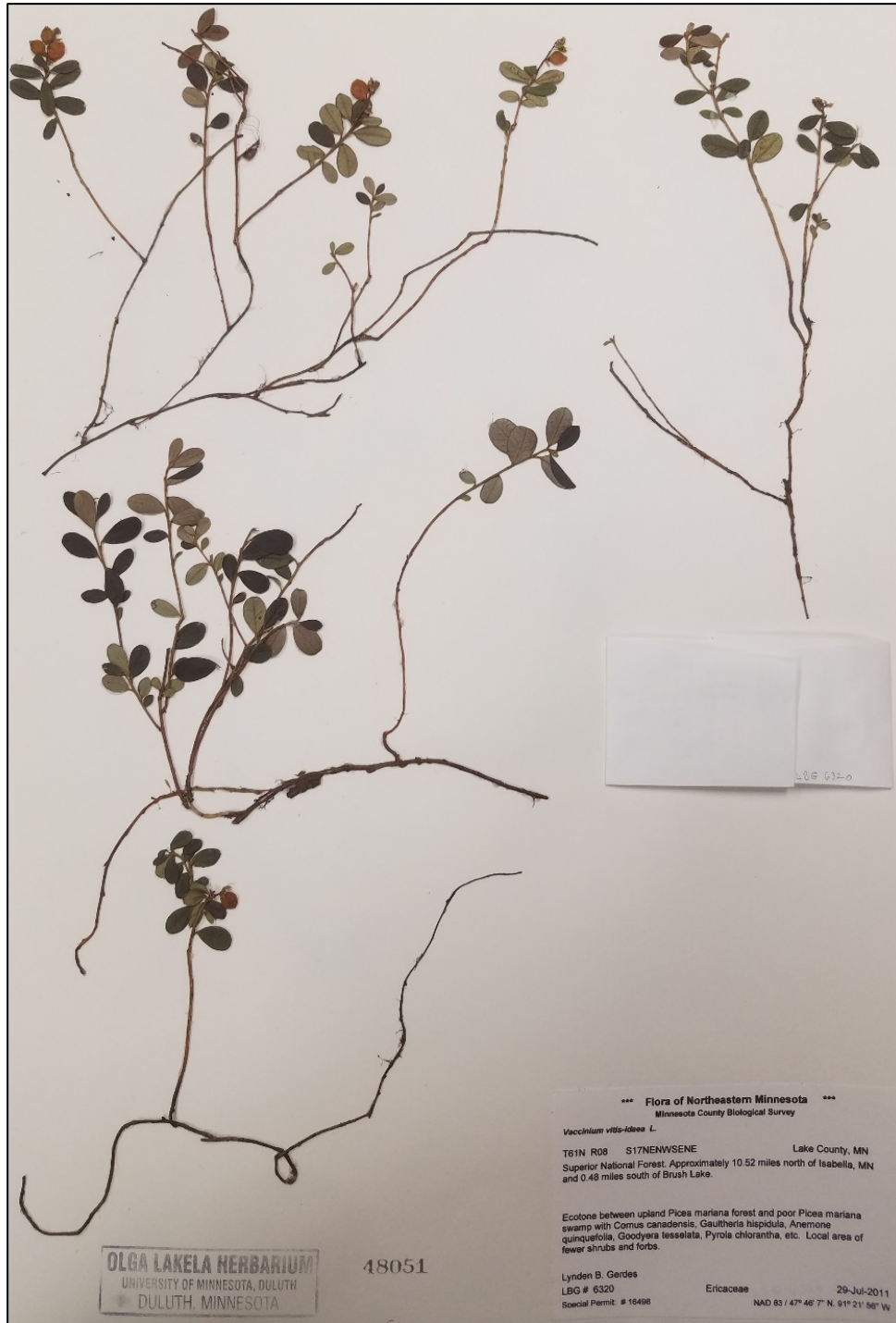
Olga Lakela Herbarium Accession 39383: Cook County, MN. Section 21 T 61N R1E. Grand Marias, breakwater island. Collected August 1, 1984, by Paul H. Monson. **DNA failed to amplify.**



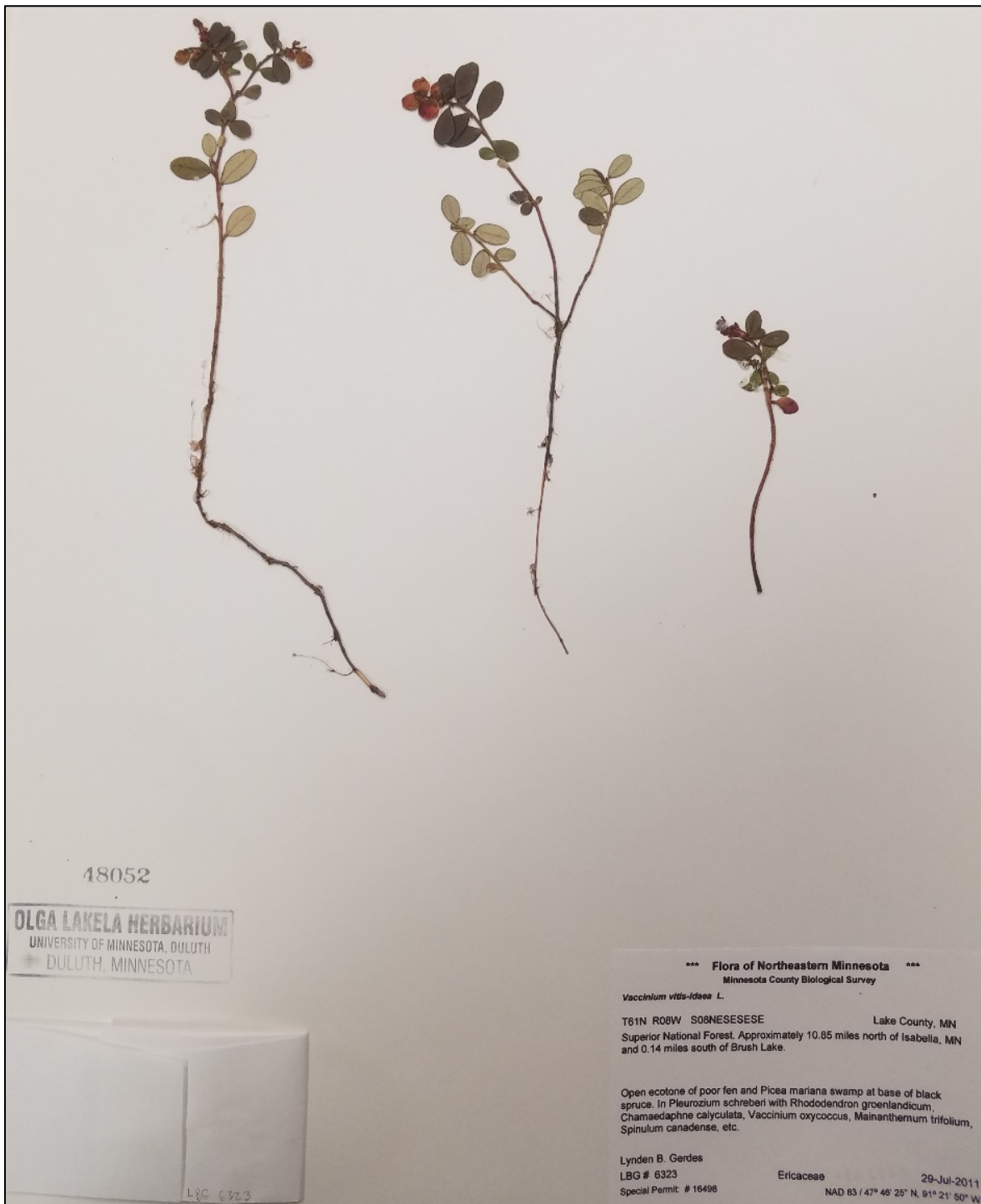
Olga Lakela Herbarium Accession 40174: St Louis County, MN. Habitat: At the edge of a recent clearcut in the black spruce stand on dry *Polytrichum* and *Sphagnum* mosses. Location: Section 3, T60N, R19W. Collected August 5, 1995, by G.B. Walton.



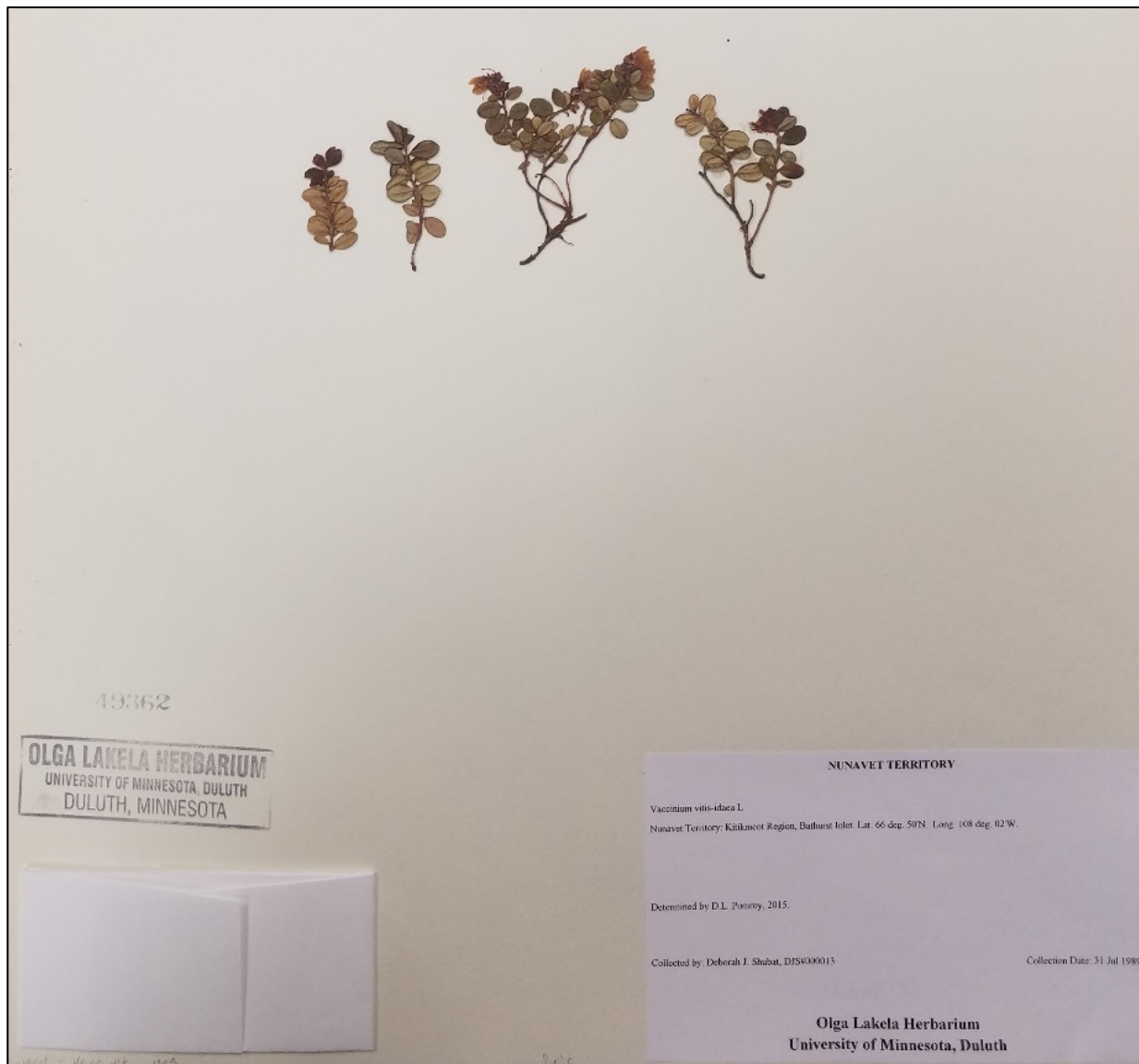
Olga Lakela Herbarium Accession 44934: Lake County, MN. Superior National Forest. Large forested peatland complex in rolling bedrock terrain south of Thunderbird and Shoepack Lakes, 4 ½ miles north-northwest of Cramer. Infrequent in black spruce bog. Rather sparse canopy of 15-20 foot tall *Picea mariana*. Many snags. Understory of similarly sparse *P. mariana*. Partial *Chamaedaphne calyculata*. Continuous *Sphagnum* moss carpet. Moderately hummocky saturated peat. Additional associates include *Kalmia polifolia*, *Vaccinium oxycoccos*, *V. myrtilloides*, *Ledum groenlandicum*, *Andromeda glaucophylla*, *Gaultheria hispida*, *Carex pauciflora*, *Smilacina trifolia*. T59N R6W NW1/4 of SE1/4 of SE1/4 Sec 17. Collected September 18, 2001 by Michael D. Lee.



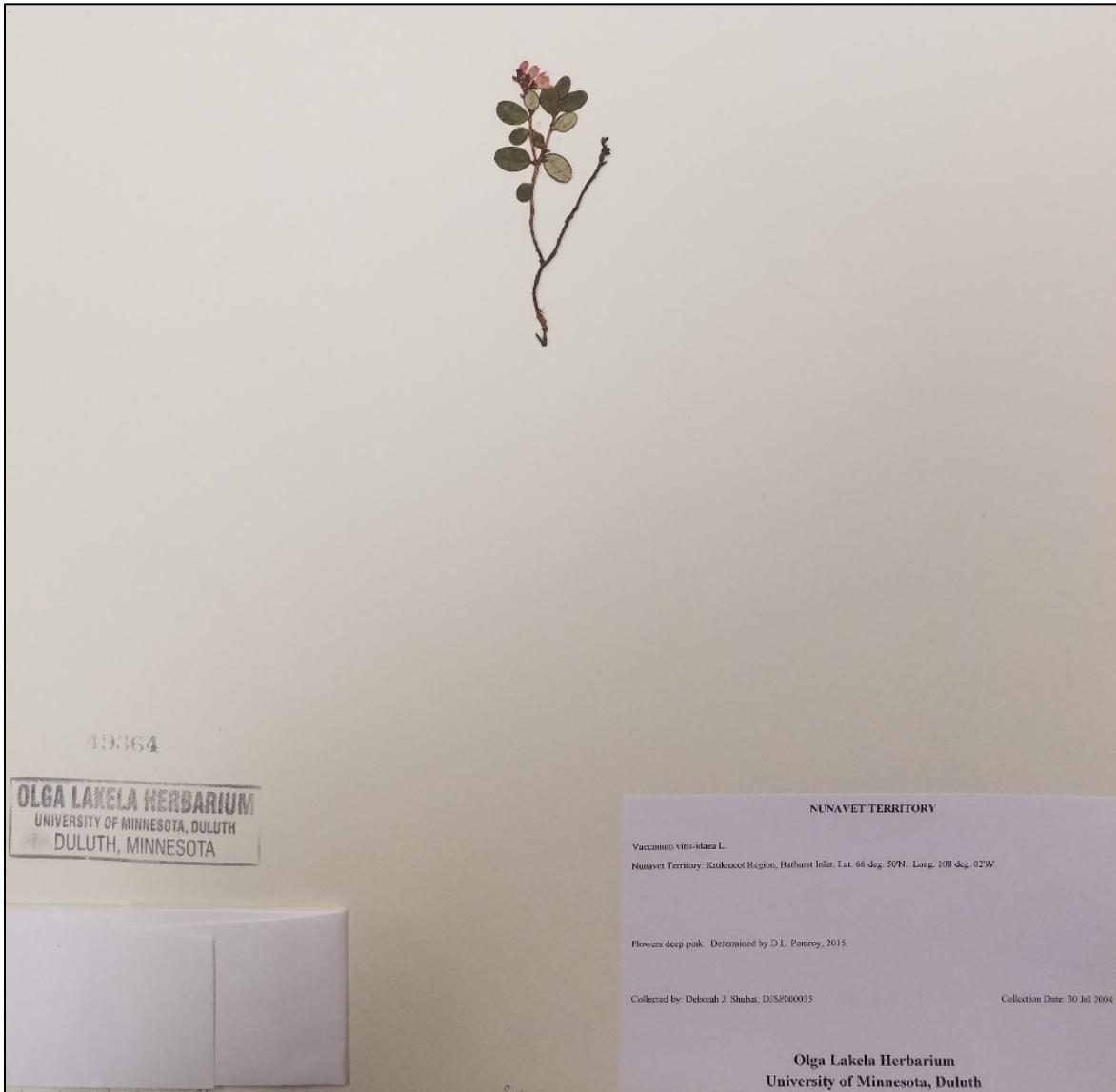
Olga Lakela Herbarium Accession 48051: Lake County, MN. Approximately 10.5 miles north of Isabella, MN and 0.48 miles south of Brush Lake. Ecotone between upland *Picea mariana* forest and poor *Picea mariana* swamp with *Cornus canadensis*, *Gaultheria hispidula*, *Anemone quinquefolia*, *Goodyera tessellata*, *Pyrola chlorantha*, etc. Local area of fewer shrubs and forbs. T61N R08 S17NENWSENE. 47°46'7" N 91°21'56" W. Collected July 29, 2011 by Lynden B. Gerdes.



Olga Lakela Herbarium Accession 48052: Lake County, MN. Superior National Forest. Approximately 10.85 miles north of Isabella, MN and 0.14 miles south of Brush Lake. Open ecotone of poor fen and *Picea mariana* swamp at base of black spruce. In *Pleurozium schreberi* with *Rhododendron groenlandicum*, *Chamaedaphne calyculata*, *Vaccinium oxycoccus*, *Mainanthenum trifolium*, *Spinulum canadense*, etc. T61N R08 S08NESESESE. 47°46'7" N 91°21'56" W. Collected July 29, 2011.



Olga Lakela Herbarium Accession 49362: Nunavet Territory, Kitikneot Region, Barhurst Inlet. Latitude: 66°50'N, Longitude: 108°02'W. Collected July 31, 2004



Olga Lakela Herbarium Accession 49364: Nunavet Territory, Kitikmeot Region, Barhurst Inlet. Latitude: 66°50'N Longitude: 108°02'W. Flowers deep pink. Collected July 30, 2004.

