

Travel to Wolfville and Kentville, Nova Scotia, Canada, to collect *Vaccinium* and Related Ericaceae for USDA Plant Exploration Grant 2012



Acadia University, Wolfville, Nova Scotia



AAFC Kentville, Nova Scotia

Kim Hummer, Research Leader

USDA ARS National Clonal Germplasm Repository, Corvallis, Oregon

Location and Dates of Travel

Wolfville and Kentville, Nova Scotia, Canada

15 July through 20 July 2012

Objectives:

To obtain cuttings/ propagules of the *Vaccinium* collections of Dr. Sam Vander Kloet, Professor Emeritus at Acadia University, Kentville, Nova Scotia.

Executive Summary

During 15 through 20 July 2012, I traveled to Nova Scotia to obtain plant material that Dr. Sam Vander Kloet, Emeritus Professor at Acadia University had obtained during his life.

Acadia University Conservatory, Wolfville, had about 100 accessions of subtropical *Vaccinium*

(blueberry) and related genera. Agriculture and Agri-Food Canada had about 90 accessions of

native North American *Vaccinium* in their field collections. On Monday 16 July through

Wednesday 18 July 2012, I worked at the Herbarium and Conservatory of Acadia University

working with Ruth Newell, the Curator. From Wednesday afternoon through Thursday, I

worked with Dr. Andrew Jamieson, Small fruit Breeder and Geneticist, Agriculture and Agri-

Food Canada. I obtained a total of 654 root and stem cuttings of the following genera:

Cavendishia (62), *Ceratostemma* (7), *Costera* (1), *Diogenesia* (9), *Disterigma* (10), *Macleania*

(25), *Pernettya* (13), *Psammisia* (7), *Spyrospermum* (7), and *Vaccinium* (513). I also obtained

two accessions of seed including *Vaccinium boreale* (1000 count) and *Fragaria vesca* subsp.

alba (2000 count). I obtained a Canadian phytosanitary certificate and had USDA APHIS permits

and letters to bring in the *Vaccinium* and permissible nurserystock. The plant material was sent to

USDA APHIS in Beltsville, Maryland for inspection. Unfortunately the US regulations for

importation of *Vaccinium* changed since I obtained my original import permits. *Vaccinium* from

Canada now requires certification against Blueberry scorch virus. Because these cuttings were

collected from uncertified plants I requested a PDEP permit to obtain the cuttings from

Beltsville, where they were being held. After discussion between APHIS in Riverdale, Maryland,

and Portland, Oregon, and the Oregon Department of Agriculture, I was granted the permit in

November 2012. We were then able to being the propagation of the cuttings. Unfortunately, 23 of the 78 subtropical accessions of the *Vaccinium* crop wild relatives expired in storage. Additional cuttings were obtained from AAFC to replace unsuccessful propagations from 2011. The plant materials that have survived are in propagation for inclusion to the USDA ARS National Clonal Germplasm Repository *Vaccinium* collection in Corvallis, Oregon. The information on this plant material has been uploaded to GRIN. Plant material will be directly available to the US National Plant Germplasm System requestors without any material transfer agreement after the plant material has been released from quarantine and successfully propagated.

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Accomplishments:

Plant Materials were obtained from the subtropical collections originally obtained by Dr. Sam Vander Kloet, from Ruth Newell, Curator, Acadia University (Table 1). These plants had been kept in the Acadia University Conservatory but were residing in containers outside for the summer, from which cuttings were taken. Additional cuttings of the Vander Kloet North American Collections, were obtained from the Agriculture and Agri-Food Canada, Kentville Research Farm, from Dr. Andrew Jamieson (Table 2).

This plant material could substantially expand the gene pool open to blueberry breeders. The subtropical plant material has low chilling requirements and could be applied to cultivation of blueberries in warmer climates. Many of the *Vaccinium* crop wild relatives have beautiful medium to large flowers and could be propagated for ornamental purposes.

Travel costs totaled: \$4,677.75 (Table 3).

Table 1. Subtropical *Vaccinium* Crop Wild Relatives obtained from the Acadia University on 16 and 17 July 2012. These are Coded in GRIN as Accession Group = CAN.US.EXCHANGE 2012. PI numbers have been requested.

