Land Use Plan for UBC Farm

Steve Mitchell, Daniel Roehr and Prod Laquian
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UBC Farm Mission
The UBC Farm and its surrounding areas on UBC’s south campus explore and exemplify sustainability theory and its applications, focusing on the relationships and synergies among land, food, and community. Through cross-Faculty inquiry and community-university engagement, the Farm integrates academically rigorous and globally significant activities that promote UBC’s commitment to sustainability by transforming the campus into a living laboratory and recognizing the university’s role as an agent of change, locally and globally. Centered on the stewardship of an integrated, working, 24 hectare farm-forest-community system, the UBC Farm aims to build and regenerate healthy soils, foods, individuals, communities, forests, and ecosystems. Through its activities, the Farm advances sustainability literacy in students, leaders, and decision-makers. (Cultivating Place: South Campus Academic Plan, 2010).

Land Use Plan Vision Statement
The UBC Farm will be a diverse landscape of fields, forests and built-structures that provides food, forest products and ecosystem services, and that enables students, researchers and members of the public to learn about sustainable farming and forestry, explore farm-forest-community interactions, re-establish a connection to the land, and experience nature in the city.

Purpose of this Document
The UBC Farm is in a period of transition as the Cultivating Place academic plan is implemented and construction of new facilities and repurposing of some portions of the Farm occurs. The objectives of this land use plan document are to outline a set of principles to guide land use decisions, and provide some maps, terminology and indicators to be used in describing, discussing and evaluating the impact of these land use changes. This document and associated images and maps are intended to provide a broader context for site-level plans for portions of the Farm, starting with a description of current conditions and uses of the fields and forests that make up the Farm, and identifying a set of land use zones, and smaller units (compartments) for which more detailed plans can be developed.

The primary audiences for this document are UBC Farm managers, members of the UBC Farm Steering committee, University and community stakeholders and UBC planners and decision-makers.
The Planning Process
This land use plan is the product of a series of discussions with the Steering Committee, Farm Management Team and stakeholders. This document incorporates input from these groups.

Supporting survey and analysis information about current conditions and use was collected during the summer of 2011 via undergraduates supported by the Cultivating Forest Stewardship TLEF grant, and has been updated with information from subsequent meetings. Information on the soil and vegetation and built infrastructure on the Farm was assembled from existing layers, aerial photograph interpretation, discussions with Farm staff, Steering Committee members and stakeholders, and field sampling. This information was used to prepare current landcover, and current and potential future land use zonation maps.

Products of the Planning Process
The UBC Farm Land Use Plan includes the following:

1) this document which identifies stakeholders, lays out principles to guide land use planning, current conditions, desired future conditions, indicators and sources of uncertainty;
2) guidance for the preparation of more detailed site plans for portions of the Farm;
3) maps and images that show current conditions and uses, and potential future uses of the Farm (Appendix 1 and 2); additional GIS layers are available via the UBC Farm website;
4) a draft tree cutting and replacement policy in lieu of UBC’s Tree Protection Guidelines (see Appendix 3).

Guiding Principles for the Planning Process
In preparing this plan, we adopted a set of principles with the aim that the resulting plan:

• is consistent with Cultivating Place and the Vision for the UBC Farm;
• is based on sound information on current biophysical conditions;
• is based on comprehensive analysis of current and potential future uses of the Farm;
• physically and philosophically connects Farm to the Campus Community and neighbourhoods via shared infrastructure, provision of services, and fostering academic, economic and social inter-relationships between the Farm and members of the academic and residential communities;
• expands opportunities for learning and research into farm-forest-community interactions;
• enables sustained production of farm and forest products and promotes continuous exploration of new approaches;
• fosters self-sufficiency in energy, waste management, resource use and promotes continuous exploration of new approaches;
• maintains the Farm as a living lab that provides opportunities for individual and collective experimentation and learning;
• exemplifies sustainable farming, forestry, landscape management and functional and aesthetic building design and management, and promotes continuous exploration of these themes;
• stimulates discussion about sustainable farming, forestry, landscape management and building
design and management;
• attracts students and researchers from around the world;
• enables installation and orderly management of short and long term research projects;
• creates a safe and healthy environment for livestock and for the education of students and
visitors about livestock care;
• grounds generations of students and neighbours in this historically unique and beautiful ‘place’
and forges life-long affinity for rural and natural spaces.