Following Specimens are were donated by the University of Minnesota Herbarium (a division of the Bell Museum of Natural History) to undergo destructive sampling for this research:



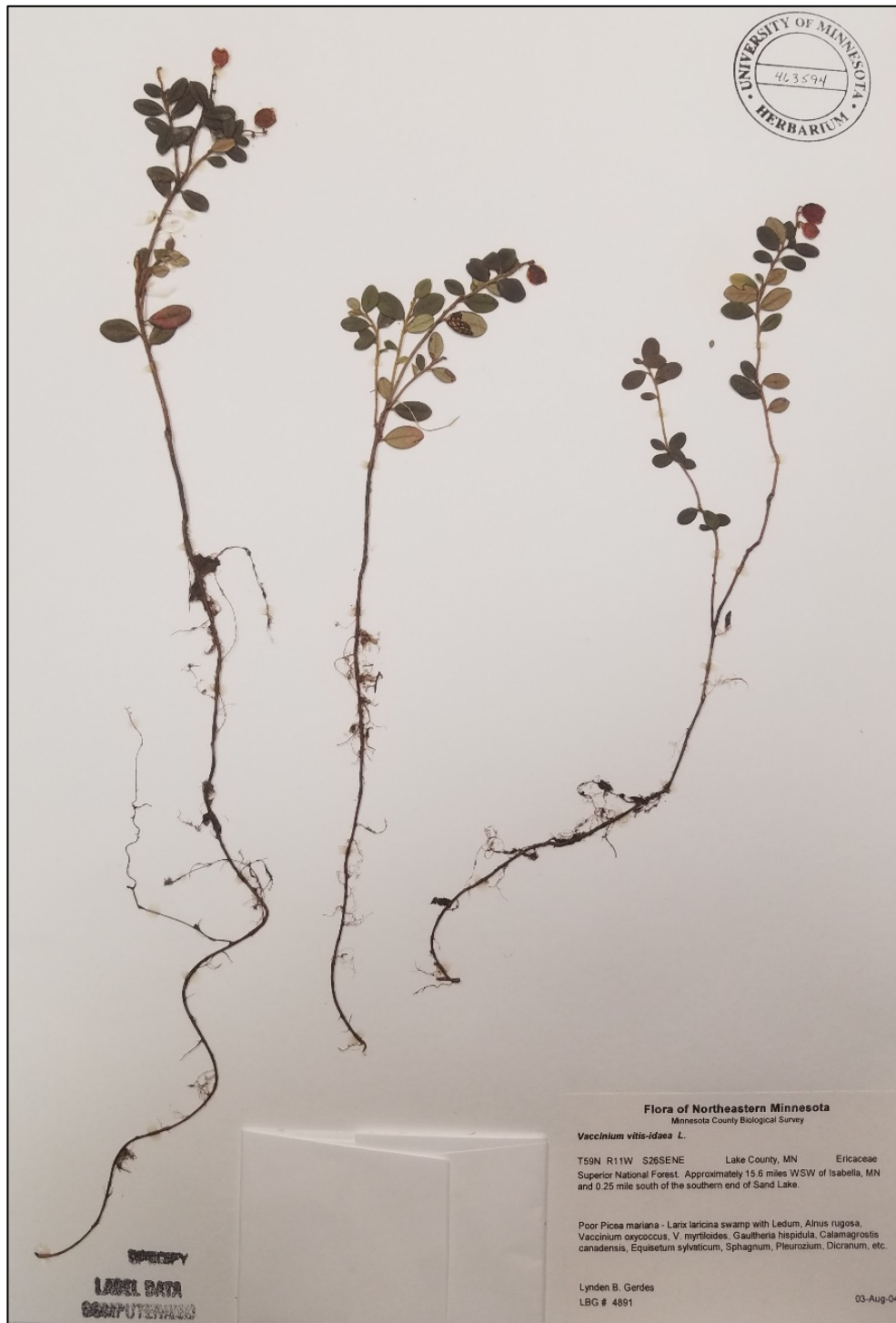
University of Minnesota Herbarium Accession 429546: Koochiching County, MN. On the north side of Moose Lake, about 6 miles east of Little Fork. Sphagnum bog dominated by *Larix laricina*. In saturated peat. Associated with *Dulichium arundinaceum*, *Drosera rotundifolia*, *Calla palustris*. T 68N 24W SE ¼ of SE ¼ of Sec 9. Latitude: 48° 23' 32" N, Longitude: 93° 25' 25" W. Collected July 10, 1991.



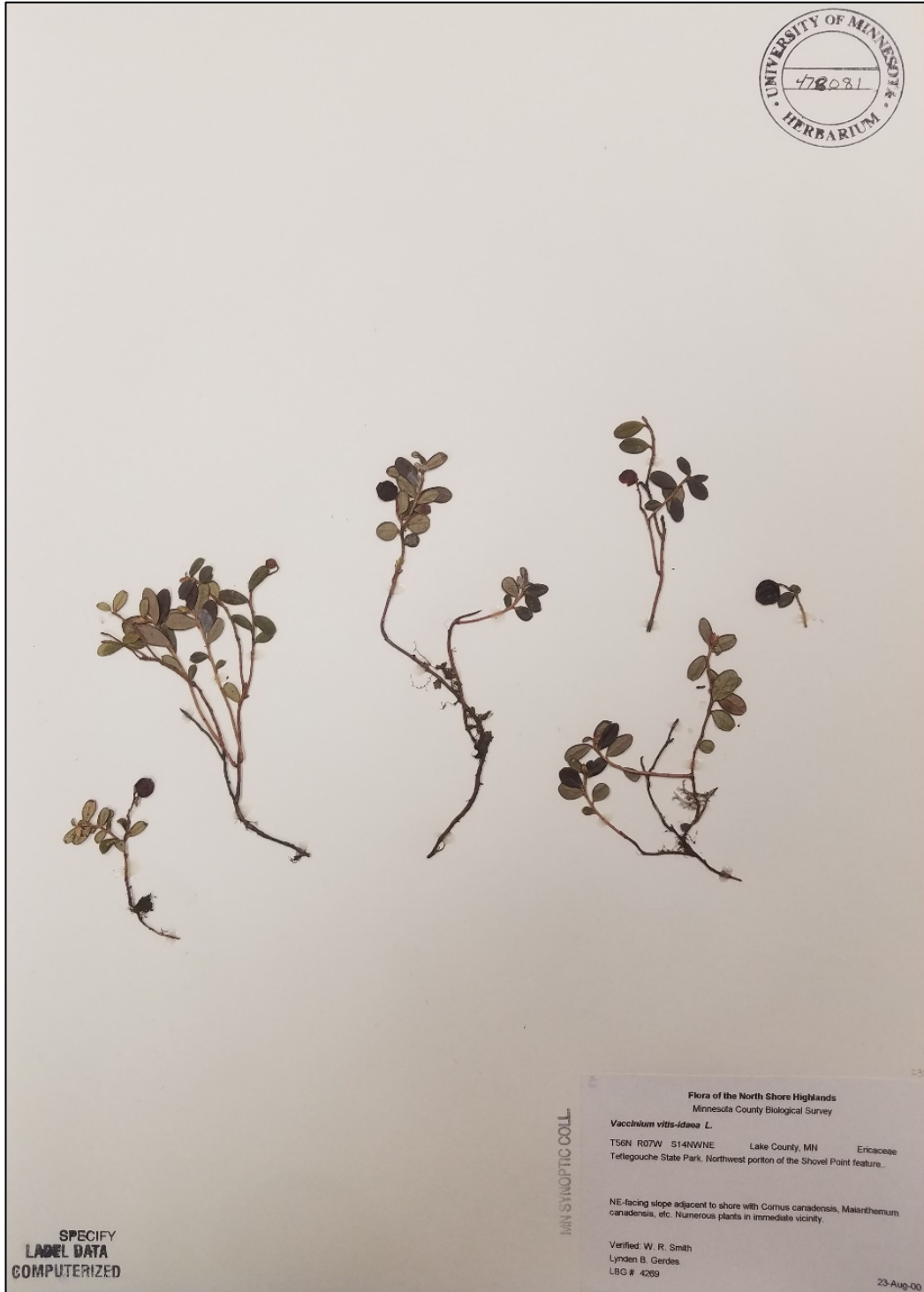
University of Minnesota Herbarium Accession 453461: Koochiching County, MN. About 6 miles south of Birchdale. Sphagnum bog dominated by *Picea mariana* and *Abies balsamea*. Saturated peat. Associated with *Gaultheria hispidula*, *Moneses uniflora*, *Drosera rotundifolia*. 6 miles S of Birchdale. Latitude: 48° 32' 51" N, Longitude: 94° 4' 56" W. T 159N R 27 W NE ¼ of SE ¼ of Sec 34. Collected July 8, 1991.



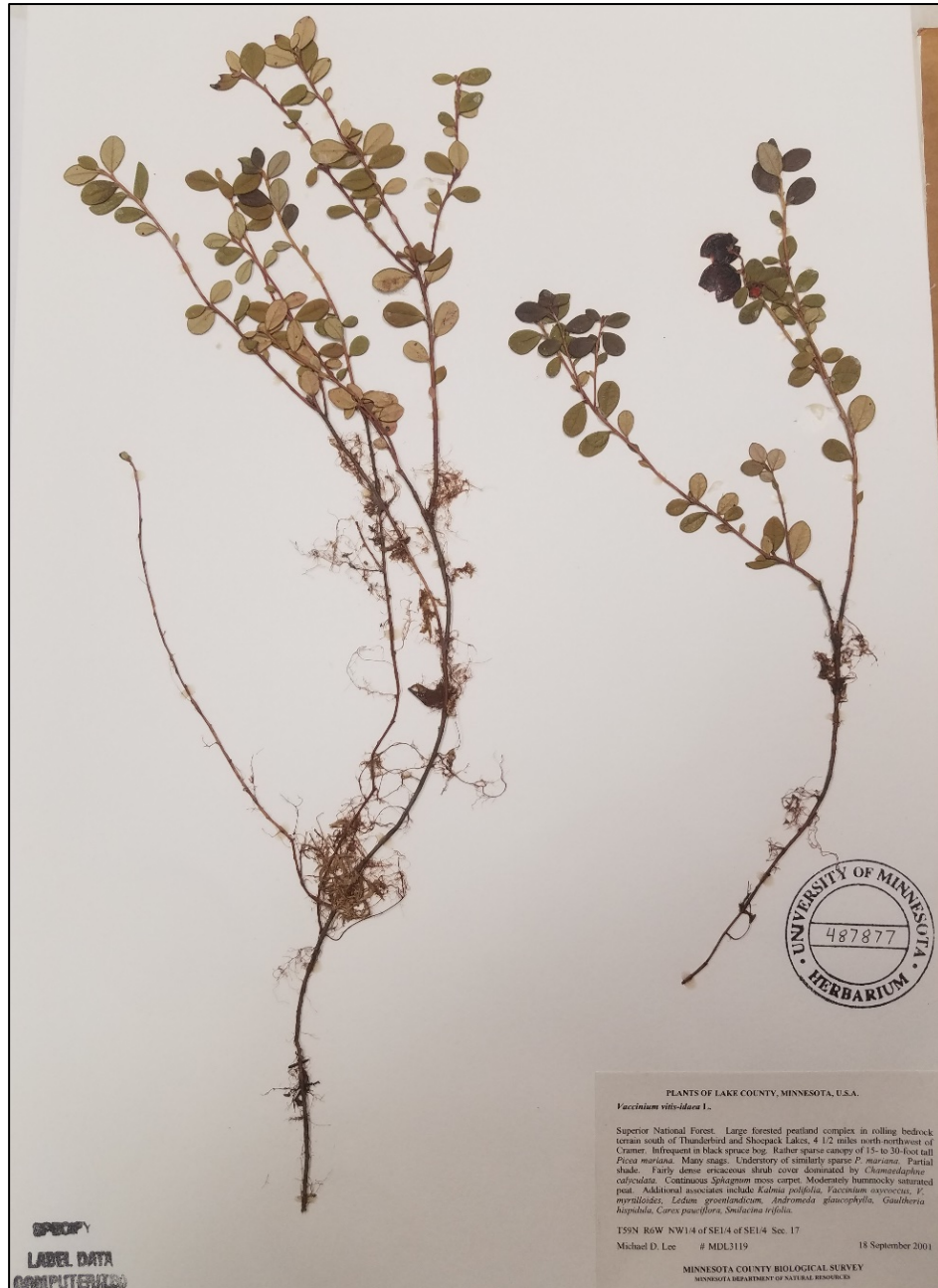
University of Minnesota Herbarium Accession 458729: Itasca County, MN. Located one mile west of Middle Pidgeon Lake. Occasional. Plants occur in a swamp forest dominated by *Thuja occidentalis*. Associated with *Platanthera obtusata*, *Halenia deflexa*, *Picea mariana*, *Cypripedium reginae*, *Botrychium virginianum*. T 147N R 28W SE 1/4 NE 1/4 of Sec 2. Collected June 30, 1994.



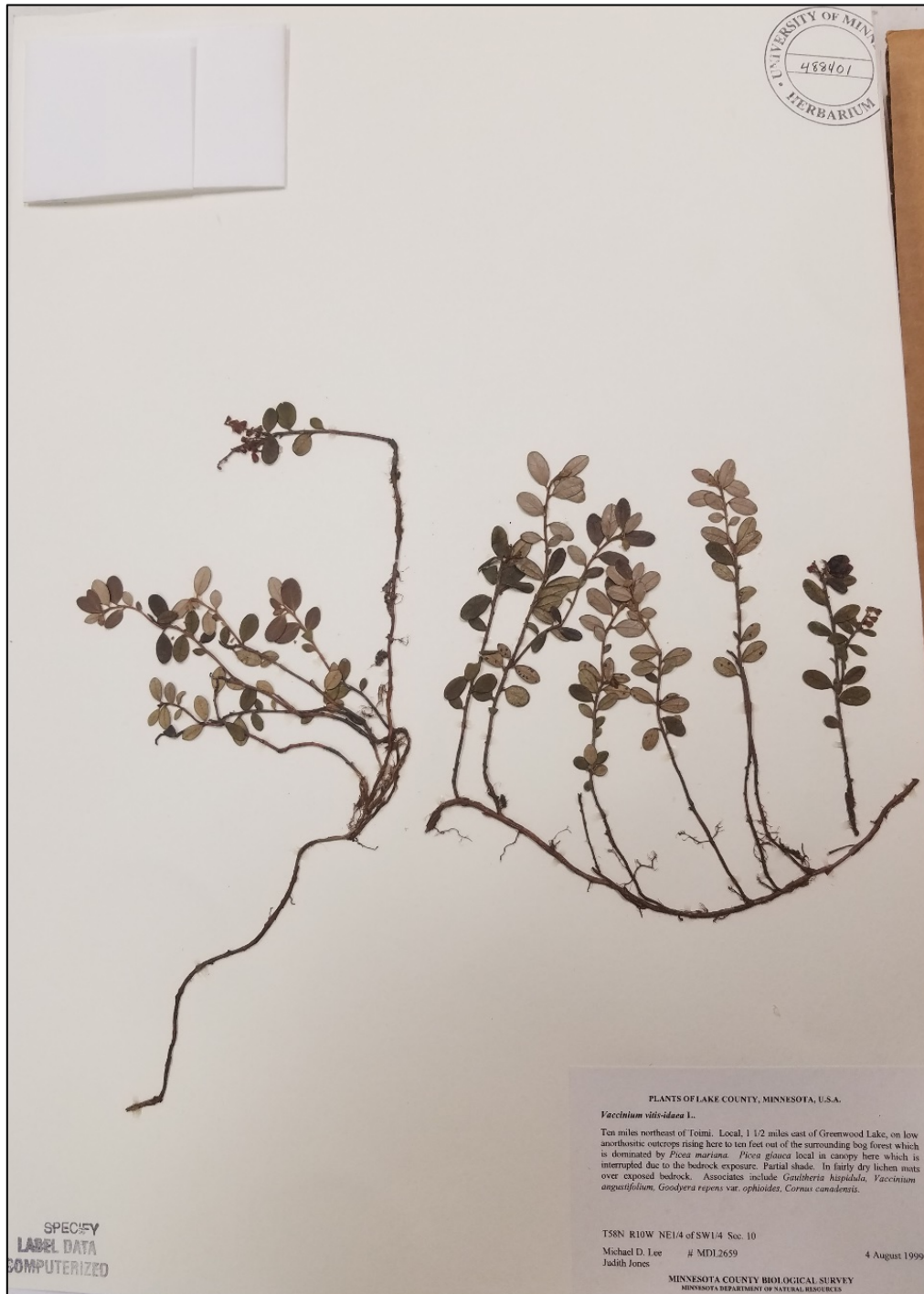
University of Minnesota Herbarium Accession 463594: Lake County MN. Superior National Forest. Approximately 15.6 miles WSW of Isabella MN and 0.25 mile S of southern end of Sand Lake. Poor *Picea mariana* - *Larix laricina* swamp with *Ledum*, *Alnus rugosa*, *Vaccinium oxycoccus*, *Vaccinium myrtilloides*, *Gaultheria hispidula*, *Calamagrostis canadensis*, *Equisetum sylvaticum*, *Sphagnum*, *Pleurozium schreberi*, *Dicranum*. T59N R11W S26SENE. Collected August 3, 2004.



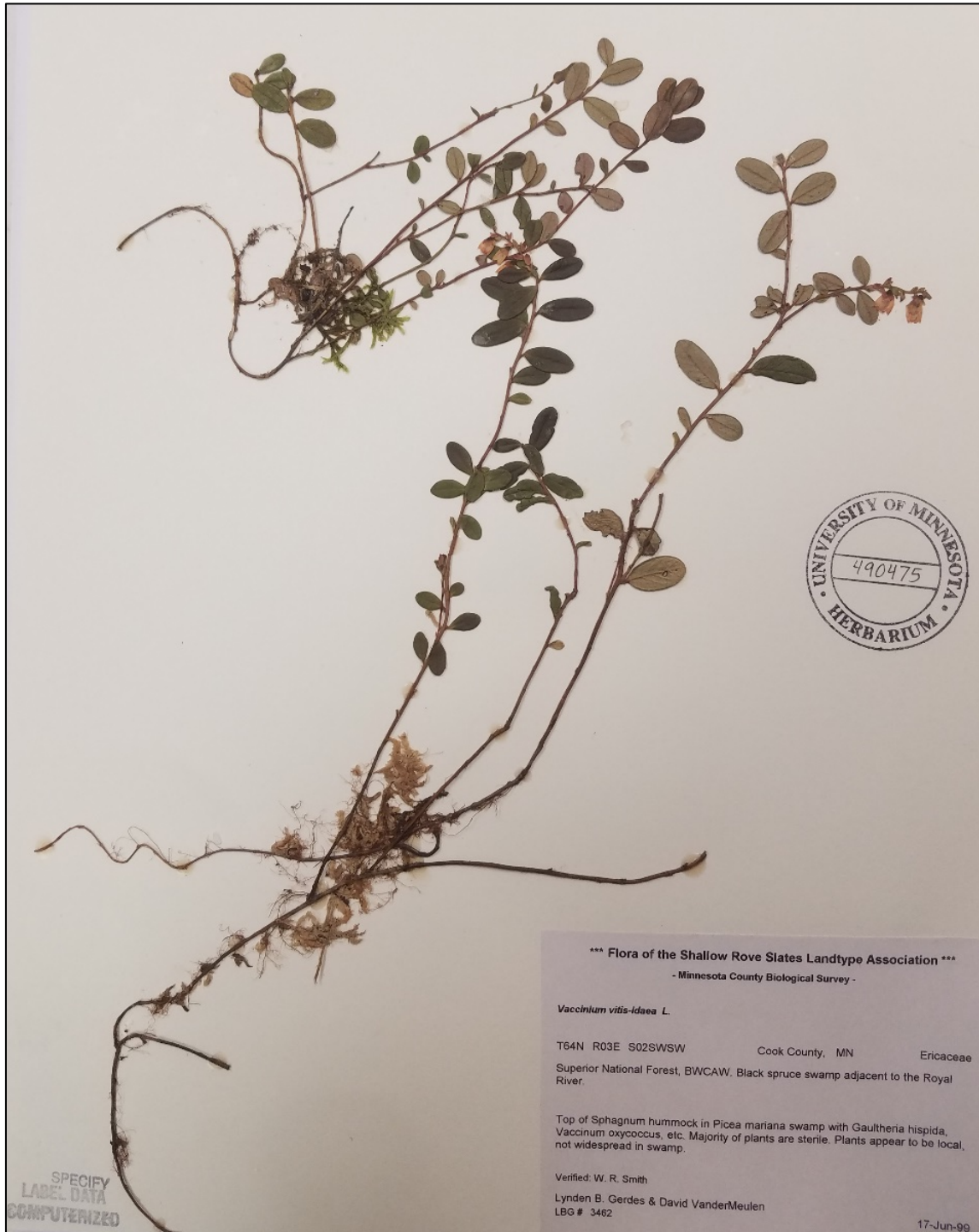
University of Minnesota Herbarium Accession 478081: Lake County, MN. Tettegouche State Park, NW portion of the Shovel Point feature. NE-facing slope adjacent to shore with *Cornus canadensis*, *Maianthemum canadense*, etc. Numerous plants in immediate vicinity. T56N R07W S14NWNE. Collected August 23, 2000.