IVP	IVNO	IVS	IVT	STATUS	ONHAND	LOC1	STATE	COUNTRY	TAXON	PLANTID
CVAC	1911	0	SD	AVAIL	525	freezer	Prince Edward Island	Canada	<i>Vaccinium boreale</i>	V. boreale PEI 2011
CVAC	1911	0.001	PL	PROP	0	G02-05	Prince Edward Island	Canada	<i>Vaccinium boreale</i>	V. boreale PEI 2011
CVAC	2008	0.001	PL	PROP	2	G01-		Uncertain	<i>Macleania salapa</i>	<i>Macleania salapa</i> 731301
CVAC	2009	0.001	PL	QUAR	2	G04-		Nepal	<i>Vaccinium retusum</i>	V. retusum 2261092
CVAC	2010	0.001	PL	QUAR	2	G04-		Malaysia	<i>Vaccinium loranthifolium</i>	V. loranthifolium 215401
CVAC	2011	0.001	PL	DEAD	0	none		South Africa	<i>Vaccinium exul</i>	V. exule 313202
CVAC	2012	0.001	PL	DEAD	0	none	Nova Scotia	Canada	<i>Psammisia</i> spp.	<i>Psammisia</i> sp. 31390
CVAC	2013	0.001	PL	DEAD	0	none	Nova Scotia	Canada	<i>Vaccinium arboreum</i>	V. arboreum 581185
CVAC	2014	0.001	PL	QUAR	5	G04-	Buka	Papua New Guinea	<i>Vaccinium horizontale</i>	V. horizontale 530775
CVAC	2015	0.001	PL	QUAR	5	G04-	Nova Scotia	Canada	<i>Vaccinium hybr.</i>	V. meridionale x V. consanguineum X225591
CVAC	2016	0.001	PL	DEAD	0	none		Costa Rica	<i>Cavendishia</i> spp.	<i>Cavendishia</i> sp. Tapanti Costa Rica 1990
CVAC	2017	0.001	PL	QUAR	2	G04-		Vietnam	<i>Vaccinium chunii</i>	V. chunii 3271197
CVAC	2018	0.001	PL	QUAR	2	G04-	Pichincha	Ecuador	<i>Macleania pentaptera</i>	<i>Macleania pentaptera</i> JL 8026
CVAC	2019	0.001	PL	QUAR	2	G04-		Papua New Guinea	<i>Vaccinium acrobacteatum</i>	V. acrobacteatum 86875

CVAC	2020	0.001	PL	QUAR	2	G04-	Java	Indonesia	Vaccinium varingifolium	V. varingifolium HS89-4
CVAC	2021	0.001	PL	QUAR	2	G04-		Ecuador	Macleania ericae	Macleania ericaeJL 8026
CVAC	2022	0.001	PL	PROP	2	G01-		Costa Rica	Symphysia poasana	Symphysia poasannum 1313686
CVAC	2023	0.001	PL	PROP	2	G01-		Costa Rica	Symphysia poasana	Symphysia poasana 1313686
CVAC	2024	0.001	PL	QUAR	2	G04-		Vietnam	Vaccinium chunii	V. chunii 3271197
CVAC	2025	0.001	PL	PROP	2	G01-		Costa Rica	Symphysia poasana	Symphysia poasana 139
CVAC	2026	0.001	PL	PROP	2	G01-		Costa Rica	Cavendishia spp.	Cavendishia sp. MZ 90
CVAC	2027	0.001	PL	PROP	2	G01-		Costa Rica	Cavendishia spp.	Cavendishia sp. lrg lvs 1990
CVAC	2028	0.001	PL	QUAR	2	G04-		Papua New Guinea	Vaccinium auriculifolium	V. auriculifolium Black 239
CVAC	2029	0.001	PL	QUAR	2	G04-		Papua New Guinea	Vaccinium auriculifolium	V. auriculifolium Black 239
CVAC	2030	0.001	PL	QUAR	2	G04-		Vietnam	Vaccinium tonkinense	V. tonkinense 1271197
CVAC	2031	0.001	PL	DEAD	0	none		Costa Rica	Vaccinium consanguineum	V. consanguineum 714686
CVAC	2032	0.001	PL	QUAR	2	G04-		United States	Vaccinium ovatum	V. ovatum 8131181
CVAC	2033	0.001	PL	QUAR	2	G04-		Vietnam	Agapetes rubrobracteata	V. chapaense 6131197
CVAC	2034	0.001	PL	DEAD	0	none		Vietnam	Vaccinium hiepii	V. hiepii
CVAC	2035	0.001	PL	PROP	2	G01-		Costa Rica	Cavendishia spp.	Cavendishia sp. 614686
CVAC	2036	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium arboreum	V. arboreum 18385
CVAC	2037	0.001	PL	PROP	2	G01-		Costa Rica	Pernettya spp.	Pernettya sp. Costa Rica
CVAC	2038	0.001	PL	QUAR	2	G04-	North Carolina	United States	Vaccinium crassifolium	V. crassifolium NC 9-1

