

## How to find Permanent Sample Plot location information on the Land and Resource Data Warehouse

This background document details how to locate permanent sample plots (PSP's) on the Land and Resource Data Warehouse (LRDW). Generally Ministry of Forests, Lands and Natural Resources samples are not released for harvest unless there has been a field verification to determine the status and condition of the sample. Trees within the sample should not be harvested as this would destroy the capacity of the sample to represent natural stand ingress, growth and mortality. There is some latitude in modifying the buffer constraints as long as the growth characteristics are not influenced in the sample plot. Some samples can be released for harvest, but the decision will depend on the overall importance of that particular sample

### **General:**

Inventory and Research PSPs provide insight into stand dynamics which provide support for a number of strategic business activities, programs and initiatives.

The main PSP-related business drivers include:

- Forest Analyses
- Inventory Estimates
- Timber Appraisal
- New sustainable forest management initiatives
- Climate change research
- Mountain Pine Beetle
- Silviculture investment decisions
- Bio-energy and carbon estimates

PSP's provide information on future forest structure and yield models used to predict many other forest values, such as site productivity, habitat, forest health, biodiversity, visual quality, and hydrology, etc across a wide range of sustainable forest management applications.

PSP's are purposively established and therefore may not tie directly to a particular management unit. In some instances management units may have PSP's that were established within the management unit based upon a sample plan for the unit. Once these samples are re-measured they will support the continued improvement of current and future Provincial growth and yield models as they will capture stand dynamics over a broad range of stand conditions. Local samples might be used as anecdotal information for comparison to model predictions, but not necessarily for a direct statistical comparison.

### **Field Detection:**

In the field, permanent sample plots use a pair of 3" X 5" annotated aluminum plaques on the tie tree (a reference tree adjacent to a road etc.) as well as on the plot reference tree near the sample plot centre. These plaques are nailed to the tree with 4 aluminum nails. In most instances there is red or pink annotated (Growth & Yield) flagging banding the reference and tie tree as well as blue or red paint marks along the access tie line. The sample trees are tagged in most cases with circular blue plastic numbered tags which are nailed to the trees at breast height with aluminum nails.

### **Map Information:**

There is a sample tile and posted views to the LRDW to provide most of the sample locations and key information regarding their identification, ownership, and status. These sample tiles are missing some PSP locations as those samples did not have current coordinates or the samples were owned by licensees (often in tree farm licences). PSP's are uniquely identified by the inventory region, compartment, compartment letter (if present), sample number and sample type. Only natural stands (G) and inventory research samples (R) and silviculturally treated (T) samples are in this spatial information tile.

The published forest cover maps have letter annotations and symbols that designate the type of sample. Each sample is uniquely identified by its inventory region and compartment management unit as well as the sample number and type (and reference year). These types are defined in the map legend.

When the reference maps are used ensure that they have the correct symbology, especially if the map has been converted to a different format (e.g. Arc Info) or revised. If in doubt contact the representatives listed below. It is useful to include the map sheet and polygon(s) reference to check.

#### The Permanent Sample Plot spatial information:

To download the Inventory Growth and Yield PSP data view from the LRDW go to <http://lrdw.ca/> and then select, "Download Data" at: <https://apps.gov.bc.ca/pub/dwds/home.so>.

- Select either the:

**IDIR / BCEID  
Users Enter Here**

**Guest Users  
Enter Here**

or the button.

- In the search box, enter in "psp".
- Accept the terms and conditions before proceeding.
- Select either "Growth and Yield Samples - Active Status" or "Growth and Yield Samples - All Status".
- You can select your area of interest e.g., Forest District, Tree Farm Licence, etc. If you do not require the entire province and you can specify the output format for the order.
- Submit the order and you will be notified by email when your download is available through the ftp site.

There are many spatial views or layers in the LRDW; Active PSP's are found in the layer entitled:

- WHSE\_FOREST\_VEGETATION.GRY\_PSP\_STATUS\_ACTIVE. The province, licensees or other developers will only want this view to determine where there are recognized resource feature conflicts with proposed developments.
- WHSE\_FOREST\_TENURE.FTEN\_MAP\_NOTATN\_POLY\_SVW. Some PSP's are identified in the map notation layer.

The interior samples have a protective buffer (disturbance free zone measured from the plot perimeter) with a radius of 50 metres while the coastal samples will have a protective buffer with a radius of 100 metres. These are approximate buffers and users should consult with the Growth & Yield Forester identified in this document to determine whether these are adequate to protect the sample from resource development. The samples are represented in the LRDW by circular polygons whose size increases as the level of certainty regarding the sample location (positional data) decreases. Thus map based positional data will have a larger polygon than a differentially corrected GPS positional data in order encompass the area of the sample. A general reference to buffer protection may be found in Appendix 18 @ <http://www.for.gov.bc.ca/hts/vri/ip/standards/index.html#psp>.