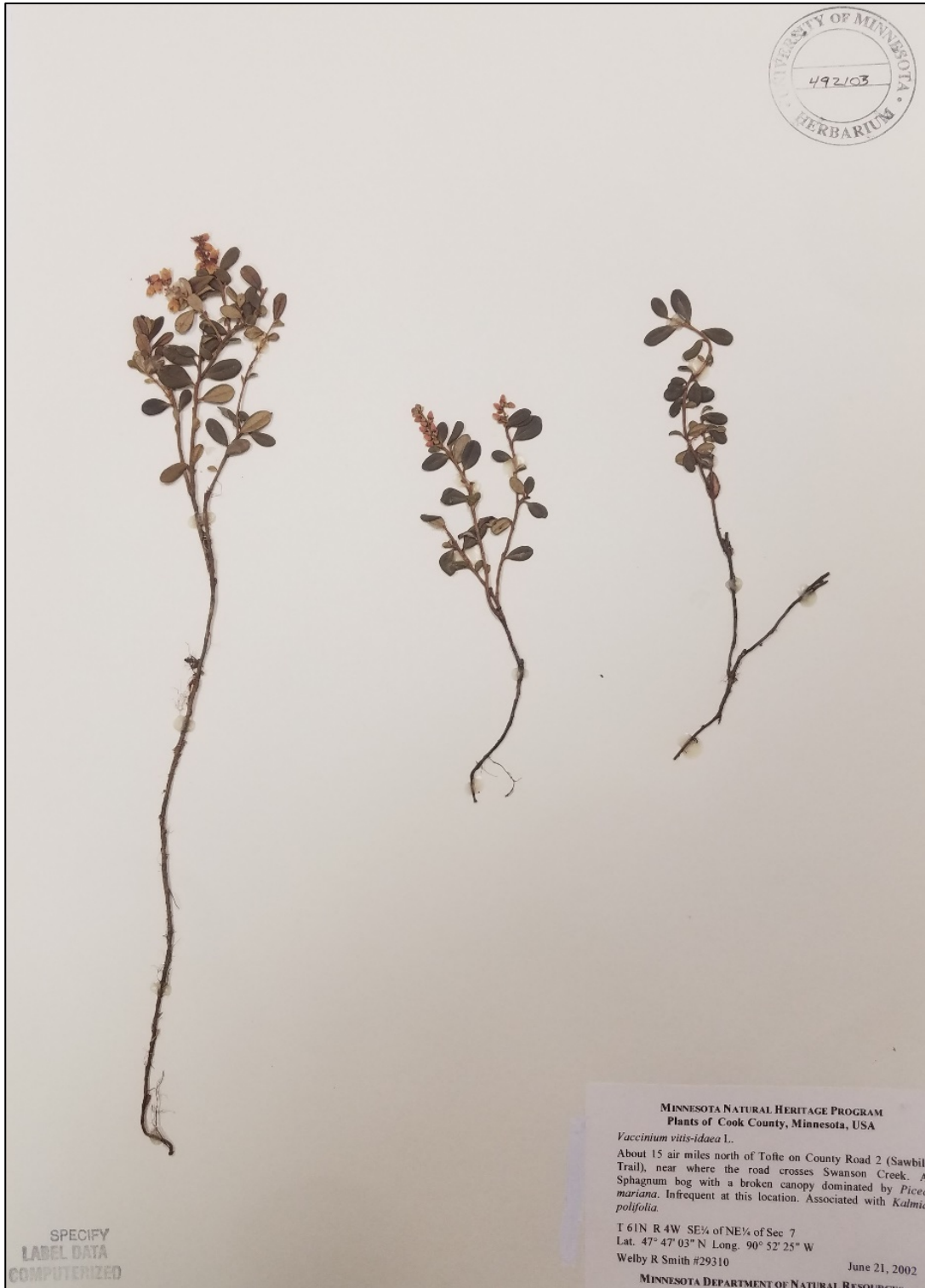
University of Minnesota Herbarium Accession 487877: Lake County, MN. Superior National Forest. Large forested peatland complex in rolling bedrock terrain south of Thunderbird and Shoepack Lakes, 4 1/2 miles N-NW of Cramer. Infrequent in black spruce bog. Rather sparse canopy of 15 to 30 ft tall *Picea mariana*. Many snags. Understory of similarly sparse *P. mariana*. Partial shade. Fairly dense ericaceous shrub cover dominated by *Chamaedaphne calyculata*. Continuous *Sphagnum* moss carpet. Moderately hummocky saturated peat. Additional associates include *Kalmia polifolia*, *Vaccinium oxycoccos*, *Vaccinium myrtilloides*, *Ledum groenlandicum*, *Andromeda glaucophylla*, *Gaultheria hispidula*, *Carex pauciflora*, *Smilacina trifolia*. T59N R6W NW 1/4 of SE 1/4 of SE 1/4 Sec 17. Collected September 18, 2001.



University of Minnesota Herbarium Accession 488401: Lake County, MN. 10 miles NE of Toimi. Local, 1 ½ miles E of Greenwood Lake, on low anorthositic outcrops rising here to 10 ft out of the surrounding bog forest which is dominated by *Picea mariana*. *Picea glauca* local in canopy here which is interrupted due to the bedrock exposure. Partial shade. In fairly dry lichen mats over exposed bedrock. Associates include *Gaultheria hispida*, *Vaccinium angustifolium*, *Goodyera repens* var. *ophioides*, *Cornus canadensis*. T58N R10W NE ¼ of SW ¼ Section 10. 10 miles NE of Toimi, 1.5 miles E of Greenwood Lake. Collected August 4, 1999.



University of Minnesota Herbarium Accession 490475: Cook County, MN. Superior National Forest, BWCAW. Black spruce swamp adjacent to the Royal River. Top of Sphagnum hummock in *Picea mariana* swamp with *Gaultheria hispidula*, *Vaccinium oxycoccus*, etc. Majority of plants are sterile. Plants appear to be local not widespread in swamp. T64N R03E S02SWSW. Collected June 17, 1999.

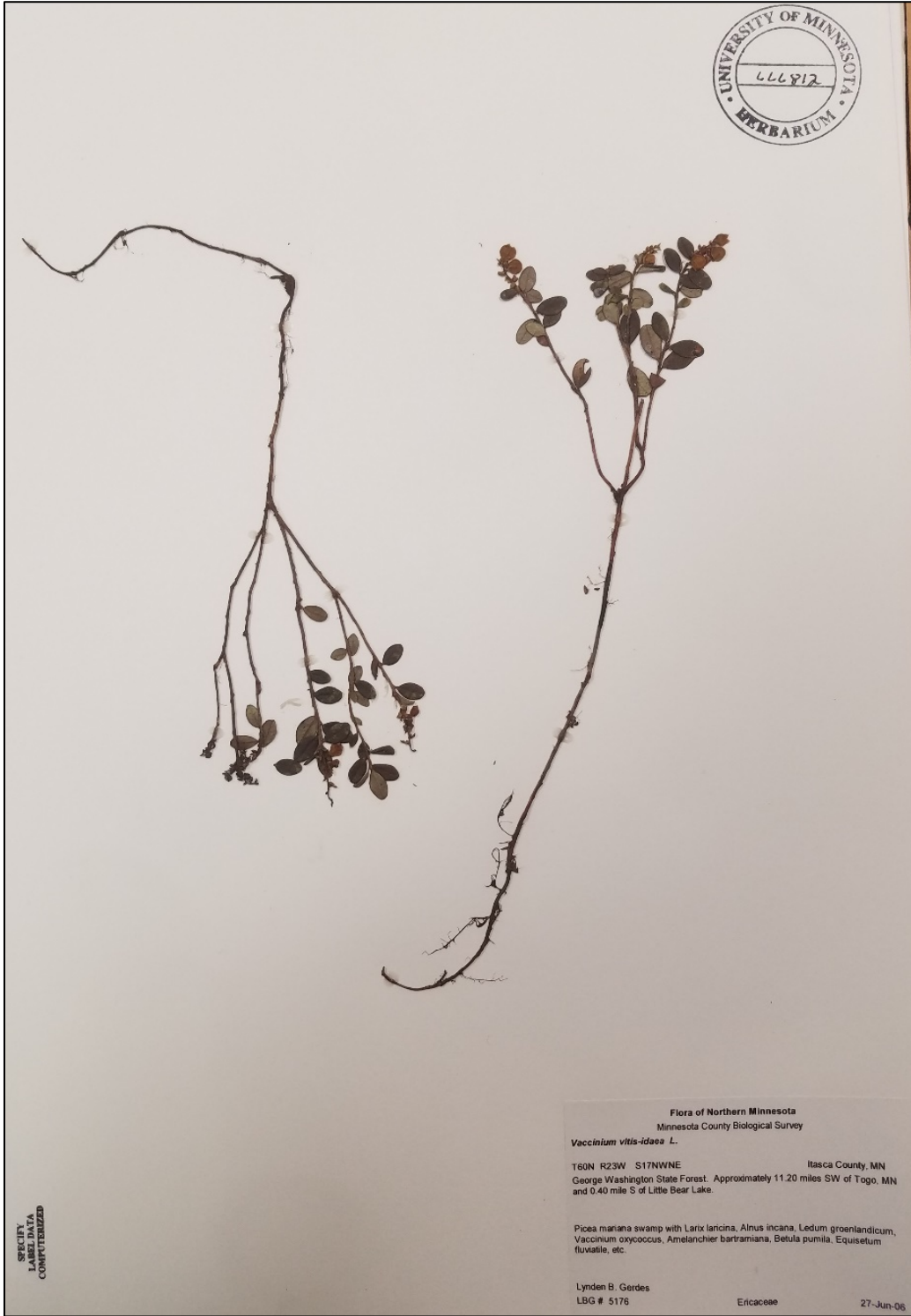


University of Minnesota Herbarium Accession 492103: Cook County, MN. About 15 miles north of Tofte on CR 2 (Sawbill Trail), near where the road crosses Swanson Creek. A *Sphagnum* bog with a broken canopy dominated by *Picea mariana*. Infrequent at this location.

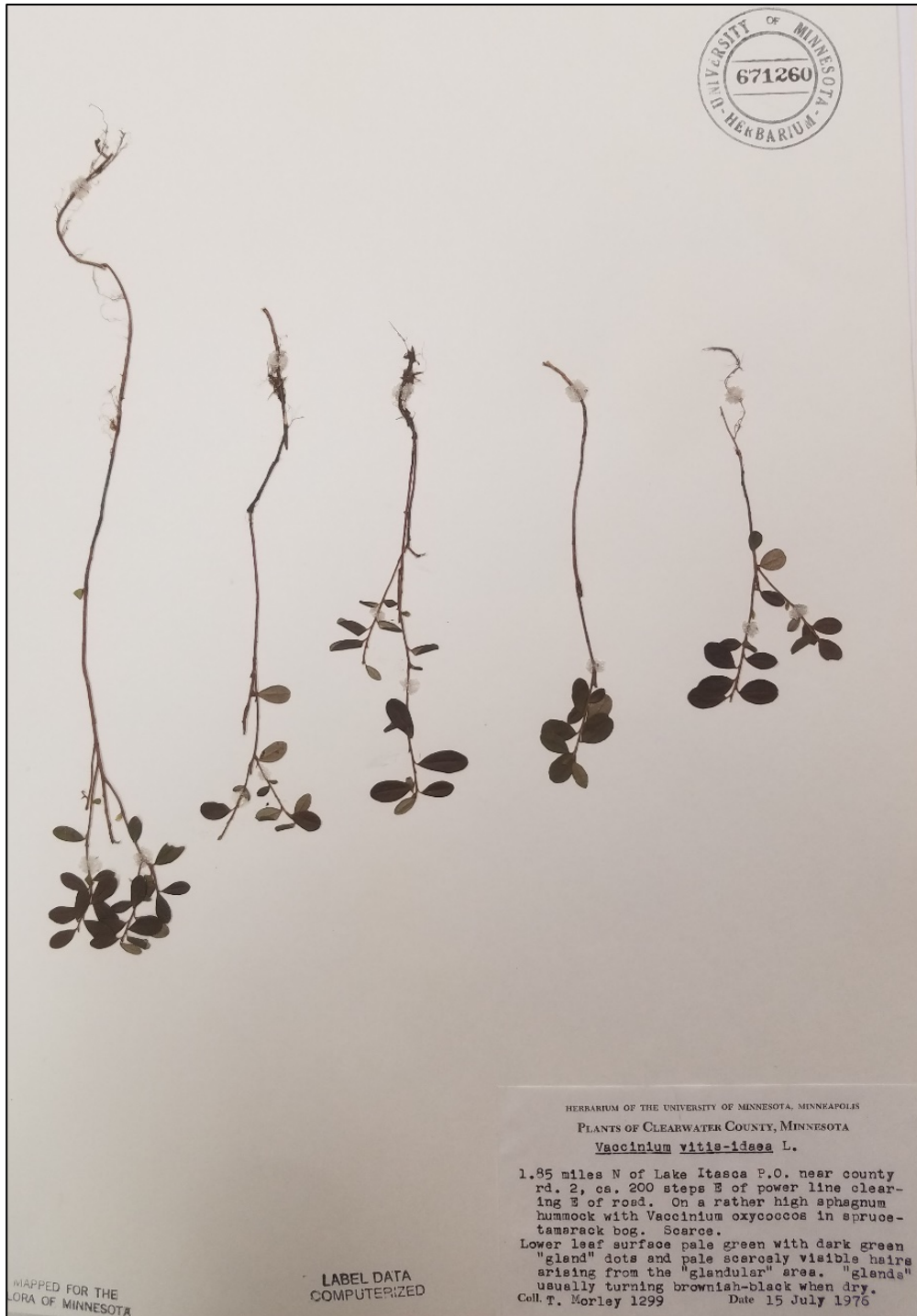
Associated with *Kalmia polifolia*. T61N R4W SE ¼ of NE ¼ of Sec 7. Latitude: 47°47'03" N
Longitude: 90°52' 25" W. Collected July 21, 2002.



University of Minnesota Herbarium Accession 499688: Lake County, MN. Approximately 17.4 miles WNW of Two Harbors, MN and 3.0 miles SW of historic McNair. Black spruce bog atop *Sphagnum* hummocks with *Vaccinium oxycoccus*, *V. myrtilloides*, *Ledum groenlandicum*, etc. Flowers sweet fragrant and pinkish white. Local in swamp. T56N R11W S34SWSE. Collected June 26, 2002.



University of Minnesota Herbarium Accession 666812: Itasca County, MN. George Washington State Forest. Approximately 11.2 miles SW of Togo, MN and 0.4 mile S of Little Bear Lake. *Picea mariana* swamp with *Larix laricina*, *Alnus incana*, *Ledum groenlandicum*, *Vaccinium oxycoccus*, *Amelanchier bartramiana*, *Betula pumila*, *Equisetum fluviatile*, etc. T60N R23W S17NWNE. Collected June 27, 2006. **DNA failed to amplify.**



HERBARIUM OF THE UNIVERSITY OF MINNESOTA, MINNEAPOLIS

PLANTS OF CLEARWATER COUNTY, MINNESOTA

Vaccinium vitis-idaea L.

1.85 miles N of Lake Itasca P.O. near county rd. 2, ca. 200 steps E of power line clearing E of road. On a rather high sphagnum hummock with *Vaccinium oxycoccos* in spruce-tamarack bog. Scarce.

Lower leaf surface pale green with dark green "gland" dots and pale scarcely visible hairs arising from the "glandular" area. "glands" usually turning brownish-black when dry.