Elements Considered in the Plan

Stakeholders
There are many parties who have a stake in the long term condition and activities at the Farm, these
include, but are not limited to:

• UBC students, researchers, instructors – the UBC Community
• The broader academic community
• Musqueam Band
• First Nations communities
• Elementary and High School students and teachers
• Neighbours
• Nature Vancouver
• Friends of the Farm
• The Neighbourhood
• Farm market customers
• Local and Provincial Government Agencies

Programs
In addition to the many researchers and instructors who have research and teaching programs at the
farm, and production agriculture to supply the Farm Market and campus food service outlets, there are
several community outreach programs that have an ongoing presence at the farm. These include the
Children’s Learning Garden programs, summer day camps for children, and land-based indigenous
programs. The UBC Farm also acts as a venue for university and private events such as meetings,
performances and weddings.

Teaching and Research
The Farm is above-all a teaching and research space, and research and teaching activities will be
conducted in all land-use zones. Specific teaching and research activities will need to be consistent with
the broader aims and activities at the Farm. Planning the integration of research and teaching activities
with cultivation and production of field and forest crops will fall to the Farm staff. However there are
locations where teaching and research are the dominant use, and specific field/garden/forest
conditions, road or trail access, access to buildings or covered spaces or other infrastructure are required.

**Outdoor Spaces**
Just as UBC buildings have classrooms, offices, lecture theatres, performance spaces and meeting rooms, so the outdoor environment of the UBC Farm should be designed to form spaces that enhance learning, research, performance, recreation, reflection, discussion. The land use zonation reflects the dominant use of a space but must be elaborated via site-level plans. In designing site-level plans for these spaces, the same considerations apply as for the design of indoor spaces: light, heat, sound, visual setting, privacy, comfort. Detailed site level plans for specific portions of the Farm will need to consider primary and secondary uses, along with the influence of neighbouring spaces and movement between spaces. The edges of these outdoor spaces may be trails, roads, fences, walls, hedgerows, stands of trees – and these may be abrupt or gradual transitions. Since many of these edges will be formed by forests or hedgerows, the changes that result as these vegetation communities age and grow, and their influence on adjacent spaces, must be considered.

**Current and Future Conditions and Zones**

**Biophysical Conditions**
The Farm is bounded by Marine Drive and 16th Avenue, the Wesbrook Place Community, and the Botanical Garden Nursery Facility (Figure A1-1). The landcover map shows the dominant condition in polygons across the Farm (Figure A1-2). Landcover classes include access roads, lawns gardens and parking areas, commercial and non-commercial fields, vineyards and orchards, plantation and naturally established forest, and built structures (see representative photos of landcover classes in Appendix 2).

Additional sources of spatial information include: historic aerial photographs, maps of soils, land cover, forest ecosystems, roads, utilities, buildings.

**Current Land Use Zones**
Current uses of portions of the Farm were identified through observation of activities on the Farm and discussion with Farm staff, Steering Committee members and stakeholders. Current use zones were mapped based on the underlying land cover polygons, but are classified based on the primary use of the space (Figure A1-2). In virtually every case, there are a number of secondary uses of each space. For example, teaching and research activities occur in virtually all locations within the Farm. Primary uses include permanent access, built structures, outdoor teaching and community activities, production fields, production forests, and conservation. The latter category includes portions of second growth forest, fallow fields and hedgerows which provide wildlife habitat, visual and sound buffers. While the boundaries appear on maps as lines, these zones may integrate, particularly near boundaries.