CVAC	2039	0.001	PL	QUAR	2	G04-	Azores	Portugal	Vaccinium cylindraceum	V. cylindraceum 234
CVAC	2040	0.001	PL	QUAR	2	G04-		Costa Rica	Vaccinium consanguineum	V. consanguineum 413686
CVAC	2041	0.001	PL	QUAR	2	G04-	Azores	Portugal	Vaccinium cylindraceum	V. cylindraceum 4271097
CVAC	2042	0.001	PL	QUAR	2	G04-		United States	Vaccinium corymbosum	V. corymbosum 916579
CVAC	2043	0.001	PL	DEAD	0	none		Vietnam	Vaccinium gaultheriifolium	V. gaultheriifolium 204
CVAC	2044	0.001	PL	PROP	2	G01-		Panama	Macleania salapa	Macleania salapa JL 5657
CVAC	2045	0.001	PL	PROP	2	G01-	Nova Scotia	Canada	Macleania spp.	Macleania ericaea x rupestris
CVAC	2046	0.001	PL	DEAD	0	none	Luzon	Philippines	Vaccinium myrtoides	V. myrtoides 1171092
CVAC	2047	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Disterigma spp.	Disterigma tetramera
CVAC	2048	0.001	PL	QUAR	2	G04-		Colombia	Vaccinium floribundum	V. floribundum 14036
CVAC	2049	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Sphyrropermum cordifolium	Sphyrropermum sp.
CVAC	2050	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium hybr.	V. calycinum x V. reticulatum
CVAC	2051	0.001	PL	QUAR	2	G04-		South Africa	Vaccinium exul	V. exul 113202
CVAC	2052	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Pernettya spp.	Pernettya sp.
CVAC	2053	0.001	PL	QUAR	2	G04-		Colombia	Vaccinium floribundum	V. floribundum 14036 Colombia
CVAC	2054	0.001	PL	QUAR	2	G04-		South Africa	Vaccinium exul	V. exul 313202
CVAC	2055	0.001	PL	QUAR	2	G04-		Indonesia	Vaccinium varingifolium	V. varingifolium HS3200 Java
CVAC	2056	0.001	PL	QUAR	2	G04-		French Polynesia	Vaccinium cereum	V. cereum 114992

CVAC	2057	0.001	PL	PROP	2	G01-		Netherlands	Cavendishia spp.	Cavendishia sp. AUV.00103
CVAC	2058	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Macleania salapa	Ceratostema sp.
CVAC	2059	0.001	PL	QUAR	2	G04-		Philippines	Vaccinium myrtoides	V. myrtoides 1171092
CVAC	2060	0.001	PL	DEAD	0	none		Malaysia	Vaccinium loranthifolium	V. loranthifolium 13IV01
CVAC	2061	0.001	PL	QUAR	2	G04-		French Polynesia	Vaccinium calycinum	V. calycinum AUV.00251
CVAC	2062	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Sphyrospermum cordifolium	Sphyrospermum
CVAC	2063	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium hybr.	Costera
CVAC	2064	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Disterigma spp.	Disterigma rimbach
CVAC	2065	0.001	PL	PROP	2	G01-	Pichincha	Ecuador	Cavendishia grandifolia	Cavendishia grandifolia JL 8023
CVAC	2066	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium hybr.	Diogenesia amplectens
CVAC	2068	0.001	PL	QUAR	2	G04-		Vietnam	Vaccinium gaultheriifolium	V. gaultheriifolium 1231197
CVAC	2069	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium darrowii	V. darrowii ABS817
CVAC	2070	0.001	PL	PROP	2	G01-	Nova Scotia	Canada	Cavendishia spp.	Cavendishia UC 58
CVAC	2071	0.001	PL	QUAR	2	G04-	Florida	United States	Vaccinium fuscatum	V. fuscatum ABS-7
CVAC	2072	0.001	PL	QUAR	2	G04-	Nova Scotia	Canada	Vaccinium vitis-idaea	V. vitis-idaea 3221108
CVAC	2073	0.001	PL	QUAR	2	G04-	Nova Scotia	Canada	Vaccinium hybr.	V. varingifolium x myrtoides
CVAC	2074	0.001	PL	QUAR	2	G04-	Nova Scotia	Canada	Vaccinium meridionale	V. meridionale x exul
CVAC	2075	0.001	PL	DEAD	0	none	Nova Scotia	Canada	Vaccinium fragile	V. fragile 228796
CVAC	2076	0.001	PL	QUAR	2	G04-			Vaccinium hybr.	V. hybr. 21390
CVAC	2077	0.001	PL	QUAR	2	G04-	Buka	Papua New Guinea	Vaccinium horizontale	V. horizontale 530775