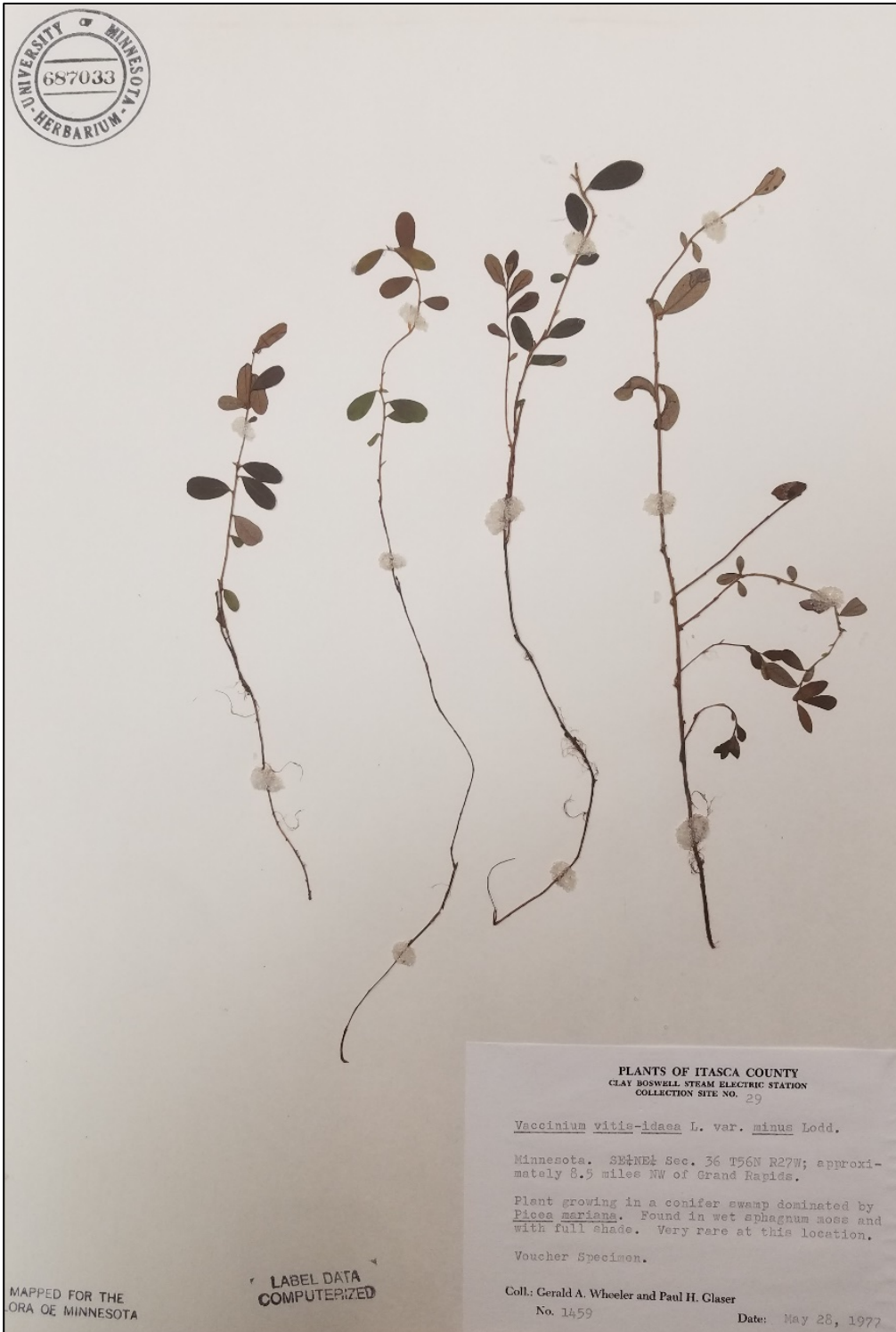
Coll. T. Morley 1299

Date 15 July 1976

MAPPED FOR THE
FLORA OF MINNESOTA

LABEL DATA
COMPUTERIZED

University of Minnesota Herbarium Accession 671260: Clearwater County, MN. 1.85 miles N of Lake Itasca. P.O. near county road 2, ca 200 steps E of power line clearing 3 of road. On a rather high *Sphagnum* hummock with *Vaccinium oxycoccos* in spruce-tamarack bog. Scarce. Lower leaf surface pale green with dark green "gland" dots and pale scarcely visible hairs rising from the "glandular" area. "Glands" usually turning brownish-black when dry. Collected July 15, 1976.



University of Minnesota Herbarium Accession 687033: Itasca County, MN. Approximately 8.5 miles NW of Grand Rapids. Plant growing in a conifer swamp dominated by *Picea mariana*. Found in wet *Sphagnum* moss and with full shade. Very rare at this location. SE ¼ NE ¼ Sec 36 T 56N R27W. Collected May 28, 1977.



UNIVERSITY OF MINNESOTA
687085
HERBARIUM

PLANTS OF ITASCA COUNTY
CLAY ROSWELL STEAM ELECTRIC STATION
COLLECTION SITE NO. 54

Vaccinium vitis-idaea L. var. *minus* Lodd.

Minnesota: SW1/4 NE1/4 Sec. 4 T55N R26W; approximately 5.5 miles NW of Grand Rapids.

Plant growing in a conifer swamp dominated by *Picea mariana*. Found in wet soil and with partial shade. Rare in this location.

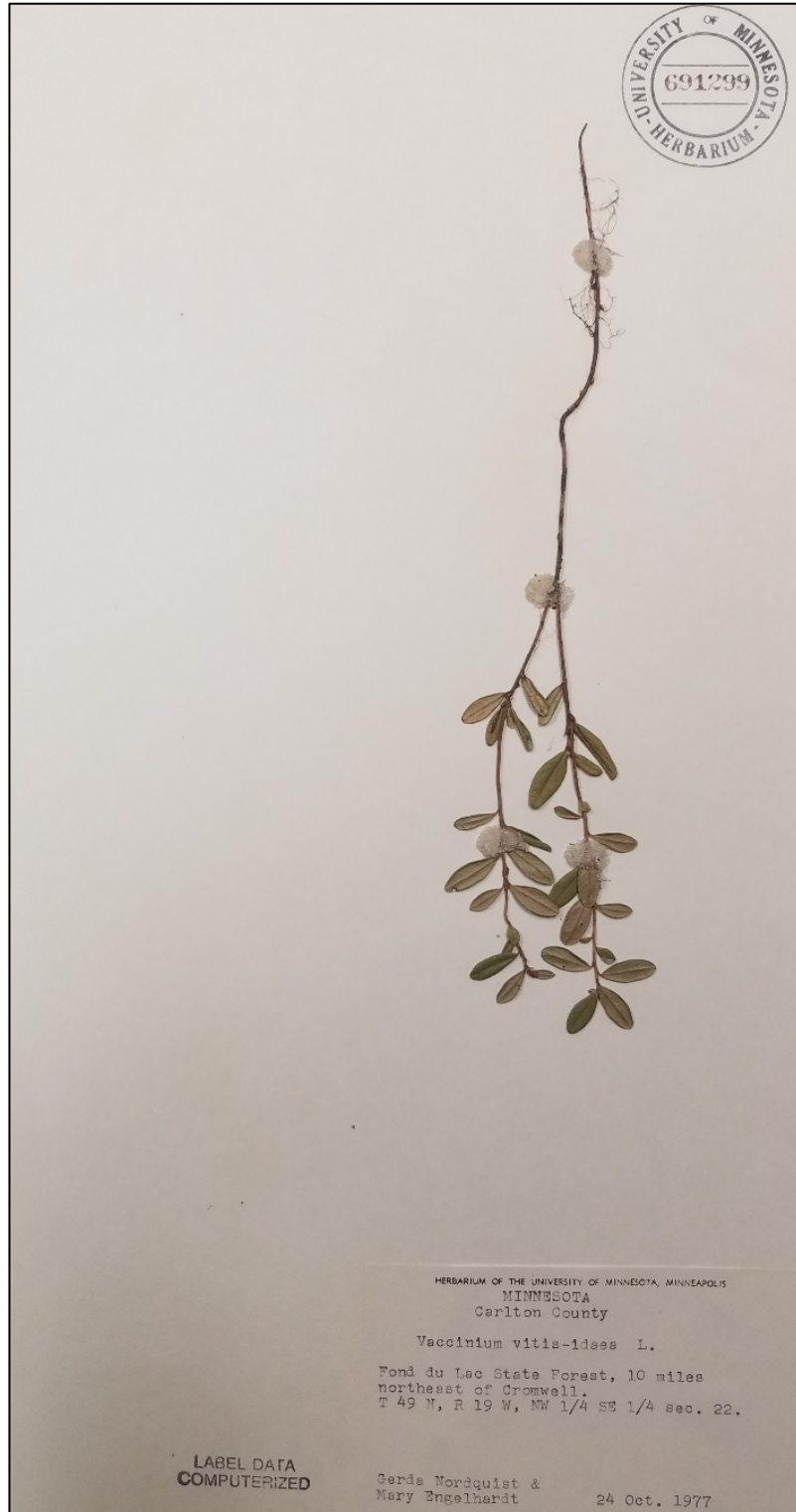
Voucher Specimen.

Coll.: Gerald A. Wheeler and Paul H. Glaser
No. 1511 Date: May 29, 1977

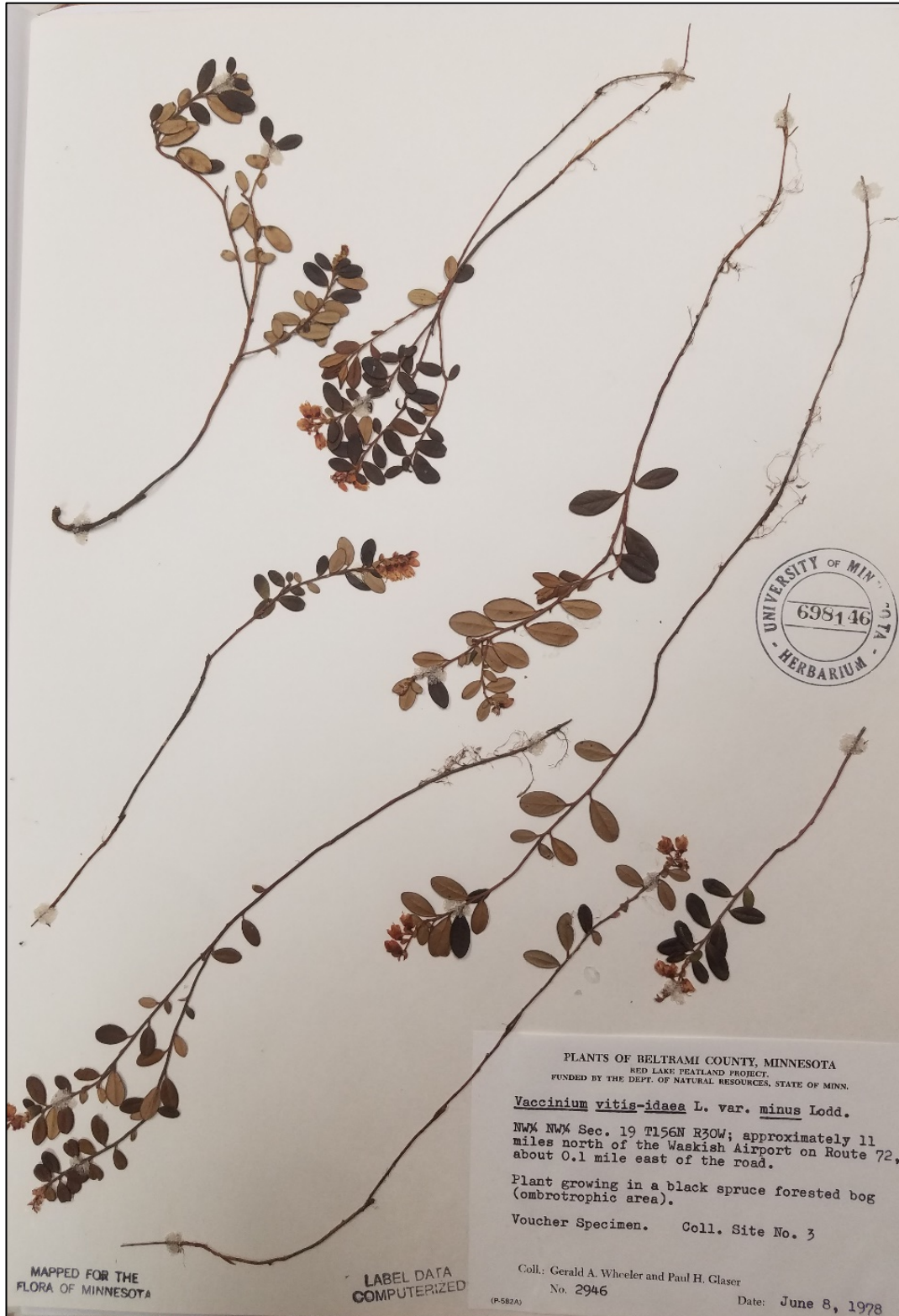
MAPPED FOR THE
FLORA OF MINNESOTA

LABEL DATA
COMPUTERIZED

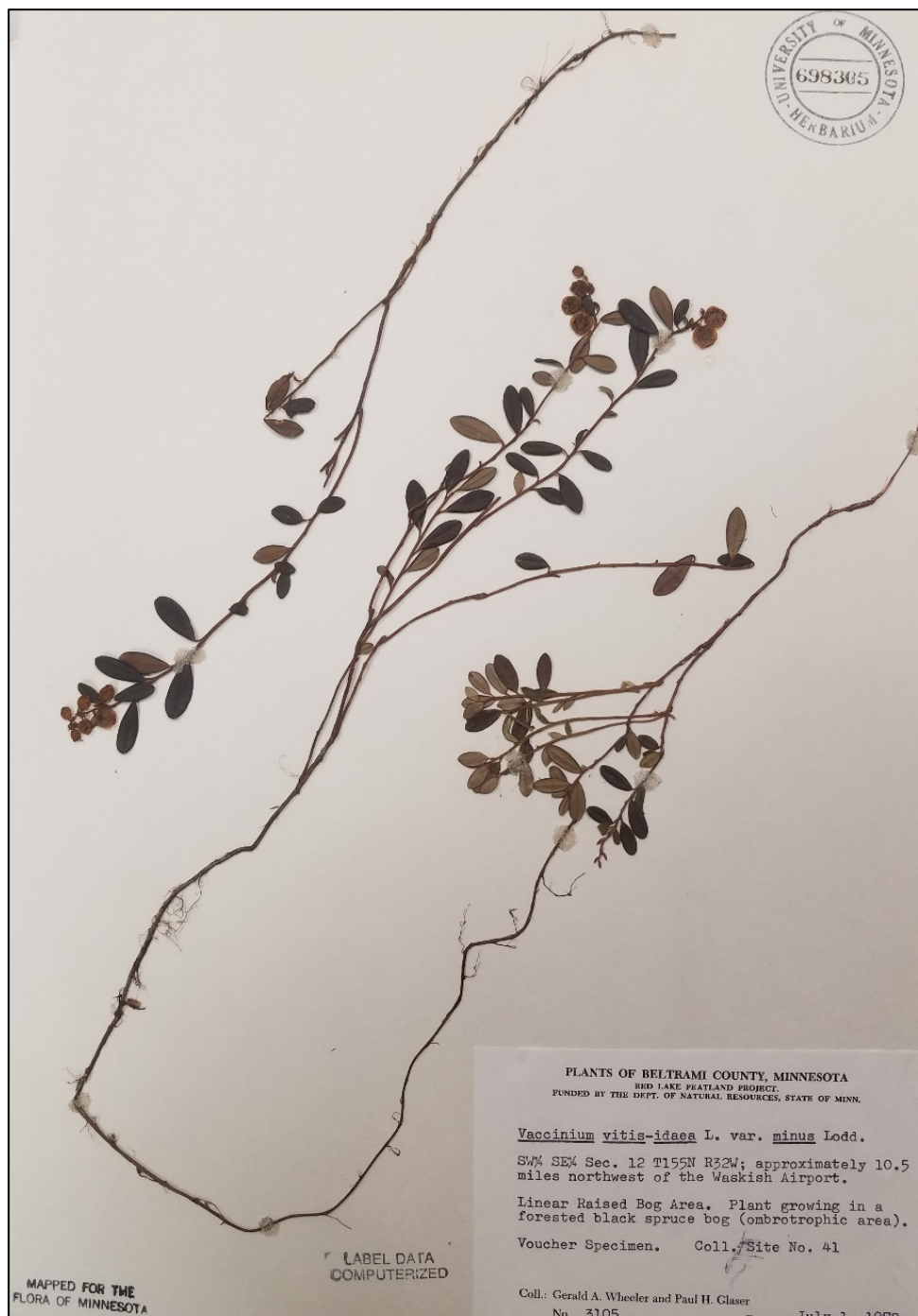
University of Minnesota Herbarium Accession 687085: Itasca County, MN. Approximately 5.5 miles NW of Grand Rapids. Plant Growing in a conifer swamp dominated by *Picea mariana*. Found in wet soil with partial shade. Rare in this location. SW1/4 NE1/4 Sec 4 T55N R26W. Collected May 29, 1977.



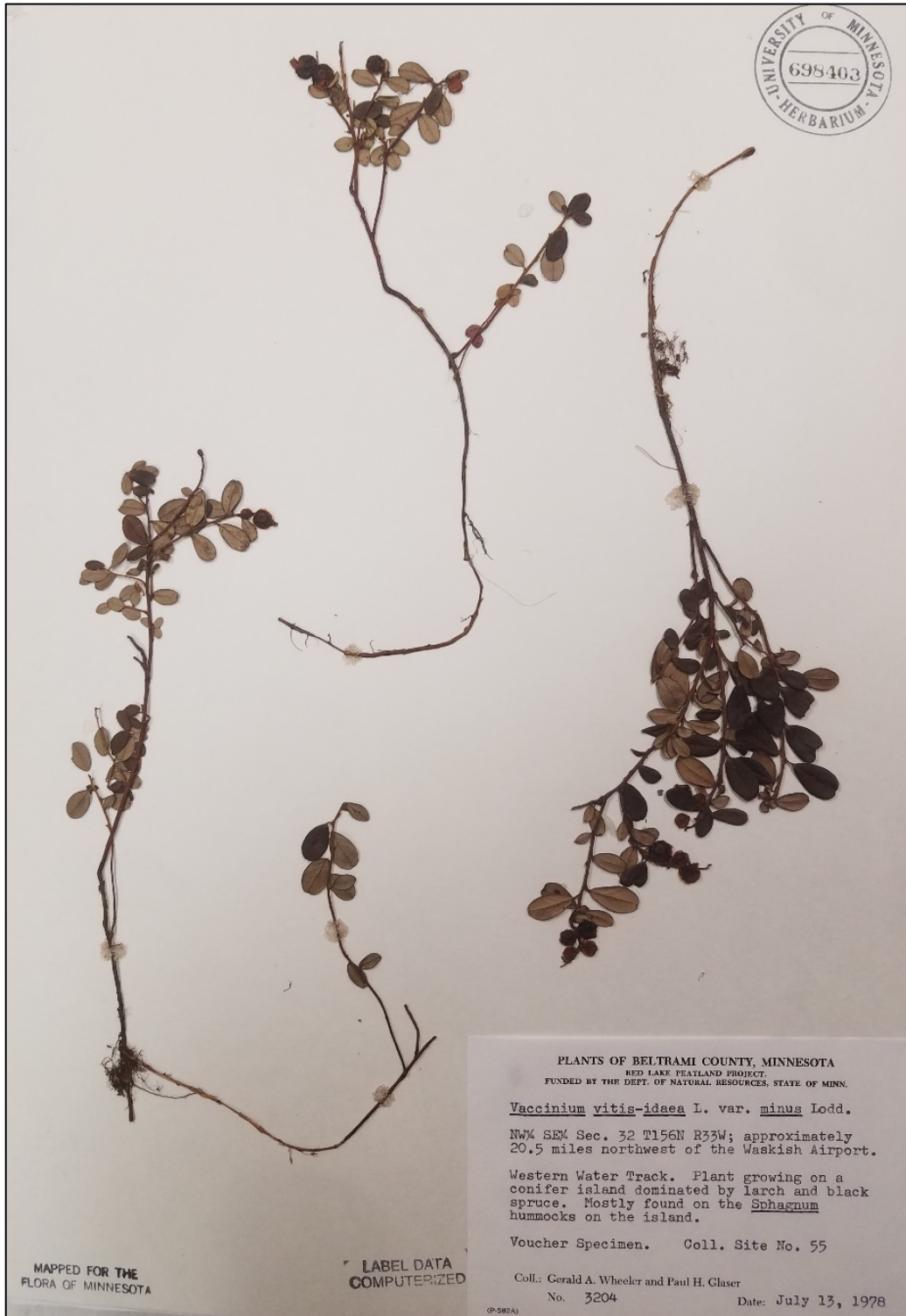
University of Minnesota Herbarium Accession 691299: Carlton County, MN. Fond du Lac State Forest, 10 miles NE of Cromwell. T49N, R19W, NW ¼ SE ¼ sec 22. Collected October 24, 1977. **DNA failed to amplify.**



University of Minnesota Herbarium Accession 698146: Beltrami County, MN. 11 miles N of Waskish Airport on Route 72, about 0.1 mile E of road. Plant growing in a black spruce forested bog (ombrotrophic area). NW ¼ NW ¼ Sec 19 T156 N R 30 W. Collected June 8, 1978.



