



Heritage plants at former homesteads in the Queets Valley, Olympic National Park

Natural Resource Data Series NPS/OLYM/NRDS—2015/968



ON THE COVER

Apple trees, Streater field (#20), 2010

Photograph by: M. Tetreau

Heritage plants at former homesteads in the Queets Valley, Olympic National Park

Natural Resource Data Series NPS/OLYM/NRDS—2015/968

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Introduction

Stewardship of cultural resources is one of the core responsibilities of the National Park Service (NPS 2006). The cultural resources under the care of the NPS include biological entities such as plant communities and individual plants (NPS 1998). Individuals or groups of trees or other plants of economic or ornamental value during an historic period may constitute “biotic cultural resources” (NPS 1998, 2006). Historic orchards or individual fruit trees are examples of resources that may have value for preservation of genetic diversity and/or landscape features. The NPS has a capability to preserve such resources not available to other land managers (Dolan 2009), whether through management on site or propagation and maintenance elsewhere (NPS 2006).

Euroamerican settlement of the Queets Valley, now mostly within Olympic National Park, commenced in 1890 (Evans 1983). At the height of settlement, there were approximately 64 homesteads along many miles of the lower river (Williams 1975, Evans 1983). The homesteaders cleared land for subsistence farming and for livestock pasture (Williams 1975). For subsistence, the homesteaders grew vegetables and planted fruit trees. The community was active for approximately 50 years until President Franklin Roosevelt added the Queets river valley to Olympic National Park in 1940, an action that included the condemnation of many homestead properties. Settlers were relocated and by 1953 all of the homesteads had been vacated (Williams, 1975, Evans 1983).

The purpose of this report is to document the identity, location, and condition of culturally-significant plants in the former homesteads in the Queets valley which are legacies of the homesteading era (“heritage plants”). This work was carried out in conjunction with an inventory of invasive, exotic plants in the homesteads and the surrounding watershed (Acker et al. 2014).

Methods

Selection of homesteads for investigation

We made use of aerial photography and other geographic data to identify the persistent clearings associated with the former homesteads. The first step was to convert the maps from the only prior inventory of the homesteads (Williams 1975) into a data layer within GIS. Williams (1975) produced maps and calculated the approximate acreage of all 43 of the extant clearings using 1973 orthophoto maps and a dot grid. We rendered Williams' field boundaries in GIS using landmarks (mostly trees and water features) that were visible in Williams' sketch maps and oblique aerial photographs. The most current aerial photographs at the beginning of this study were from 2006. We used these photographs to establish current conditions as the basis for field sampling.

We selected for field observation all 19 fields determined to occupy an opening of at least one acre in 2006 (Figure 1). We established this lower limit as a consequence of the focus on invasive, exotic plants. We judged that openings smaller than one acre have a high probability of colonization by native tree species, and so are unlikely to require action to control invasive plants.

Information collected on heritage plants

We carried out field observations in 2009, 2010, and 2013, during the months of July and August. We recorded information on the heritage plants using a Thales Mobile Mapper GPS receiver and datalogger with a customized data dictionary, with positional data collected in post-processing mode. Points were occupied for a minimum of three minutes. Items recorded included category of plant, the identifying number for the former homestead from Williams (1975), and whether or not photographs were taken. Categories of plants in the data dictionary included fruit tree (or, if identifiable, apple, cherry, or pear tree), ornamental conifer, ornamental rose, daffodil, iris, or other. For fruit trees, a numbered tag was attached to the tree and the number was recorded using the data dictionary. In addition, diameter at breast height (dbh) and the crown form (vigorous or senescent) were recorded.

