

3D Measurement System **OWL**

OWLManagerViewer Manual

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Revision History

Document Number	Revision date	Content	OWLManager Version
01	2019/02/28	First edition	1.0.0.0
02	2019/07/26	Supports OWL Manager Ver1.6 Supports reading encrypted survey data Added a function to measure the distance between arbitrary scan points and trees	1.0.1.0
03	2019/08/05	Renamed from OWLManagerDEMO to OWLManagerViewer Added 3 -3 9) Export and Import of Survey Data	1.0.2.0
04	2020/06/08	Added 4 -6 Tree height correction	1.1.0.0
05	2023/03/28	Added 1 -4 File format of 3D point cloud Added 8 Linkage with RICOH THETA application Added 9 -3 Language Settings	1.3.0.0
06	2023/10/04	Added 4 -2 3) Tree properties Added 4 -5 1) Items	1.3.1.0
07	2023/12/04	Supported OWLManagerVer2.0 Survey data file. Added 1 -4 2) Compatibility of survey data. Added 3 -6 3) Tools menu	1.4.0.0
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1 Summary

1 - 1 What is OWLManagerViewer?

Software for displaying data analyzed by OWLManager.

1 - 2 What OWLManagerViewer can and cannot do

■ What you can do

- Tree position map display (2D map)
- Tree list display (Tree list list)
- Display of various calculation items
- Diameter distribution map display
- Tree walk-through display (three-dimensional display)
- Image capture of tree location map and tree list
- Canopy width image display
- Selection of 2cm inscription display of value and inscription method (material volume etc. are also calculated by 2cm inscription value)
- Import/export survey data
- Corrected tree height display

■ Things you can't do

- Creation of survey data
- Survey area setting
- CSV output, shape file output function
- Edit tree statistics (change diameter, tree height, status)

1 - 3 Operating Environment

The operating environment of OWLManagerViewer is as follows.

項目	条件
Operating system	Windows10 / 11
.NET Framework	4.7.2 or higher
Processor (CPU)	Intel Core i5 or higher (Intel Core i7 is recommended)
System type	64bit
Memory (RAM)	8GB or more
Storage	SSD with free space of 10GB or more
Display	SXGA (1280 x 1024) or higher

1 - 4 Compatibility of 3D point cloud file format and survey data

1) File format of 3D point cloud

The format of the 3D point cloud file (PCD file) has been changed from OWLManager Version 1.7.6.

In the new file format, the color data of the 360° camera is embedded, enabling direct color change on Tachiki Walkthrough (OWLWalker). The correspondence between the new 3D point cloud file format and OWLManagerViewer is shown below.

- PCD files generated by OWLManager before OWLManager Version 1.7.6
 - Can be displayed by OWLWalker of all OWLManagerViewer
- PCD files generated by OWLManager Version 1.7.6 or later
 - OWLWalker with OWLManagerViewer Version 1.2.1 or earlier: Cannot be displayed (abnormal point cloud is displayed)
 - OWLWalker with OWLManagerViewer Version 1.2.1 or later: Displayable (direct color change possible)

2) Compatibility of survey data.

OWLManagerViewer allows you to open survey data created with the following versions of OWLManager.

	OWLManagerViewer Version 1.4.0 or later	OWLManagerViewer Version 1.3 or lower
OWLManager Version 1.x Survey data file	○	○
OWLManager Version 2.x Survey data file	○	×

1 - 5 Other information

Each item calculated by OWLManager and OWLManagerViewer is based on the following.

■ Tree volume values

Tree volume values are based on the following academic paper.

” ‘Discrepancies Between the Current Tree Trunk Volume Table and Values Calculated by the Tree Volume Formula, and Correction Methods’, Journal of the Japan Society of Forest Planning, Vol.44, No.2: P23-39, Published December 2010”

https://www.jstage.jst.go.jp/article/jjfp/44/2/44_KJ00009392245/_pdf

The Miyagi Prefecture private tree volume formula is calculated based on the following materials with some parameters modified.

Target tree species: Cedar private forest, red pine private forest, broad-leaved private forest

Miyagi Prefecture Private Forests Volume Table and Stand Harvest Table February 1997 Miyagi Prefecture Forestry Administration Division

https://www.jma.or.jp/jmacc/data/222_r001_pj4.pdf

■ Biomass

Biomass is based on the official Japanese government formula approved by the IPCC.

Source: Forestry and Forest Products Research Institute

<http://www.ffpri.affrc.go.jp/research/dept/22climate/kyuushuuryou/documents/page1-2-per-a-tree.pdf>

❖ The biomass calculation uses “coefficient applied to stands aged 21 years or older”.

❖ Weights are dry weights.

■ Crown width

Crown width is a reference value calculated from measured data for diameter at chest height and crown width (document source: Forestry and Forest Products Research Institute).

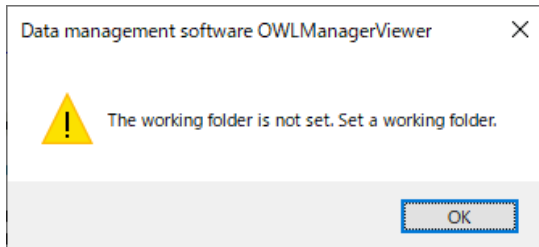
■ Tree height correction function

The “Nesrund” formula is used to calculate the corrected tree height value

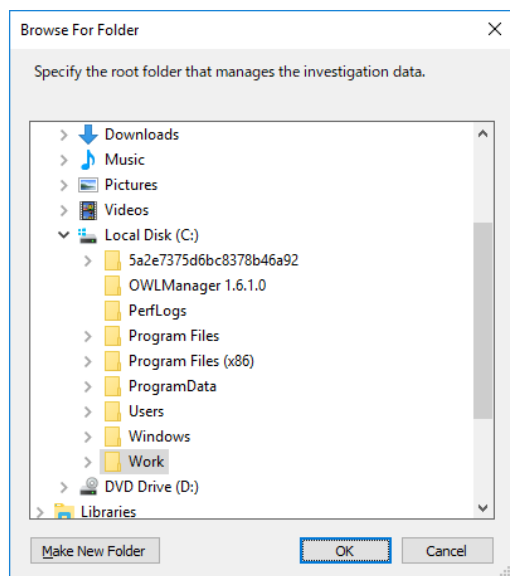
2 Settings at first startup

2 - 1 Setting the

You need to set your working folder first. When starting OWLManagerViewer, the following message is displayed.

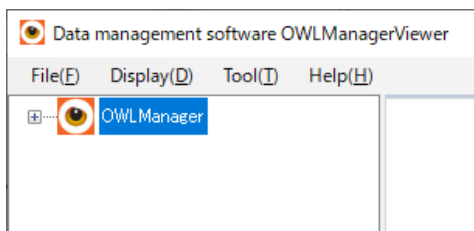


Please press the "OK" button.



Select the folder to store OWLManager data, or select the location where you want to create a new folder and press the "Create new folder" button.

At this time, do not specify a storage such as a network drive or USB memory.



After setting the working folder, OWLManagerViewer will start. This setting is not required from the next time.

3 Function

3 – 1 Function Summary

1) Working folder (survey data storage location)

The “working folder” must be set in advance as the location for survey data storage. The working folder can be set the first time OWLManagerViewer starts, or it can be set later.

2) Management of survey data

Survey data is managed in a hierarchical structure of “compartment” – “sub-compartment” – “survey data”, and survey data must always be saved within a “sub-compartment”. Multiple survey data may be saved to the same sub-compartment. The names “compartment” and “sub-compartment” are employed for convenience, and the names can be changed under OWLManagerViewer Settings.

3) Survey data tree display

This displays the hierarchical structure of “compartment” – “sub-compartment” – “survey data”. The content of the tree display can be switched to match the form of management.

■ Display all survey data

Displays all survey data stored in the sub-compartment.

■ Display only latest survey data

Only displays the survey data with the latest creation date.

■ Specify survey year to display

Only displays survey data from within the specified period. If the “By fiscal year” box is checked, the period is treated as the fiscal year.

4) Computed parameters such as thinning rate, total tree volume, and has converted value

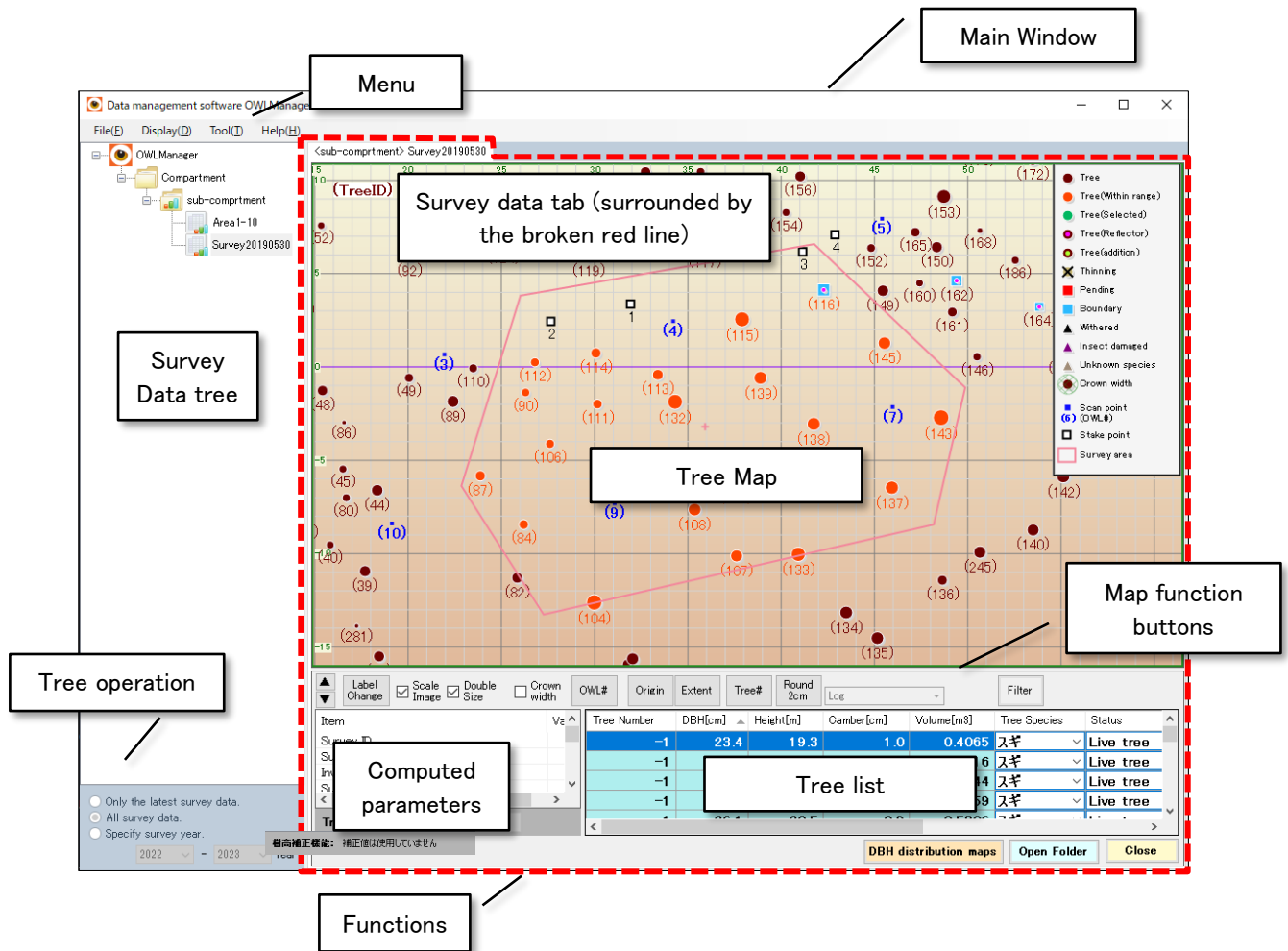
When the survey area range is set, thinning rate, total tree volume, etc. are calculated from the trees within that range. They are not calculated if the survey area range is not set.

5) Tree map projection method and area

The tree map is a map projected onto a horizontal plane, and the area of the survey area range is the horizontally projected area. Therefore, for inclined directions, the actual distance is represented as shorter than the distance at the actual inclination angle.

3 - 2 Window Configuration

The Main Window of OWLManager has the following configuration:



Multiple survey data (tree map and tree list) may be displayed in a single window. Survey data is compartmented into tab units, and a new tab is displayed each time survey data is called.

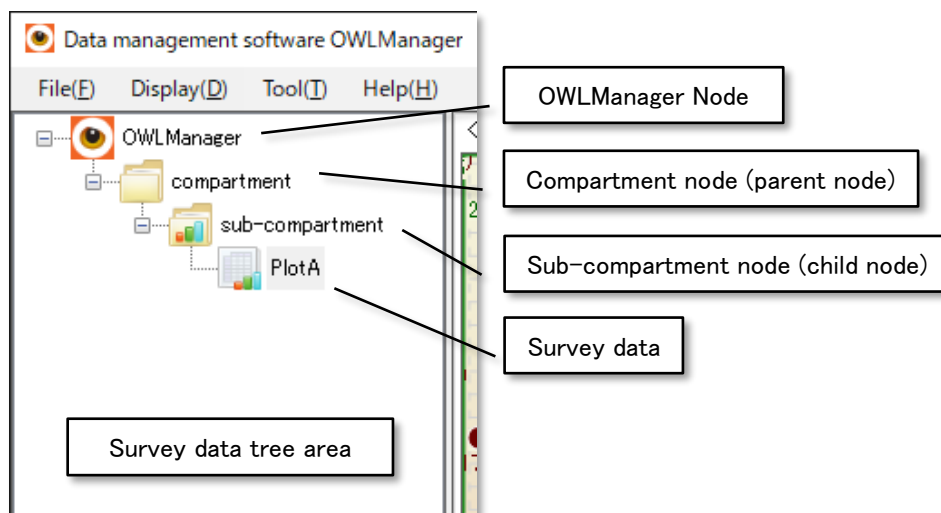
3 – 3 Survey data tree

This is the area where survey data is displayed in tree format.

The tree has a set hierarchical structure of "OWLManager" – "" – "sub-compartment" – "survey data", and these are called nodes.

Multiple nodes may be created as necessary, but it is not possible to create survey data within a compartment. Data must be managed in the hierarchical relationship of "compartment" – "sub-compartment" – "survey data". The names "compartment" and "sub-compartment" are employed for convenience, but the names can be changed freely to match the actual form of management.

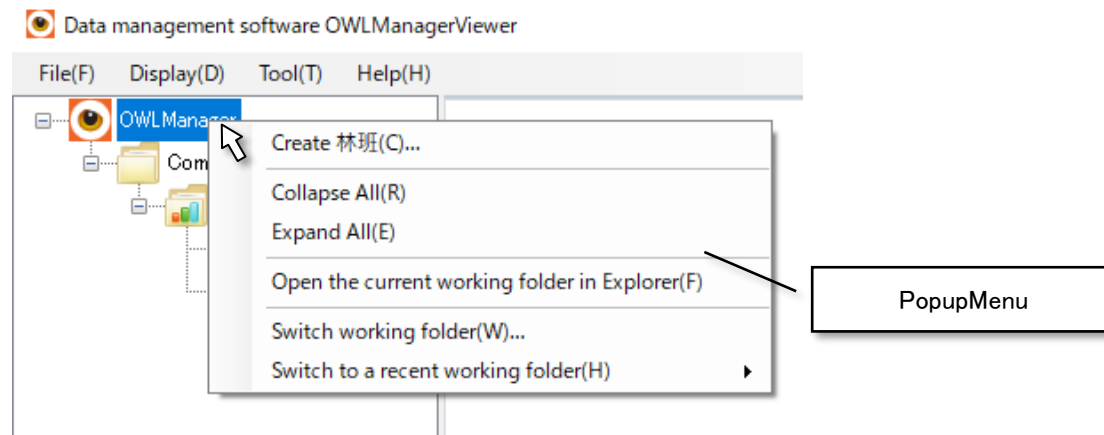
Nodes can be expanded and collapsed by double-clicking on them. When survey data is double-clicked, it is displayed in the tabs area.



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1) OWLManager node (root node)

The OWLManager node manages forest compartments. Right-click the OWLManager node to display a popup menu. Note that this node itself cannot be deleted or renamed.

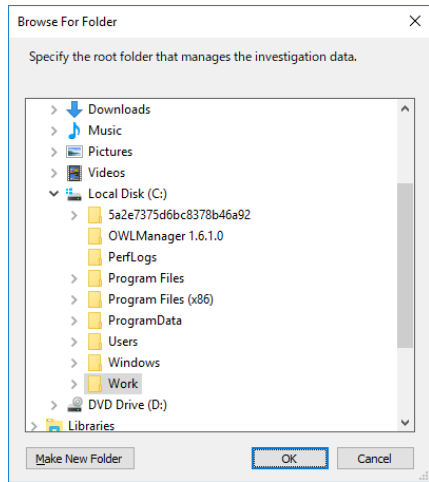


- Create compartments
Display the Create Compartment window.
- Collapse all
Collapse all nodes.
- Expand all
Expand all nodes, down to the survey data level.
- Open the current working folder in Explorer
Explorer starts and displays the currently used working folder.
- Open the current working folder in Explorer
Explorer starts and displays the currently used working folder.

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■ Switch working folder

The currently used working folder is switched. All survey data must be closed before switching folders.



- ❖ There is no need to restart OWLManager after switching the folder, as was necessary up to Version 1.4.2.3.

■ Switch to a recent working folder

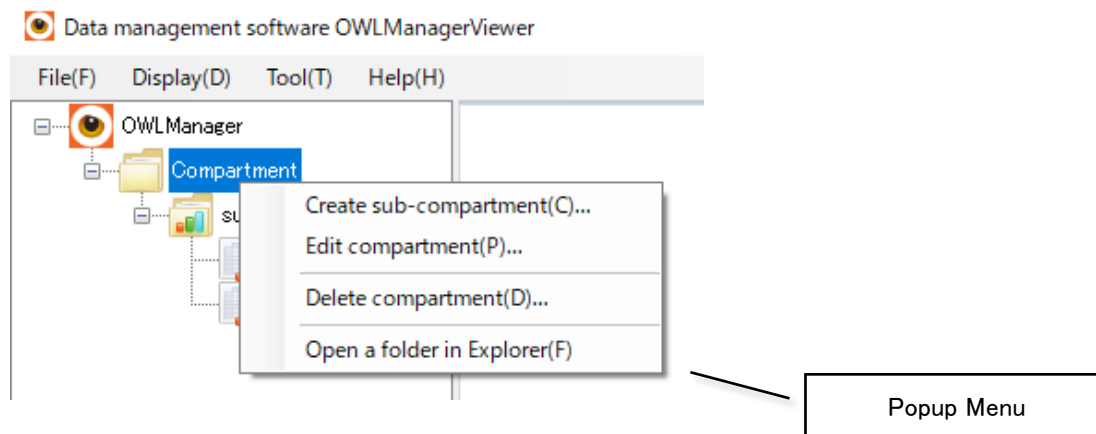
The history of working folders which have been switched to is displayed.

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2) Compartment node

The compartment node is the node which manages sub-compartments.

Right click on a compartment node to display the Popup menu.



- Create sub-compartments

The Create sub-compartment window is displayed.

- Edit compartment

Edit information about a compartment.

- Delete compartment

Delete a compartment. Sub-compartments within the compartment, and survey data within such sub-compartments, are deleted.

- Open folder in Explorer

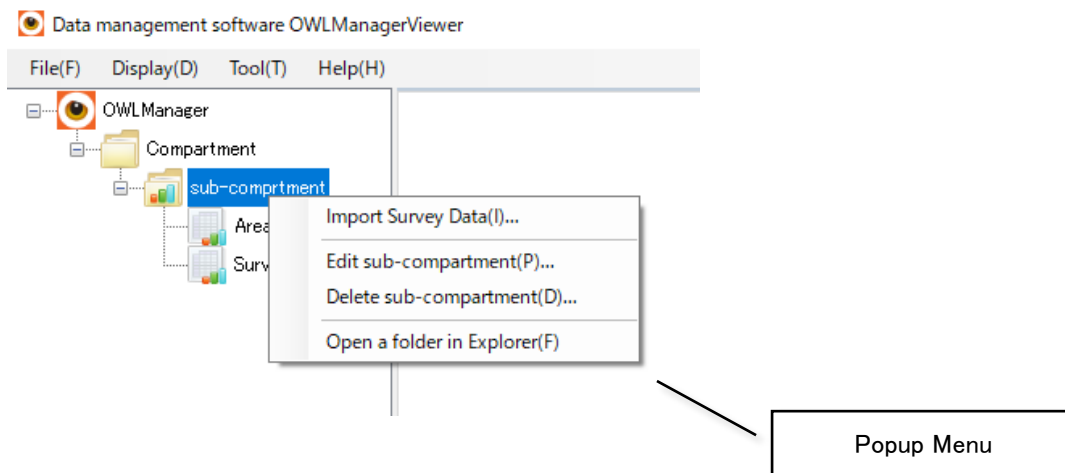
Open the compartment folder in Explorer.

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3) Sub-compartment node

The sub-compartment node is the node which manages survey data.

Right click on a sub-compartment node to display the Popup menu.



- Create Survey Data

The Create Survey Data window is displayed.

- Import survey data

Import survey data files which were exported using "Export survey data".

- Edit sub-compartments

Edit information about a sub-compartment.

- Delete sub-compartment

Delete a sub-compartment. Survey data within the sub-compartment is also deleted.