University of Minnesota Herbarium Accession 698305: Beltrami County, MN. Approximately 10.5 miles NW of Waskish Airport. Linear Raised Bog Area. Plant growing in a forested black spruce bog (ombrotrophic area). SW1/4 SE1/4 Sec 12 T155N R32W. Collected July 1, 1978.



University of Minnesota Herbarium Accession 698403: Beltrami County, MN. Approximately 20.5 miles NW of Waskish Airport. Western Water Track. Plant growing on a conifer island dominated by larch and black spruce. Mostly found on the *Sphagnum* hummocks on the island. NW ¼ SE1/4 Sec 32 T156N R33W. Collected July 13, 1978.



HERBARIUM OF THE UNIVERSITY OF MINNESOTA, MINNEAPOLIS
PLANTS OF COOK COUNTY, MINNESOTA

Vaccinium vitis-idaea L. var. *minus* Lodd.

Grand Marais, Artist Point. Plant growing on (or around) rocks on the west side of the peninsula.

T61N R1E Sec. 21

LABEL DATA
COMPUTERIZED

MAPPED FOR THE
FLORA OF MINNESOTA

No. 4500
Coll. Gerald A. Wheeler Date July 21, 1979

University of Minnesota Herbarium Accession 709500 (HAD RECORDED 709506): Cook County, MN. Grand Marais, Artist Point. Plant growing on (or around) rocks on the west side of the peninsula. T61N, R1E Sec 21. Collected July 21, 1979.



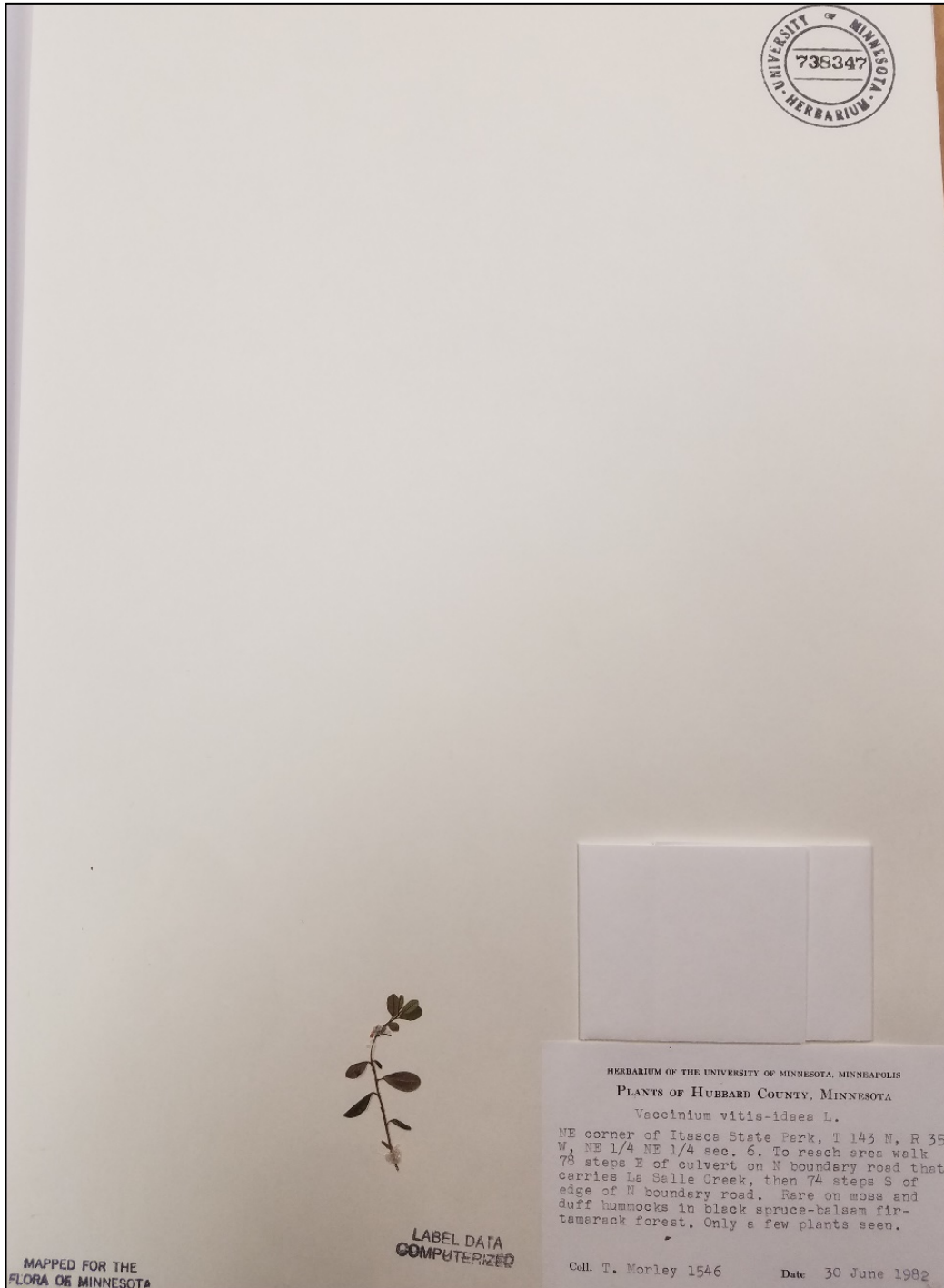
University of Minnesota Herbarium Accession 724095: St Louis County, MN. About ¼ mile S-SE of Purvis Lake. Occasional in Sphagnum bog dominated by *Picea mariana*. With *Eriophorum spissum*, *Carex crinita*. T62N R13W SE ¼ NW ½ SW ¼ section 28. Collected July 29, 1980. DNA failed to amplify.



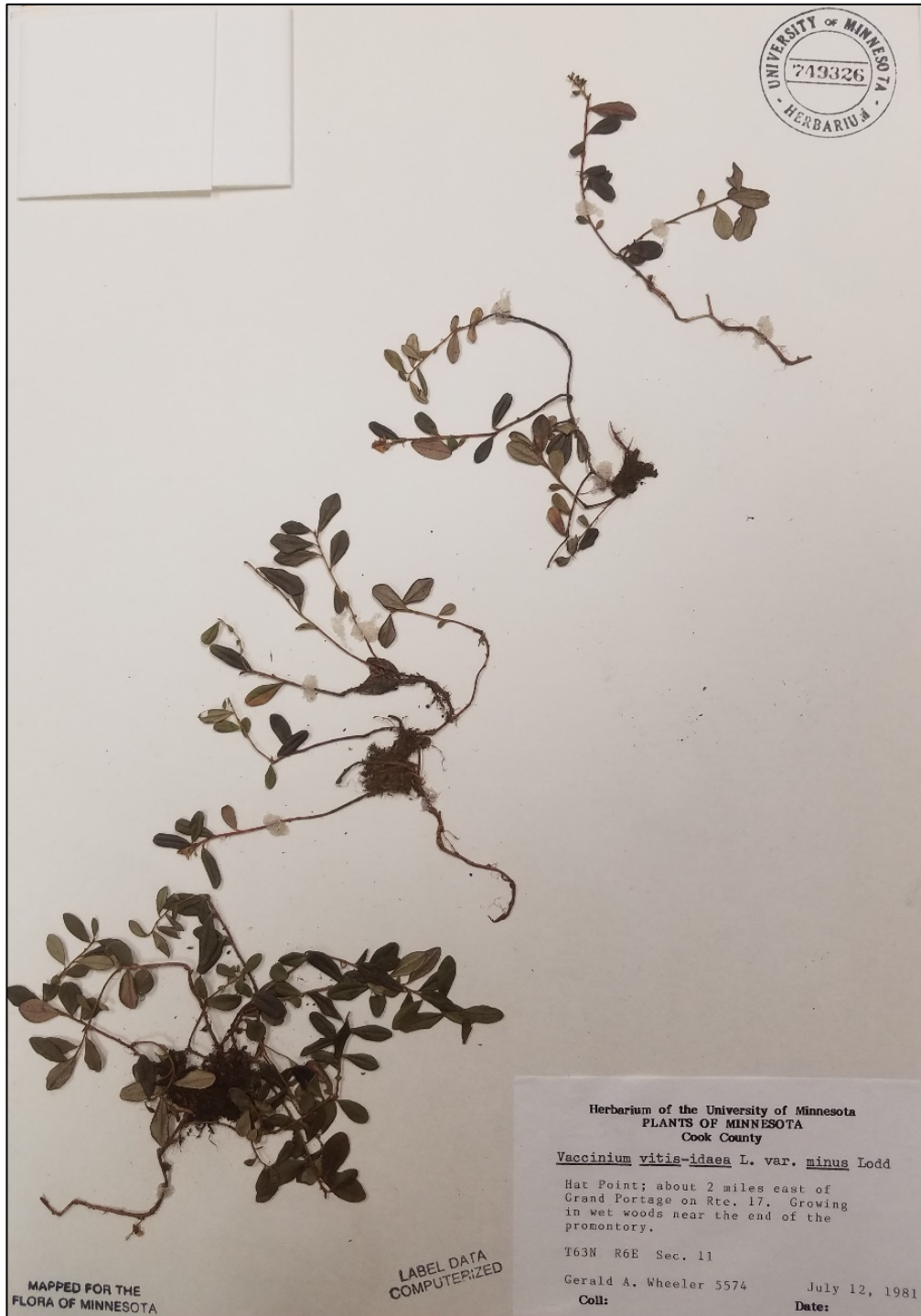
University of Minnesota Herbarium Accession 724968: Cook County, MN. The eastern tip of Artists Point in Grand Marais. Frequent at the edge of rocky woods dominated by *Abies* and *Picea*. T 61N R1E Section 21. Collected June 19, 1980.



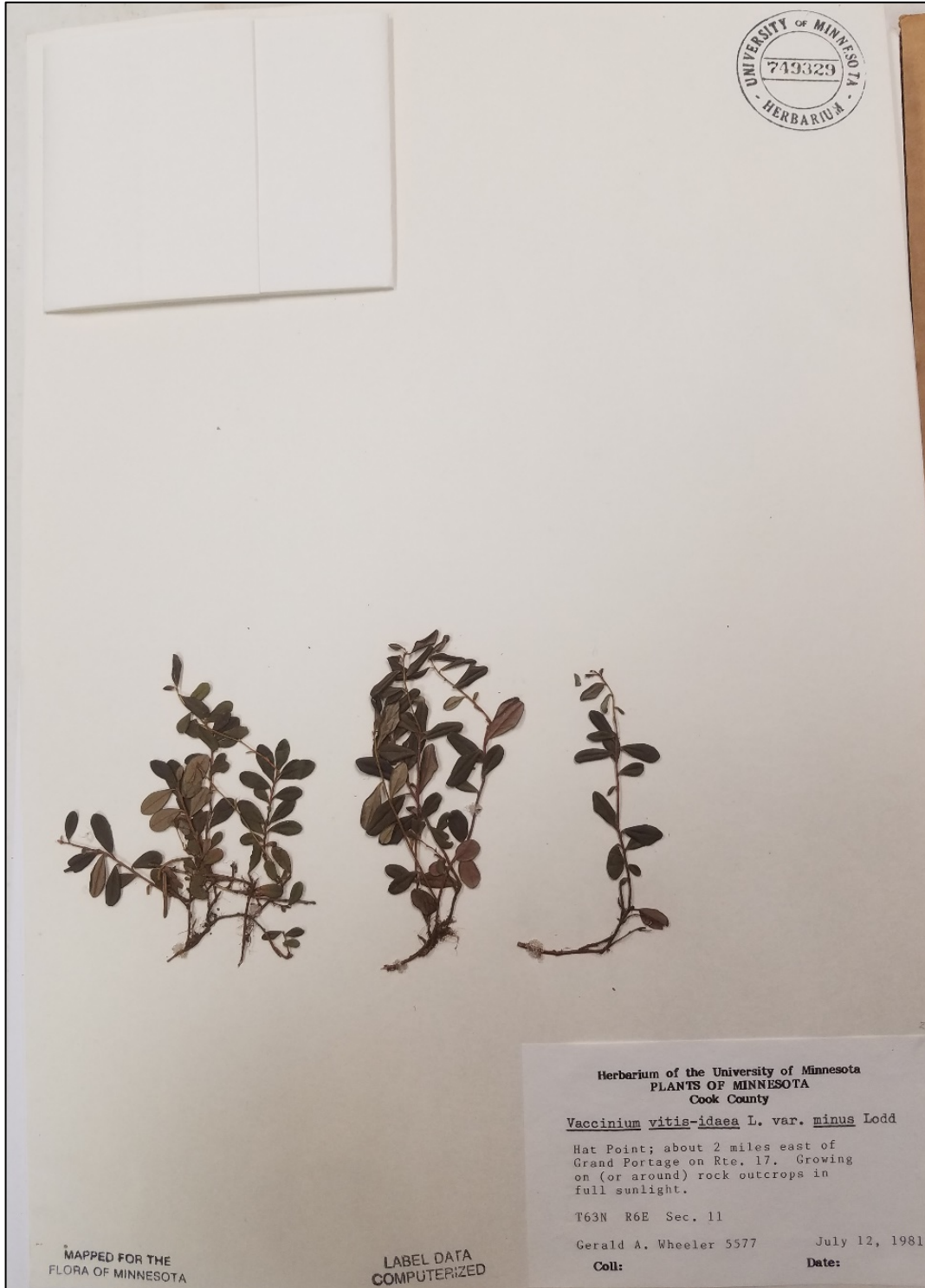
University of Minnesota Herbarium Accession 738346: Hubbard County, MN. La Salle Creek Bog, just north of north boundary road of Itasca State Park at NE corner of park. Moderately common very locally. To reach area, walk 65 steps E of culvert carrying main part of La Salle Creek, then 38 steps N of N edge of road. In shade of black spruce-tamarack forest. T144N, R 35W, S ½ S ½ SE ¼ Sec 31. Collected June 27, 1982.



University of Minnesota Herbarium Accession 738347: Hubbard County, MN. NE corner of Itasca State Park. To reach area, walk 78 steps E of culvert on N boundary road that carries La Salle Creek, then 74 steps S of edge of N boundary road. Rare on moss and duff hammocks in black spruce-balsam fir-tamarack forest. Only a few plants seen. T 143N R 35W NE ¼ NE ¼ Sec 6. Collected June 30, 1982.



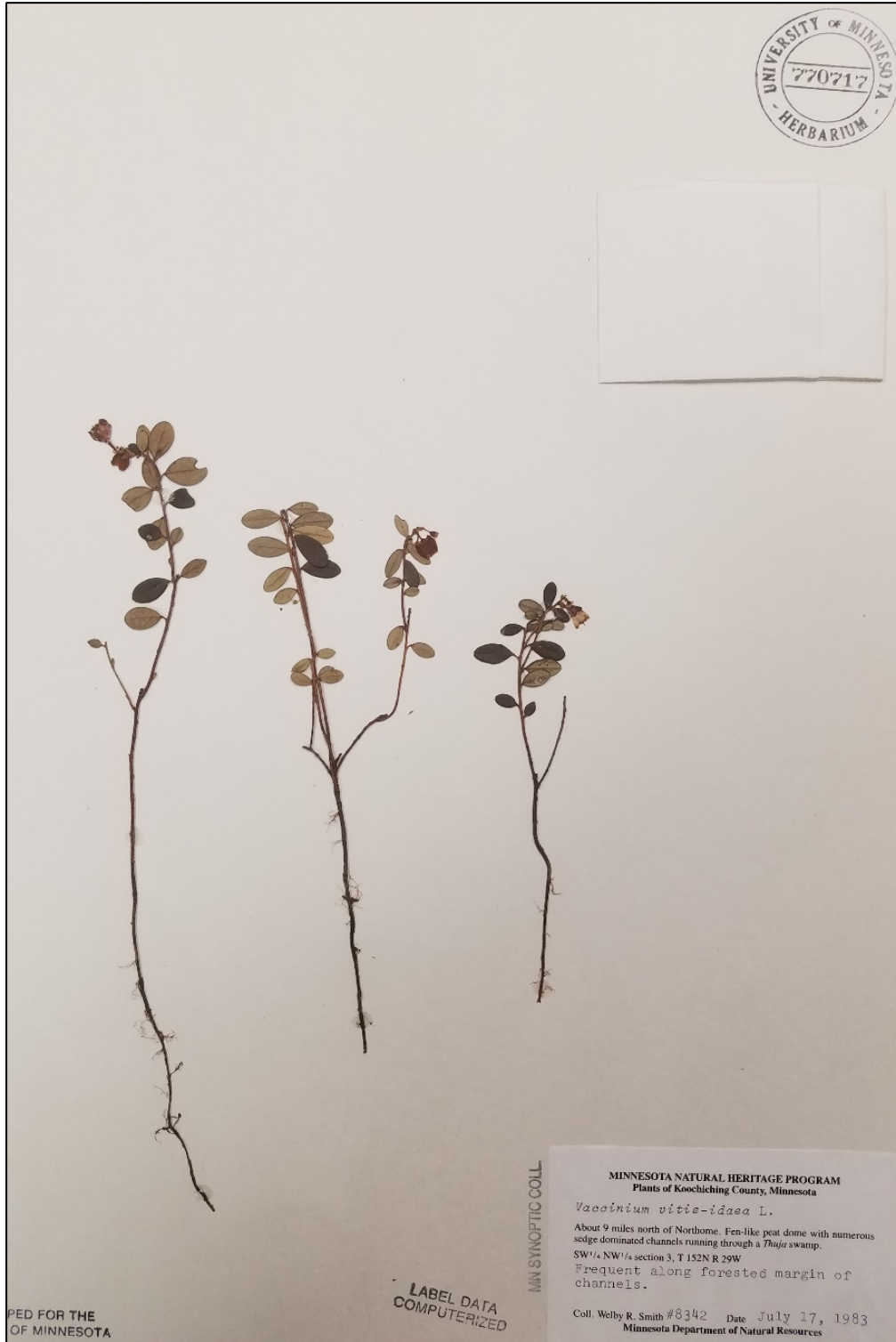
University of Minnesota Herbarium Accession 749326: Cook County, MN. Hat Point: about 2 miles E of Grand Portage on route 17. Growing in wet woods near the end of the promontory. T63N R6W Sec 11. Collected July 12, 1981.