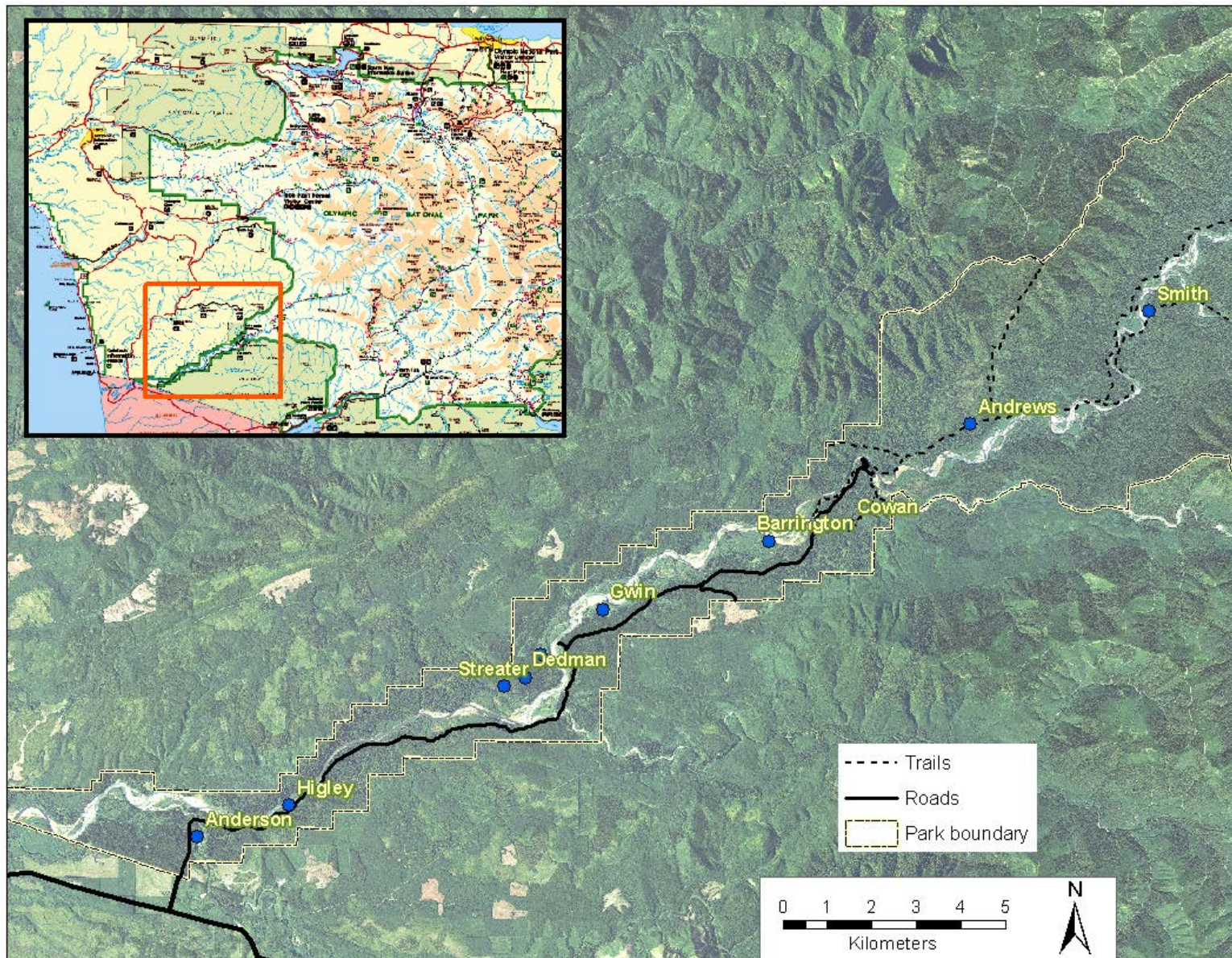


Figure 1. Locations of former homesteads containing heritage plants in the Queets valley, Olympic National Park.

Results and Discussion

We observed a total of 56 individual heritage plants, representing at least 11 species (Table 1). The one individual we were unable to identify was a fruit tree, possibly of the genus *Prunus* (i.e., either a cherry or a plum). Apple trees (including crabapple) accounted for more than half of the observed stems; fruit trees as a group accounted for almost 90% of the heritage plants (Table 1). More than half (56%) of the fruit trees observed had no visible fruit (see Appendix 1), making field identification questionable. Positive species identification for those trees will require future work to collect material for more detailed examination.