- Open folder in Explorer

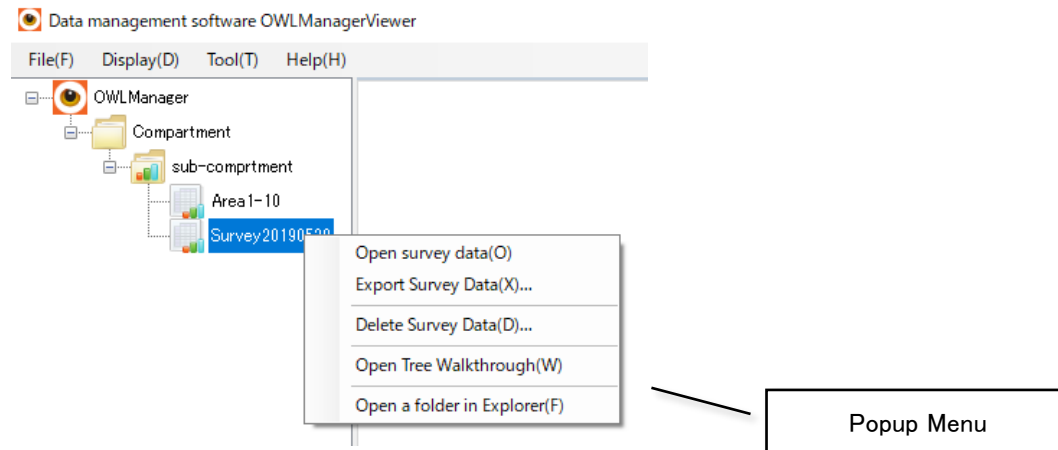
Open the sub-compartment folder in Explorer.

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4) Survey data node

The result of analyzing (merging) OWL files is "survey data". When survey data is double-clicked, it is displayed in the tabs area.

Right click on survey data to display the Popup menu.



- Open survey data

Open survey data. Survey data can also be opened by double-clicking on it directly.

- Export survey data

Export survey data.

- Delete survey data

Delete survey data. Deletion cannot be undone.

- Open Tree Walkthrough

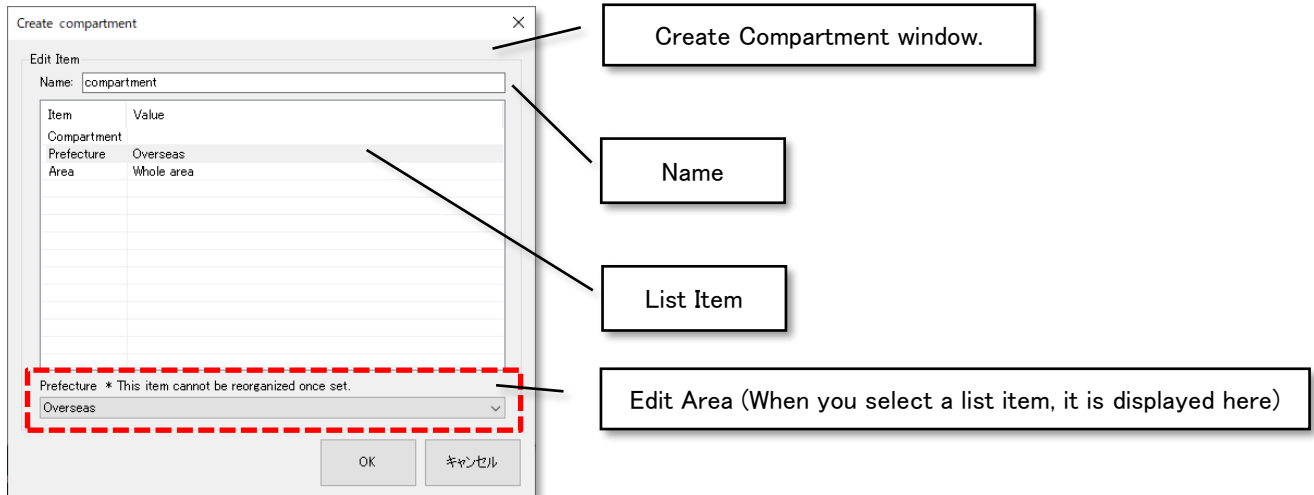
Open Tree Walkthrough in a separate window.

- Open folder in Explorer

In Explorer, open the folder where the survey data is saved.

5) Creating and editing compartments

To create a compartment, right click on an OWLManager node and select "Create compartment". To edit an existing compartment, right click on an OWLManager node and select "Edit compartment".



■ [Name]

Enter (edit) the name of the compartment. This name becomes the name of the forest compartment node. It is not possible to create a name which already exists.

■ Compartment number

Enter a name which is suitable for the number, name, and form of management of the compartment. Any values (content) may be entered.



■ Prefecture name (required)

Select the prefecture where the survey was performed. The initially selected prefecture is the "Default prefecture" selected on "OWLManager settings".

Care is required, because once a compartment has been created, it cannot be edited (changed).



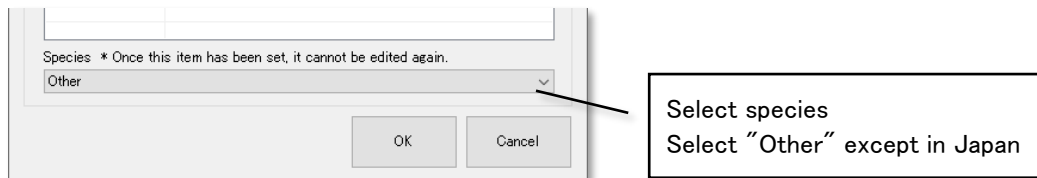
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■ Species name (required)

Select the name of the municipality (area) where the survey was performed. Options are not displayed if the prefecture name has not been selected.

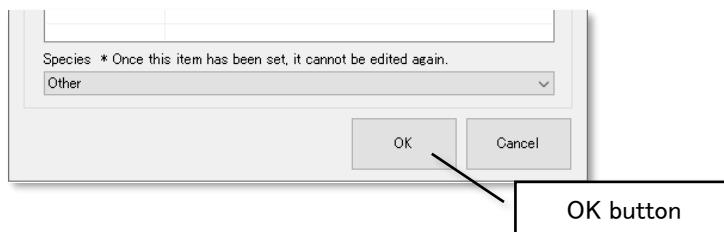
Depending on the prefecture, this may be the area name, or "whole area".

Care is required, because once a sub-compartment has been created, it cannot be edited (changed).

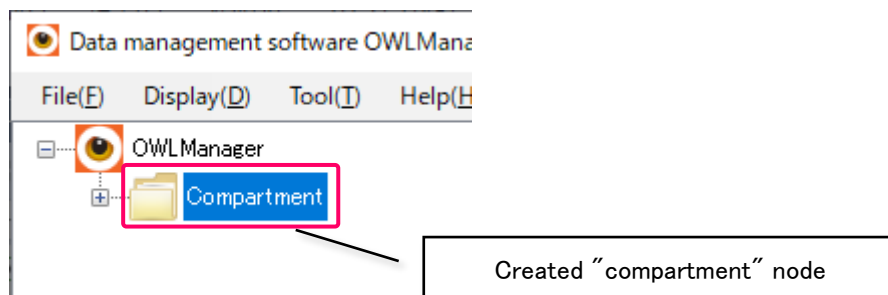


■ Setting

Click on the OK button after editing each item is finished. When the button is clicked, the Create Forest Compartment window close and the survey data tree is displayed.

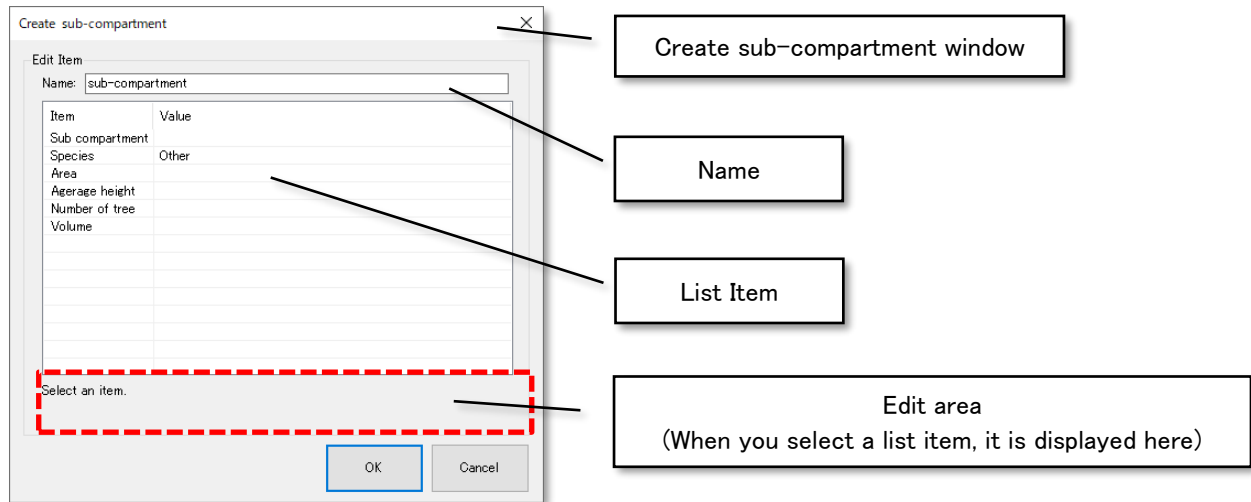


After editing the forest compartment, it will be reflected in the survey data tree.



6) Creating and editing sub-compartments

To create a sub-compartment, right click on a compartment node and select "Create sub-compartment". To edit a sub-compartment, right click on a sub-compartment node and select "Edit sub-compartment".

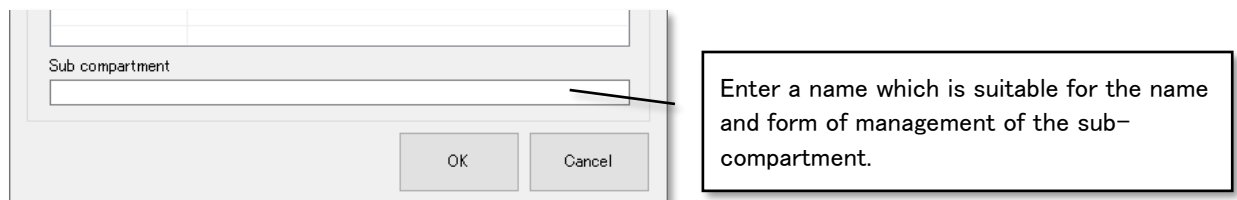


■ [Name]

Enter (edit) the name of the sub-compartment. This name becomes the name of the sub-compartment node. It is not possible to create a name which already exists.

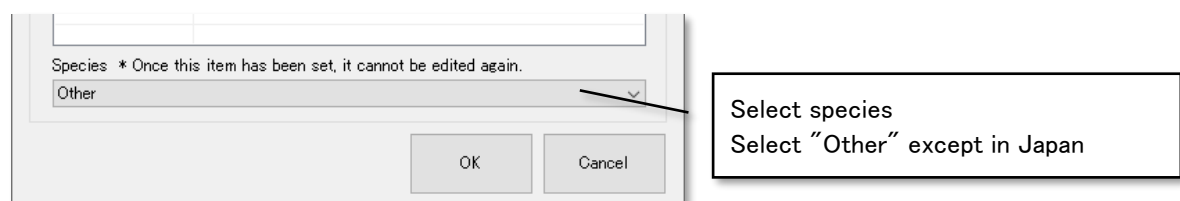
■ Sub-compartment number

Enter a name which is suitable for the number, name, and form of management of the sub-compartment. Any values (content) may be entered.



■ Tree type (required)

Select the main tree type where the survey was performed, from among the options displayed below. Care is required, because once a tree type has been created, it cannot be edited (changed).



(Caution)

The available tree type options vary with the prefecture name and species name (area).

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■ Area

Enter the area from the records of previous surveys or forest registration documents etc. Any values (content) may be entered.

This area is used as reference information, and is never used in computation etc.

■ Average tree height

Enter the average tree height from the records of previous surveys or forest registration documents etc. Any values (content) may be entered.

This average tree height is used as reference information, and is never used in computation etc.

■ Number of trees

Enter the number of trees from the records of previous surveys or forest registration documents etc. Any values (content) may be entered.

This number of trees is used as reference information, and is never used in computation etc.

■ Tree volume

Enter the tree volume from the records of previous surveys or forest registration documents. Any values (content) may be entered.

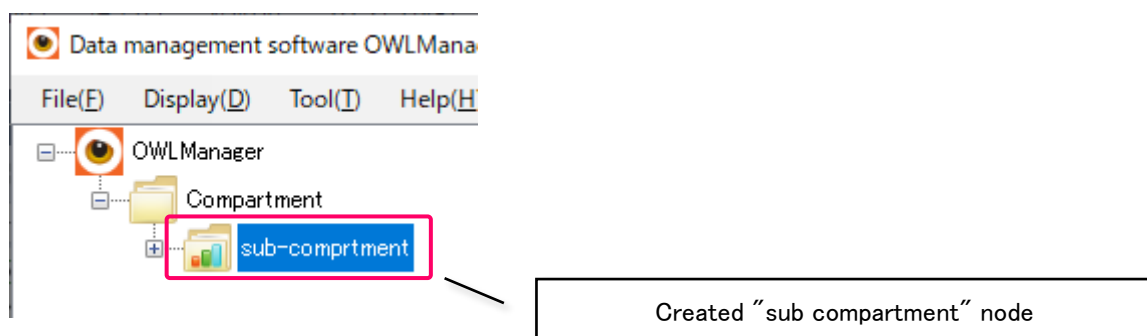
This tree volume is used as reference information, and is never used in computation etc.

■ Setting

Click on the OK button after editing each item is finished. When the button is clicked, the Create Sub-compartment window close and the sub-compartment is displayed in the survey data tree.



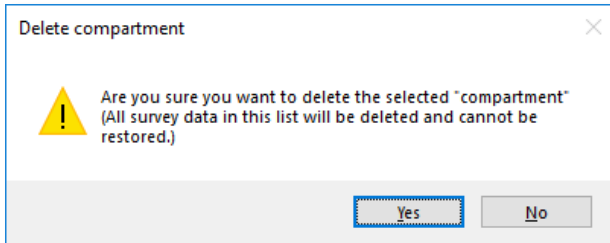
When you finish editing the small group, it will be reflected in the survey data tree.



7) Deleting compartments and sub-compartments

■ Deleting compartments

Right click on a compartment node to delete and select "Delete compartment". The following confirmation message is displayed.



Select "Yes" to delete the selected compartment, as well as sub-compartments managed within it, and survey data within such sub-compartments. Select "No" to return without deleting.

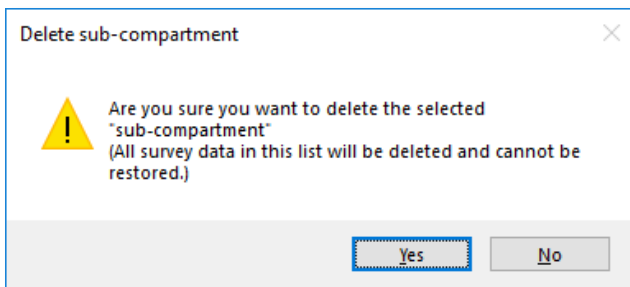
(Caution)

When a compartment node is deleted, all sub-compartment compartments included within it, and all survey data, are also deleted.

Care is required, because deletion cannot be undone.

■ Deleting sub-compartments

Right click on a sub-compartment node to delete and select "Delete sub-compartment". The following message is displayed:



Select "Yes" to delete the selected sub-compartment, as well as survey data within it. Select "No" to return without deleting.

(Caution)

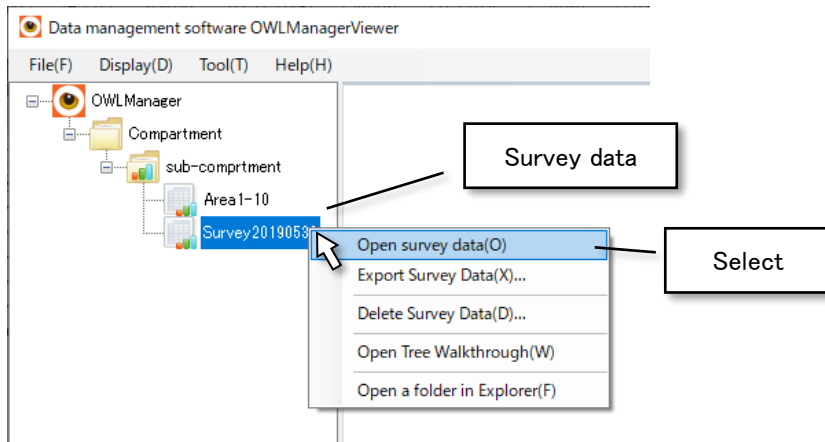
When a sub-compartment node is deleted, all survey data within it is also deleted.

Care is required, because deletion cannot be undone.

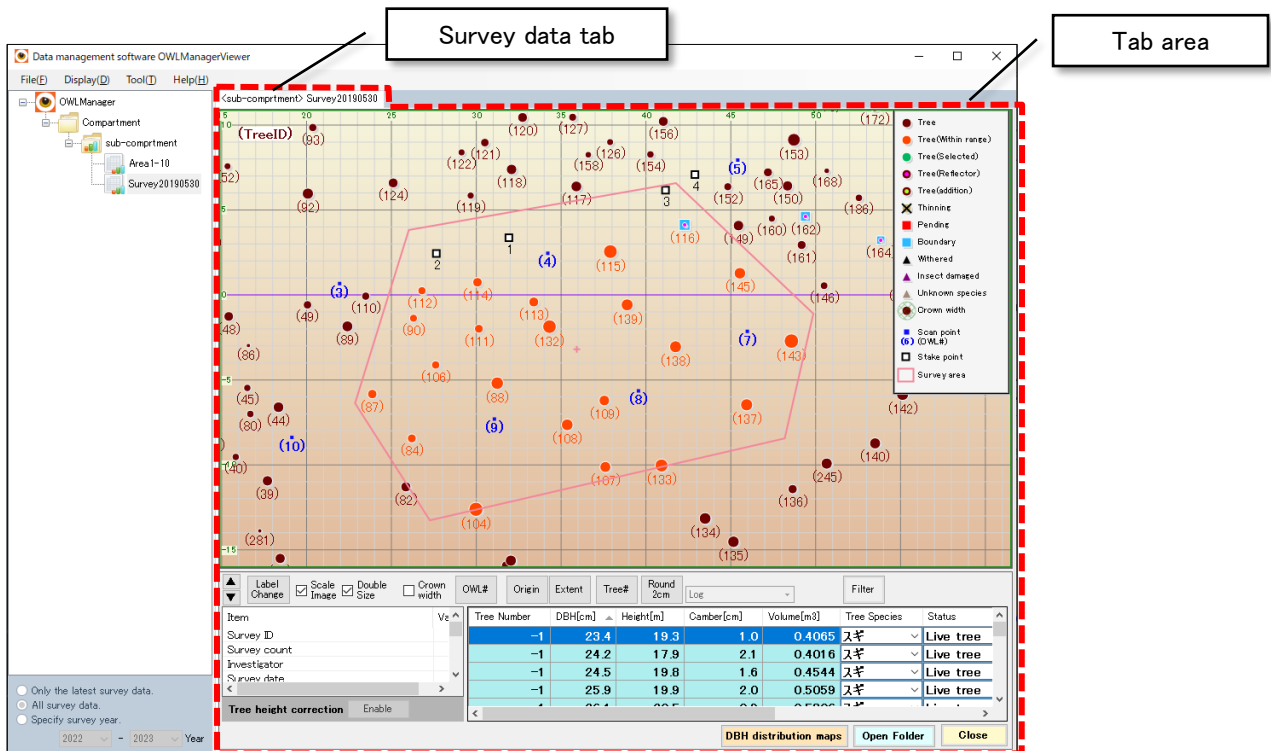
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8) Open survey data

Right click on the survey data and select "Open survey data", or double-click on the survey data node to open the survey data.



The survey data is displayed in the tabs area as survey data tabs (inside the red line). One set of survey data is displayed on one tab.



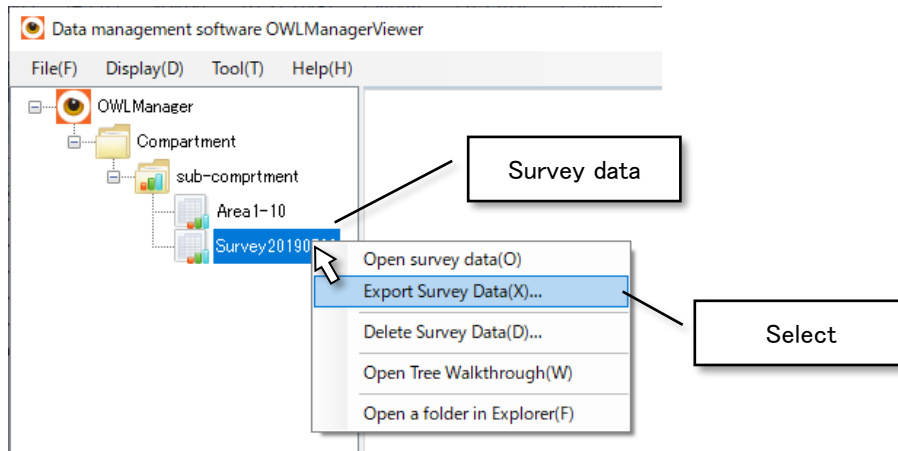
Please refer to "4 Survey Data Tabs" for the handling of survey data.