University of Minnesota Herbarium Accession 749329: Cook County, MN. Hat Point: About 2 miles east of Grand Portage on route 17. Growing on (or around) rock outcrops in full sunlight. T 63N R6E Sec 11. Collected July 12, 1981.



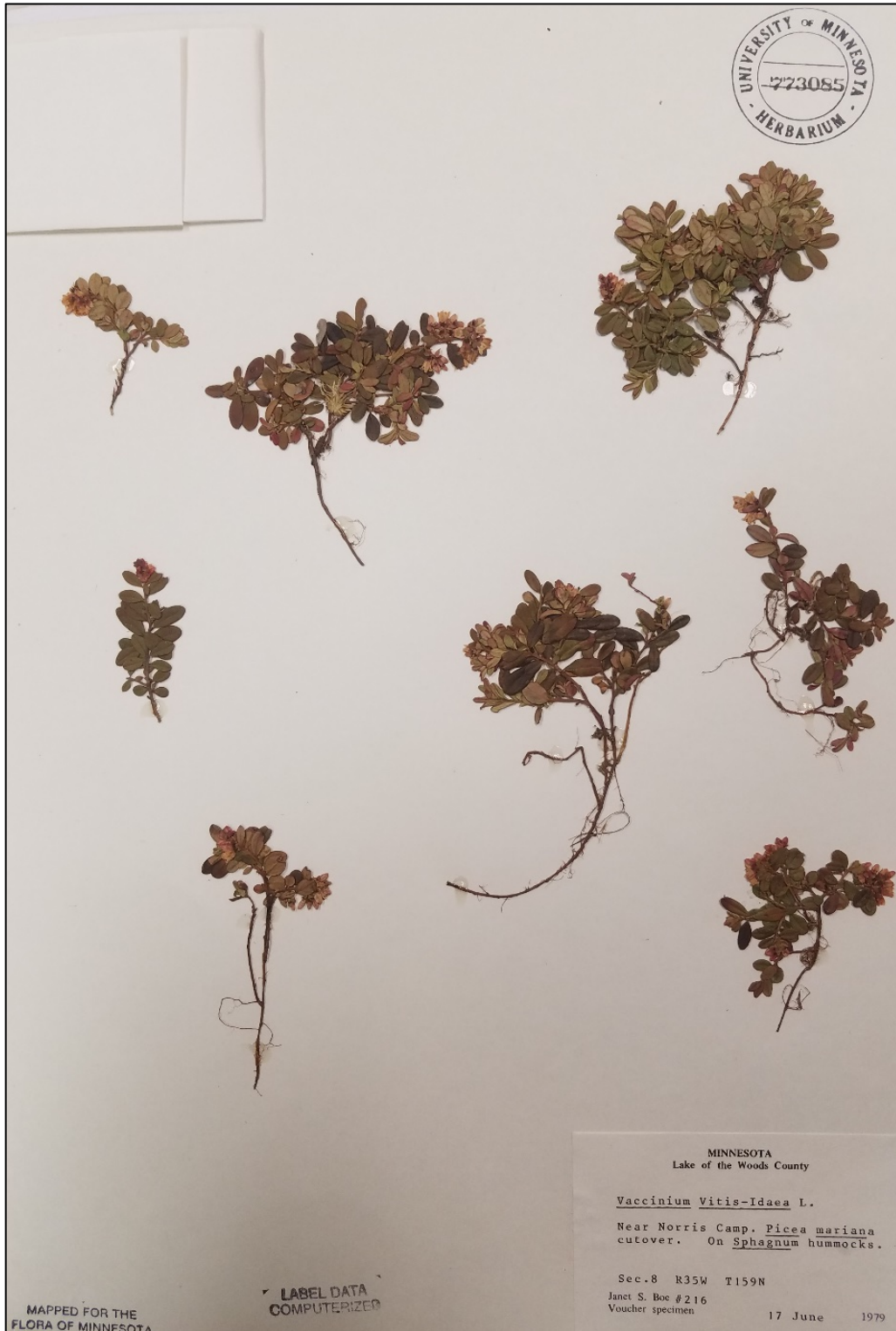
University of Minnesota Herbarium Accession 770687: Koochiching County, MN. About 23 miles north of Northome. Fen-like peat dome with numerous sedge dominated channels running through a spruce swamp. SE ¼ of NE ¼ Section 35 T 155N R 29W. Collected July 17, 1983.



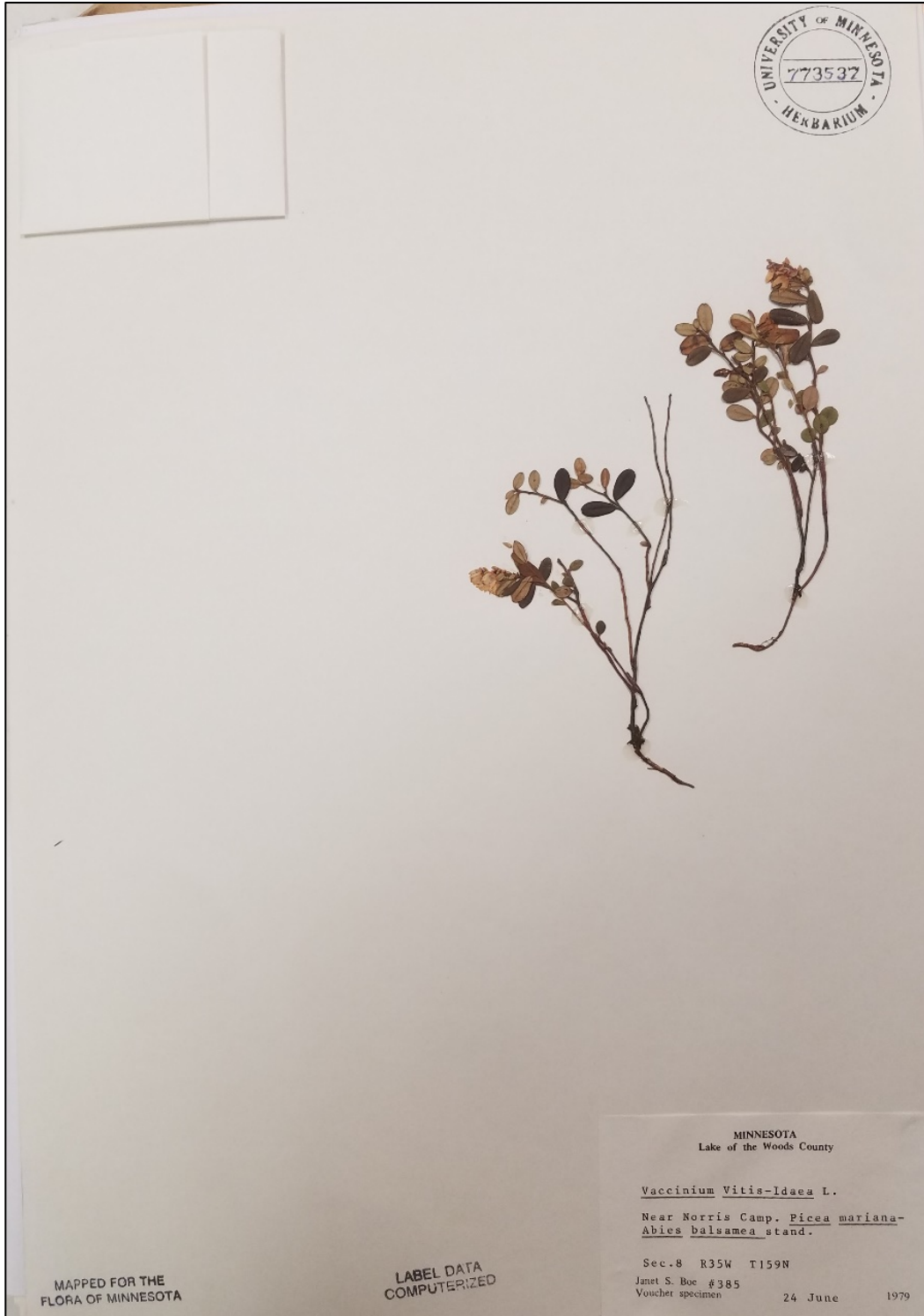
University of Minnesota Herbarium Accession 770717: Koochiching County, MN. About 9 miles N of Northome. Fen-like peat dome with numerous sedge dominated channels running through a *Thuja* swamp. Frequent along forested margin of channels. SW 1/4 NW 1/4 Sec 3, T152N R 29W. Collected July 17, 1983.



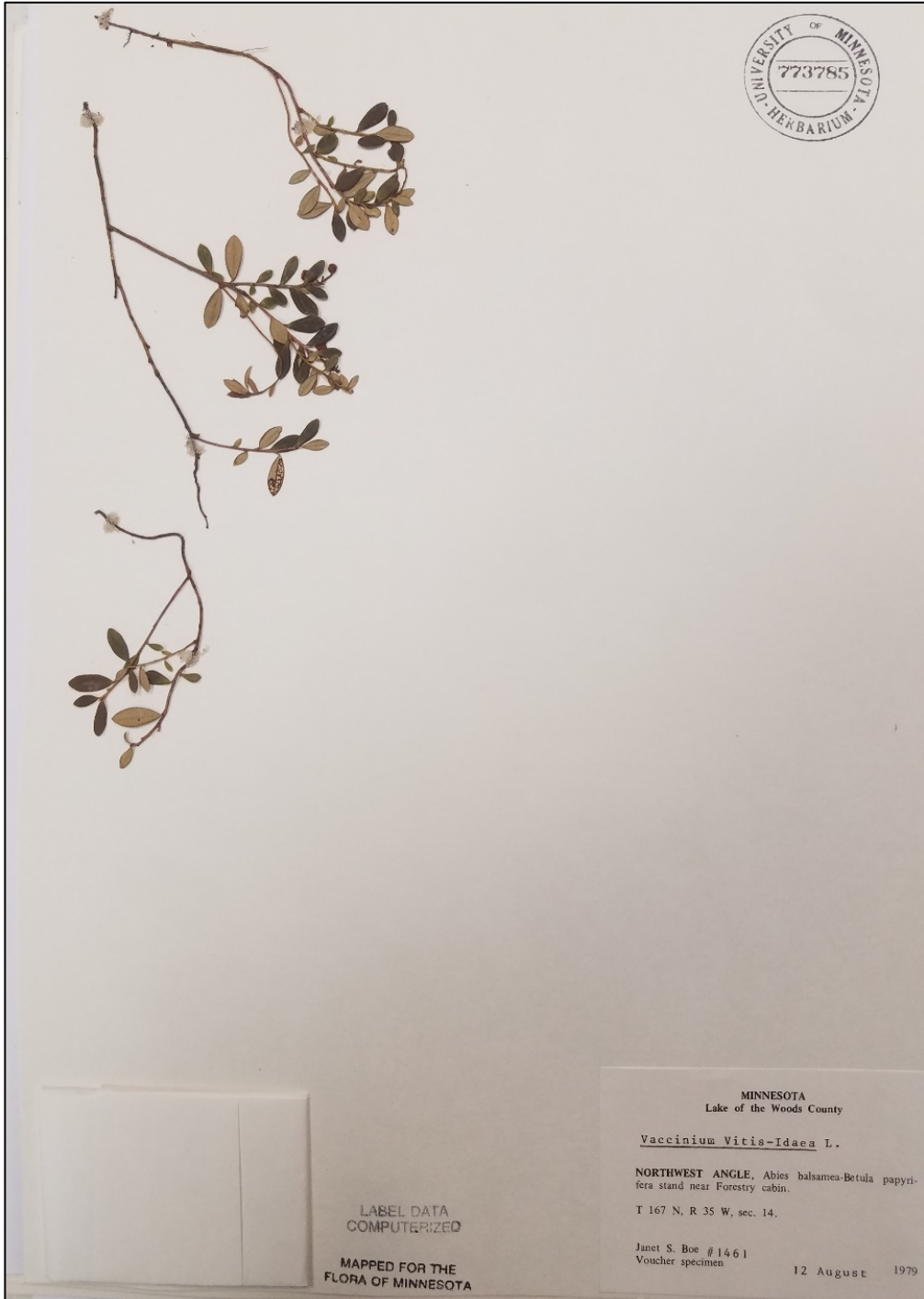
University of Minnesota Herbarium Accession 772488: Lake of the Woods County, MN. Near Hwy 72. Forested bog 9 miles S of Baudette. W ½ Sec 19 R 30 W T 159N. Collected July 6, 1979.



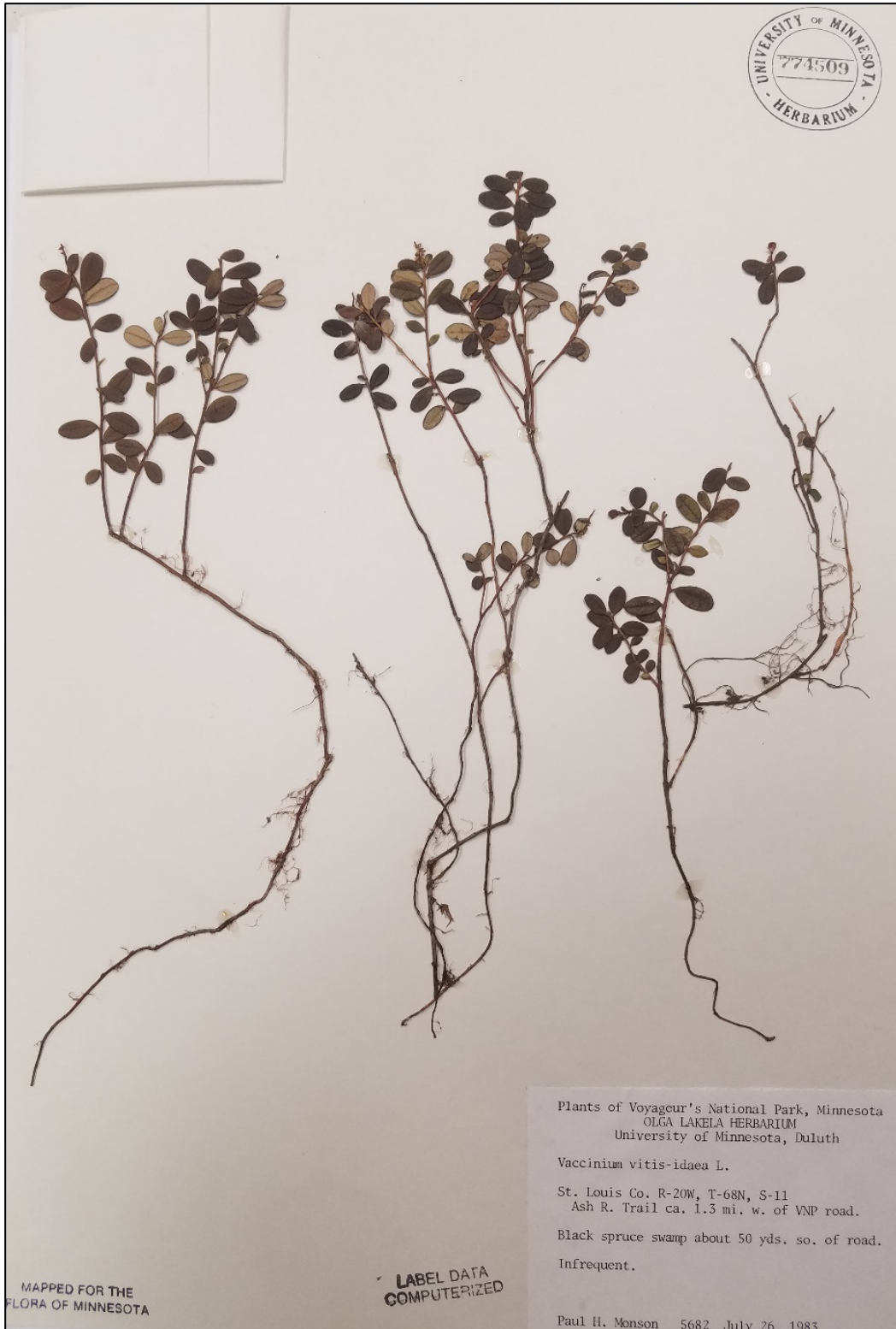
University of Minnesota Herbarium Accession 773085: Lake of the Woods County, MN. Near Norris Camp. *Picea mariana*. Section 8 R 35W T159N. Collected June 17, 1979.