Table 1. Number of heritage plants observed by species.

Species	Number of stems
Apple (<i>Malus</i> sp.)	33
Boxwood (<i>Buxus sempervirens</i>)	1
Cherry (<i>Prunus</i> sp.)	8
Hops (<i>Humulus lupulus</i>)	1
Ornamental rose bush (<i>Rosa</i> sp.)	1
Pear (<i>Pyrus communis</i>)	2
Plum (<i>Prunus</i> sp.)	6
Quince (<i>Cydonia oblonga</i>)	1
Redwood (<i>Sequoia sempervirens</i>)	1
Unknown	1
Walnut (<i>Juglans regia</i>)	1
Total	56

We observed heritage plants in 10 of the 19 fields included in the study (Table 2). Heritage plants occurred over most of the length of river we studied, inasmuch as Anderson homestead was near the downstream end and Smith was the farthest upstream of the homesteads with openings of at least an acre (Figure 1; Acker et al. 2014). Most of the heritage plants were found in homesteads within the Queets corridor (i.e., downstream of the end of the Queets road). These included homesteads both north (both Streater homesteads, Dedman homestead), and south (Higley, Gwin, Barrington, and Cowan homesteads) of the river (Table 2). We noted no progeny of the heritage plants within any of the homestead openings and did not encounter any recruits in the surrounding vegetation on our travels to and from the homesteads.

Table 2. Number of heritage plants observed by homestead location.

Field name	Reference number	Number of stems
Anderson	6	3
Higley	10	11
Streater	17	1
Dedman	19	9
Streater	20	8
Gwin	21	8
Barrington	23	5
Cowan	29	7
Andrews	34	2
Smith	39	2

Overall, the 50 fruit trees we observed were evenly split between those with senescent crowns and those with evidently vigorous crowns. For the pomes (apples and pears), just over half the trees had vigorous crowns (18 out of 35). For the stone fruits (cherries and plums), just under half the trees had vigorous crowns (six out of 14). The fruit trees ranged in dbh from 7 to 63 cm, though most were ≤ 30 cm (Figure 2). Median dbh was similar for pomes and stone fruits (17.5 cm and 16 cm, respectively). Nearly all of the fruit trees with dbh > 30 cm were pomes, the exception being the one fruit tree we could not identify to species.

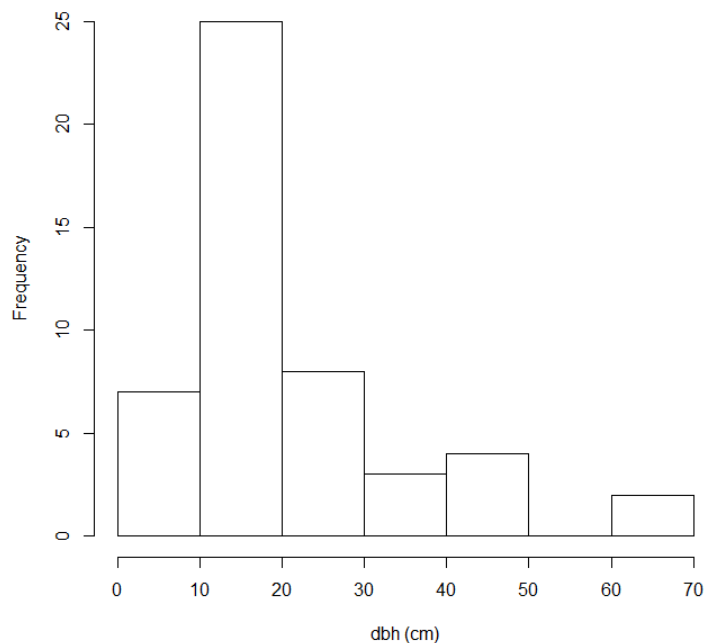


Figure 2. Frequency distribution by dbh of fruit trees observed at former homestead locations.