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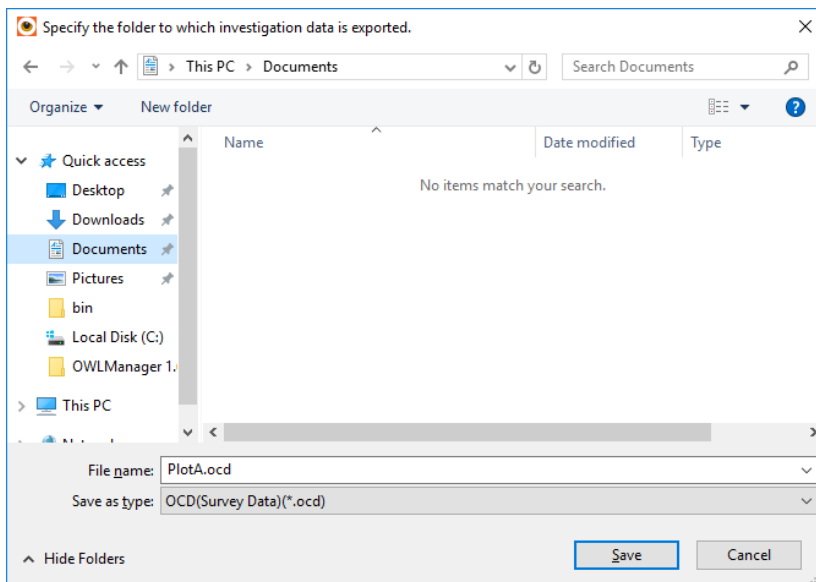
9) Export and Import of Survey Data

To export survey data, right click on that survey data and select "Export survey data".

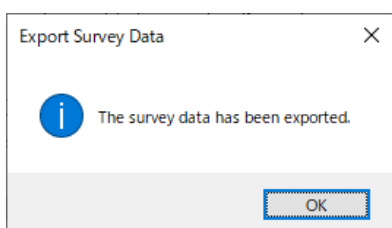
Exported survey data can be imported by OWLManager or OWLManagerViewer elsewhere.



On selection, a window is displayed for selecting the export destination folder. Select the export destination, then click on the Save button. The exported file can be given any filename, but the survey data name when imported will be the same as the original survey data name.

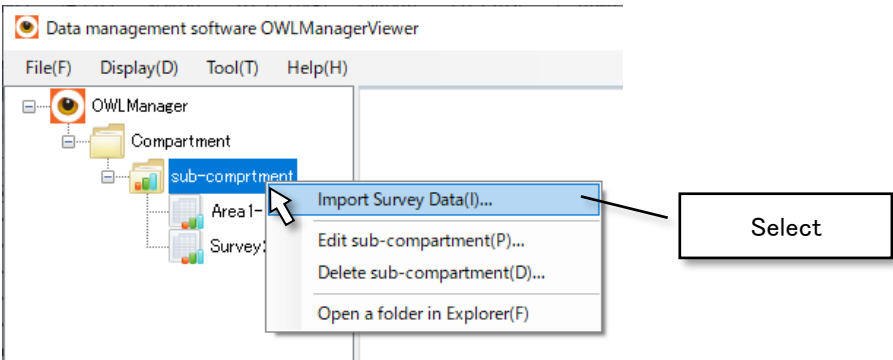


The following message is displayed when survey data is exported:

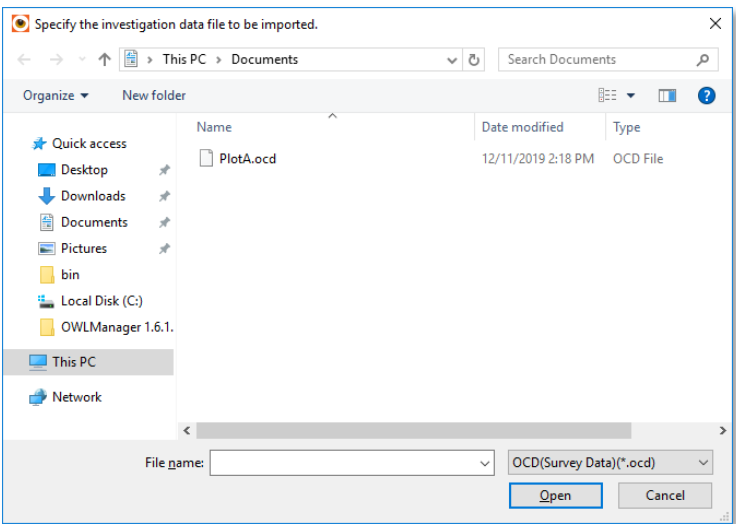


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To import survey data, right click on the sub-compartment node to import, then and select "Import survey data".



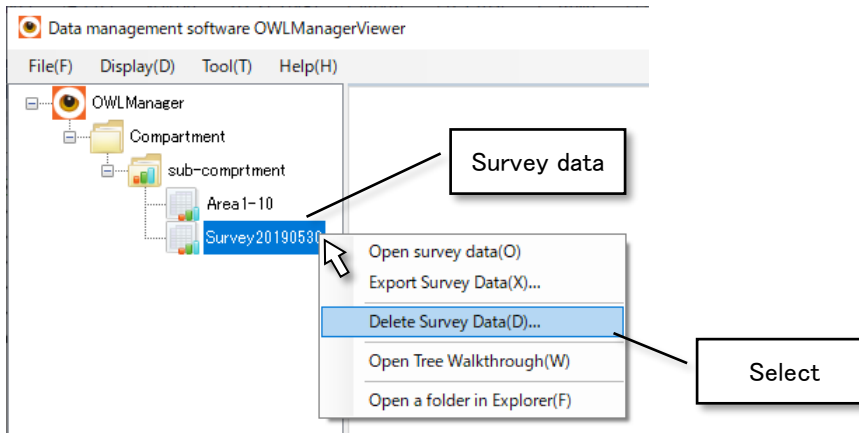
A window is displayed for selecting the survey data file to import. Select files with the ".ocd" extension.



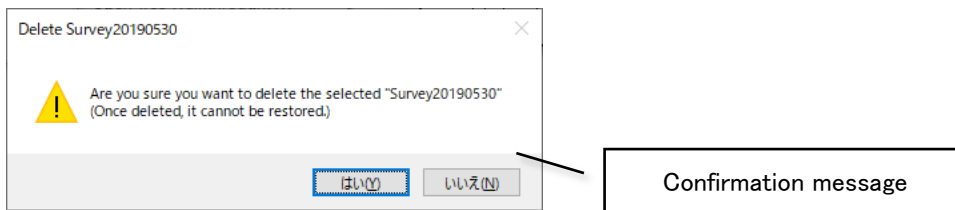
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10) Deletion of survey data

Right click on the survey data to delete and select "Delete survey data".



On selection, the message shown below is displayed:



Select "Yes" to delete the survey data. Select "No" to return without deleting.

(Caution)

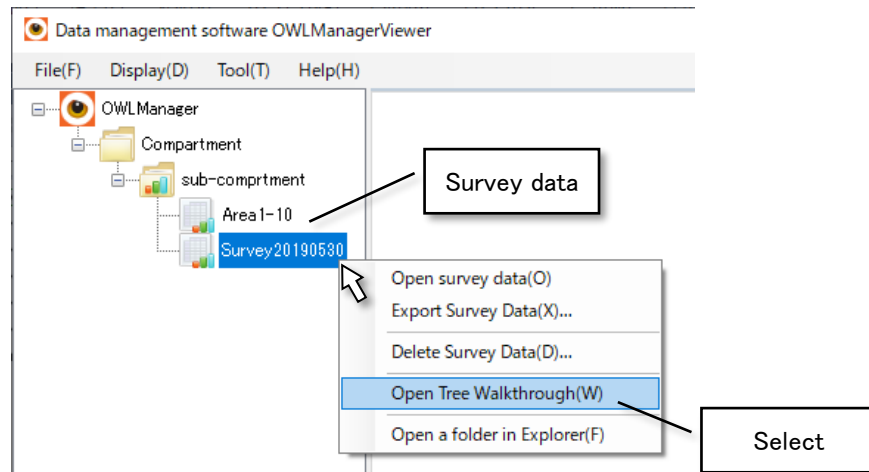
Care is required, because deletion of survey data cannot be

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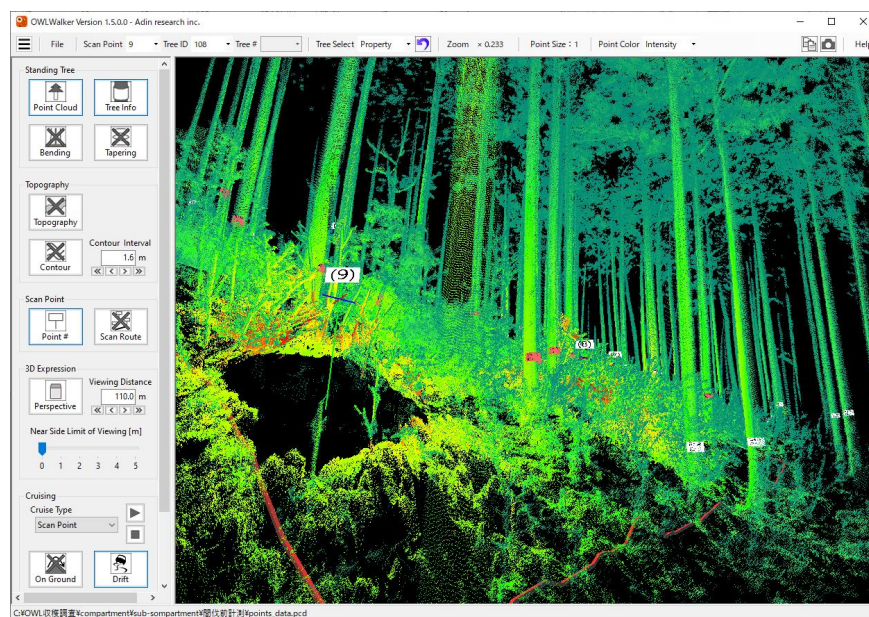
11) Open Tree Walkthrough

This displays 3D data with a viewpoint like walking through the forest.

Right click on the survey data to display and select “Open Walkthrough”.



On selection, the Tree Walkthrough window is displayed.



Depending on the performance of your computer, the tree walkthrough may take some time to display or may not be displayed.

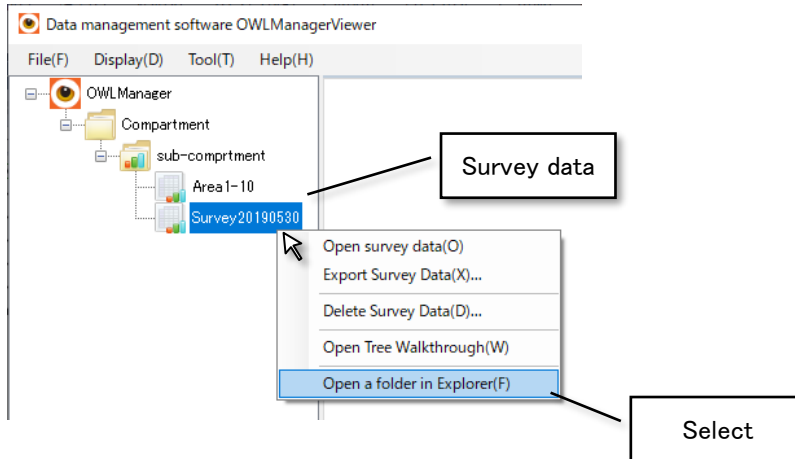
Refer to “OWLWalker Manual” for details of how to use Walkthrough.

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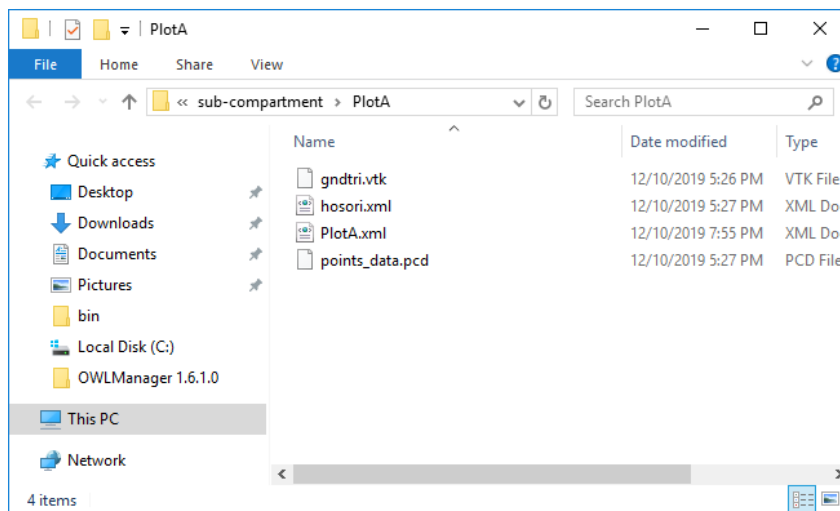
12) Open folder in Explorer

In Explorer, open the folder where the survey data is saved.

Right click on the survey data to and select "Open folder in Explorer".



Explorer starts, and the folder containing the survey data opens directly.



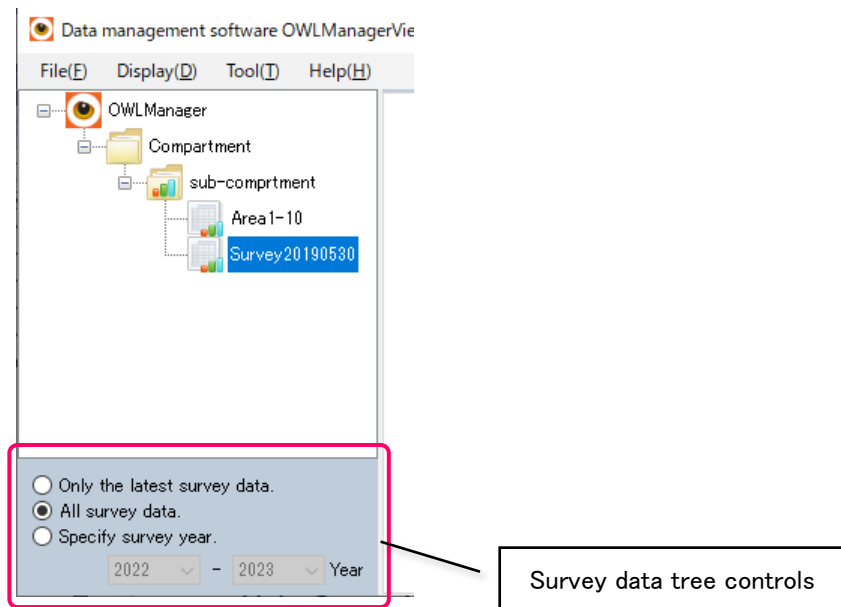
(Caution)

Do not delete or edit files which are already stored in the folder.
It may become impossible to open survey data.

3 - 4 Survey data tree operation

The display method for survey data in the tree can be changed.

The following three display methods can be selected, using the survey data creation date. The default display method for survey data can be changed in "OWLManager settings".



■ "Only the latest survey data"

Of the survey data saved in each sub-compartment, only the survey data with the latest creation date is displayed.

■ "All survey data"

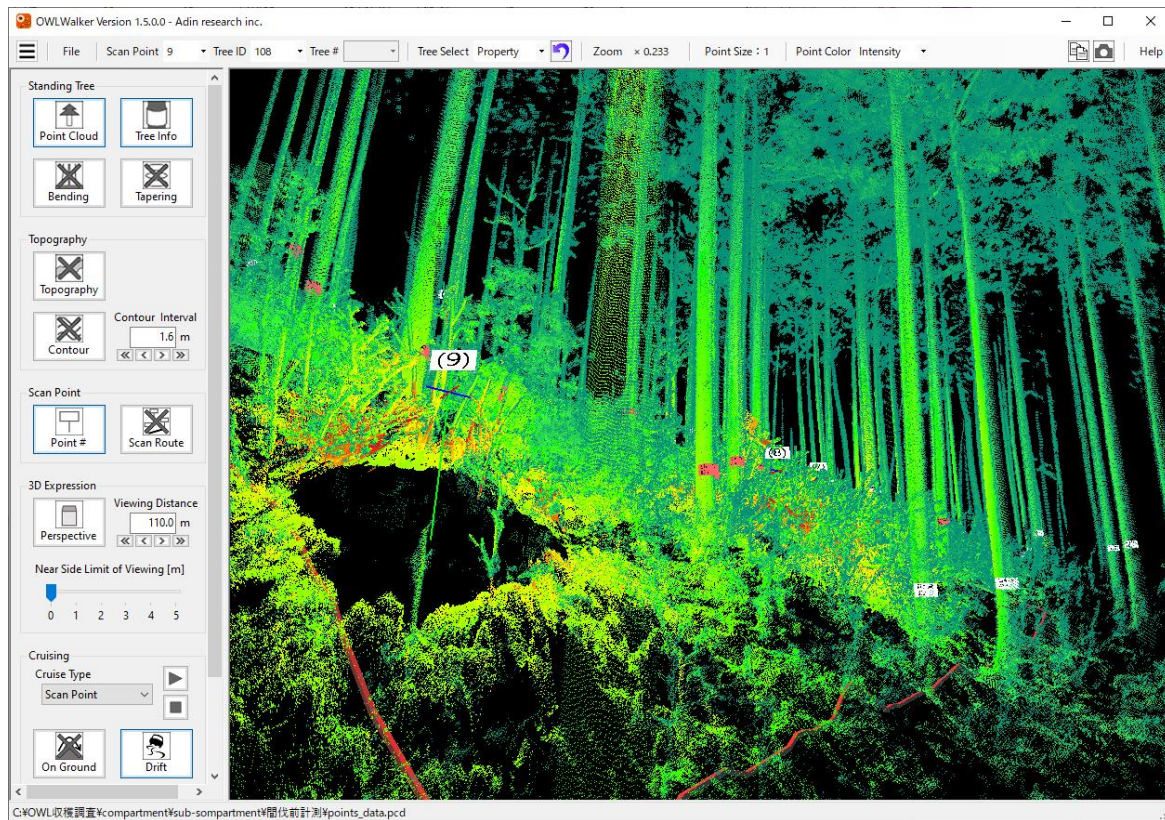
All survey data is displayed.

■ "Specify survey year"

Of the survey data saved in each sub-compartment, only survey data within the specified period is displayed.

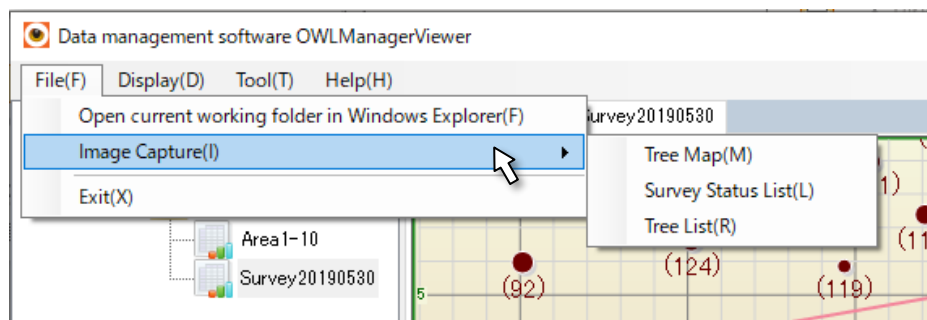
3 - 5 Tree Walkthrough window

Please refer to the "Owner's Manual (OWWalker Edition)" for the handling of Treei Walkthrough.



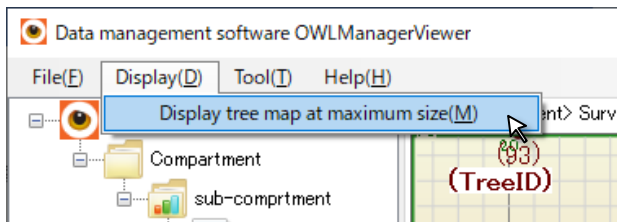
3 – 6 Menu

1) "File" menu



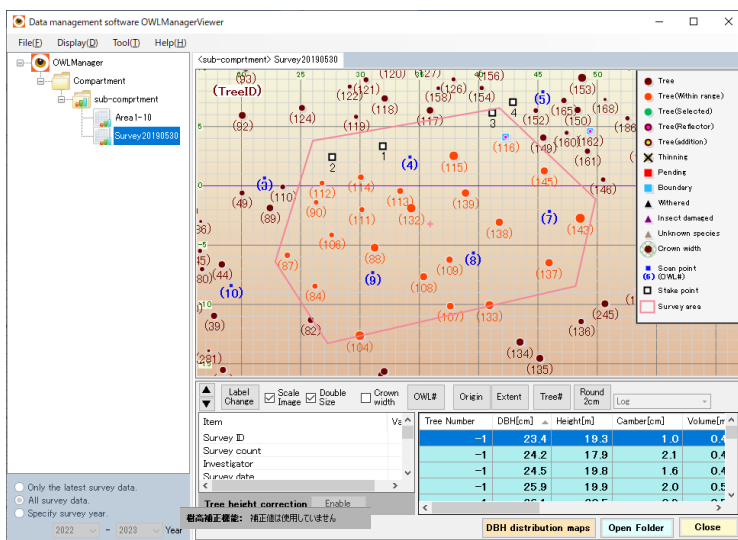
- **Open current working folder in Windows Explorer**
The currently used working folder opens in Explorer.
- **Image Capture – Tree Map**
Copy an image of the tree map to the clipboard. The tree map can be pasted into other applications as an image. The acquired size depends on the displayed state.
- **Image Capture – Survey Status list**
Copy an image of the survey status list to the clipboard. The tree map can be pasted into other applications as an image. The acquired size depends on the displayed state.
- **Image Capture – Tree list**
Copy an image of the tree list to the clipboard. The tree map can be pasted into other applications, as an image. The acquired size depends on the displayed state.
- **Exit**
Exit OWLManager.

