# Botanical Garden Orchard Proposal

Submitted by: Patrick Lewis, Director, UBC Botanical Garden

Project Description

Reproduce for conservation, research, and display a collection of ~950 varieties of apples currently growing in a private orchard on Bowen Island. This collection—comparable in size and diversity to Canada's Apple Biodiversity Collection grown in the Annapolis Valley, Nova Scotia—will provide researchers and breeders local access to one of the most diverse collections of apples in the world.

The orchard will be established on 0.2ha of land to the immediate east of the Botanical Garden and north of its main entrance (see attached PDF). Beginning in late fall 2022 and extending over a three year period, scions will be taken from the Bowen Island orchard and grafted on M9 root stock imported from the USA. Data input to the IrisBG database will begin at the same time as will enhanced orchard management training, including incorporation of orchard practices into training modules for the Horticulture Training Program. Discussions will also take place with members of the Biodiversity Research Centre's research community on the eventual design and use of the orchard.

Cherry tree removal (see Arborist report) will begin late fall 2022 with the removal of every second tree. This will be followed with the removal in fall 2023 of the remaining trees. Landscaping—fencing, installing irrigation, installing cordon trellises, etc.—will begin in late spring 2023 to be completed by fall 2023. Cherry trees from the Botanical Garden collection will be planted on the fence line to replace the removed trees. Signage describing the project will be installed prior to tree removal.

Beginning in late fall 2023 and carrying on for the following two years, whips will be transplanted on site. "Mirroring" the Bowen Island orchard will be completed in 2025. Ongoing maintenance will be managed by Botanical Garden staff and administration. The completed orchard will include interpretive signage.

# Tree Removal/Protection and Replacement and Arborist's Report

There are currently eleven *Prunus* 'Tai-haku' (great white cherry) originally planted in 2008 at 10-m spacing in a northeast-southwest row to the inside of the property boundary parallel to SW Marine Drive. The trees are all top-grafted on European sweet cherry (*Prunus avium*) rootstocks. These trees have been slated for removal and replacement for at least four years (i.e., well before the orchard plan was devised). In anticipation of the removal, replacement trees were prepared at the Botanical Garden Nursery and they are now of planting size.

All of the existing planted cherries suffer from bacterial canker (*Pseudomonas syringae* pv. *morsprunorum*, a debilitating disease that makes them unsightly and creates conditions conducive to oviposition by a moth, the cherry bark tortrix (*Enarmonia formosana*). The cherry bark tortrix larvae then tunnel inside the tree. Coincident with the canker disease and insect infestations, the cherries are all producing *P. avium* suckers directly from their roots, from the stem cankers and at the graft unions. The suckering, canker disease and the presence of tortrix larvae are reducing the overall health and vigour of the trees, as well as causing an increase in maintenance. Note that the replacement trees are not grafted, but are grown on their own roots. This will reduce or eliminate suckering and reduce the cultivar's susceptibility to bacterial canker and cherry bark tortrix.

We will be removing every other tree in the existing line this winter to maintain the early spring floral display, and will remove the remaining trees prior to the new fence being installed. Once the new fence line is established the replacement trees will be planted at 12-m spacing in a row parallel to SW Marine Drive 2 m to the northeast of the proposed orchard plantings (as indicated on PDF, page 1); i.e., outside of the new fence.