The information we have gathered can serve as the foundation for additional study and management of heritage plants associated with the homesteading era in the Queets valley. We have established the existence, location, and approximate identity of these plants. Additional work such as propagation through off-site grafting or biochemical analysis would be required to identify the particular varieties represented by the heritage plants. Such specificity may be necessary to evaluate their historical, cultural, or economic significance. While some of the plants appear to be thriving, others show signs of decline and may not persist much longer in their original locations, so time may be of the essence.

Literature Cited

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Appendix 1. Tabular information for heritage plants

Field Name	Reference Number	Species	Tag Number	DBH (cm)	Date Surveyed	Crown Form	Notes
Anderson	6	Cherry	177	20	8/15/2013	senescent	no visible fruit
Anderson	6	Cherry	178	27	8/15/2013	vigorous	no visible fruit
Anderson	6	Apple	179	16	8/15/2013	senescent	no visible fruit
Higley	10	Boxwood	n/a	n/a	8/12/2013	vigorous	possibly on former house site
Higley	10	Ornamental rose	n/a	n/a	8/12/2013	vigorous	white flowers
Higley	10	Plum	161	17	8/12/2013	vigorous	visible fruit
Higley	10	Plum	162	16	8/12/2013	senescent	no visible fruit
Higley	10	Plum	163	16	8/12/2013	senescent	no visible fruit
Higley	10	Plum	164	15	8/12/2013	vigorous	visible fruit
Higley	10	Plum	165	17	8/12/2013	vigorous	visible fruit
Higley	10	Plum	166	13	8/12/2013	vigorous	visible fruit
Higley	10	Pear	167	41	8/12/2013	vigorous	visible fruit
Higley	10	Redwood	168	203	8/12/2013	vigorous	big tree
Higley	10	Walnut	169	81	8/12/2013	vigorous	no visible fruit
Streater	17	Apple	240	17	8/11/2010	senescent	no visible fruit
Dedman	19	Cherry	231	30	8/11/2010	senescent	no visible fruit, 20-25 m tall; large, sprawling tree; three main boles having the following diameters: south (with tag) - 76 cm, center - 51 cm, north - 69 cm; several large limbs have broken off
Dedman	19	Apple	232	19	8/11/2010	senescent	no visible fruit, formerly 15-20 m tall (now uprooted); still partially rooted at the base and has lots of green leaves; turning into a bush instead of a tree
Dedman	19	Apple	233	20	8/11/2010	vigorous	no visible fruit, 8-9 m tall; sprawling tree with good crown
Dedman	19	Apple	234	15	8/11/2010	vigorous	visible fruit, 8-9 m tall
Dedman	19	Pear	235	14	8/11/2010	vigorous	visible fruit, 8-9 m tall; large, open, rotting face on the bole
Dedman	19	Apple	236	10	8/11/2010	senescent	no visible fruit, 8-9 m tall; sprawling tree with three main boles and thinning crown
Dedman	19	Apple	237	9	8/11/2010	vigorous	visible fruit, 6-7 m tall