2) Display menu

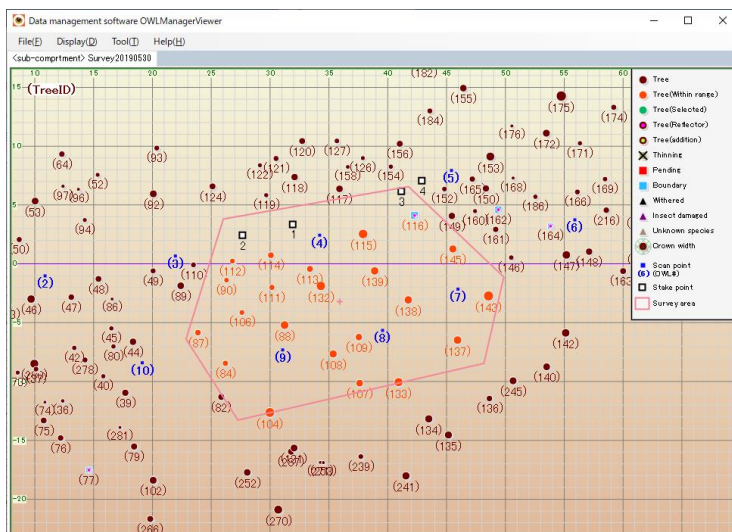
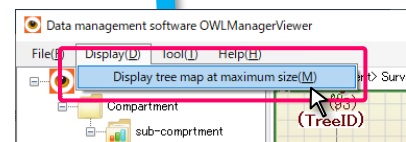


Maximum tree map display

The survey data tree, survey status list, and tree list are hidden and only the tree map is displayed. Select this again while only the tree map is displayed, to return to normal display.

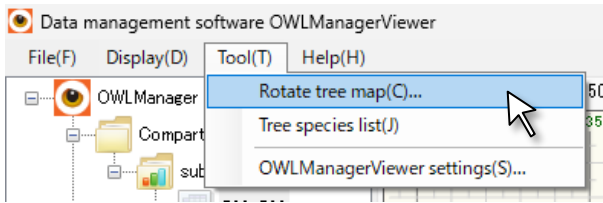


Normal



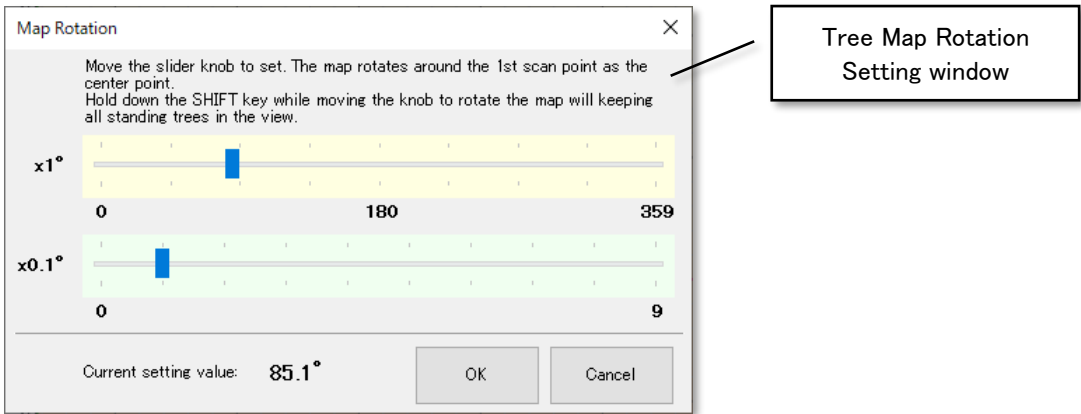
Map maximum size

3) Tools menu



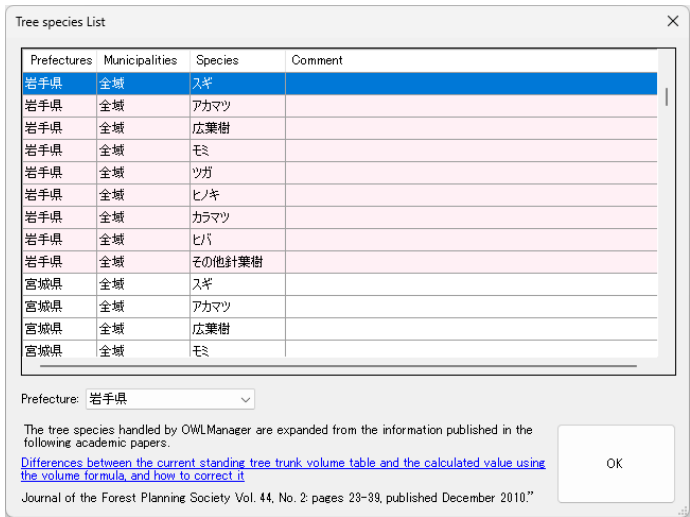
■ Tree map rotation

Rotate the tree map to an orientation that is convenient for viewing. Refer to “6Tree map Rotation Function” for details.



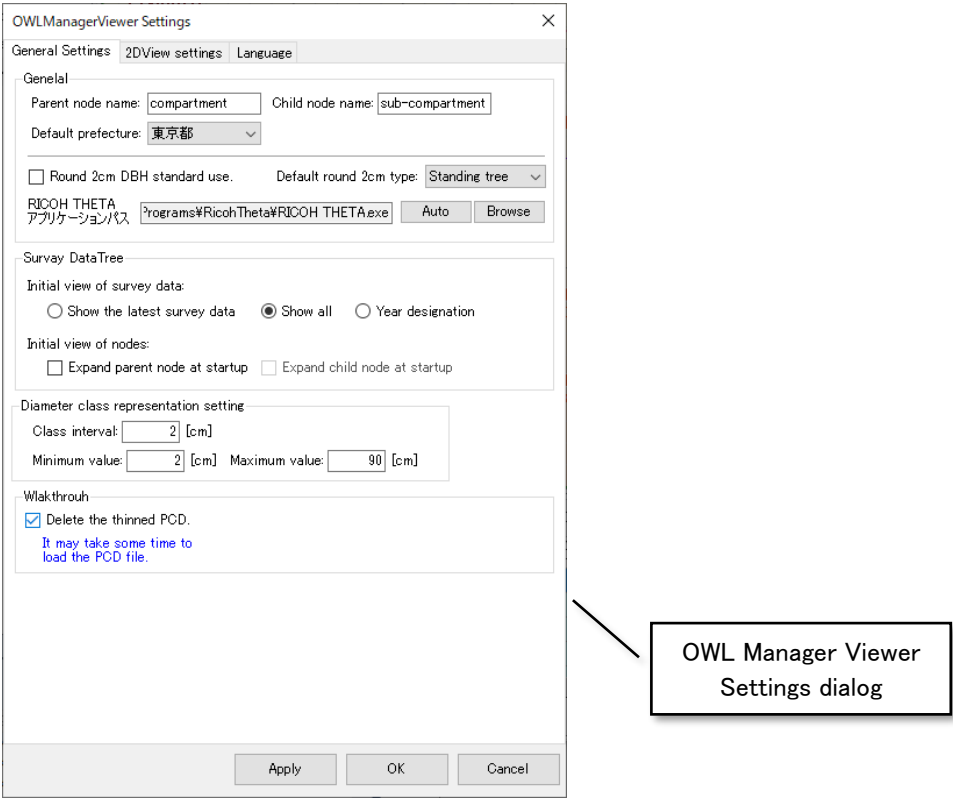
■ Tree species list

Displays a list of tree species used in OWLManagerViewer.



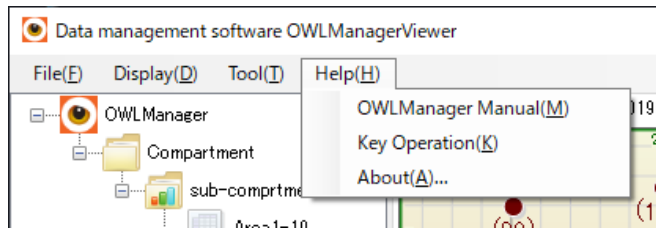
■ Configure OWLManagerViewer

Set OWLManagerViewer. For details, see “9 OWLManagerViewer”.



3D Measurement System OWL

4) Help menu

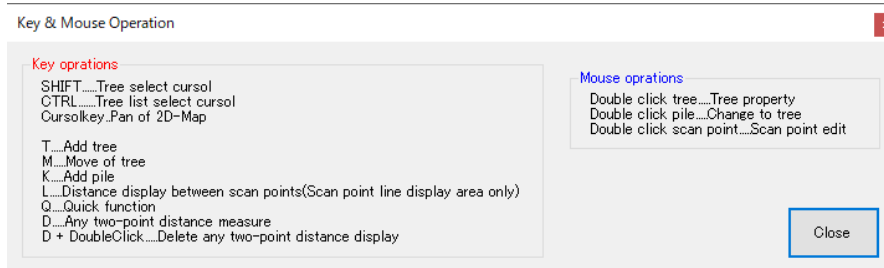


■ OWLManagerViewer Instruction Manual

The instruction manuals can be opened in PDF format. Instruction manuals for Walkthrough can be opened from the Walkthrough Help menu.

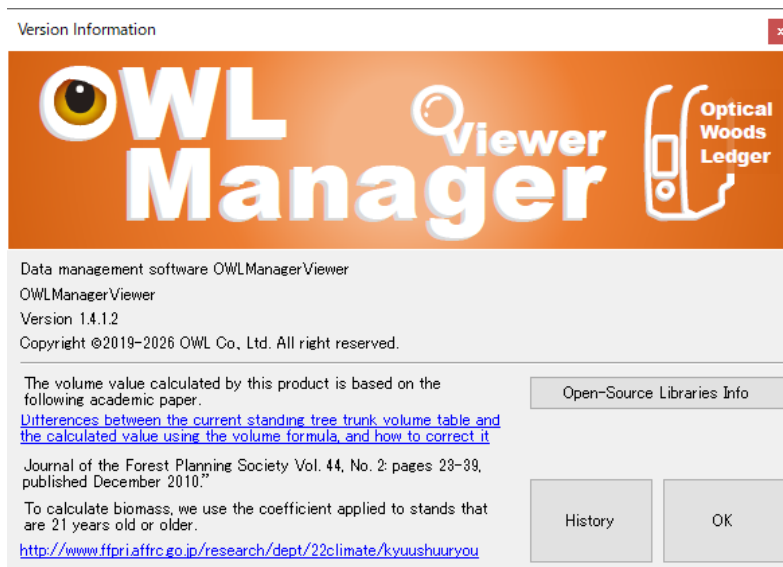
■ Key & Mouse operations

A list of key and mouse operations that can be used on the location map is displayed.



■ Version information

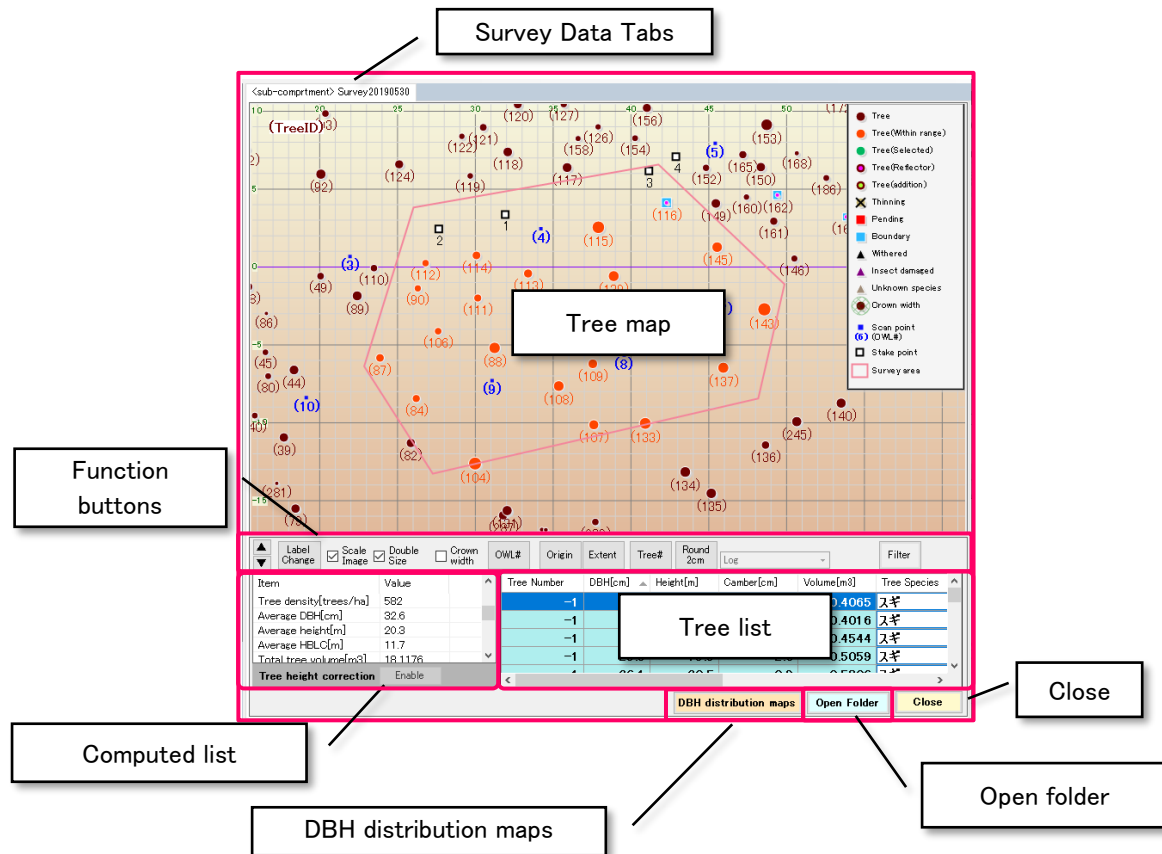
This displays the OWLManagerViewer version information. Use it to check when software updates, etc.



4 Survey Data Tabs

4 - 1 Summary

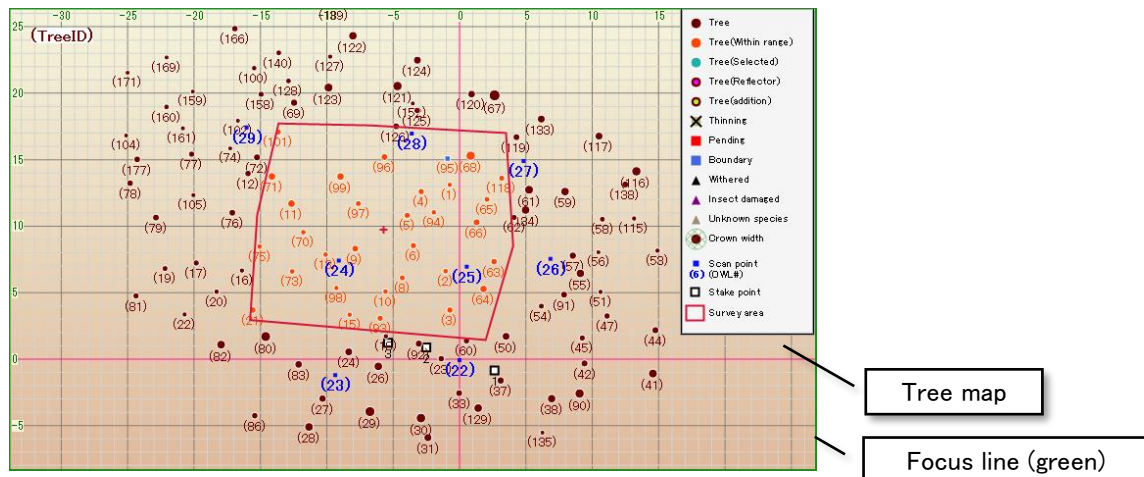
Information and functions about survey data are displayed concentrated onto one tab for each set of survey data.



4 - 2 Tree map

This is a 2D horizontal projection representing the positions of trees.

The top orientation of the tree map follows the orientation of the device at the first scan point to be indicated at the data analysis stage.



1) Operation

■ The focus of tree maps

If the display position is moved, enlarged, or reduced, it is necessary to "apply focus to the tree map".

Clicking on any position on the tree map sets the focus, and the tree map is bounded by a bold green line.

The bold line disappears when focus is lost.

■ Movement and zooming in and out

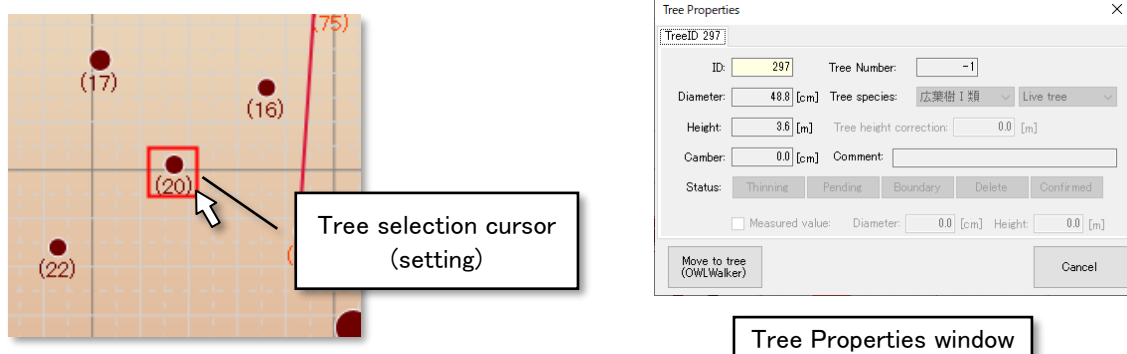
The display position can be moved by clicking and dragging with the left mouse button on the tree map.

Cursor keys can also be used for movement. The mouse wheel can be used to zoom in and out at the mouse position.

■ Tree selection cursor (red square)

Pressing the Shift key with focus on the tree map displays a red square cursor.

Placing a tree within this cursor and left clicking displays the Tree Properties window, so that information on that tree can be edited. The Check with Walkthrough button can be clicked to start the Walkthrough for that tree.

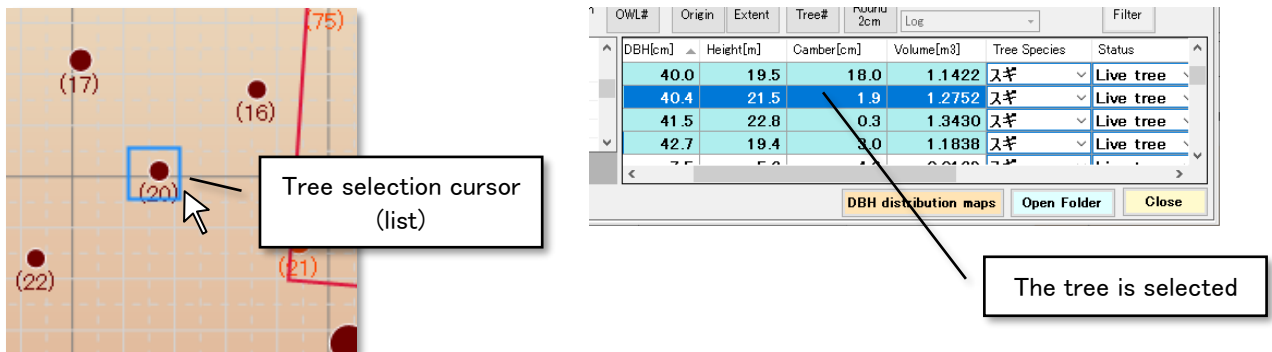


3D Measurement System OWL

■ Tree selection cursor (blue square)

Pressing the CTRL key with focus on the tree map displays a blue square cursor.

Placing a tree within this cursor and left clicking selects that tree in the tree list.



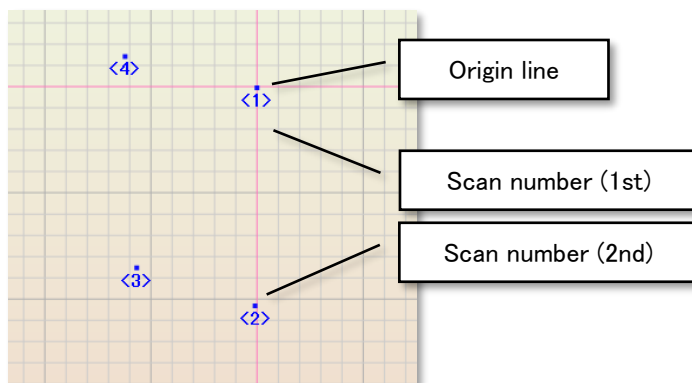
The diagram illustrates the tree selection process. On the left, a tree map shows several trees marked with red dots and labeled with numbers in parentheses: (17), (16), (20), (22), (75), and (21). A blue square cursor is positioned over tree (20), with a callout box labeled "Tree selection cursor (list)". On the right, a screenshot of the "Tree list" window shows a table of tree data. The row for tree (20) is highlighted in blue, and a callout box labeled "The tree is selected" points to it.