The iMapBC spatial data viewer is available to government staff @ <http://webmaps.gov.bc.ca/imfx/imf.jsp?site=imapbc>. You may add the sample layer from the Forest Grassland & Wetland folder. As noted above there is one layer which has all samples and one which has only active samples. There are the options to view either colour filled or outline representations of the approximate buffer area. The display is scale dependent (not visible if layer box is greyed out) and you can query the underlying attributes by activating the "i" icon beside the layer name and then selecting display information about the feature. MapView version 6.0.5 online spatial data viewer also contains the active and all status samples within the land cover folder.

GeoBC (which is external to government) makes a map spatial data viewer @ [www.lrdw.ca](http://www.lrdw.ca) (Launch view data) that is available to the public with a similar scale dependent layer rendition for PSP's. The area of interest can be focused on by using the **find location** tab at the top of the page. For example: using "**find location**" use BCGS map sheet 92H078 to focus the viewer on that area. Layers can be turned off in the folders individually or you can close an entire folder of layers at once by clicking on the box to the right of the folder symbol. Turn off layers such as the land cover, elevation and landform points (TRIM) in the imagery and base maps - base maps (auto scale) folder to get rid of the clutter of point data as it impedes the ability to see the PSP symbols. As noted above there is one layer which has all samples and one which has only active samples. The samples may be found in the Land and Natural Resources Information folder - Forests Grasslands and Wetlands subfolder and noted as Growth and Yield Active Status or All Status in a colour fill (usually green) or outline depiction. There are the options to view either colour filled or outline representations of the approximate buffer area. By using this display approach the active (protected) samples are colour filled circles. The display is scale dependent (not visible if layer box is greyed out) and the underlying attributes can be queried by activating the "i" icon beside the layer name and then selecting **display information** about the feature.

The public version of MapView version 6.0.5 online spatial data viewer @ <https://webmaps.gov.bc.ca/imfs/imf.jsp?site=mapview> also contains the active and all status samples (based upon LRDW data) within the land cover folder. You can focus on your area of interest using the **Navigation** tab at the top of the page. For example: use zoom to map sheet using the BCGS map sheet 92H078 to focus the viewer on that area. You select the **Layers** tab and turn off the folders individually or close an entire folder of layers at once by clicking on the box to the right of the folder symbol. As noted above there is one layer which has all samples and one which has only active samples. The samples may be found in the **Forest Grasslands and Wetlands** folder and noted as Growth and Yield **Active** Status or **All** Status. The display is scale dependent (not visible if layer box is greyed out) and you can query the underlying attributes by activating the "i" icon beside the layer name and then selecting **display information** about the feature. The cursor will be a cross. You can pick the sample of interest and it will display the sample attributes. The key attribute is the sample status code; if it is **A**, **Q** or **P** the sample is protected, otherwise it is no longer active and not protected. If you select the coloured triangle to the right of the layer name it will bring up a submenu and you can then change the colour or colour fill, but more importantly you can select layer symbolization annotation for the sample select label field "Sample Ref. Number". You must submit these changes to refresh your display.

For further information on the Permanent Sample Plot Spatial layer contact:

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### **Research Installation Spatial information**

There is spatial information for research installations available in the **LRDW**. For installation protection reasons there are two views:

- **WHSE\_FOREST\_VEGETATION.RESPROJ\_RSRCH\_INSTN\_GVT\_SVW**. Ministry of Forests, Lands and Natural Resource Operations staff will have access to this view.
- **WHSE\_FOREST\_VEGETATION.RESPROJ\_RSRCH\_INSTN\_PBLC\_SVW**. Licensees or other forest developers will access this view through authenticated user id's.

### **Sample significance and status**

We have promoted samples for Map Notation in the Integrated Land and Resource Registry as significant long term data sources being used for research or experimental purposes. As designated resource features, these samples represent long term data collection assets and should be protected from resource development. We will add and remove PSPs as information is updated.

A modified and interactive Forest Productivity Council priority ranking is used as guidance to determine the importance (rank) of the samples. All samples with an ordinal ranking of 10 or less have a very high priority for re-measurement. In general terms, PSPs are kept until age 120, and some up to 150 yrs of age to allow for reasonable yield curve extrapolation. We are also continuing to protect extra samples as a buffer against losing samples due to unknown losses that we have not detected as we do not conduct sample reconnaissances between 10 year measurements. We also need to determine if the sample is currently active and when it was last re-measured on the typical ten-year measurement cycle.

### **Sample protection from Forest Health Management and/or salvage**

We have some latitude in modifying the no disturbance zone or “buffer” constraints as long as we do not influence the growth characteristics in the sample plot. The plot itself should be protected as it may represent growth and yield characteristics as a consequence of endemic/epidemic infestation. We cannot selectively harvest a sample. If the mortality level is projected to dramatically impact the sample based upon a more detailed survey we would review whether it should be maintained and protected in the Pest Damaged Matrix to provide post epidemic recovery information.