Another way of thinking about land use patterns across the farm is as gradients of use and associated management intensity. For example, there are gradients of accessibility from the main entrance area (high) to the forested area in the northwest (low).
Table 1. Land Use Zone Descriptions

<table>
<thead>
<tr>
<th>Zone Number</th>
<th>Map Legend</th>
<th>Zone Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Permanent Access</td>
<td>Permanent access routes vehicular, pedestrian and above ground utility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>corridors, parking</td>
</tr>
<tr>
<td>2</td>
<td>Built Structures</td>
<td>Current and future building and built structure footprints</td>
</tr>
<tr>
<td>3</td>
<td>Outdoor Teaching and Community</td>
<td>Outdoor teaching and event spaces, market grounds and hand cultivated gardens</td>
</tr>
<tr>
<td>4</td>
<td>Production Fields</td>
<td>Annual and perennial production fields, pasture, and orchards</td>
</tr>
<tr>
<td>5</td>
<td>Production Forest</td>
<td>Short rotation conifer and broadleaf plantations, alder coppices, Christmas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>trees</td>
</tr>
<tr>
<td>6</td>
<td>Conservation</td>
<td>Conservation forest, wetland, vegetative buffers, drainage, water retention,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>reuse (irrigation), groundwater recharge and hedgerows, pond</td>
</tr>
</tbody>
</table>

**Future Land Use Zones**

Cultivating Place sets out a series of desired outcomes for the Farm and envisages the intensification and expansion of activities at the Farm. These activities place demands on the limited space at the Farm and some changes in condition or re-purposing of spaces. Current unmet, and anticipated future needs were identified via discussion with Farm staff, Steering Committee members and stakeholders. We focused on those needs which will require a change in dominant use of a space. We used the same zone designations, and focused on re-classification of dominant use (Figure A1-3). For example, expansion of a teaching garden or production space is represented by an increase in area in these land use zones. Based on these discussions the principle changes in land use anticipated over the next 5 to 10 years are:

1) Construction of a new Farm Centre with teaching, research, crop processing and community event space;
2) Expansion of the Children’s Learning Garden
3) Construction of a residential college for students and scholars
4) Designation of an Indigenous hub for First Nations food production and community activities, including the potential move of the Maya in Exile Garden.
5) Designation and linkage of forest wetland and hedgerows for conservation, habitat, improved drainage and water flow, visual and sound buffering
6) Expansion of production fields to supply farm markets
7) Designation of production forests for continuous production of timber and non-timber forest products

**Adjacency, Connectivity and Flow**

The Farm lies between 41st and 16th Avenue, a high school and a residential neighbourhood, within the UBC Campus, adjacent to Pacific Spirit Park, at the edge of Metro Vancouver, near the Fraser River and Georgia Strait, within the traditional unceded territory of the Musqueam Nation, adjacent to the flight path of the Vancouver International Airport, and on the Pacific flyway for migratory birds. People enter the Farm through the main gate and walk through the Farm on a few primary routes that take them through a variety of land cover types and use zones (Figure A1-4a). Water flows down slope toward open drainage ditches along the forest edges (Figure A1-4b). There is a gradient of diminishing human activity from the main entrance toward the edges of the Farm. There is a gradient of increasing moisture from the northeast edge of the farm to the downslope southwest edge.

The land use plan connects the Farm to adjacent landscapes and human communities, particularly the UBC academic and residential communities, while also buffering the farm from the noise, pollution and high human use of urban areas. The visual environment on the farm is modified by the bordering forests, which buffer it from highway noise and urban development. These forests modify the thermal environment by sheltering the farm from winds coming off Georgia Strait and Howe Sound. The farm is a reservoir of natural and semi-natural habitats that sustain populations of native and introduced animals, birds, insects and plants.

The greenway to be developed just outside the northeast boundary of the Farm is a critical component of this buffer, particularly where the inside of the fence has been cleared for underground utility installation. Discussions with C&CP should focus on retaining overstory and understory plants within this greenway. Native shrubs and small trees should be planted on the Farm side of the fence, but in a way that does not obstruct the utility corridor.

The UBC Campus Land Use Plan approved by the BC Provincial Government in March 2011 envisions the integrated development of the whole UTown@UBC as a total entity, a development approach based on mixed uses rather than segregated enclaves of development. Thus, the land use plan for the Farm maximizes the "connectedness" of Farm developments with other developments on campus and adjacent areas.