DBH[cm]	Height[m]	Camber[cm]	Volume[m3]	Tree Species	Status
40.0	19.5	18.0	1.1422	スギ	Live tree
40.4	21.5	1.9	1.2752	スギ	Live tree
41.5	22.8	0.3	1.3430	スギ	Live tree
42.7	19.4	3.0	1.1838	スギ	Live tree

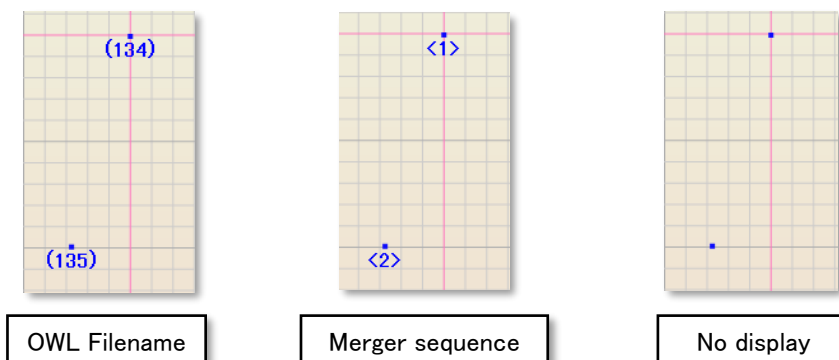
■ Scan position display and scan start position

A "●" mark is drawn at the scanned position. Numbers express the "scan sequence" or the "OWL number (OWL filename)", and the user can freely select which one to display. Numbers can also be hidden.

At the data merger stage, the position of the OWL file specified first becomes the origin (0, 0) for coordinates on the tree map. It is indicated by bold origin lines. Displays of scan numbers and bold origin lines can be set according to "9 -2 Display Settings".



Click on the OWL Number button to change the display in the sequence "OWL number (OWL filename)" – "Merger sequence number" – "No display".



3D Measurement System OWL

Double-click on any scan position to display the Edit Scan Point Information window, which can be used to check and edit scan points and latitude/longitude, and to output shape files.

Edit Scan Point Information

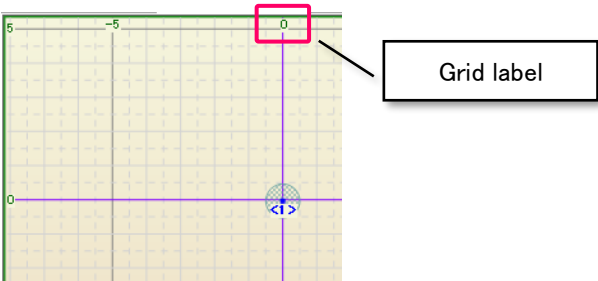
Scan point coordinate

North Calc.	Scan order	OWL	Longitude	Latitude	MercatorX	MercatorY	Comment
<input type="checkbox"/>	1	1	132.76628830	33.54678500	0.000	0.000	
<input type="checkbox"/>	2	2	132.76620170	33.54677670	0.000	0.000	
<input type="checkbox"/>	3	3	132.76615330	33.54673330	0.000	0.000	
<input type="checkbox"/>	4	4	132.76606170	33.54659830	0.000	0.000	
<input type="checkbox"/>	5	5	132.76599830	33.54652500	0.000	0.000	
<input type="checkbox"/>	6	6	132.76585000	33.54648670	0.000	0.000	
<input type="checkbox"/>	7	7	132.76585500	33.54659670	0.000	0.000	
<input type="checkbox"/>	8	8	132.76574170	33.54673170	0.000	0.000	
<input type="checkbox"/>	9	9	132.76602170	33.54688670	0.000	0.000	
<input type="checkbox"/>	10	10	132.76609000	33.54678500	0.000	0.000	

Cancel

■ Grid display

Grid lines are displayed at uniform intervals. Use the label values at the top or on the left side to check the grid interval. The unit is [m].

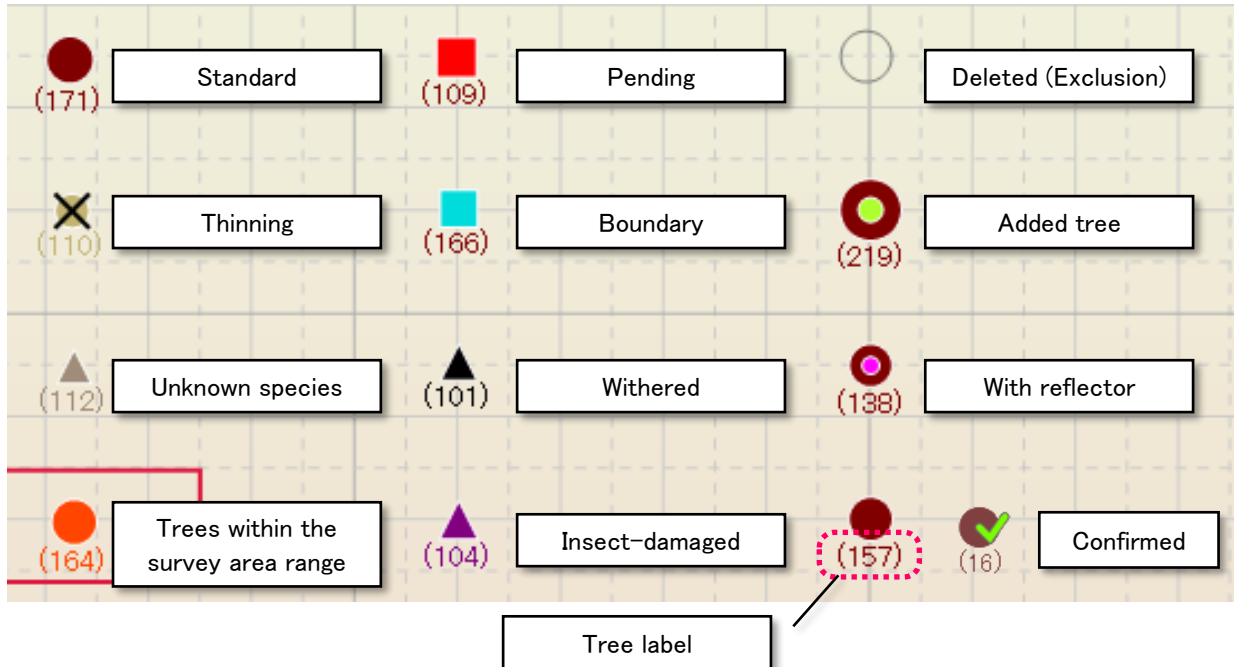


2) Symbol

■ Tree symbol

The types displayed as trees are as follows:

Display colors can be set freely under "9 -2 Display Settings".



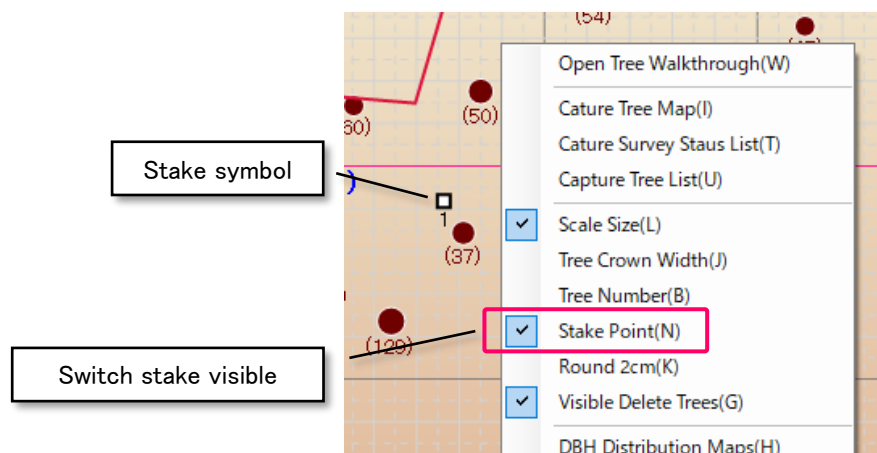
■ Tree supplementary information display

Tree numbers etc. can be displayed under trees.

Use the Display Switch button to switch the display. See "4 -3 2) Related to display switching (tree supplementary information display)" for details.

■ Stake point display

Reflectors at around 80 cm above the ground surface are recognized as "stakes" and displayed as stake points. Use the Popup menu on the tree map to switch this display between show and hide.



3D Measurement System OWL

3) Tree properties

Double-click on the tree display to display the "tree properties".

Tree Properties

TreeID 114

ID: 114 Tree Number: -1

Diameter: 27.9 [cm] Tree species: スギ Live tree

Height: 19.1 [m] Tree height correction: 0.0 [m]

Camber: 0.8 [cm] ☐ Thinning ☐ Pending ☐ Boundary ☐ Delete

Comment:

☐ Measured value: Diameter: 0.0 [cm] Height: 0.0 [m]

Move to tree (OWLWalker) Cancel

■ ID

These are the tree IDs managed by OWLManager.

■ Tree number

The tree number assigned by OWLManager is displayed. -1 means unnumbered.

■ Diameter at chest height, tree height, camber

The value analyzed using OWL is displayed.

■ Corrected tree height

Displayed in blue when corrected tree height values are used.

■ Tree type

The tree species will be displayed.

■ Situation

Either live trees, dead trees, or damaged by pests and diseases will be displayed.

■ Thinning

Displayed when the tree is treated as a thinned tree.

■ Pending (marking)

Displayed when it is treated as pending.

■ Boundary

Displayed when treated as a boundary tree.

3D Measurement System OWL

- Delete
Displayed when the item is treated as deleted.
- Confirmed
Displayed when it is treated as confirmation.
- Comments
Displayed if a comment is set.
- Check with Walkthrough button
Walkthrough starts. The tree used to call this property automatically moves to the center.
- Update button Cancel button
Click the Update button to apply the set content. Click the Cancel button to close without applying the set content.

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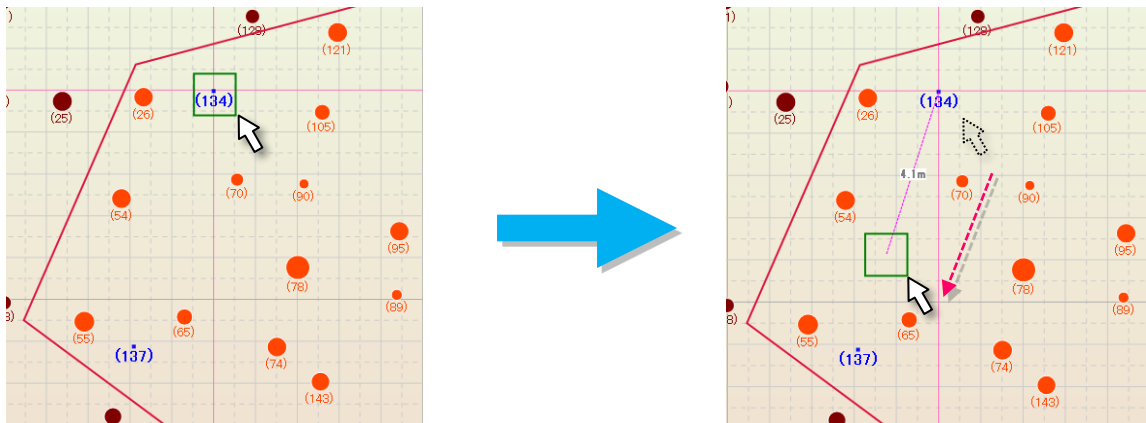
4) 2-point distance measurement function

This function displays information such as the distance between the two points when any two trees, scan points, or stakes are selected.

The four types of displayed information are horizontal distance, inclined distance, angle, and elevation difference.

■ Measurement point selection (start point)

Make the tree map active, then press the "D" key to display a green boundary. Clicking in this state makes a tree, scan point, or stake within the boundary into the start point. Keep the "D" key pressed after selecting the start point.

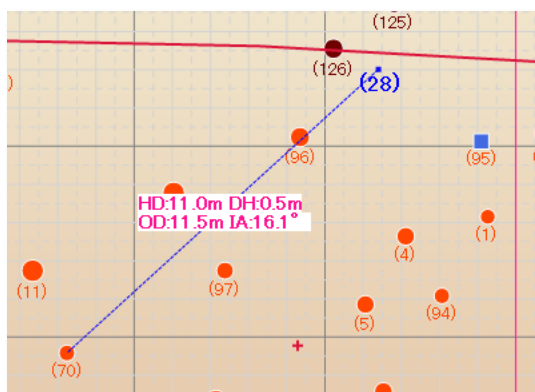


Drag the mouse with the "D" key pressed to display a line from the start point and display the horizontal distance to the center of the green boundary.

■ Measurement point selection (end point)

Select the end point in the same way as selecting the start point. The distance information is displayed once the end point has been selected.

Once it has been displayed, it remains until "Clear display" is used. Also, saving survey data is not supported.



Meanings

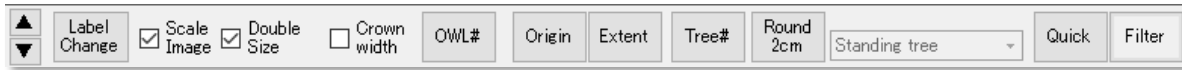
HD: Horizontal Distance
DH: Difference in height
OD: Oblique distance
IA: Inclination angle

■ Clearing the display

Make the tree map active, then with the "D" key pressed, double-click in any location. All distance information is cleared.

4 – 3 Function Buttons

This compartment of buttons is used to switch the position and display of the tree map.



1) Related to tree map manipulation



■ ▼ and ▲ buttons

These zoom the tree map in and out. This is the same function as the mouse wheel. Click on the ▼ button to zoom out and on the ▲ button to zoom in.

■ Origin button

This moves the display so that the location of scan number 1 (the OWL origin position) is at the center of the tree map.

■ Extent button

This button adjusts the display so that all trees on the tree map are displayed.

2) Related to display switching (tree supplementary information display)

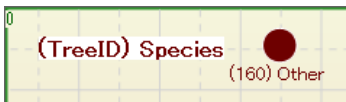

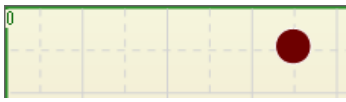


■ Label Change Button

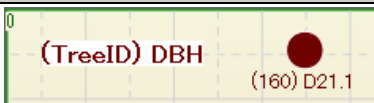
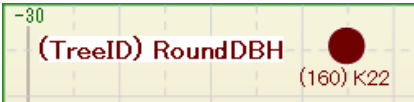
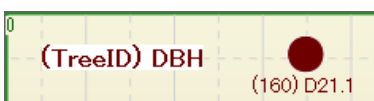
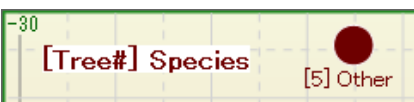
Click the Display Switch button to switch the display in the sequence below. Refer to the legend displayed in the upper left of the tree map to see the current display type.

Order	Status	Display
1	Tree ID	
2	Tree ID +DBH	
3	Tree ID + Tree height	
4	Tree ID + DBH + Tree height	

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5	Tree + Species name	
6	Tree + comment	
7	No display	

Also, if the Round 2cm button and the Tree# button are enabled, they change as shown below.

Function	Status	Display	Change
Round Display to 2 cm	When OFF		The D label changes to K, and DBH rounded display is shown
	When ON		
Tree number	When OFF		The display of (Tree ID) changes to [Tree number]. The number will not be displayed if tree numbers have not been set.
	When ON		

3D Measurement System OWL

■ Scale Image check box

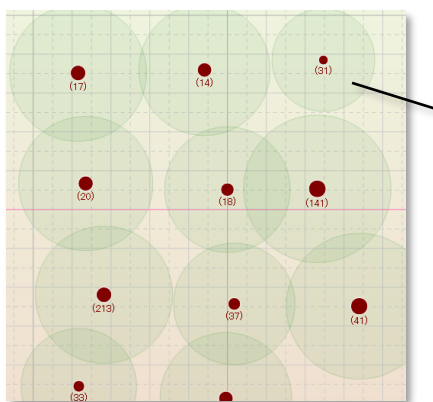
This switches whether the tree display size is fixed or displayed as an image scaled according to the diameter value. A scaled image is displayed if the box is checked. If the box is unchecked, the display size follows "9 -2 Display Settings".

■ Double Size check box

This enlarges the scaled display size of trees to double the size.

■ Crown width check box

This displays the crown width of the tree with a circular size based on computation. The only tree types which can be displayed are cedar and cypress (other tree types are not displayed).



Crown width (translucent display)

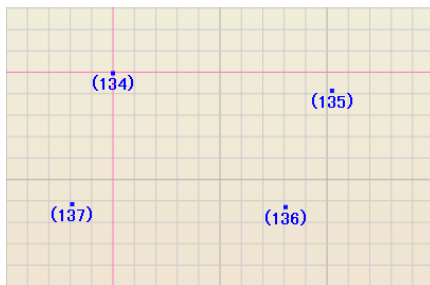
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■ OWL# button

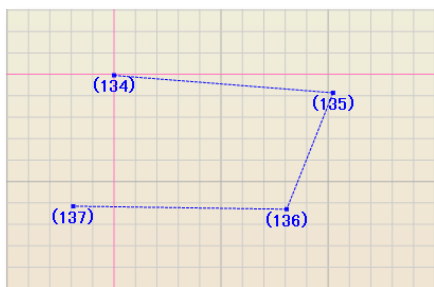
This switches the number of the scan position display. The display switches as shown below when the OWL Number button is clicked. The line links the scan sequences. The scan sequence is indicated by <>, and the OWL filename by ().

Display order:

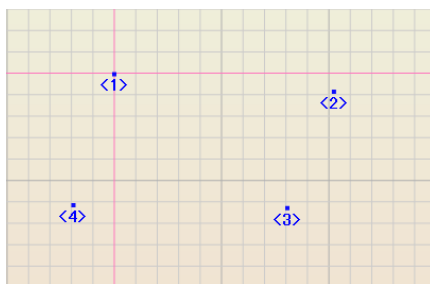
"OWL number" – "OWL number + line" – "Scan sequence" – "scan sequence + line" – "No number display"
– repeat



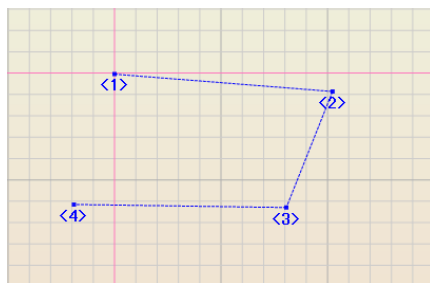
OWL number



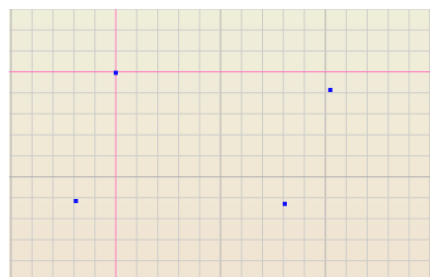
OWL number + line



Scan sequence



Scan sequence + line



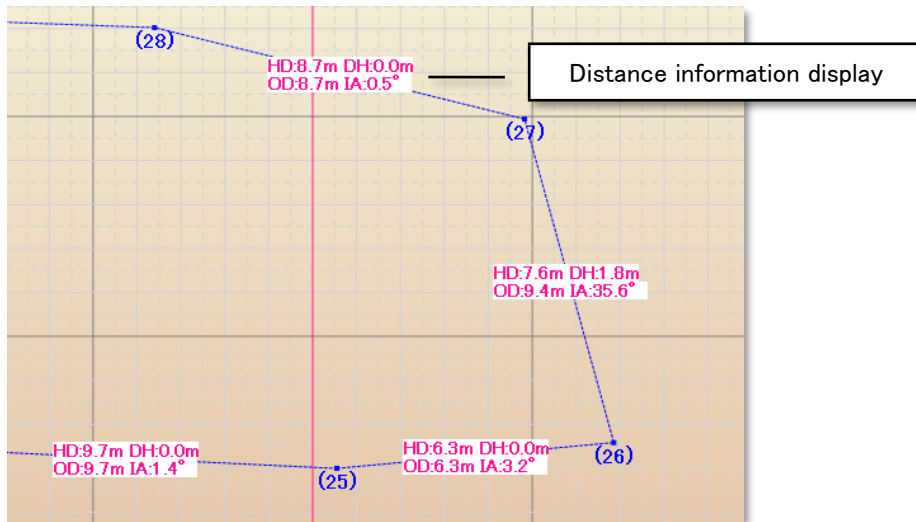
None (hide)

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Distance information between scan points (2 points) can be displayed.

With scan lines displayed, make the tree map active, then press the "L" key to get the display shown below.

Press the "L" key again to hide the display.



Meanings

HD: Horizontal Distance

DH: Difference in height

OD: Oblique distance

IA: Inclination angle

■ Tree# button

Click on the Tree# button (turning it ON) to display the tree number in the supplementary information display and change the button to yellow. Nothing is displayed if tree numbers have not been assigned (i.e., if the tree number is -1).

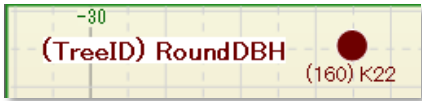
	Tree number display OFF (()) display)
	Tree number display ON ([] display)
	Tree number display ON (no tree number assignment)

■ Round 2cm button

Click on the Round 2cm button (turning it ON) to display the diameter values in the supplementary information display and tree list rounded to 2cm and change the button to green. Computations such as tree volume depend on this setting.

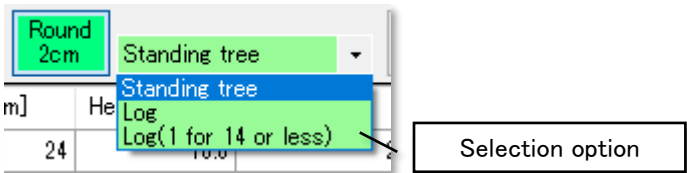


Round 2 cm OFF



Round 2cm ON
(K displayed as prefix to diameter value)

The method for 2 cm rounding can be calculated selected from the following types.