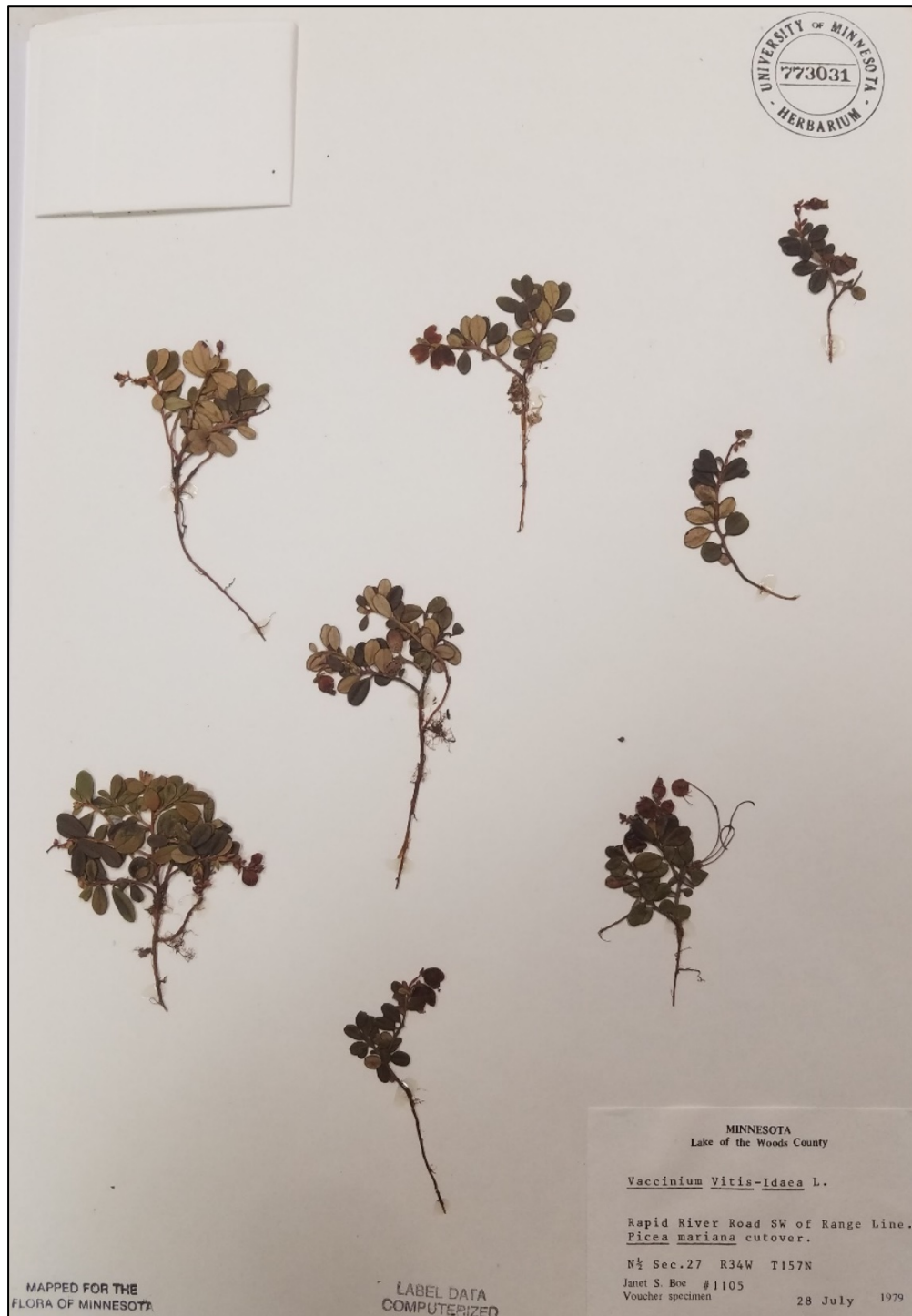
University of Minnesota Herbarium Accession 773537: Lake of the Woods County, MN. Near Norris Camp. *Picea mariana*, *Abies balsamea* stand. Sec 8 R35W T159. Collected June 24, 1979. DNA failed to amplify.



University of Minnesota Herbarium Accession 773785: Lake of the Woods County, MN. Northwest Angle, *Abies balsamea*, *Betula papyrifera* stand near Forestry cabin. T167N R35W Sec 14. Collected August 12, 1979.



University of Minnesota Herbarium Accession 774509: Voyageur's National Park, St Louis County, MN. Ash Road Trail ca. 1.3 miles W of VNP Road. Black spruce swamp about 50 yds S of road. Infrequent. R20W, T68N, S22. Collected July 26, 1983.



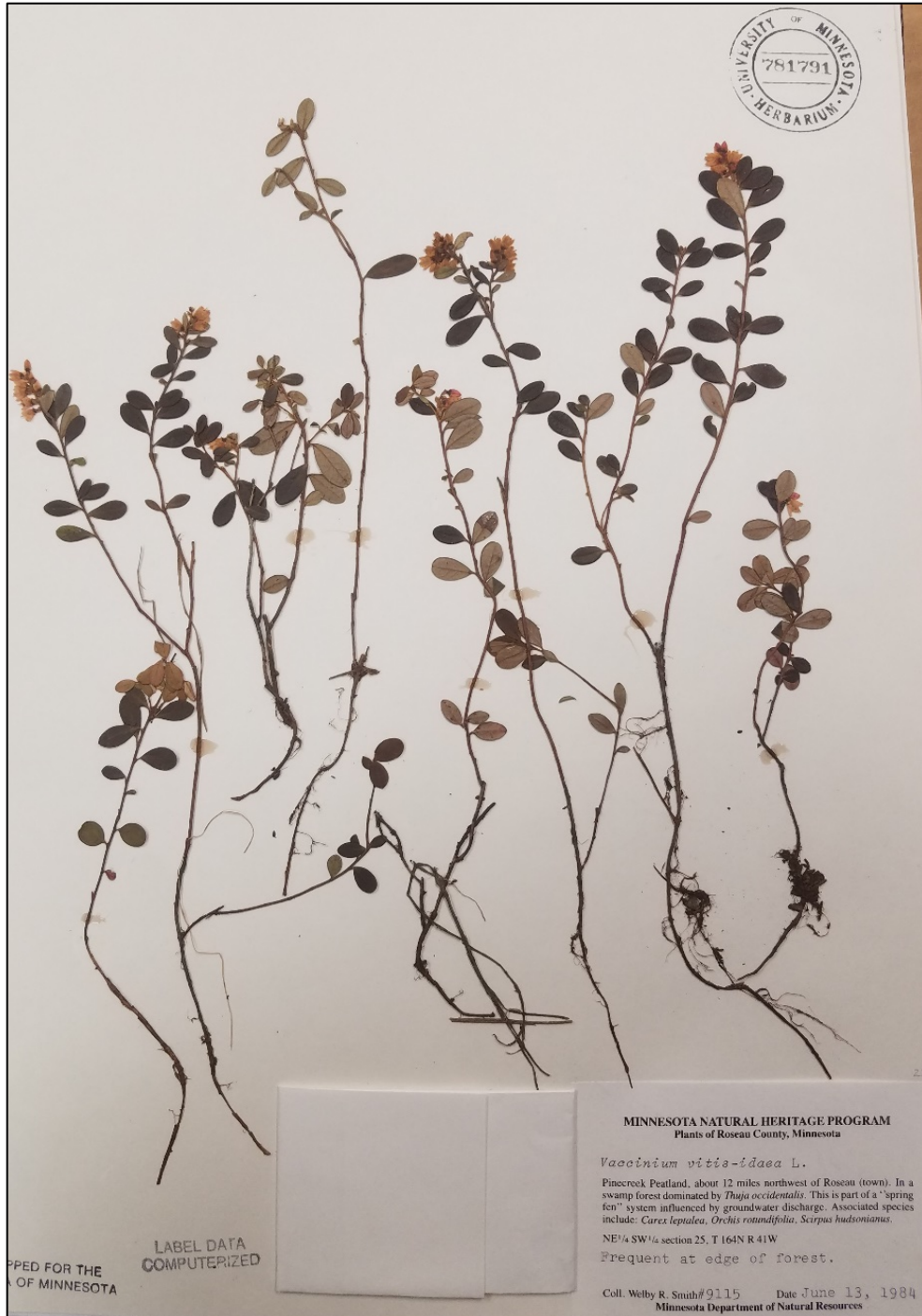
University of Minnesota Herbarium Accession 773031 (RECORDED AS 779031): Lake of the Woods County, MN. Rapid River Road SW of Range Line. *Picea mariana* cutover. N1/2 Sec 27 R34W T157N. Collected July 28, 1979.



University of Minnesota Herbarium Accession 781628: Koochiching County, MN. Nett Lake Peatland, about 1-mile S of Nett Lake. In a swamp forest dominated by *Thuja occidentalis*. This is part of a “spring fen” system influenced by groundwater discharge. Associated species include: *Carex leptalea*, *Cypripedium calceolus*, *Smilacina trifolia*. Frequent at this site. SE ¼ NE ¼ Sec 33 T 65N R22W. Collected June 15, 1984.



University of Minnesota Herbarium Accession 781689: Roseau County, MN. Sprague Creek Peatland, about 12 miles NNW of Roseau (town). In a swamp forest dominated by *Thuja occidentalis*. This is part of a “spring fen” system influenced by groundwater discharge. Associated species include: *Vaccinium vitis-idaea*, [*Galearis*] *rotundifolia*, *Smilacina trifolia*. NW ¼ SE ¼ Section 34 T 164N R 40 W. Collected June 14, 1984.



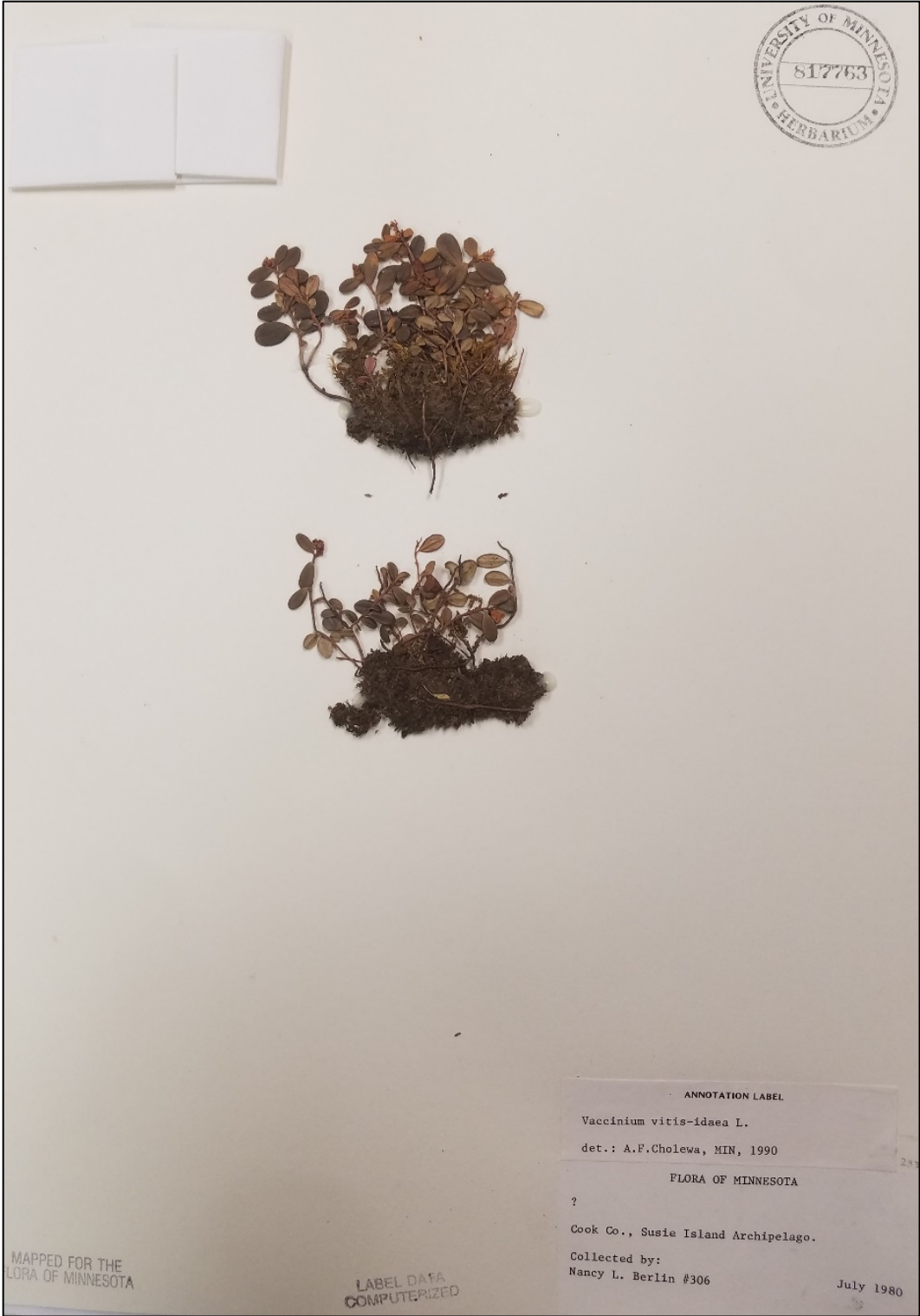
University of Minnesota Herbarium Accession 781791: Roseau County, MN. Pinerock Peatland, about 12 miles NW of Roseau (town). In a swamp forest dominated by *Thuja occidentalis*. This is part of a "spring fen" system influenced by groundwater discharge. Associated species include: *Carex leptalea*, [*Galearis*] *rotundifolia*, *Scirpus hudsonianus*. Frequent at edge of forest. NE ¼ SW ¼ Section 25 T 164N R 41 W. Collected June 13, 1984.



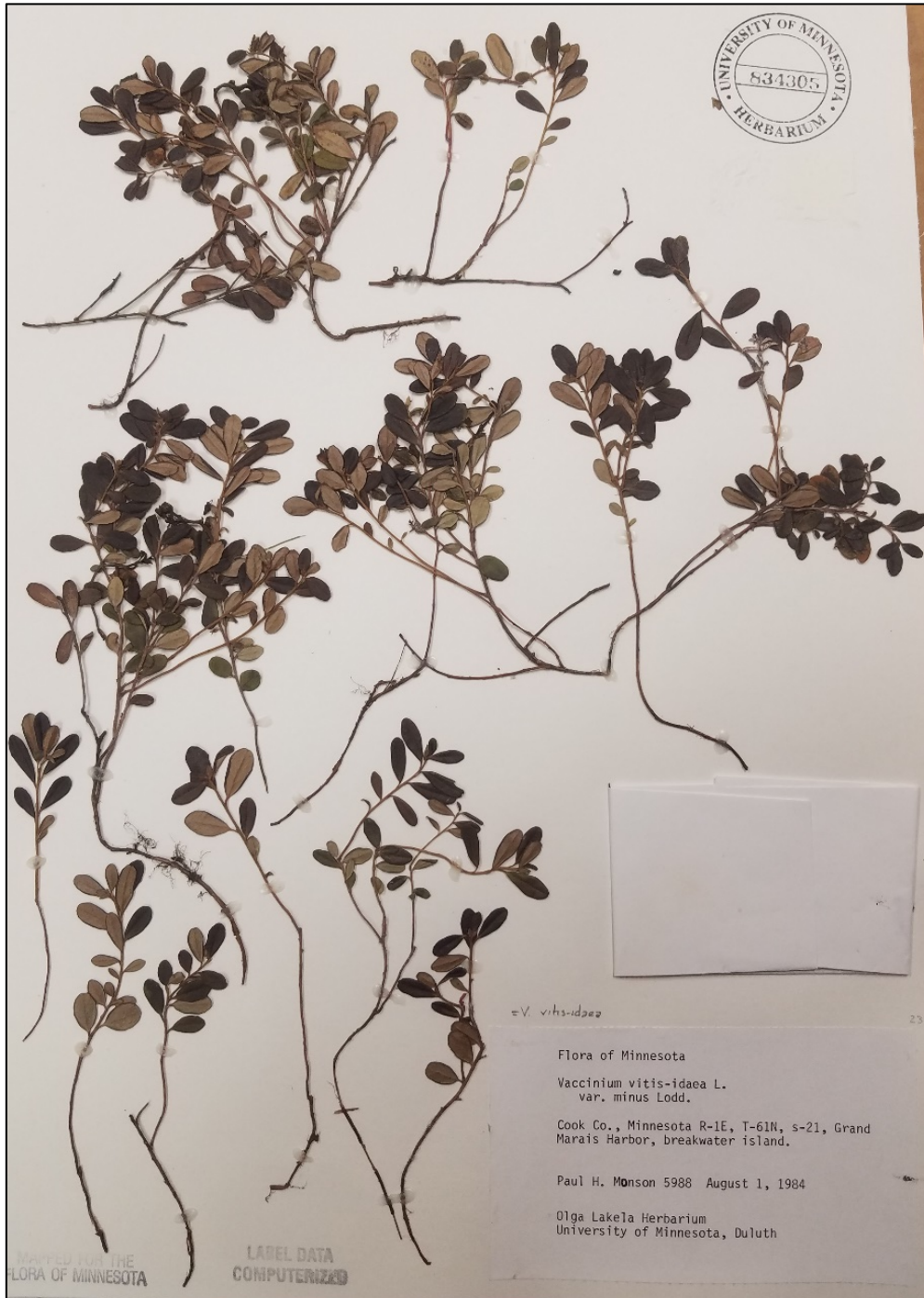
University of Minnesota Herbarium Accession 781862: Koochiching County, MN. Forest Grove Peatland, about 9 miles north of Northome. In a swamp forest on a fen-like peat dome, dominated by *Thuja occidentalis* and *Larix laricina*. Associated species include: *Scirpus hudsonianus*, *Trientalis borealis*, *Rhamnus alnifolia*. Occasional at forest edge. SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 3, T152N R29W. Collected June 12, 1984.



University of Minnesota Herbarium Accession 781871: Koochiching County, MN. About 23 miles N of Northome. Fen-like peat dome with numerous sedge dominated channels running through a spruce swamp. Frequent at edge of spruce swamp. SE 1/4 of NE 1/4 of Section 35 T155N R29W. Collected June 12, 1984. **DNA failed to amplify.**



University of Minnesota Herbarium Accession 817763: Cook County, MN, Susie Island Archipelago. Collected July 1980. DNA failed to amplify.