The main entrance to the farm will likely stay in its current location. The location of this entrance informs land use intensity and access gradients across the Farm. High intensity uses are clustered near the entrance, and are lowest in the peripheral buffer/conservation zone.
Plan Implementation

Plan Evolution, Site Level Plans
Like all land use plans, this land use plan will need to evolve in order to serve the needs of the Farm managers and stakeholders. Revisions to the plan should be consistent with Cultivating Place, and with the guiding principles that informed development of this plan. Decisions to change the primary use of portions of the Farm should be made in consultation with stakeholders. The land use plan is a ‘higher-level’ plan that considers conditions and uses across the Farm and sets general direction. Detailed site-level plans will need to be prepared for specific portions of the Farm. These site-level plans should be consistent with the Land Use Plan, and collectively, will enable the implementation of the Land Use Plan and Cultivating Place.

Compartments
This plan addresses Farm-level issues and broadly defines current and potential future conditions in locations across the farm. Detailed site design and management plans (Site Plans) will be needed for locations within the farm. To facilitate this site-level planning, the Farm has been divided into a set of Compartments. These are spatially contiguous areas with a dominant primary use that differs from adjacent compartments (Figure A1-5). They are typically bound by a perimeter fence or road-way, and in some cases, site-level planning is underway. Site-level plans for these compartments should be consistent with the primary use envisaged in the Land Use Plan, and be compatible with the use and management of adjacent areas. Compartments can be dissolved, merged and renamed as site-level plans are developed. Examples of these compartments include:

A – second growth forest
B – proposed Farm College building and environs
C – current Farm office and teaching greenhouse
D – Children’s Learning Garden
E – current drive shed and equipment storage
F – planted forest and Forestry Undergraduate Society Christmas tree farm
G – forested buffer, drainage ditch and adjacent shrublands
H – Land-based Indigenous programs areas
I – nurseries and gardens
J – proposed Farm Centre building and environs
K – production perennial crops
L – production annual crops and hedgerows
Indicators
The outcomes described in Cultivating Place must be matched with conditions that support these outcomes. In order to track conditions over time, it is useful to declare and monitor indicators. Ideally indicators are intuitively related to the outcome of interest, are quantifiable, and are easy to measure. Some potential indicators are given in Table 2. Benchmark and target levels of these indicators can also be declared.
Table 2. Summary of desired outcomes and potential indicators by zone.

<table>
<thead>
<tr>
<th>Zone</th>
<th>Desired conditions</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Access</td>
<td>Access is fit for purpose</td>
<td>Safe movement of vehicles and pedestrians</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All weather access in high traffic areas</td>
</tr>
<tr>
<td></td>
<td>Promotes sustainability</td>
<td>Costs little to maintain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occupies little space</td>
</tr>
<tr>
<td></td>
<td>Promotes exploration</td>
<td>Core areas accessible to all necessary equipment, staff and visitors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visitors can access representative portions of all zones.</td>
</tr>
<tr>
<td>Built Structures</td>
<td>Buildings and environs are fit for purpose</td>
<td>Users productive and content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visitors stimulated</td>
</tr>
<tr>
<td></td>
<td>Buildings embody sustainability principles</td>
<td>Use space efficiently</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Energy efficient</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inexpensive to maintain</td>
</tr>
<tr>
<td>Outdoor Teaching, Community, Gardens</td>
<td>Outdoor spaces that promote teaching and learning</td>
<td>Includes a variety of landcover types and uses, or is adjacent to representative portions of all other zones</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students and instructors using Farm</td>
</tr>
<tr>
<td></td>
<td>Outdoor spaces that promote community activities</td>
<td>Sound and visual barriers so multiple classes or events can be conducted simultaneously</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fertile soils amenable to hand cultivation</td>
</tr>
<tr>
<td></td>
<td>Spaces suitable for long term gardening, food processing and consumption by community groups</td>
<td>Spaces for tents or other structures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partial visual screening</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Community engaged in Farm activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faculty engaged in teaching and research</td>
</tr>
<tr>
<td>Production Fields</td>
<td>Sites that promote sustainable production of marketable crops</td>
<td>Fertile soils amenable to machine cultivation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adequate drainage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Efficient to cultivate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enable crop rotation</td>
</tr>
<tr>
<td></td>
<td>Sites that promote teaching and learning about sustainable crop production and rural environmental issues.</td>
<td>Efficient harvesting and transport of crops for processing/sale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students engaged in production, processing and marketing crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faculty engaged in teaching and research</td>
</tr>
<tr>
<td>Production Forest</td>
<td>Sites that promote sustainable</td>
<td>Soils suitable for broadleaf and conifer</td>
</tr>
</tbody>
</table>
### Sources of Uncertainty