[Tree]

This method rounds up.

Example: 25.3 cm -> 26 cm

[Log]

This method rounds down.

Example: 25.3 cm -> 24 cm

[Log (1 for 14 or less)]

This method rounds down but uses 1-cm units for values of 14 cm or less.

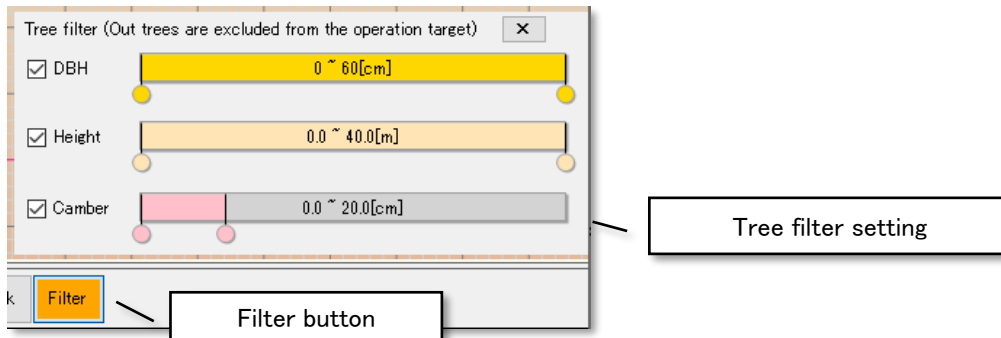
Example: 11.9 cm -> 11 cm

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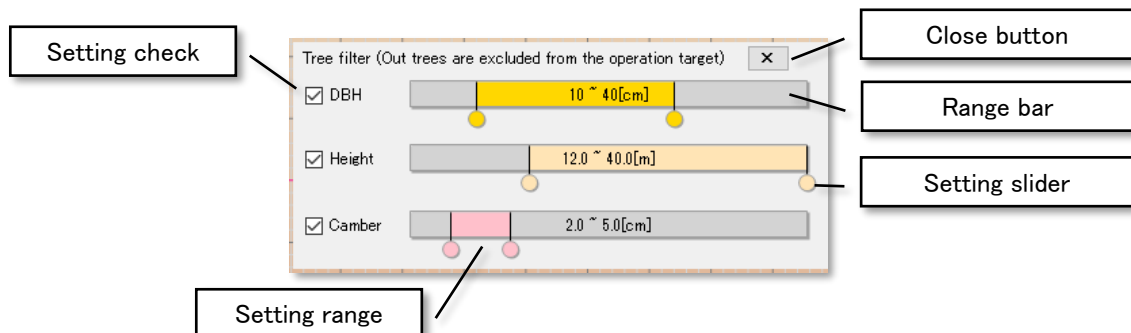
■ Tree filter

This function restricts the range in which trees are displayed. The three filter parameters are diameter, tree height, and camber, and each is applied with an AND condition.

When the Filter button is clicked, the tree filter settings are displayed. To close this display, click the Filter button again or click the "x" button.

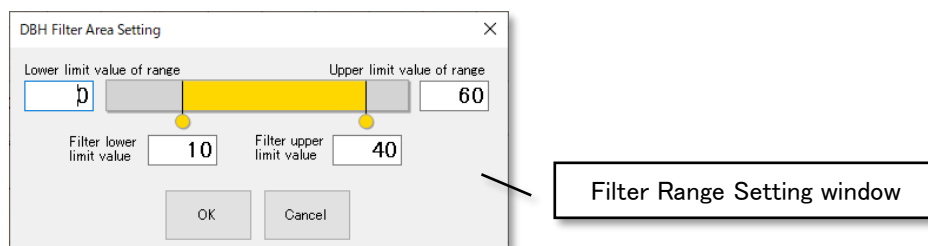


The tree filters display only those trees within their respective set ranges and make others translucent. Trees outside the set range are treated as not existing, and are excluded from computation of tree volume, etc.



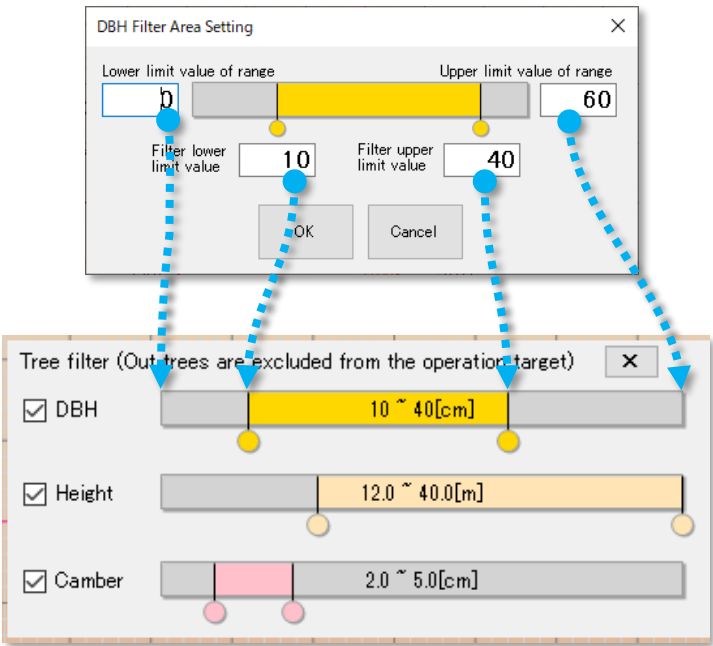
To set a filter, check the Set check box and drag the setting knobs to set the range. The knobs can be changed in steps of 1 cm for diameter and camber values, and of 0.5 m for tree height. The set range is displayed in the center of the range bar. Uncheck the Set check box to disable the setting.

To enter setting ranges manually, or to change the maximum and minimum values which can be set, double-click the range bar, and display the Filter Range Setting window.

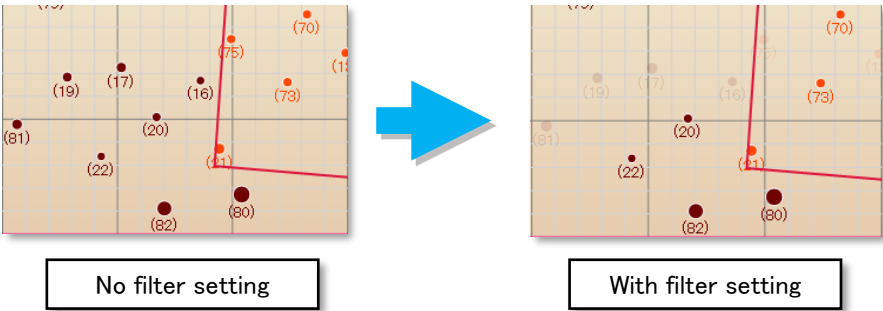


3D Measurement System OWL

Each value in the Filter Range Setting window corresponds to the range bars shown below. Click on the OK button after setting.



On the tree map, trees outside the filter setting range (filter subjects) appear translucent, and their background in the tree list changes to pale pink.



Tree Number	DBH[cm]	Height[m]	Camber[cm]	Volume[m3]	Tree Species	Status	Thinning
-1	20.7	15.2	1.3	0.2559	Other	Live tree	<input type="checkbox"/>
-1	20.7	16.6	2.2	0.2804	Other	Live tree	<input type="checkbox"/>
-1	20.9	16.7	0.8	0.2857	Other	Live tree	<input type="checkbox"/>
-1	21.0	16.1	0.7	0.2794	Other	Live tree	<input type="checkbox"/>
-1	21.1	14.1	2.5	0.2464	Other	Live tree	<input type="checkbox"/>

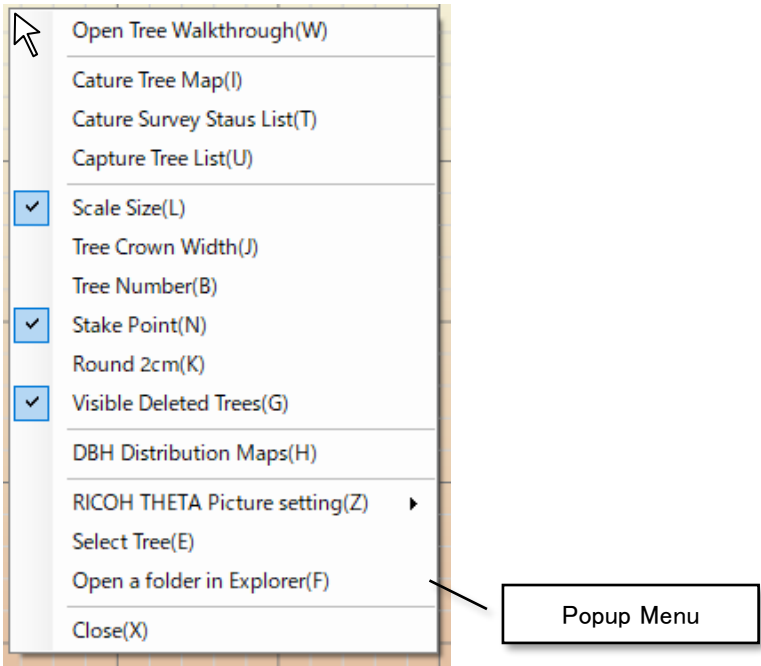
Trees outside the setting range
(trees subject to filtering out)

Even with one filtered tree, the background of the Filter button changes to orange.



■ Popup menu

Right click on the tree map to display the Popup menu.



4 -4 Tree list

All trees within the survey data are displayed in a list.

Mouse over the tree list to display the “list cursor” on the corresponding tree position on the tree map.

Tree Number	DBH[cm]	Corrected height[m]	Camber[cm]	Volume[m3]	Tree Species	Status	Thinning	Pending	Boundary	Delete	Confirmed	Comments	ID
-1	14.3	4.5	10.1	0.0399	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		45
-1	16.0	30.0	13.4	0.2938	広葉樹(民)	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2
-1	24.7	17.8	14.3	0.4261	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		5
-1	30.5	17.7	6.4	0.6162	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		10
-1	40.1	19.5	6.0	1.1137	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		26
-1	55.8	19.4	33.2	1.9556	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		32
-1	24.0	15.0	17.4	0.3368	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		15
-1	33.6	8.3	16.3	0.3226	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		40
-1	38.8	12.2	19.0	0.6310	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		16
-1	45.2	20.8	5.4	1.5494	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		21
-1	65.0	41.8	17.6	5.5048	スギ	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		28

1) Display item

The display items in the tree list are as follows:

Item	Edit	Sort	Notes
Tree Number	Possible	Possible	Becomes “-1” if no tree number has been assigned.
DBH [cm]	Possible	Possible	If “Round Display to 2 cm” is ON, the name becomes “2 cm diameter at chest height [cm]”.
Height [m]	Possible	Possible	This is the tree height value obtained by analysis in OWLManager.
Corrected Height[m]	Possible	Possible	This is displayed when the tree height correction value is enabled, and the tree height item is hidden.
Camber [cm]	Possible	Possible	This is the maximum camber between 50 cm and 6 m above ground.
Volume [m3]	Not possible	Possible	This is calculated on the basis of the region, tree type, diameter, and tree height.
Tree species	Possible (selection)	Possible	Initially, the tree type specified when the survey data was created is selected. The option “-” is treated as trees of unknown type.
Status	Possible (selection)	Possible	Live trees are selected as standard, but withered trees and insect-damaged trees can also be selected.
Thinning	Possible (check)	Possible	Those with their boxes checked are handled as for thinning.
Pending	Possible (check)	Possible	This is a sign for subsequent checking and investigation.
Boundary	Possible (check)	Possible	This is a sign for the boundary of a sample plot or forest etc.
Delete	Possible (check)	Possible	When the box is checked, the tree is hidden on the tree map. It is deleted from computation of tree volume and thinning rate, etc.
Confirmed	Possible (check)	Possible	If checked, the tree will be treated as a confirmed tree.
Comments	Possible	Possible	Enter comments if there are any special notes concerning trees.
ID (tree ID)	Not possible	Possible	This is the ID for management in OWLManager. They cannot be edited.

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2) Background colors

In the tree list, the pale blue background indicates trees within the survey area range, white background indicates trees outside the survey area range, pale pink background indicates trees outside the filter setting range (trees subject to filtering). The dense reversed color is the selection cursor.

Tree Number	DBH[cm]	Height[m]	Camber[cm]	Volume[m3]	Tree Species	Status	Thinning	Pending	Boundary	Delete	Comments	ID
-1	21.1	16.7	1.5	0.2924	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		13
-1	24.0	16.8	2.3	0.3713	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		3
-1	23.6	16.8	2.5	0.3616	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		6
-1	23.7	16.8	4.6	0.3625	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		93
-1	26.0	17.0	0.9	0.4361	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		9
-1	29.0	17.1	2.0	0.5377	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		71
-1	26.1	17.1	1.7	0.4416	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		66
-1	32.0	7.7	0.0	0.3235	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		139
-1	16.8	8.9	3.0	0.1009	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		171
-1	17.7	9.0	0.0	0.1133	Other	Live tree	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		135
-1	19.5	9.1	0.0	0.1364	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		119
-1	23.0	8.5	0.0	0.0605	Other	Live tree	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		146

Trees within the survey area range

Trees outside the filter setting range

Trees outside the survey area range

Selection cursor

3) Operation

■ Sorting items

Click on the item to sort. If the survey area range is set, trees within the survey area range and those outside it are divided into separate blocks, and each block is sorted.

Tree Number	DBH[cm]	Height[m]	Camber[cm]
-1	21.1	16.7	1.5
-1	24.0	16.8	2.3
-1	23.6	16.8	2.5

Click on an item

4 – 5 Computed parameters

These are computed parameters such as total tree volume and thinning rate. They are calculated automatically according to the survey area range setting and the various tree selection processes.

Item	Value
Survey ID	ABC
Survey count	3
Investigator	Yaris
Survey date	10/1/2019
Species	Other
Comment	So hard
Area[m2]	283.2
Inclination angle	31.1
Number of trees	29
Tree density[trees/ha]	1024
Average DBH[cm]	23.4
Average height[m]	15.9
Average HBLC[m]	13.7
Total tree volume[m3]	9.9436
ha tree volume[m3/ha]	351.1158
Number of thinned	-
Thinned volume[m3]	-

List of computed parameters

1) Items

The display items are as follows:

The trees that are subject to each type of computation are the “within the survey area range” and “trees within the set ranges if tree filters are set”. Whether “trees of unknown type” and “withered trees” are subject to computation depends on how they are handled by the computed parameter.

Item	Content
Survey ID	The parameters entered when the survey data was created are displayed.
Survey count	
Investigator	
Species	
Comments	
Area[m2]	This is the area of the survey area range.
Inclination angle	This is the inclination angle calculated from trees within the survey area range.
Number of trees	This is the number of trees within the survey area range. “Trees of unknown type”, “withered trees”, and “excluded trees” are not counted in the number of trees.
Tree density [trees/ha]	This is the number of trees per ha, calculated from the above number of trees.
Average DBH [cm]	This is the average diameter of trees within the survey area range. “Trees of unknown type”, “withered trees”, and “excluded trees” are not included.
Average height[m]	This is the average tree height of trees within the survey area range. “Trees of unknown type”, “withered trees”, and “excluded trees” are not included.
Average HBLC[m]	This is the average tree height below branches, as obtained from the analysis results of the survey data.

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Total tree volume [m3]	This is the total tree volume of trees within the survey area range. "Trees of unknown type", "withered trees", and "excluded trees" are not included.
ha tree volume [m3/ha]	This is the tree volume per ha, calculated from the above total tree volume.
Number of thinned	This is the number of thinned trees. "Trees of unknown type" and "excluded trees" are not counted in the number of trees.
Thinned tree volume [m3]	This is the total tree volume of the thinned trees above.
Thinning rate (number of trees) [%]	This is the ratio of number of trees for the thinned trees above.
Thinning rate (tree volume) [%]	This is the ratio of tree volume for the thinned trees above.
Number of withered trees	This is the number of withered trees. "Trees of unknown type" and "excluded trees" are not counted in the number of trees.
Withered volume [m3]	This is the total tree volume of the withered trees above.
Number of insect-damaged trees	This is the number of insect-damaged trees. "Trees of unknown type" and "excluded trees" are not counted in the number of trees.
Insect-damaged tree volume [m3]	This is the total tree volume of the insect-damaged trees above.
Insect-damaged tree ratio (number of trees) [%]	This is the ratio of the number of insect-damaged trees above.
Insect-damaged tree ratio (tree volume) [%]	This is the ratio of the tree volume of insect-damaged trees above.
Shape ratio	This is the average value for each species of trees within the survey area.
Forest age	The forest age in "Survey information" in the "Create survey data" window is displayed. It does not affect calculations, etc.
Group No.	The group number of "Survey information" in the "Create survey data" window will be displayed. It does not affect calculations, etc.

4 - 6 Tree height correction

If the survey data to be opened uses the tree height correction function, the automatically corrected tree height value is displayed.

When the corrected tree height value is displayed, it will be displayed as follows.

▲

▼

Label Change

☒ Scale Image

☒ Double Size

☐ Crown width

OWL#

Origin

Extent

Tree#

Round 2cm

Log

Item

Survey ID

Survey count

Investigator

Survey date

<

>

Tree height correction

Enable

Tree Number	DBH[cm]	Corrected height[m]	C
1	40.4	22.4	
2	31.9	20.8	
3	34.1	21.3	
4	35.2	21.5	
5	40.0	22.1	

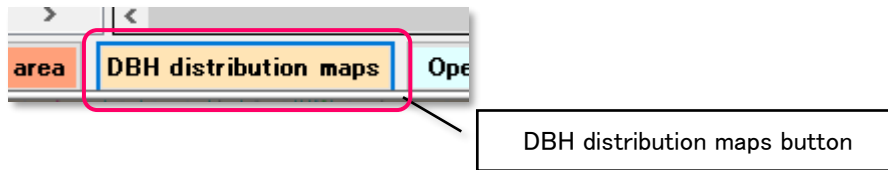
Using correction values is displayed.

Corrected tree height value is displayed.

With OWLManagerViewer, you cannot set tree height correction or turn ON/OFF the corrected tree height value.

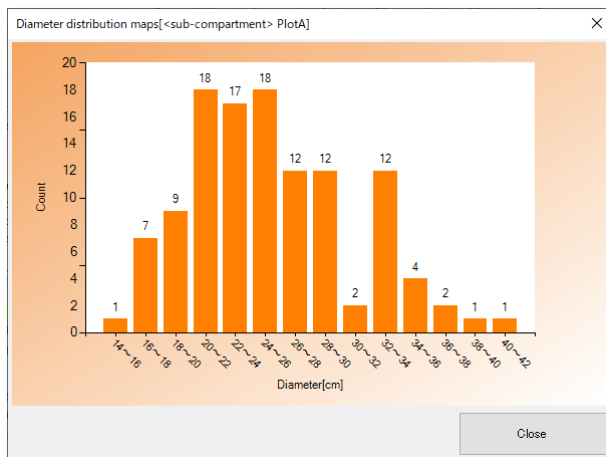
4 - 7 Diameter Distribution Map

Display diameter distribution maps in a separate window.

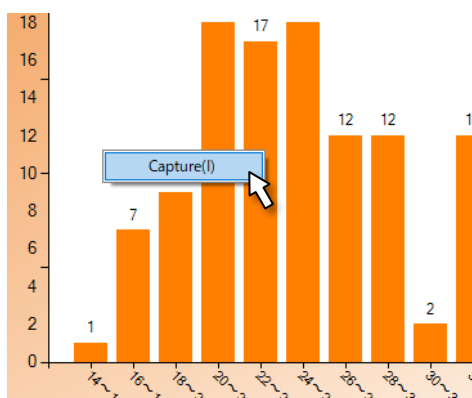


Click the Diameter Distribution Map button to display the Diameter Distribution Map Window.

It displays numbers of trees on the vertical axis and diameter classes on the horizontal axis. Use OWLManager settings to make class settings (refer to "9 - 1 3) Diameter class expression setting"). "Trees of unknown type" and "excluded trees" are not included in the calculation.



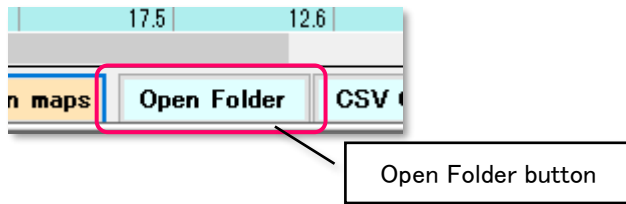
Right click on a diameter distribution map to display the Get Images menu. Click on this item to copy the graph image to the clipboard. The diameter distribution map can be pasted into other applications as an image. The acquired size depends on the displayed state.