CVAC	2078	0.001	PL	QUAR	2	G04-	Nova Scotia	Canada	Vaccinium hybr.	V. angustifolium x myrsinites x hirsutum
CVAC	2079	0.001	PL	QUAR	2	G04-	Georgia?	United States	Vaccinium hirsutum	V. hirsutum (Sheffield Farm)
CVAC	2080	0.001	PL	QUAR	2	G04-	Nova Scotia	Canada	Vaccinium angustifolium	K80-27 (V. angustifolium white-pink fruit)

Table 2. *Vaccinium* collected by Dr. Sam Vander Kloet from North American locations. Plant materials were originally obtained from Agriculture and Agri-Food Canada, Kentville, Nova Scotia in July 2011. Additional cuttings were taken from the same plants in July 2012, as replacements for cuttings with unsuccessful propagations. These are listed as “QUAR” = quarantine. They can be released if they test negative for Blueberry scorch virus. Virus testing will be performed during summer 2013 in Corvallis, Oregon.

IVP	IVNO	IVS	IVT	STATUS	AMT	LOC1	STATE	COUNTRY	TAXON	PLANTID
CVAC	1881	0.001	PL	PROP	10	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Yarmouth
CVAC	1882	0.001	PL	PROP	10	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Byron Bog Ont
CVAC	1883	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Westport Bog Ont
CVAC	1884	0.001	PL	PROP	5	G04-	Quebec	Canada	Vaccinium corymbosum	V. corymbosum Farnham, P.Q.
CVAC	1884	0.002	PL	QUAR	5	G04-	Quebec	Canada	Vaccinium corymbosum	V. corymbosum Farnham, P.Q.
CVAC	1885	0.001	PL	PROP	5	G02-05	South Carolina	US	Vaccinium corymbosum	V. corymbosum Sumter SC
CVAC	1886	0.001	PL	PROP	5	G02-05	Maine	US	Vaccinium corymbosum	V. corymbosum Cumberland Me
CVAC	1887	0.001	PL	PROP	5	G02-05	New York	US	Vaccinium corymbosum	V. corymbosum Oneida NY
CVAC	1888	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Wellington Ont

CVAC	1889	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Jaffa Ont
CVAC	1890	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Crow Lake ont
CVAC	1890	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Crow Lake ont
CVAC	1891	0.001	PL	PROP	5	G02-05	Maine	US	Vaccinium corymbosum	V. corymbosum York Me
CVAC	1892	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Byron Bog Ont
CVAC	1893	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Snelgrove Ont
CVAC	1894	0.001	PL	PROP	5	G02-05	Georgia	US	Vaccinium corymbosum	V. corymbosum Lumpkin, Georgia
CVAC	1895	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Morton Ont
CVAC	1896	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium corymbosum	V. corymbosum Ile Pero
CVAC	1897	0.001	PL	PROP	5	G02-05	New Hampshire	US	Vaccinium corymbosum	V. corymbosum Lee NH
CVAC	1898	0.001	PL	PROP	5	G02-05	New Hampshire	US	Vaccinium corymbosum	V. corymbosum Strafford NH
CVAC	1899	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Deep Gap NC
CVAC	1900	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather NC VanderKloet
CVAC	1900	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather NC VanderKloet
CVAC	1901	0	SD	PROP	7200	G04-	New Brunswick	Canada	Vaccinium myrtilloides	V. corymbosum St. John NB
CVAC	1901	0.001	PL	PROP	5	G02-05	New Brunswick	Canada	Vaccinium myrtilloides	V. corymbosum St. John NB
CVAC	1901	0.002	PL	QUAR	5	G04-	New Brunswick	Canada	Vaccinium myrtilloides	V. corymbosum St. John NB