Field Name	Reference Number	Species	Tag Number	DBH (cm)	Date Surveyed	Crown Form	Notes
Dedman	19	Apple	238	8	8/11/2010	senescent	visible fruit, 8-9 m tall; large fork of the bole has broken off, leaving a rotting stub
Dedman	19	Apple	239	13	8/11/2010	vigorous	no visible fruit, 7-8 m tall; sprawling tree with fair crown; getting encroached upon by surrounding spruce
Streater	20	Cherry	223	7	8/11/2010	senescent	no visible fruit, 7-8 m tall; crown is declining and full of "witches broom"
Streater	20	Cherry	224	7	8/11/2010	senescent	no visible fruit, 7-8 m tall; crown is declining and full of "witches broom"; dead, broken bole leaning off of the main bole
Streater	20	Cherry	225	9	8/11/2010	senescent	no visible fruit, 7-8 m tall; crown is declining and full of "witches broom"; dead, broken bole leaning off of the main bole
Streater	20	Cherry	226	7	8/11/2010	senescent	no visible fruit, 7-8 m tall; crown is declining and full of "witches broom"
Streater	20	Apple	227	18	8/11/2010	vigorous	no visible fruit, 7-8 m tall; tree appears healthy for its age with a vigorous crown
Streater	20	Apple	228	12	8/11/2010	senescent	no visible fruit, 8-9 m tall; missing a large branch, but otherwise in good shape for its age
Streater	20	Apple	229	18	8/11/2010	vigorous	visible fruit, 8-9 m tall; one side of the bole is gone and the remaining center of the bole is filled with decay and ants
Streater	20	Apple	230	11	8/11/2010	vigorous	visible fruit, 8-9 m tall; looks healthy for its age with a vigorous crown
Gwin SE	21	Apple	215	43	8/23/2009	senescent	visible fruit (red)
Gwin SE	21	Apple	216	39	8/23/2009	senescent	visible fruit (golden)
Gwin SE	21	Apple	217	27	8/23/2009	senescent	visible fruit (golden)
Gwin SE	21	Apple	218	63	8/23/2009	senescent	visible fruit (red)
Gwin SE	21	Apple	219	27	8/23/2009	senescent	visible fruit (golden)
Gwin SE	21	Apple	220	62	8/23/2009	senescent	visible fruit (golden); large tree mostly uprooted and lying on its side but still alive and bearing fruit
Gwin SE	21	Apple	221	41	8/23/2009	senescent	visible fruit (red)
Gwin SE	21	Apple	222	50	8/23/2009	vigorous	visible fruit (golden, small, possibly crabapple?); big, vigorous tree
Barrington	23	Apple	170	39	8/14/2013	vigorous	visible fruit
Barrington	23	Apple	171	22	8/14/2013	vigorous	visible fruit

Field Name	Reference Number	Species	Tag Number	DBH (cm)	Date Surveyed	Crown Form	Notes
Barrington	23	Apple	172	25	8/14/2013	senescent	visible fruit
Barrington	23	Apple	173	13	8/14/2013	senescent	no visible fruit
Barrington	23	Apple	174	12	8/14/2013	senescent	no visible fruit
Cowan	29	Apple	n/a	n/a	8/14/2013	senescent	no visible fruit; probably crabapple
Cowan	29	Apple	175	26	8/14/2013	vigorous	no visible fruit; probably crabapple
Cowan	29	Apple	176	13	8/14/2013	vigorous	no visible fruit; probably crabapple; group of 5 small trees
Andrews	34	Hops	n/a	n/a	8/22/2009	vigorous	visible fruit; climbing up spruce snag amidst blackberry thicket
Andrews	34	Quince	n/a	n/a	8/22/2009	vigorous	no visible fruit, 1.5 m tall
Smith	39	Unknown	213	34	8/21/2009	vigorous	no visible fruit; possibly a <i>Prunus</i> ; many broken limbs and trunks
Smith	39	Cherry	214	21	8/21/2009	vigorous	no visible fruit

Appendix 2. Photographs of Queets Heritage plants



Field Name: Anderson
Reference Number: 6
DBH (cm): 20

Species: Cherry
Tag Number: 177



Field Name: Higley
Reference Number: 10
DBH (cm): n/a

Species: Boxwood
Tag Number: none



Field Name: Anderson
Reference Number: 6
DBH (cm): 27

Species: Cherry
Tag Number: 178



Field Name: Higley
Reference Number: 10
DBH (cm): n/a

Species: Rose
Tag Number: none



Field Name: Anderson
Reference Number: 6
DBH (cm): 16

Species: Apple
Tag Number: 17



Field Name: Higley
Reference Number: 10
DBH (cm): 13 to 17

Species: Plum
Tag Numbers: 161 to 166



Field Name: Higley
Reference Number: 10
DBH (cm): 41(R), 81(L)
Species: Pear (R),
Walnut (L)
Tag Number: 167(R), 169(L)