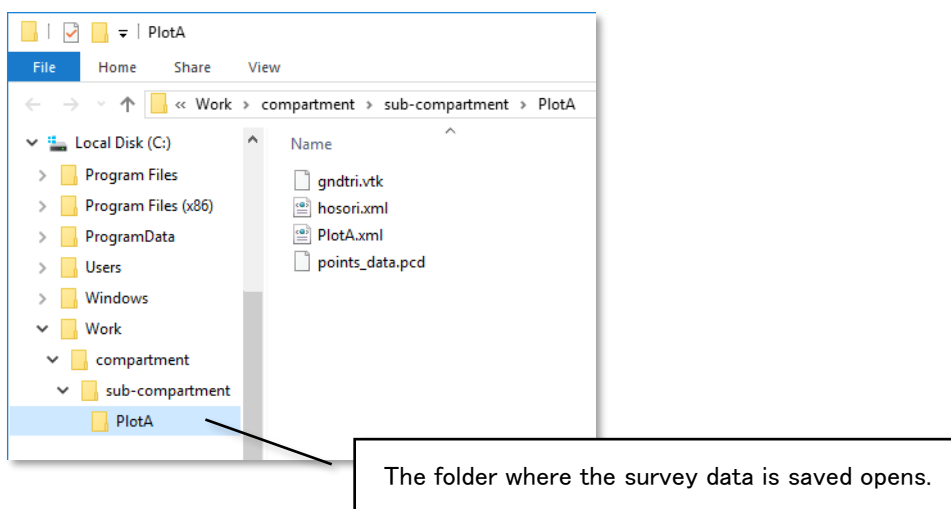
Click on the Close button to close. Also, when the survey data is closed in the Main Window, the Diameter Distribution Map window closes automatically.

4 – 8 Open a Folder

In Explorer, open the folder where the survey data is saved.

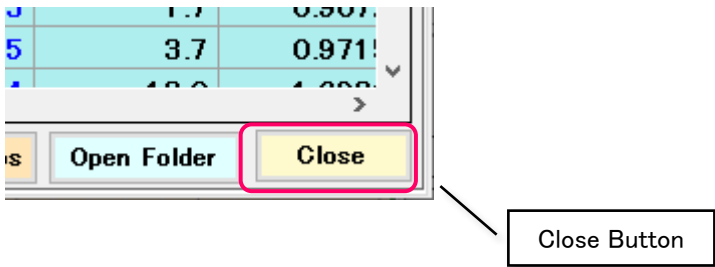


Explorer opens when the Open a Folder button is clicked.



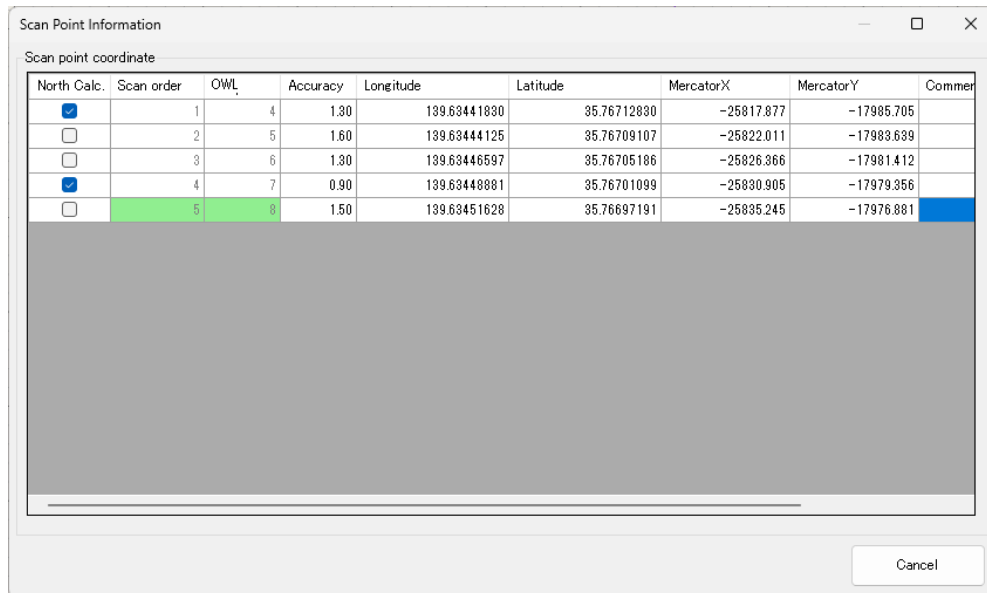
4 -9 Close

To close the survey data, click the "Close" button.



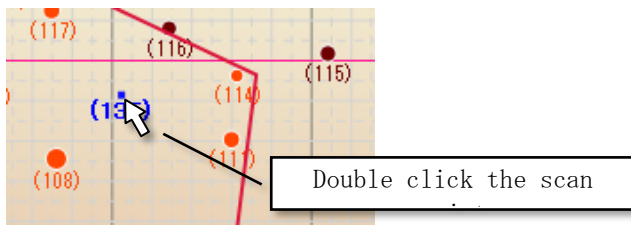
5 Scan Point Information

Displays the map coordinates of the scan point. In the Viewer version, it is not possible to change numerical values or output shapefiles.



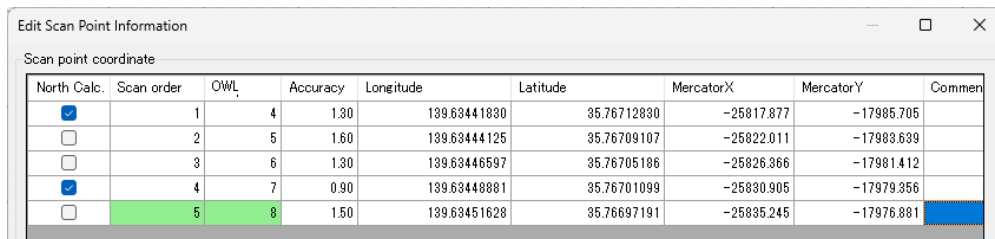
1) Calling the Edit Scan Point Information window

Double-click on any scan point to display the Edit Scan Point Information window.



5 - 2 Coordinate List

All scan points are displayed in list form.



1) North

The scan points selected when creating survey data are checked. Checks cannot be changed in the Viewer version.

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2) Scan order, OWL number

Displays the scan order and OWL number of the scan point. A scan point with a green background means the scan point when this window is called up.

3) Accuracy

Displays the accuracy of GPS positioning (location information). The lower the number, the higher the positioning accuracy. If the position has not been determined, it will be "999.99".

4) Latitude and Longitude

Displays the longitude and latitude of the scan point. If GPS positioning has been determined, that value will be displayed; if not, it will be "0".

5) Mercator X, Y

Displays the plane Mercator coordinates of the scan point.

6) Comments

The comment set at the scan point will be displayed. Comments can be viewed as a CSV file.

6 Tree map Rotation Function

You can rotate the position map and set it to an angle that is easy to see.

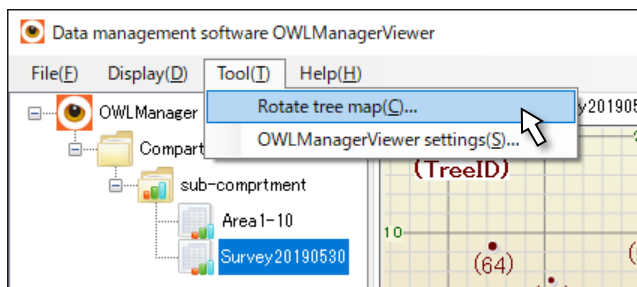
6 – 1 Calling Functions

1) Make the set survey data active

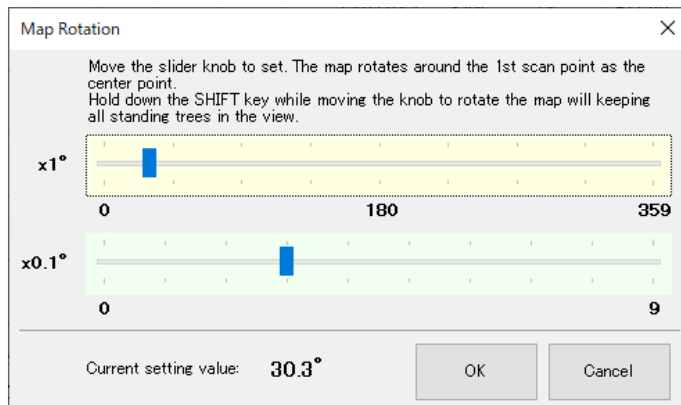
Open the survey data to set rotation for or select the tab to make it active.

2) Call

Open the survey data, then select “Tools” – “Rotate tree map” from the Menu.

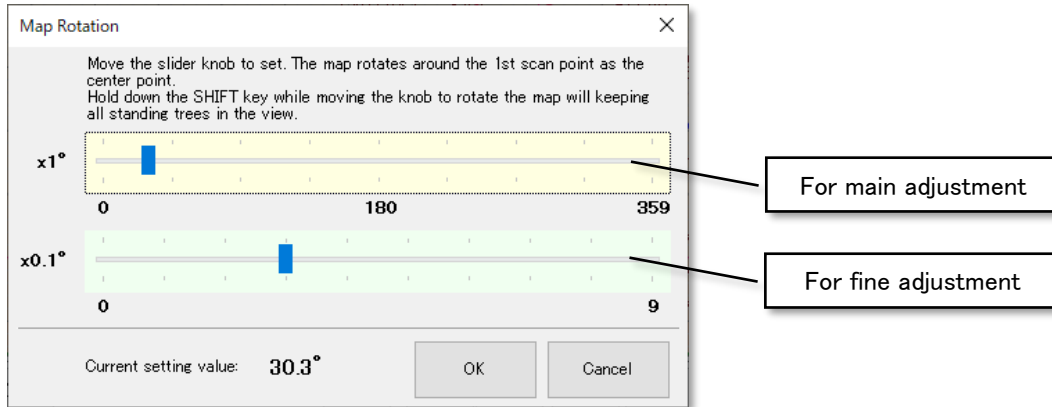


The Tree map Rotation Setting window is displayed. Other windows cannot be operated while this window is on display.



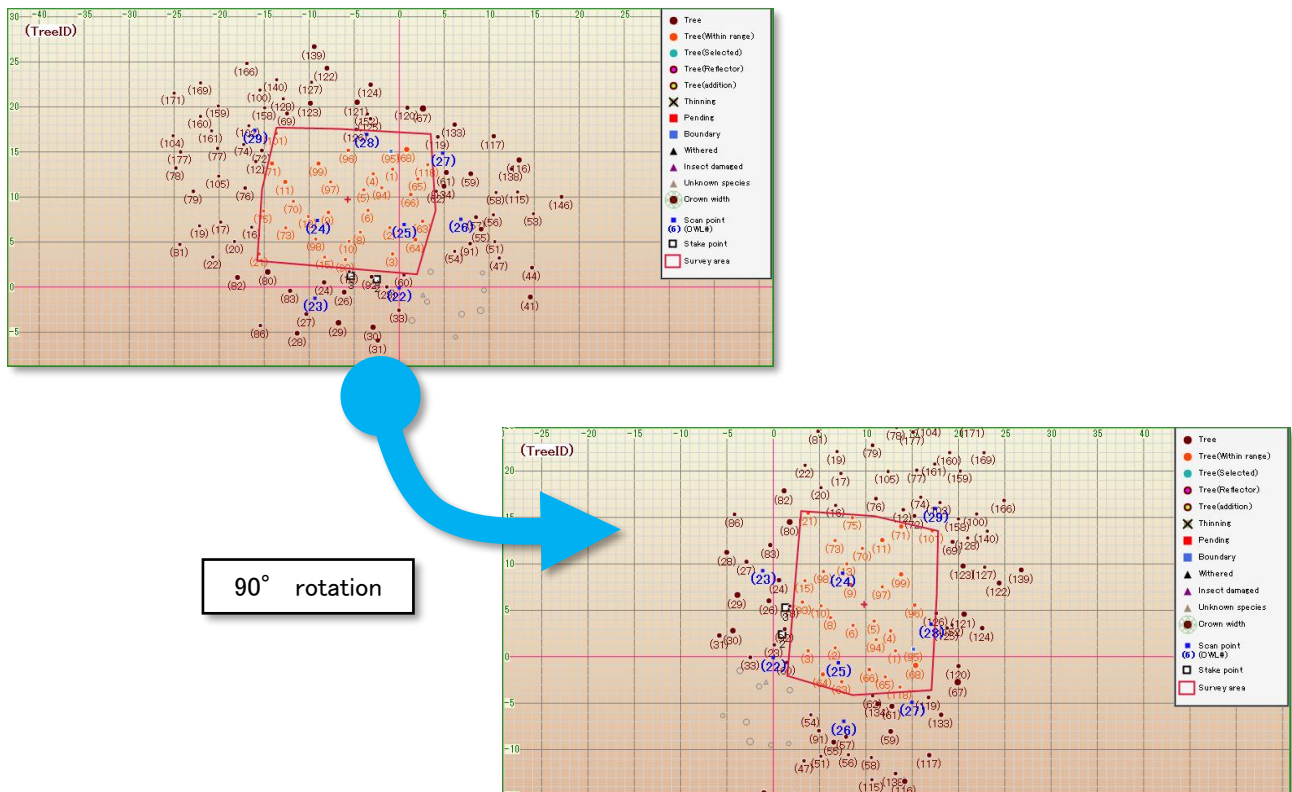
6 - 2 Setting

The rotation angle is set by operating the slider knobs. Use the $\times 1^\circ$ knob to set $0-359^\circ$, and the $\times 0.1^\circ$ knob for fine adjustment to set $0.0-0.9^\circ$.



When the knob is moved, the map rotates around the origin as the center point. Holding down the Shift key while moving the knob to rotate the map will display all trees at all times.

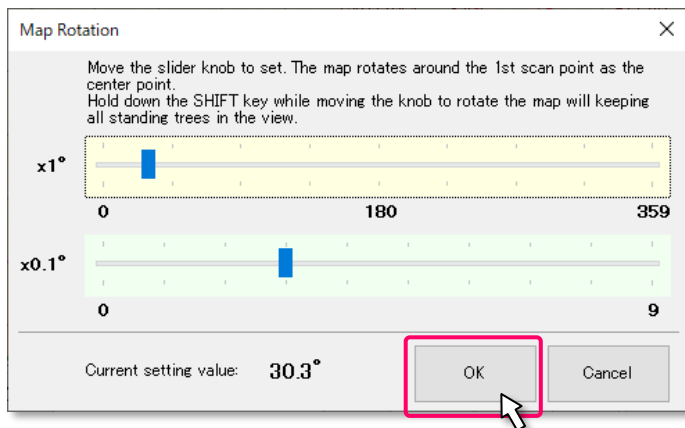
Click on the OK button after setting. Click the Cancel button to restore the angle from before the setting. The initial angle when survey data is created is 0° .



6 – 3 Setting and Storing Rotation Angles

The set rotation angle is not retained if the survey data is not stored. Therefore, to display at the same rotation angle the next time the survey data is opened, it is necessary to store the survey data.

Click on the OK button to set the rotation angle.

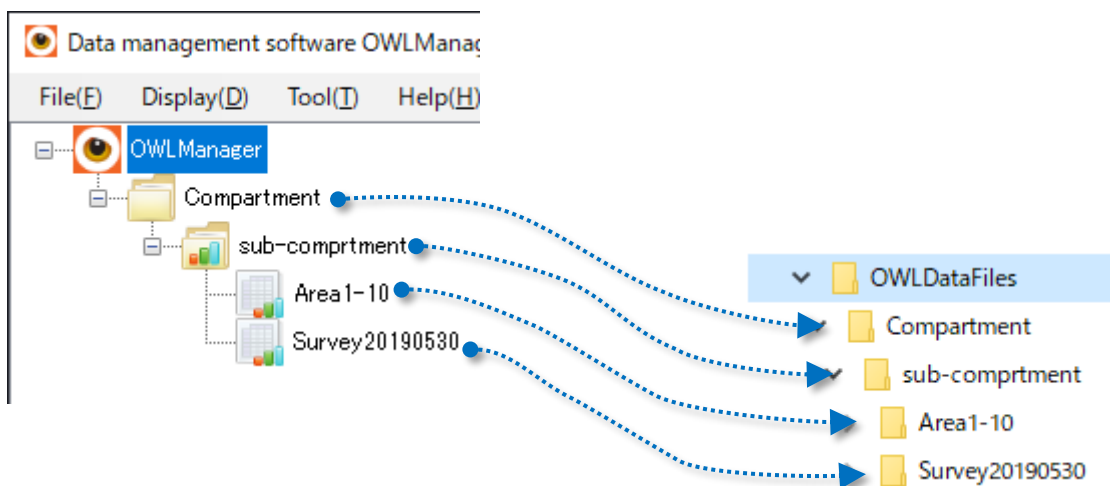


7 Work folder

7 - 1 What is a work folder?

A working folder is a folder in which OWL data is actually saved.

The work folder is managed in a hierarchical structure (parent-child relationship) of "forest compartment folder" – "small compartment folder" – "survey data folder".



The working folder will be the root node of OWLManager.

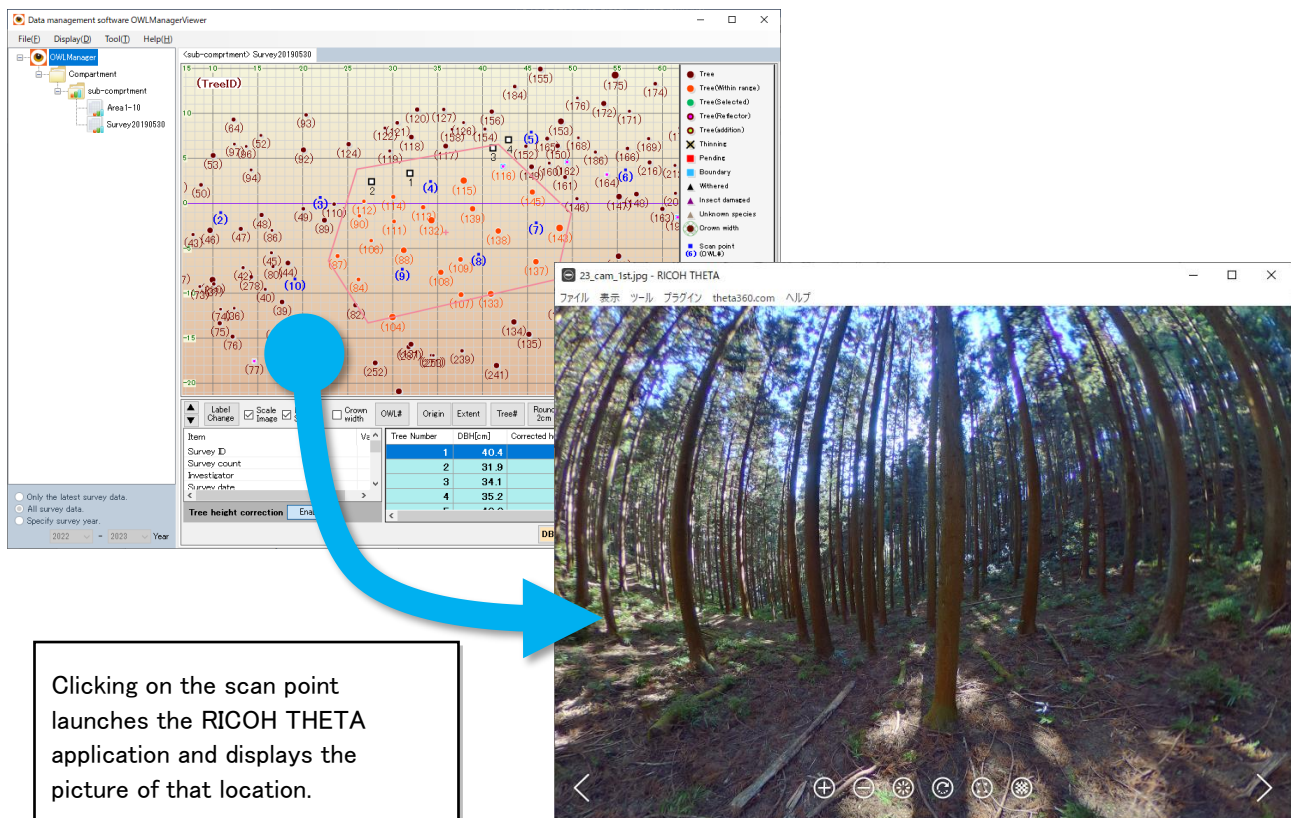
Within the working folder is a compartment folder, and within that there is a sub-compartment folder. The survey data exists as a "folder" in the subgroup folder.

8 Linkage with RICOH THETA application

8 - 1 Overview

You can call the RICOH THETA application for RICOH 360° cameras from OWLManager and display the picture of the scanning point. It is useful for checking the state and condition of the forest.

When using this function, it is necessary to measure and analyze with OWL equipped with “360° camera THETA”. Also, the “RICOH THETA application” must be installed on the computer that runs OWLManager. For details on installing the “RICOH THETA application”, refer to the RICOH website, etc.



Clicking on the scan point launches the RICOH THETA application and displays the picture of that location.

RICOH THETA application

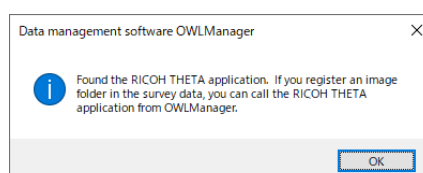
8 - 2 Preparation

1) Registering the RICOH THETA application

There are two types: automatic registration and manual registration.

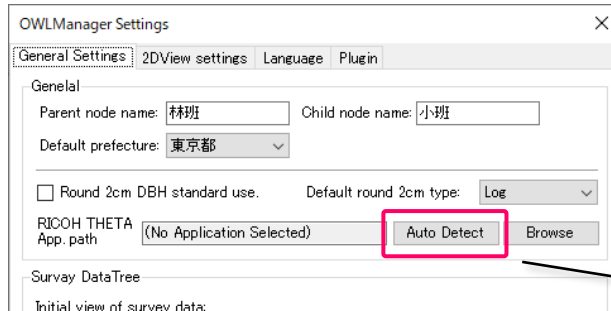
- Automatic registration

After installing the “RICOH THETA application”, start OWLManager. A message is displayed when it is detected.