							Brunswick			
CVAC	1902	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1902	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1903	0	SD	AVAIL	3700		Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1903	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1903	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1904	0.001	PL	PROP	5	G02-05	New York	US	Vaccinium angustifolium	V. angustifolium Oneida NY
CVAC	1904	0.002	PL	QUAR	5	G04-	New York	US	Vaccinium angustifolium	V. angustifolium Oneida NY
CVAC	1905	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Kings NS
CVAC	1905	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Kings NS
CVAC	1906	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Kaladar Ont
CVAC	1906	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Kaladar Ont
CVAC	1907	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Degelis PQ
CVAC	1907	0.002	PL	QUAR	5	G04-	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Degelis PQ
CVAC	1908	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Villeroy PQ
CVAC	1908	0.002	PL	QUAR	5	G04-	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Villeroy PQ
CVAC	1909	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Victoria NS

CVAC	1909	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Victoria NS
CVAC	1910	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Lake Opinicon Ont
CVAC	1910	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Lake Opinicon Ont
CVAC	1911	0	SD	AVAIL	525	freezer	Prince Edward Island	Canada	Vaccinium boreale	V. boreale PEI 2011
CVAC	1911	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium boreale	V. boreale PEI 2011
CVAC	1912	0.001	PL	PROP	5	G02-05	Virginia	US	Vaccinium pallidum	V. pallidum Lorne VA
CVAC	1913	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium angustifolium	V. angustifolium St. Pacoma PQ
CVAC	1913	0.002	PL	QUAR	5	G04-	Quebec	Canada	Vaccinium angustifolium	V. angustifolium St. Pacoma PQ
CVAC	1914	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Dunders Mate Ont
CVAC	1915	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium pallidum	V. pallidum High Park Toronto
CVAC	1915	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium pallidum	V. pallidum High Park Toronto
CVAC	1916	0.001	PL	PROP	5	G02-05	New Brunswick	Canada	Vaccinium angustifolium	V. angustifolium Charlotte NB
CVAC	1917	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Portuguese Cove NS
CVAC	1917	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Portuguese Cove NS
CVAC	1918	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium boreale	V. boreale
CVAC	1919	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Cape Smoky NS
CVAC	1920	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium boreale	V. boreale 10.45

CVAC	1921	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium boreale	V. boreale 11.01
CVAC	1922	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium boreale	V. boreale 11.02
CVAC	1923	0.001	PL	PROP	5	G02-05	New Hampshire	US	Vaccinium pallidum	V. pallidum Strafford NH
CVAC	1923	0.002	PL	QUAR	5	G04-	New Hampshire	US	Vaccinium pallidum	V. pallidum Strafford NH
CVAC	1924	0.001	PL	PROP	5	G02-05	New Brunswick	Canada	Vaccinium angustifolium	V. angustifolium Campobella Island NB
CVAC	1924	0.002	PL	QUAR	5	G04-	New Brunswick	Canada	Vaccinium angustifolium	V. angustifolium Campobella Island NB
CVAC	1925	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1926	0.001	PL	PROP	5	G02-05	Prince Edward Island	Canada	Vaccinium angustifolium	V. angustifolium North River PEI
CVAC	1926	0.002	PL	QUAR	5	G04-	Prince Edward Island	Canada	Vaccinium angustifolium	V. angustifolium North River PEI
CVAC	1927	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium port Franks ont
CVAC	1928	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Leeds Ont
CVAC	1928	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Leeds Ont
CVAC	1929	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1929	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Pictou NS
CVAC	1930	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum (constablaei) Avery NC

CVAC	1930	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum (constablaei) Avery NC
CVAC	1931	0.001	PL	PROP	5	G02-05	New Hampshire	US	Vaccinium pallidum	V. pallidum Strafford NH
CVAC	1932	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Lake Bevans PQ
CVAC	1932	0.002	PL	QUAR	5	G04-	Quebec	Canada	Vaccinium angustifolium	V. angustifolium Lake Bevans PQ
CVAC	1933	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Westbranch NS
CVAC	1934	0.001	PL	PROP	5	G02-05	British Columbia	Canada	Vaccinium angustifolium	V. angustifolium Eagle Pass BC
CVAC	1934	0.002	PL	QUAR	5	G04-	British Columbia	Canada	Vaccinium angustifolium	V. angustifolium Eagle Pass BC
CVAC	1935	0.001	PL	PROP	5	G02-05	Newfoundland	Canada	Vaccinium angustifolium	V. angustifolium Cape Spear NF
CVAC	1935	0.002	PL	QUAR	5	G04-	Newfoundland	Canada	Vaccinium angustifolium	V. angustifolium Cape Spear NF
CVAC	1936	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium angustifolium	V. angustifolium Rock Dunder Ont
CVAC	1937	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium pallidum	V. pallidum Turkey Pt. Ont
CVAC	1937	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium pallidum	V. pallidum Turkey Pt. Ont
CVAC	1938	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium DAR Wolfville NS
CVAC	1938	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium DAR Wolfville NS
CVAC	1939	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Westbranch NS
CVAC	1939	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Westbranch NS
CVAC	1940	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium pallidum	V. pallidum Turkey Pt. Ont