There are a number of sources of uncertainty that will affect the implementation of this plan, and whether desired outcomes are achieved. Sources identified during the planning process include:

- market conditions for farm and forest products will change.
- extreme weather, disease and insects will affect forest conditions and crops;
- maintenance or upgrade of sewer or other infrastructure that crosses Farm can impact conditions on the Farm;
- land use changes in adjacent areas will affect noise and traffic;
- expectations of stakeholders will change;
- the University can be expected to periodically revisit the contribution of the Farm to the University's mission.
**Scenarios**

To promote discussion amongst the various committees, stakeholders and the general public, and to explore possible future conditions, uncertainty and trade-offs, two contrasting land use plan scenarios have been designed – the base case ‘Current Use’ scenario that captures current uses, and an ‘Intensive Use’ scenario that captures changes that are proposed over the next 5 years to accommodate desired and emerging uses of the Farm envisaged under *Cultivating Place*. These two scenarios differ in their allocation of spaces to primary land-uses. It is also possible to create other land use scenarios for exploratory discussion.
Appendix 1 – Maps showing current Land Cover, Current Use and Intensive Use Scenarios and area summaries.

Figure A1-1. April 2009 Aerial Photo, UBC Farm showing fenceline (yellow) and boundary with Wesbrook South Campus community (pink).
Figure A1-2. 2011 Land Cover, UBC Farm

Table A1-1. Area by Land Cover Classes, UBC Farm (ha)

<table>
<thead>
<tr>
<th>Land Cover</th>
<th>Description</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Access Roads</td>
<td>1.6</td>
</tr>
<tr>
<td>ANS</td>
<td>Lawns, Gardens, Parking areas</td>
<td>1.8</td>
</tr>
<tr>
<td>CPF</td>
<td>Commercial Fields</td>
<td>4.0</td>
</tr>
<tr>
<td>NCF</td>
<td>Non-commercial Fields</td>
<td>1.5</td>
</tr>
<tr>
<td>PFS</td>
<td>Plantation Forest</td>
<td>1.7</td>
</tr>
<tr>
<td>PLS</td>
<td>Perennial/Livestock</td>
<td>0.3</td>
</tr>
<tr>
<td>SGF</td>
<td>Second Growth Forest</td>
<td>12.2</td>
</tr>
<tr>
<td>STR</td>
<td>Structures</td>
<td>0.3</td>
</tr>
<tr>
<td>VOS</td>
<td>Vineyards-Orchards</td>
<td>0.6</td>
</tr>
<tr>
<td>Total Area</td>
<td></td>
<td>24.0</td>
</tr>
</tbody>
</table>
Figure A1-2. Current Land Use Zones, UBC Farm
Figure A1-3. Land Use Zones under Intensive Scenario, UBC Farm (Mock-up)