Field Name: Dedman
Reference Number: 19
DBH (cm): 30
Species: Cherry
Tag Number: 231



Field Name: Higley
Reference Number: 10
DBH (cm): 203
Species: Redwood
Tag Number: 168



Field Name: Dedman
Reference Number: 19
DBH (cm): 19
Species: Apple
Tag Number: 232



Field Name: Streater
Reference Number: 17
DBH (cm): 17
Species: Apple
Tag Number: 240



Field Name: Dedman
Reference Number: 19
DBH (cm): 20
Species: Apple
Tag Number: 233



Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 234
DBH (cm): 15



Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 237
DBH (cm): 9



Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 235
DBH (cm): 14



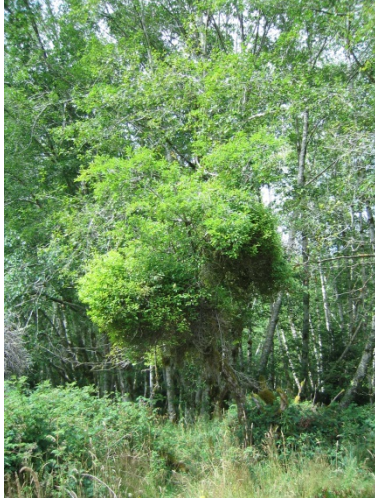
Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 238
DBH (cm): 8



Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 236
DBH (cm): 10



Field Name: Dedman Species: Apple
Reference Number: 19 Tag Number: 239
DBH (cm): 13



Field Name: Streater Species: Cherry
Reference Number: 20 Tag Number: 223
DBH (cm): 7



Field Name: Streater Species: Cherry
Reference Number: 20 Tag Number: 226
DBH (cm): 7



Field Name: Streater Species: Cherry
Reference Number: 20 Tag Number: 224
DBH (cm): 7



Field Name: Streater Species: Apple
Reference Number: 20 Tag Number: 227
DBH (cm): 18



Field Name: Streater Species: Cherry
Reference Number: 20 Tag Number: 225
DBH (cm): 9



Field Name: Streater Species: Apple
Reference Number: 20 Tag Number: 228
DBH (cm): 12



Field Name: Streater Species: Apple
Reference Number: 20 Tag Number: 229
DBH (cm): 18



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 216
DBH (cm): 39



Field Name: Streater Species: Apple
Reference Number: 20 Tag Number: 230
DBH (cm): 11



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 217
DBH (cm): 27



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 215
DBH (cm): 43



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 218
DBH (cm): 63



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 222
DBH (cm): 50



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 220
DBH (cm): 62



Field Name: Barrington Species: Apple
Reference Number: 23 Tag Number: 170
DBH (cm): 13



Field Name: Gwin SE Species: Apple
Reference Number: 21 Tag Number: 221
DBH (cm): 41



Field Name: Barrington Species: Apple
Reference Number: 23 Tag Number: 171
DBH (cm): 22



Field Name: Barrington
Reference Number: 23
DBH (cm): 25

Species: Apple
Tag Number: 172



Field Name: Cowan
Reference Number: 29
DBH (cm): n/a

Species: Apple
(Crabapple)
Tag Number: none



Field Name: Barrington
Reference Number: 23
DBH (cm): 13

Species: Apple
Tag Number: 173



Field Name: Cowan
Reference Number: 29
DBH (cm): 26

Species: Apple
(Crabapple)
Tag Number: 175



Field Name: Barrington
Reference Number: 23
DBH (cm): 12

Species: Apple
Tag Number: 174



Field Name: Cowan
Reference Number: 29
DBH (cm): 13

Species: Apple
(Crabapple)
Tag Number: 176
(average diameter of group of 5 small trees)



Field Name: Andrews Species: Hops
 Reference Number: 34 Tag Number: none
 DBH (cm): n/a



Field Name: Andrews Species: Quince
 Reference Number: 34 Tag Number: none
 DBH (cm): n/a

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