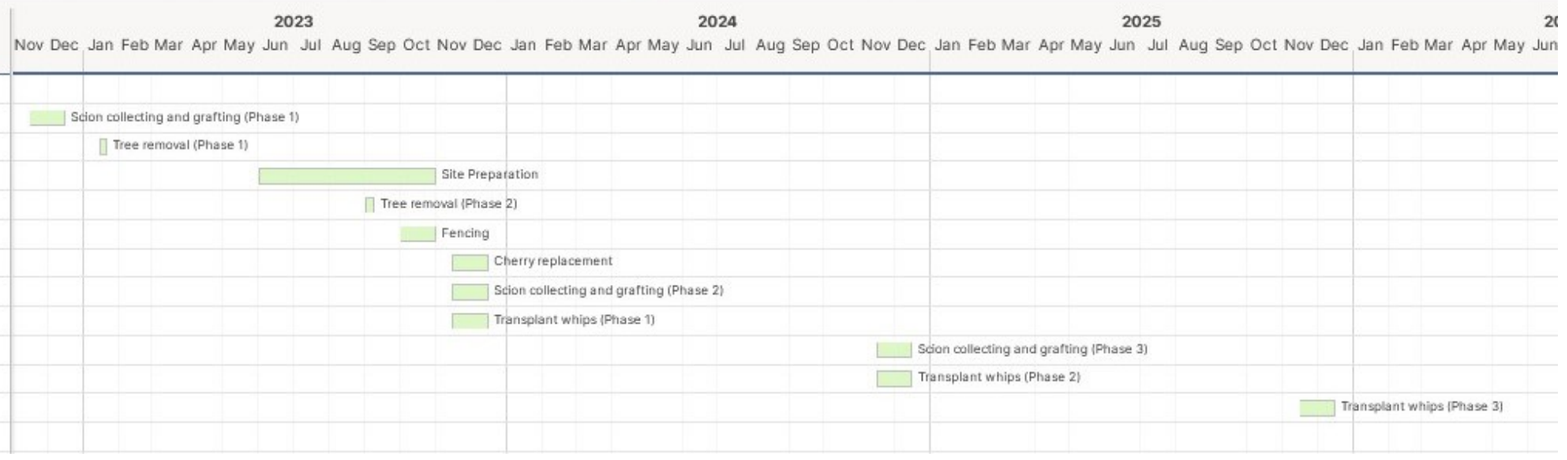
Linda Layne
Tree Risk Assessment Qualified and ISA Certified Arborist