Table A1-2. Area by Land Use Zones, Current and Intensive Use Scenarios

<table>
<thead>
<tr>
<th>Zone Description</th>
<th>Current Zoning</th>
<th>Intensive Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Built Structures</td>
<td>0.3</td>
<td>1.1</td>
</tr>
<tr>
<td>2 - Permanent Access</td>
<td>1.6</td>
<td>1.9</td>
</tr>
<tr>
<td>3 - Outdoor Teaching</td>
<td>4.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 - Production Fields</td>
<td>3.0</td>
<td>3.1</td>
</tr>
<tr>
<td>5 - Production Forest</td>
<td>0.9</td>
<td>1.7</td>
</tr>
<tr>
<td>6 - Conservation Forest</td>
<td>13.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Total Area</td>
<td>24.0</td>
<td>24.0</td>
</tr>
</tbody>
</table>
Figure A1-4a. Potential flow of pedestrian traffic, UBC Farm
Figure A1-4b. Flow of water, UBC Farm
Figure A1-5. Compartments for detailed site-level plans, UBC Farm

A – second growth forest
B – proposed Farm College building and environs
C – current Farm office and teaching greenhouse
D – Children’s Learning Garden
E – current drive shed and equipment storage
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Appendix 2 – Photos of Land Cover Classes

Access Roads
Lawn with orchard at edge
Commercial field
Commercial field in fallow with livestock pen behind
Plantation Forest
Livestock pasture
Second Growth Forest
Structure
Vineyard-Orchard
Appendix 3.  Draft tree cutting and replacement policy for UBC Farm

Prepared by Steve Mitchell PhD, RPF, Associate Professor UBC Faculty of Forestry

Background

With the adoption of the 2010 Academic Plan ‘Cultivating Place’ for the UBC Farm, a number of changes in programming and facilities are expected over the next several years. To characterize current conditions, promote discussion, and clarify management decision-making, a Farm Land Use Plan is being prepared by a subcommittee of the Steering Committee. This plan lays out current and desired future conditions for the Farm via land cover and land use maps. Use emphasis zones identify the current and desired future uses of spaces and set out priority uses to aid in future land use decision making. The Land Use Plan also lays out a process for arriving at land use decisions, including change in use emphasis. It is expected that portions of the Farm will also have specific site-level plans that provide more detail on the uses, present and future conditions and management strategies for these locations. These site-level plans will be consistent with the Farm Land Use Plan.

Potential locations for future facilities will be identified in the Farm Land Use Plan. Major facility development will also fall under the UBC Campus and Community Planning process. The Vancouver Campus Plan is a guiding document for the Campus and Community Planning process. In Part 3 of this C&CP document, there are guidelines on tree protection (Section 2.4.6; see Appendix 4 this document).

The farm includes amenity trees, orchards, plantations and semi-natural forest, and routine management and future development at the farm will necessitate periodic tree cutting and replacement. It is the position of the Farm staff and Steering Committee that decisions about tree cutting and replacement are best made under the auspices of the Farm Land Use Plan, by Farm staff in consultation with the Faculty of Land and Food Systems and the Steering Committee. Precedents for local decision-making about tree cutting and replacement exist at the UBC Research Forests and UBC Botanical Garden.

Principles

Trees are an important component of urban, rural and natural environments and are highly desirable features of the UBC Farm. Decisions about tree cutting and replacement on the Farm need to be consistent with the broad mission of the Farm including wise stewardship and maintenance of research and educational opportunities for current and future generations.

Trees at the farm fall into 5 broad categories:

1. Amenity trees – individual or small groups of trees including native and non-native species that provide visual or acoustic screening, shade or other aesthetic and environmental benefits within built-up or high use areas of the Farm;
2. Orchards – groups of trees that provide fruit or nut crops within or adjacent to cultivated areas of the Farm;

3. Hedgerows – trees in lineal strips and clusters intermixed with shrubs and other flora that provide a mix of amenity and ecological services within or adjacent to cultivated or built-up areas of the Farm;

4. Plantations – planted or naturally established trees in groups or blocks within or adjacent to the cultivated areas of the Farm that will at a future date provide timber products for use on or off the Farm; prior to final harvest, these plantations may also provide amenity or ecosystem services and be a source of non-timber products and timber produced via thinning;

5. Semi-natural forests – contiguous blocks of naturally regenerated forest, potentially with some infill planting that provide amenity and ecosystem services, including buffering the Farm from adjacent roads and residential developments, providing wildlife habitat and a source of non-timber forest products; these stands may be thinned or partially harvested for timber products for on or off-Farm use.