CVAC	1941	0.001	PL	PROP	5	G02-05	Maine	US	Vaccinium angustifolium	V. angustifolium Jonesboro Me
CVAC	1941	0.002	PL	QUAR	5	G04-	Maine	US	Vaccinium angustifolium	V. angustifolium Jonesboro Me
CVAC	1942	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Halifax NS
CVAC	1942	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Halifax NS
CVAC	1943	0.001	PL	PROP	5	G02-05	New York	US	Vaccinium angustifolium	V. angustifolium Saranac Lake NY
CVAC	1943	0.002	PL	QUAR	5	G04-	New York	US	Vaccinium angustifolium	V. angustifolium Saranac Lake NY
CVAC	1944	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Coldbrook NS
CVAC	1944	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Coldbrook NS
CVAC	1945	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Richmond NS
CVAC	1945	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium angustifolium	V. angustifolium Richmond NS
CVAC	1946	0.001	PL	PROP	5	G02-05	New York	US	Vaccinium angustifolium	V. angustifolium Sevey NY
CVAC	1946	0.002	PL	QUAR	5	G04-	New York	US	Vaccinium angustifolium	V. angustifolium Sevey NY
CVAC	1947	0.001	PL	PROP	5	G02-05	Virginia	US	Vaccinium angustifolium	V. angustifolium Emporia VA
CVAC	1948	0.001	PL	PROP	5	G02-05	Delaware	US	Vaccinium angustifolium	V. angustifolium Newark DE
CVAC	1949	0.001	PL	PROP	5	G02-05	Massachusetts	US	Vaccinium angustifolium	V. angustifolium MA-Conn State Line

CVAC	1949	0.002	PL	QUAR	5	G04-	Massachusetts	US	Vaccinium angustifolium	V. angustifolium MA-Conn State Line
CVAC	1950	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather MT NC
CVAC	1950	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather MT NC
CVAC	1951	0.001	PL	PROP	5	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Herbert Bog Ont
CVAC	1951	0.002	PL	QUAR	5	G04-	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Herbert Bog Ont
CVAC	1952	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Lake George NS
CVAC	1953	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Leap Frog Lake NS
CVAC	1953	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Leap Frog Lake NS
CVAC	1954	0.001	PL	PROP	5	G02-05	New Hampshire	US	Vaccinium corymbosum	V. corymbosum Lee NH
CVAC	1954	0.002	PL	QUAR	5	G04-	New Hampshire	US	Vaccinium corymbosum	V. corymbosum Lee NH
CVAC	1955	0.001	PL	PROP	5	G02-05	Maine	US	Vaccinium corymbosum	V. corymbosum Kennebunk Me
CVAC	1956	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Blowing Rock NC
CVAC	1956	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum Blowing Rock NC
CVAC	1957	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt NC
CVAC	1957	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt NC

CVAC	1958	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt. NC
CVAC	1959	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt. NC
CVAC	1960	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt. NC
CVAC	1961	0.001	PL	PROP	5	G02-05	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt. NC
CVAC	1961	0.002	PL	QUAR	5	G04-	North Carolina	US	Vaccinium corymbosum	V. corymbosum Grandfather Mt. NC
CVAC	1962	0.001	PL	PROP	5	G02-05	Quebec	Canada	Vaccinium corymbosum	V. corymbosum Granby PQ
CVAC	1963	0.001	PL	PROP	5	G02-05	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Leap Frog Lake NS
CVAC	1963	0.002	PL	QUAR	5	G04-	Nova Scotia	Canada	Vaccinium corymbosum	V. corymbosum Leap Frog Lake NS
CVAC	1964	0	SD	AVAIL	2355	freezer	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Herbert Bog
CVAC	1964	0.001	PL	PROP	10	G02-05	Ontario	Canada	Vaccinium corymbosum	V. corymbosum Herbert Bog

Table 3. Travel costs: Corvallis, Oregon, to Nova Scotia, Canada 15 – 20 July 2012.

Airfare	2,713.32
Hotel Tax	92.01
Lodging	590.66
M&IE	649.00
Mileage	41.40
Other	73.97
Rental Car	443.82
TAV Fees	19.35
Transport	54.22
Total	US\$4,677.75