File Automation Forms

**UBCBG Orchard preliminary timeline**

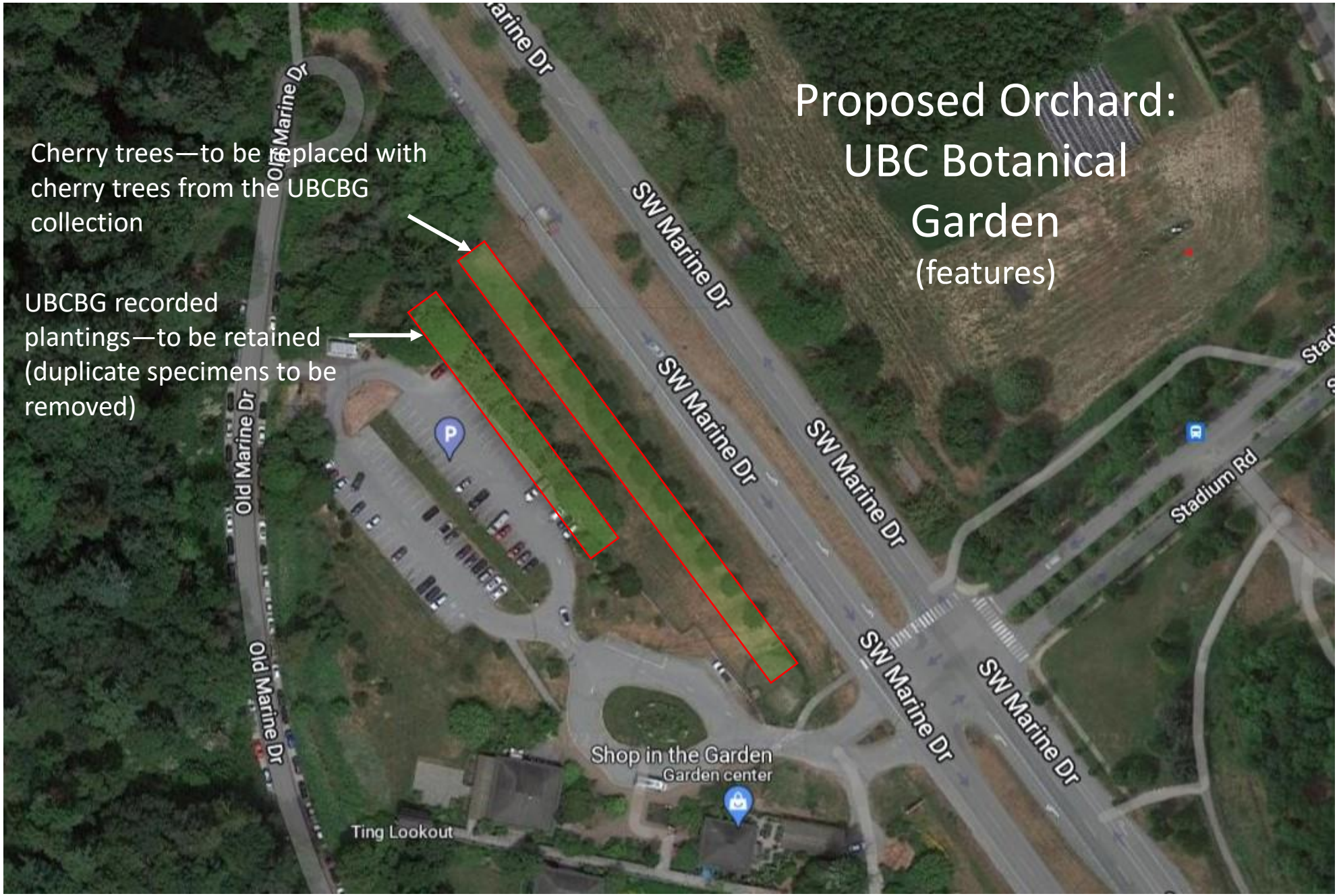
Gantt View Filter Arial 10

| | Task | Start | Finish |
|---|---|---|---|
| 1 | | | |
| 2 | Scion collecting and grafting (Phase 1) | 15/11/22 | 15/12/22 |
| 3 | Tree removal (Phase 1) | 15/01/23 | 20/01/23 |
| 4 | Site Preparation | 01/06/23 | 31/10/23 |
| 5 | Tree removal (Phase 2) | 01/09/23 | 08/09/23 |
| 6 | Fencing | 01/10/23 | 31/10/23 |
| 7 | Cherry replacement | 15/11/23 | 15/12/23 |
| 8 | Scion collecting and grafting (Phase 2) | 15/11/23 | 15/12/23 |
| 9 | Transplant whips (Phase 1) | 15/11/23 | 15/12/23 |
| 10 | Scion collecting and grafting (Phase 3) | 15/11/24 | 15/12/24 |
| 11 | Transplant whips (Phase 2) | 15/11/24 | 15/12/24 |
| 12 | Transplant whips (Phase 3) | 15/11/25 | 15/12/25 |
| 13 | | | |




Proposed Orchard:
UBC Botanical
Garden
(location/size)
Dimensions: ~16m x 122m
Area: ~0.2ha
Old Marine Dr
SW Marine Dr
Stadium Rd
Shop in the Garden
Garden center
Ting Lookout


Proposed Orchard:
UBC Botanical Garden
(~line of cordons and replacement cherry trees)
Cordons
~2.5m between rows
Replacement cherries
(outside the fence line)
Old Marine Dr
SW Marine Dr
Stadium Rd
Shop in the Garden
Garden center
Ting Lookout


Proposed Orchard:
UBC Botanical
Garden
(features)
Cherry trees—to be replaced with cherry trees from the UBCBG collection
UBCBG recorded plantings—to be retained (duplicate specimens to be removed)
SW Marine Dr
Old Marine Dr
Stadium Rd
Shop in the Garden
Garden center
Ting Lookout


Proposed Orchard:
UBC Botanical Garden
(~150m new chain link fencing)
New fence line
Current fence line
Old Marine Dr
SW Marine Dr
Stadium Rd
Shop in the Garden
Garden center
Ting Lookout


Site Looking North


Site Looking South
Rd