**Planning and Management**

Trees grow, age and are subject to stress and injury by weather, insects, disease or interaction with neighbouring trees or vegetation. On the Farm, tree condition and health may be impacted intentionally, or unintentionally by human activity. Where trees are being grown for specific products or features, routine tending practices such as planting, pruning, thinning, felling may be used. In other cases, trees may be removed in order to clear the space for another purpose.

Trees may also be pruned, topped or removed for safety reasons. The Farm is in continual use by students, staff and members of the public and is bordered by traffic corridors and residential areas. Public safety and protection of infrastructure is paramount. Trees in any of the preceding 5 categories will be removed or stabilized where they pose a threat to public safety or infrastructure. Assessments of risk and appropriate interventions should be made by qualified individuals. This includes assessment of the likelihood of tree/branch failure and potential for harmful consequence. This assessment process will reflect the intensity of use in the vicinity of the tree(s) in question.

Amenity trees have special significance to Farm users and neighbours and contribute to the character of built-up and cultivated spaces. Therefore removal plans should be discussed, and these trees should be replaced when possible with trees that will provide similar values and that will grow in a manner appropriate for the locale.

Pruning, thinning and other routine tending activities in hedgerows, orchards and plantations will be at the discretion of Farm staff, but in keeping with the principles, use priorities and consultation processes set out in site-level plans for specific areas of the Farm, and with the Farm Land Use Plan.
Orchards and plantations will be periodically cut and replaced in order to maintain productivity of tree and timber crops, and in some cases to limit maximum height so that adjacent areas are not excessively shaded.

Tree cutting within the semi-natural forests should be consistent with site-level plans and the Farm Land Use Plan. The general principle is that these forests retain their diversity, habitat and amenity values, while providing the opportunity for periodic and low intensity harvest of non-timber and timber products.

Clearing and conversion of treed areas from one land cover or land use category to another should be consistent with the Land Use Plan and site-level plans.

Where trees are to be removed in order to facilitate new building construction that is covered under the Campus and Community Planning process, the Tree Protection Guidelines in 2.4.6 of the Vancouver Campus Plan Part 3 will be followed (Appendix 4 of this document).

2.4.6 — Tree Protection Guidelines

a. Tree Retention: Existing healthy trees over 10 cm caliper (diameter at breast height) on a project site should be retained in any new proposal where possible, or conserved through relocation on campus.

b. Arborist Advice: Detailed recommendations for retention and protection during construction must be obtained from a certified arborist, to the satisfaction of Campus and Community Planning.

c. Special Trees: Every reasonable effort should be made to protect the following special trees in particular:

- Oaks on Main Mall
- Cherries along Lower Mall, West Mall
- Elms along University Blvd between East Mall and Main Mall
- Elms along Agricultural road between East Mall and Main Mall
- Ponderosa Pine in front of the Ponderosa Buildings
- Newton Apple trees in roundabout in South Campus
- The Arbutus Tree to the west of the Landscape Architectural Annex
- First Class tree at the north end of Geography Building
- Giant Sequoia aligned with Rodney Graham artwork
- Class and commemorative trees (Locations of all new trees to be approved by Campus and Community Planning)

d. Fencing: During construction, tree protection fencing is required around all trees identified for retention in the review process by Campus and Community Planning in order to protect their root zones and branches from construction related damage. No vehicular access or material storage is permitted within the fence lines. Design standards for the fencing are as follows:

   i. Configuration: Tree protection fencing is to be installed at a radius around the subject tree equivalent to the greater of the following two options:

      a. the drip line of the tree canopy
      b. a radius equal to 1 m per 8 cm of trunk diameter measure at 300 mm for trees of less than 15 cm trunk diameter (for example, a tree with a 40 cm trunk diameter will require a 5 m radius of protection fence).

   ii. Materials: Tree protection should be composed of wood post and frame fencing with snow fencing or mesh around it. Posts are to be driven into the ground to a depth of at least 600 mm at no more than 3 m on centre.

   iii. Height: Tree protection fencing is to be 1.8 m high.