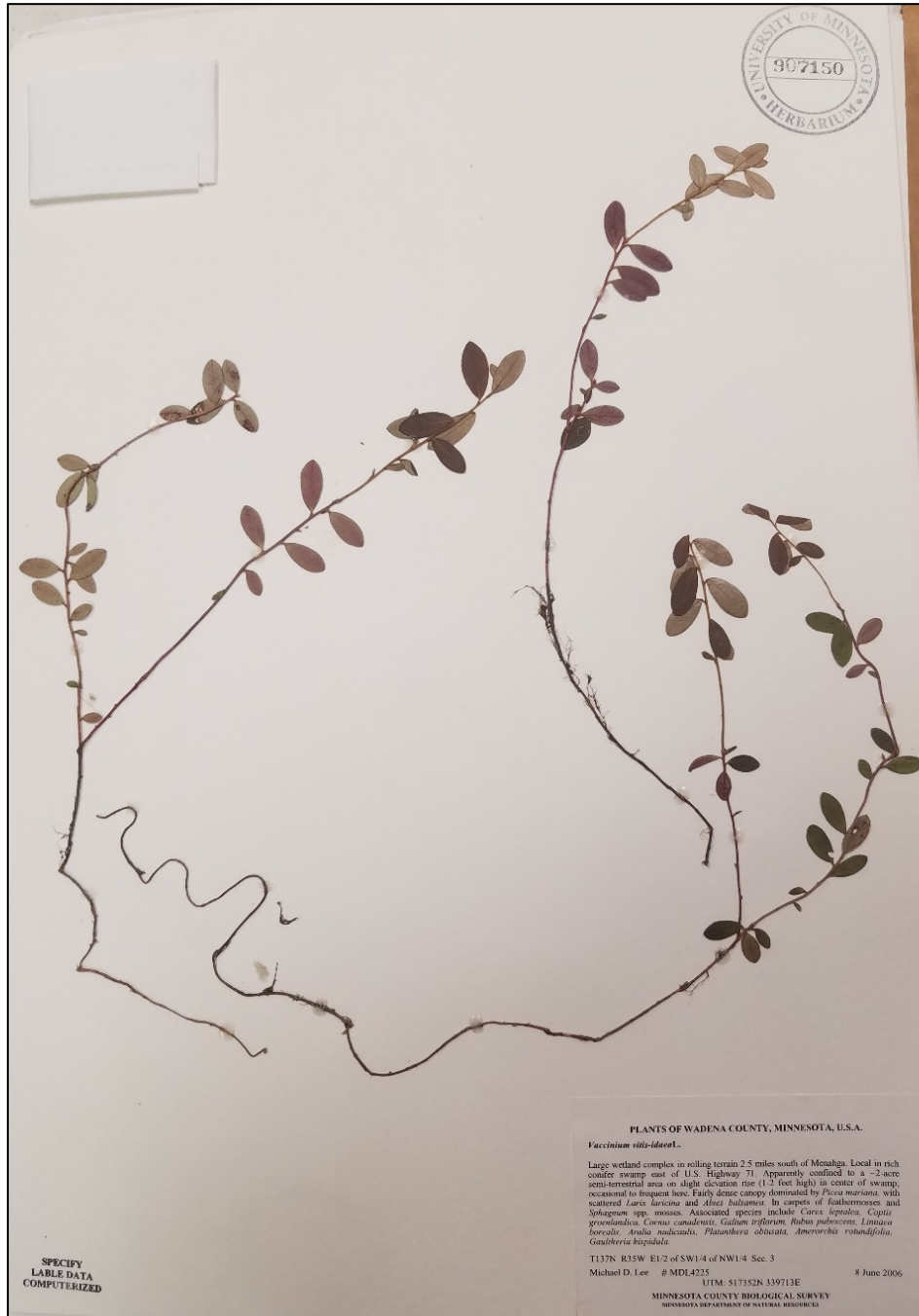
University of Minnesota Herbarium Accession 834305: Cook County, MN. Grand Marais Harbor, breakwater island. R1E S21. Collected August 1, 1984. **DNA failed to amplify.**



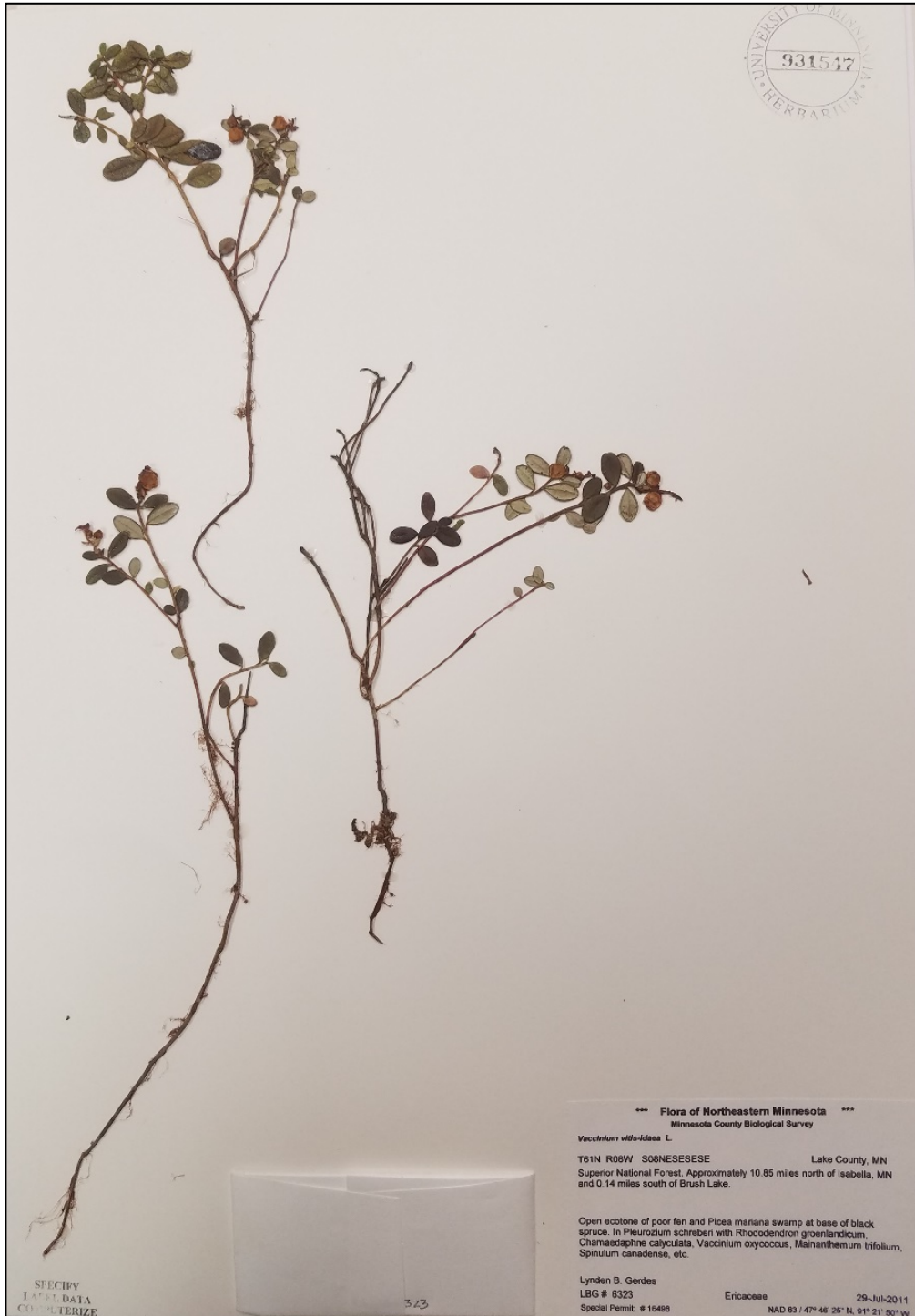
University of Minnesota Herbarium Accession 896442: George Washington State Forest, Itasca County, MN. Approximately 10.65 miles ENE of Effie, MN just NW of Spring Lake. *Picea mariana* swamp with scattered *Larix laricina*, *Ledum groenlandicum*, *Vaccinium angustifolium*, *V. myrtilloides*, *V. oxycoccus*, *Sorbus decora*, *Rhamnus alnifolia*, *Lonicera canadensis*, *Pyrola secunda*, *Monotropa uniflora*, *Cinna latifolia*, etc T62N R24W S09NWNWSE. Collected July 25, 2006.



University of Minnesota Herbarium Accession 896967: Roger Lake, St Louis County, MN. Groundwater-fed peatland logged winter 1989-90. Associated with *Picea mariana*, *Betula pumila*, *Ledum groenlandicum*, *Salix*, *Sphagnum*. T 60 N R 19 W SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of Section 3. Collected May 28, 2001.



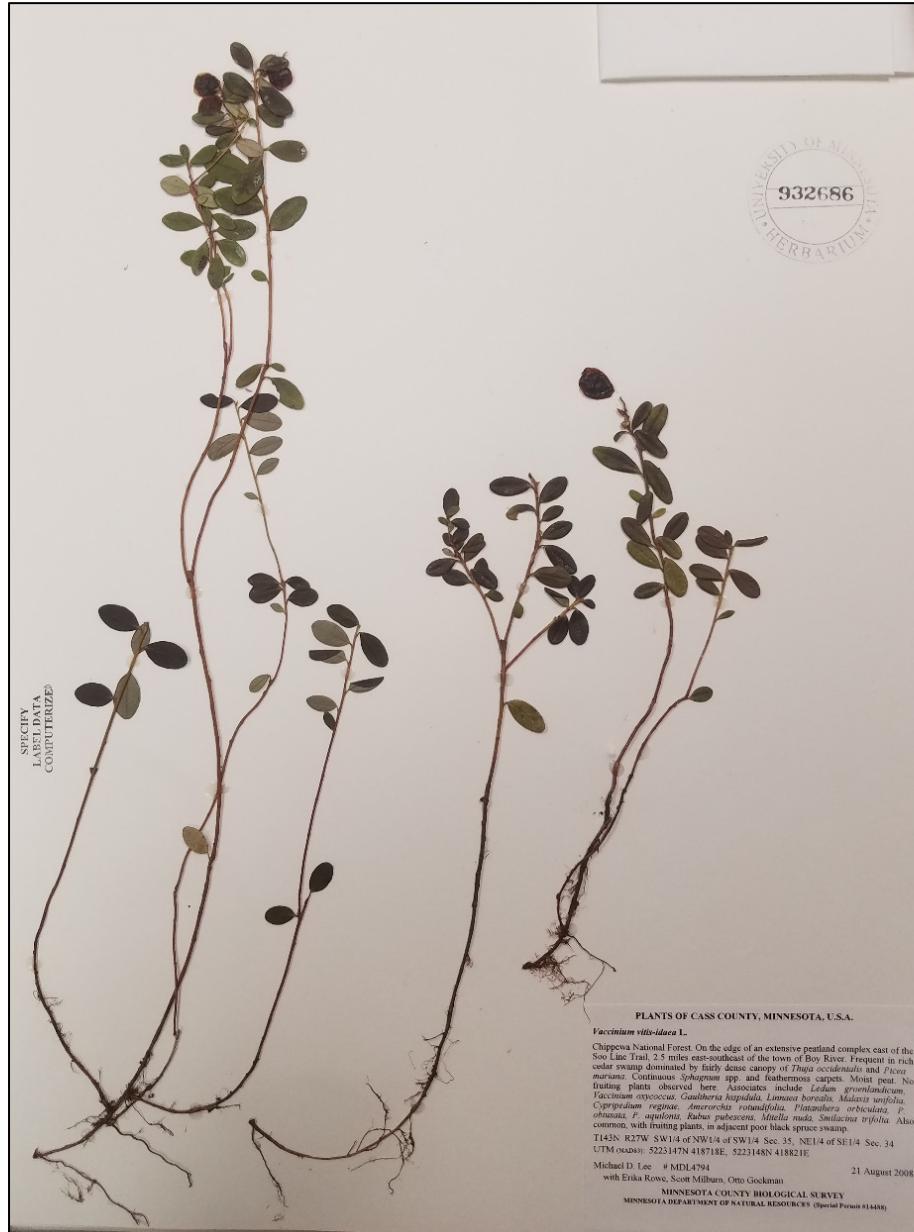
University of Minnesota Herbarium Accession 907150: Wadena County, MN. Large wetland complex in rolling terrain 2.5 miles south of Menasha. Local in rich conifer swamp east of U.S. Highway 71. Apparently confined to a ~2 acre semi-terrestrial area on slight elevation rise (1-2 ft high) in center of swamp, occasional to frequent here. Fairly dense canopy dominated by *Picea mariana* with scattered *Larix laricina* and *Abies balsamea*. In carpets of feathermosses and *Sphagnum* spp. mosses. Associated species include *Carex leptalea*, *Coptis groenlandica*, *Cornus canadensis*, *Galium triflorum*, *Rubus pubescens*, *Linnaea borealis*, *Aralia nudicaulis*, *Platanthera obtusata*, *Amerorchis rotundifolia*, *Gaultheria hispidula*. T 137N, R 35W E1/2 of SW1/4 of NW 1/4 Sec. 3 UTM: 517352N 339713E. Collected June 8, 2006



University of Minnesota Herbarium Accession 931547: Superior National Forest, Lake County, MN. 10.85 miles N of Isabella, MN and 0.14 miles S of Brush Lake. Open ecotone of poor fen and *Picea mariana* swamp at base of black spruce in *Pleurozium schreberi* with *Rhododendron groenlandicum*, *Chamaedaphne calyculata*, *Vaccinium oxycoccos*, *Maianthemum trifolium*, *Spinulum canadense*, etc. T61N R06W S08NESESESE. 47°46'25" N 91°21'50" W. Collected July 29, 2011.



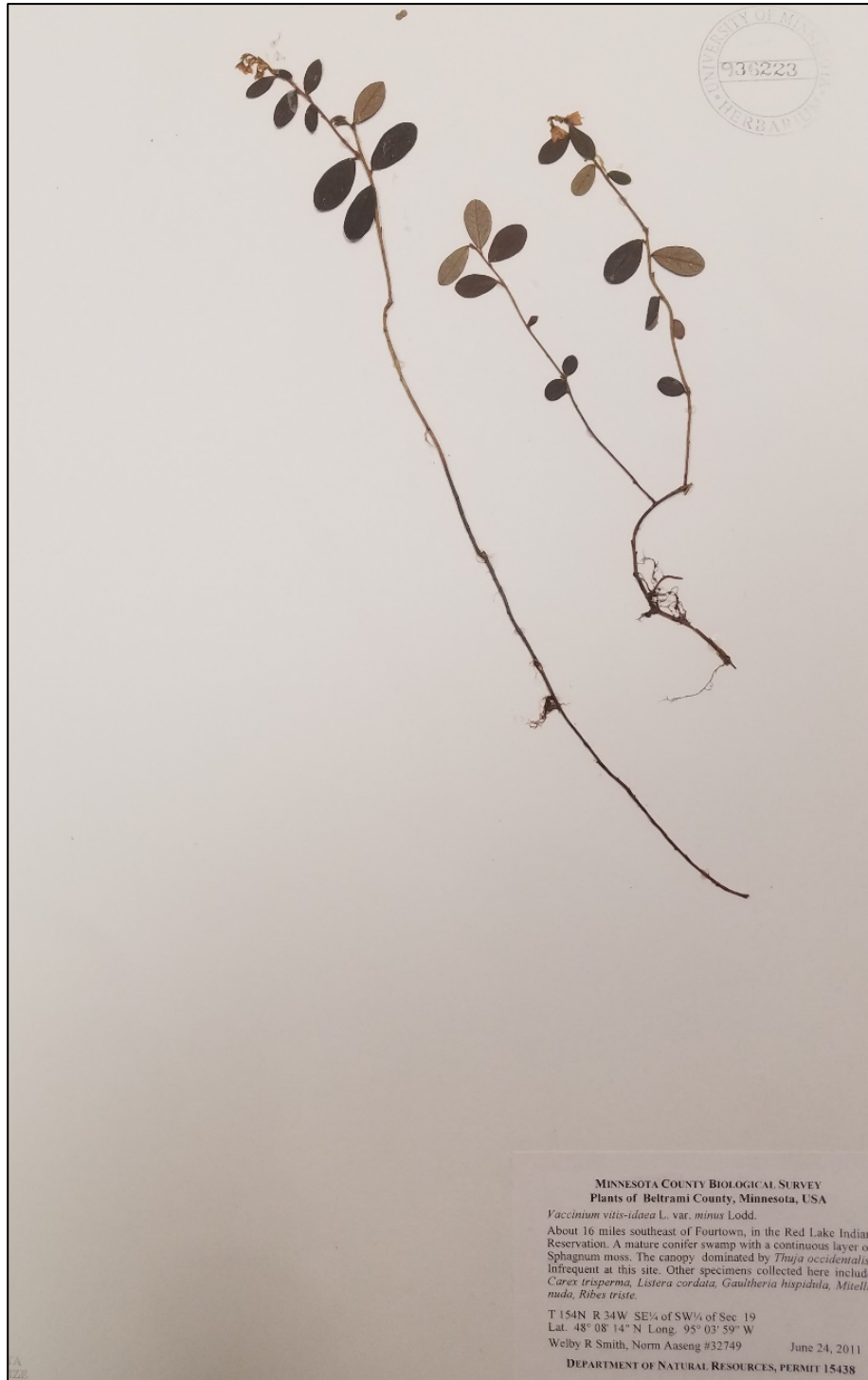
University of Minnesota Herbarium Accession 931550: Superior National Forest, Lake County, MN. 10.52 miles N of Isabella, MN and 0.48 miles S of Brush Lake. Ecotone between upland *Picea mariana* forest and poor *Picea mariana* swamp with *Cornus canadensis*, *Gaultheria hispidula*, *Anemone quinquefolia*, *Goodyera tessellata*, *Pyrola chlorantha*, etc. Local area of fewer shrubs and forbs. T61N R08 S17NENWSENE. 47°46'7" N 91°21'56" W. Collected July 29, 2011.



University of Minnesota Herbarium Accession 932686: Chippewa National Forest, Cass County, MN. On the edge of an extensive peatland complex east of the Soo Line Trail. 2.5 miles east-southeast of the town of Boy River. Frequent in rich cedar swamp dominated by fairly dense canopy of *Thuja occidentalis* and *Picea mariana*. Continuous *Sphagnum* spp. and feathermoss carpets. Moist peat. No fruiting plants observed here. Associates include *Ledum groenlandicum*, *Vaccinium oxycoccos*, *Gaultheria hispidula*, *Linnaea borealis*, *Malaxis unifolia*, *Cypripedium reginae*, *Amerorchis rotundifolia*, *Platanthera orbiculata*, *P. obtusata*, *P. aquilonis*, *Rubus pubescens*, *Mitella nuda*, *Smilacina trifolia*. Also common with fruiting plants, in adjacent poor black spruce swamp. T 143N R 27W SW ¼ of NW ¼ of SW ¼ Sec 35 NE ¼ of SE ¼ Sec 34. UTM: 5223147N 418718E, 5223148N 418821W. Collected August 21, 2008.



University of Minnesota Herbarium Accession 936171: Koochiching County, MN. About 20 miles SE of Big Falls along Holmstrom Forest Road. In a black spruce swamp with a deep carpet of Sphagnum moss. Other species collected here include *Eriophorum vaginatum*, *Carex buxbaumii*, *C. magellanica* spp. *irrigua*, *C. pauciflora*. T 63N R 25W NE ¼ of Sec 13. Latitude 47°57'02" N Longitude: 93°28' 10" W. Collected June 15, 2011.



University of Minnesota Herbarium Accession 936223: Beltrami County, MN. 16 miles SE of Fourtown in Red Lake Indian Reservation. A mature conifer swamp with a continuous layer of Sphagnum moss. The canopy dominated by *Thuja occidentalis*. Infrequent at this site. Other specimens collected here include *Carex trisperma*, *Listera cordata*, *Gaultheria hispida*, *Mitella nuda*, *Rubrex trieste*. T 154N R 34 W SE ¼ of SW ¼ of Sec 19. Latitude 48° 08' 14" N Longitude: 95° 03' 59" W. Collected June 24, 2011. **DNA failed to amplify.**