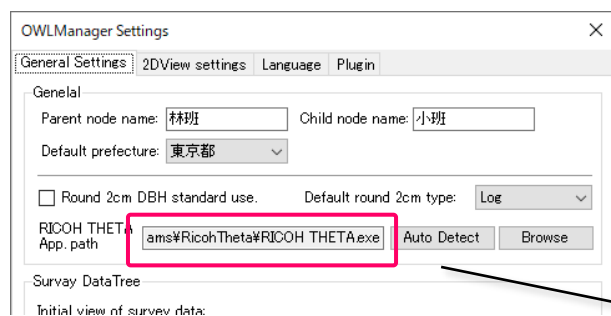


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You can also do it from "OWLManager settings". Click the Auto Detect button in the General group.
When detected, "RICOH THETA.exe" will be displayed.



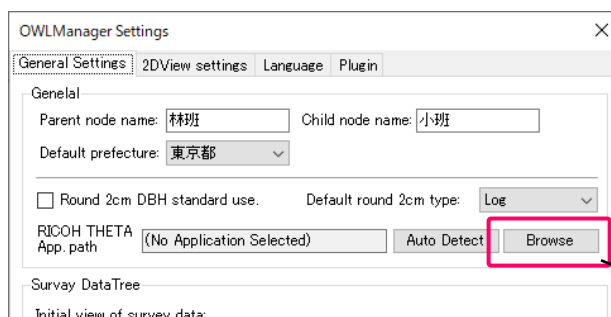
Click "Auto Detect"



"RICOH THETA.exe" is displayed

Manual registration

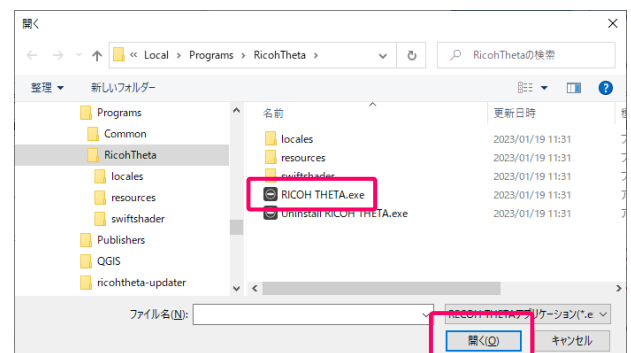
From "OWLManager Settings", click the "Browse" button in the General group.



Click "Browse"

A file open window will appear. Open the folder where the "RICOH THETA application" is installed, select "RICOH THETA.exe" and click the "Open" button.

Do not select any other executable file (EXE file).



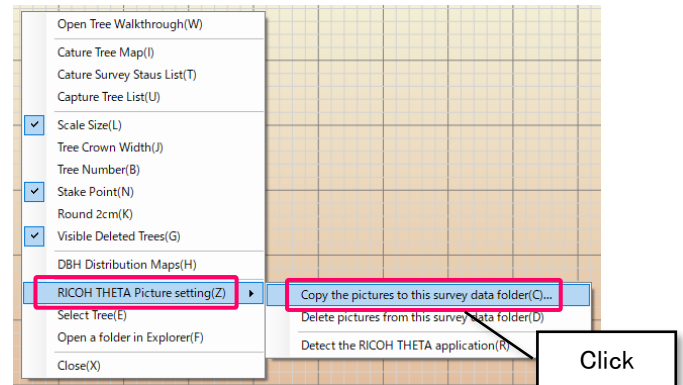
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2) Register picture folder (copy pictures to survey data folder)

This is a method of copying the picture to the survey data folder and calling the "RICOH THETA application".

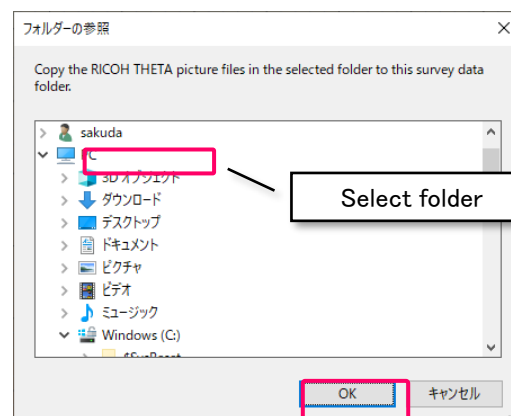
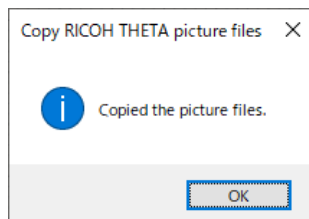
This method allows you to include the pictures folder in the file when you export survey data.

Right-click on the location map and select "RICOH THETA picture settings" – "Copy pictures to this survey data folder".



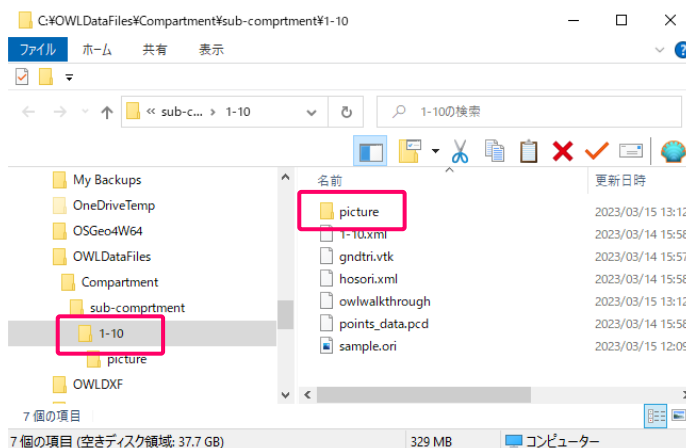
A folder browse window appears.

Select the folder where the pictures of this survey data are stored and click the OK button. A message is displayed when the picture file is copied.



Click the "OK" button

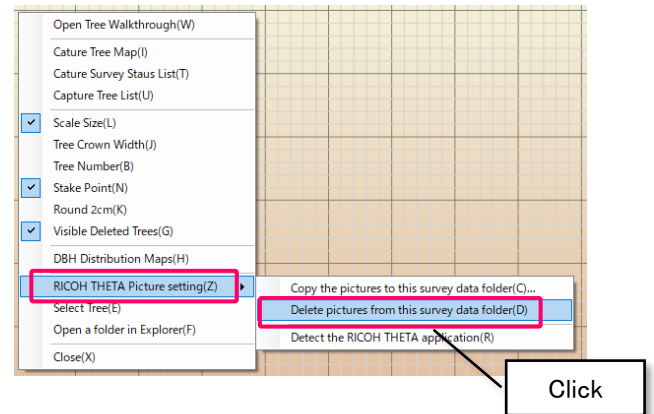
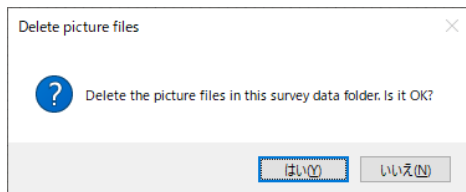
The copied pictures are stored in the "picture" folder in the survey data folder.



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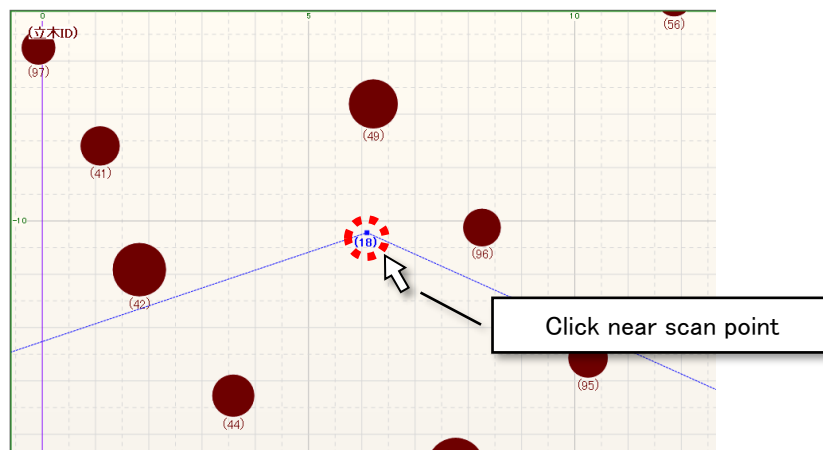
To delete the copied pictures, select "RICOH THETA picture settings" – "Copy pictures to this survey data folder".

A confirmation message is displayed.

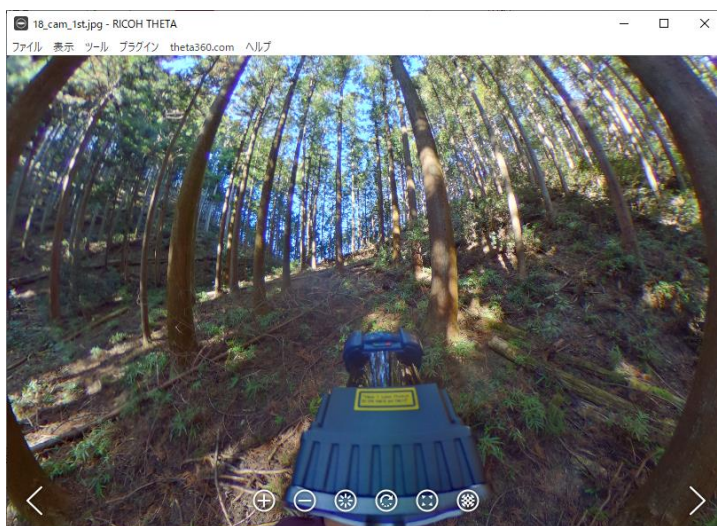


8 - 3 Calling the "RICOH THETA application"

Click near the scan point.



The "RICOH THETA application" will start and the picture of the clicked scan point will be displayed. It is not necessary to close the "RICOH THETA application" when clicking other scan points. A new picture will appear.



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There are two picture files per scanning point (two at the start of scanning and two at the end of scanning).
Of these, the picture displayed in the "RICOH THETA application" will be the one at the start of scanning.

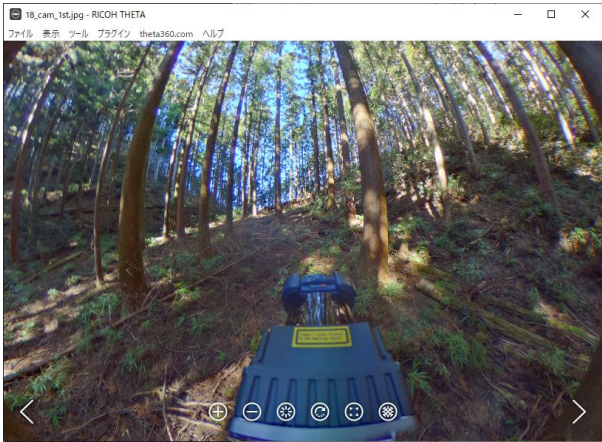


Image at the start of scanning
File name: xx_cam_1st.jpg

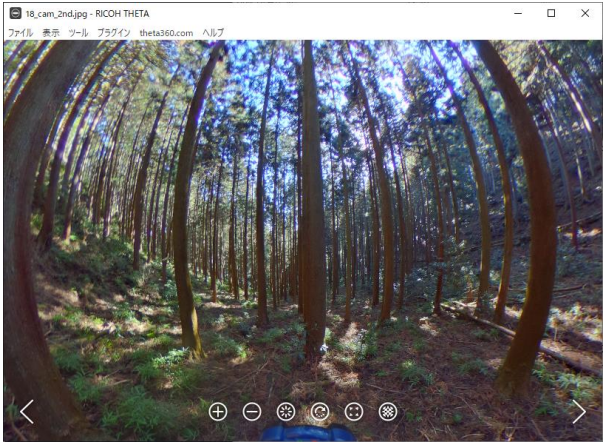
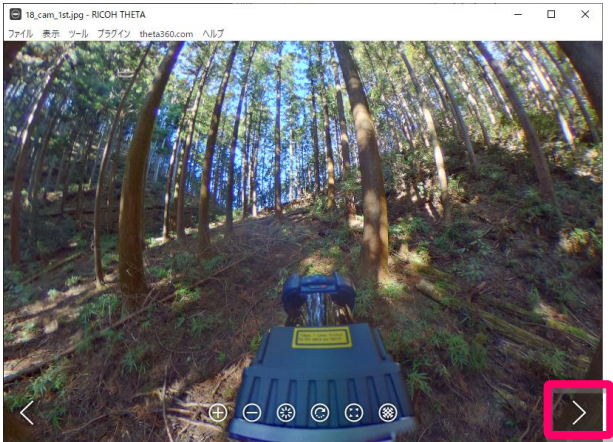


Image at the end of scanning
File name: xx_cam_2nd.jpg

Click the "Next" button to refer to the picture at the end of scanning.



Click "Next button"

9 OWLManagerViewer Settings

Set OWLManagerViewer.

The settings are divided into “operation settings” and “display settings”. Use the tabs at the top of the window to switch.

OWLManagerViewer Settings

General Settings

2DView settings

Language

General

Parent node name: compartment

Child node name: sub-compartment

Default prefecture: 東京都

☐ Round 2cm DBH standard use.

Default round 2cm type: Standing tree

RICOH THETA

アプリケーションパス

Programs\RicohTheta\RICOH THETA.exe

Auto

Browse

Survey DataTree

Initial view of survey data:

☐ Show the latest survey data

☒ Show all

☐ Year designation

Initial view of nodes:

☐ Expand parent node at startup

☐ Expand child node at startup

Diameter class representation setting

Class interval: 2 [cm]

Minimum value: 2 [cm]

Maximum value: 90 [cm]

Wakthrough

☐ Delete the thinned PCD.

It may take some time to load the PCD file.

Apply

OK

Cancel

General Settings

OWLManagerViewer Settings

General Settings

2DView settings

Language

Background color

Upper side

Lower side

Tree symbol

Normal

Thinning

Thinning Mark

Unknown

Withered

Insect-damaged

Highlight

Pending

List cursor

Boundary

Crown width

Tree font size: 12 pt

Tree marker size: 12 pt

☒ Enable tree shadow

Scan point symbol

☒ Visible scan point

Scan point font size: 12 pt

Scan point

Scan point font size: 4 pt

Survey area range

Trees in fixed area

Trees in editing area

Fixed area line

Area editing line

Previous setting line

Other settings

Tree select cursor

Tree select cursor(List)

Grid line(Thick)

Grid line(Thin)

Grid label string

Grid font size: 8 pt

☒ Visible origin cross line:

Origin cross line

Stake color

Apply

OK

Cancel

2D Map View
Settings

OWLManagerViewer Settings

General Settings

2DView settings

Language

Please select a language. Restart the software after changing the settings.

☐ Japanese

☒ English

Apply

OK

Cancel

Language Setting

9 – 1 Operation Settings

1) General

Make general settings for OWLManager.

■ Parent node name

Change the default name of the node, which is displayed immediately below the “OWLManager” node in the survey data tree. The name “compartment” is set as standard.

■ Child node name

Change the default name of the node, which is displayed immediately below the parent node. The name “sub-compartment” is set as standard.

■ Default prefecture

In the “Create Compartment” window, specify the prefecture which should be initially selected for the prefecture name parameter.

■ The standard display of diameter at chest height is rounded to the nearest 2 cm.

Set whether or not to “round to 2 cm” for the initial diameter at chest height when survey data is opened.

■ Default rounding method

Select the rounding method immediately after survey data creation. The following three methods are available:

[Tree]

This method rounds up. Example: 25.3 cm → 26 cm

Log

This method rounds down. Example: 25.3 cm → 24 cm

[1 for logs of 14 or less]

This method rounds down but uses 1-cm units for values of 14 cm or less. Example: 11.9 cm → 11 cm

3D Measurement System OWL

- RICOH THETA application path

Displays the path (folder name) where the RICOH THETA application is saved.

- RICOH THETA application automatic detection

Attempts to automatically detect the path (folder name) where the RICOH THETA application is saved.

If the application exists, the pathname will be displayed.

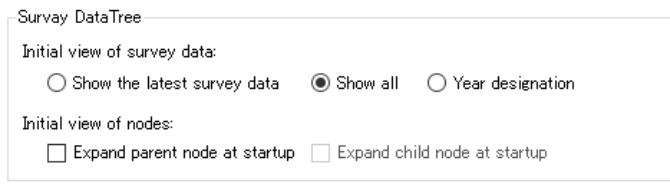
- Refer to RICOH THETA application

Find the path (folder name) where the RICOH THETA application is saved and register it manually.

Please refer to "8 Linkage with RICOH THETA application" for information related to the RICOH THETA application.

2) Survey data tree display

Set the initial presentation method for the survey data tree.



Survey DataTree

Initial view of survey data:

☐ Show the latest survey data ☒ Show all ☐ Year designation

Initial view of nodes:

☐ Expand parent node at startup ☐ Expand child node at startup

■ Initial survey data display

Select the display method for survey data.

“Display only latest survey data”: Only displays the survey data with the latest creation date.

“Display all survey data”: Displays all survey data stored in the sub-compartment.

“Display specified survey year”: Only displays survey data from within the specified period.

■ Initial node display

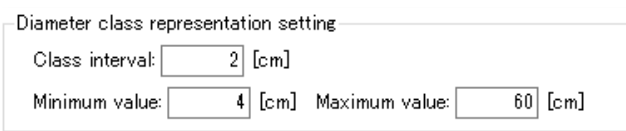
Set the node expansion method.

“Expand parent nodes on startup”: Displays with parent nodes expanded when OWLManager starts.

“Expand child nodes on startup”: Displays with child nodes expanded when OWLManager starts.

3) Diameter class expression setting

Set the values necessary for class expressions on the diameter distribution map and in CSV output.



Diameter class representation setting

Class interval: [cm]

Minimum value: [cm] Maximum value: [cm]

■ Class interval

Set the interval between classes.

■ Class minimum value

Set the minimum value for the class. Trees thinner than this value are excluded.

■ Class maximum value

Set the maximum value for the class. Trees thicker than this value are excluded.

4) Walkthrough

Set the behavior of the walkthrough.

Walkthrough

☒ Delete the thinned PCD

It may take some time to
load the PCD file.

■ Delete point cloud of thinned trees

Start the walkthrough in the mode of deleting point clouds near trees set for thinning.

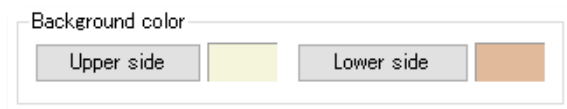
Enabling this setting may slow down the loading of point cloud files.

9 – 2 Display Settings

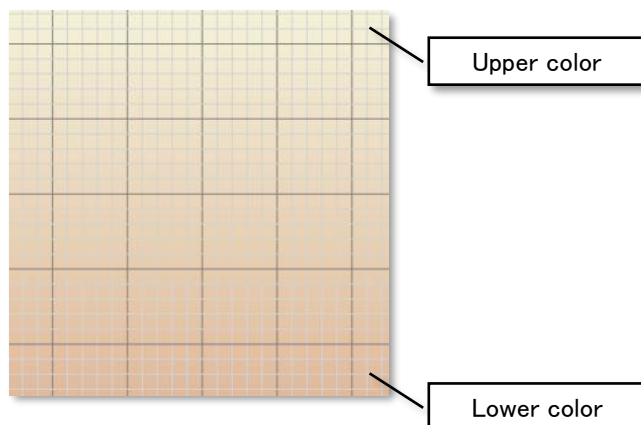
Make display settings for tree maps. The Color Settings window is displayed when the Name button is clicked.

Change colors as preferred, then click the OK button.

1) Background colors



Set the background color.



2) Tree symbols

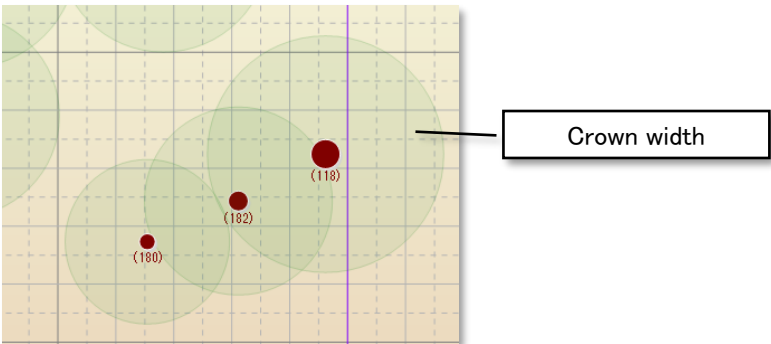
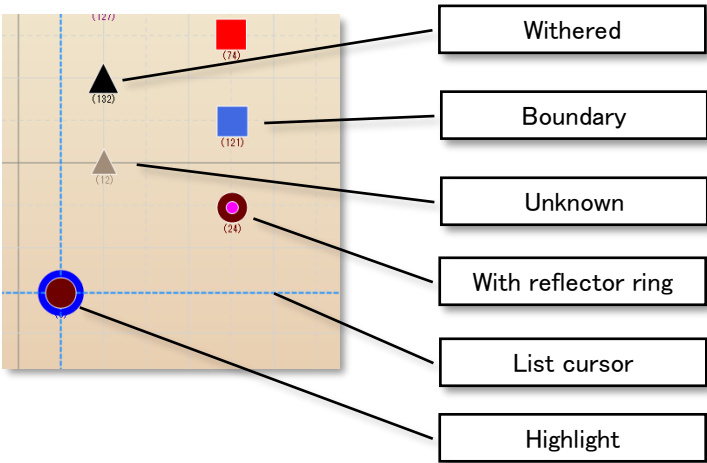
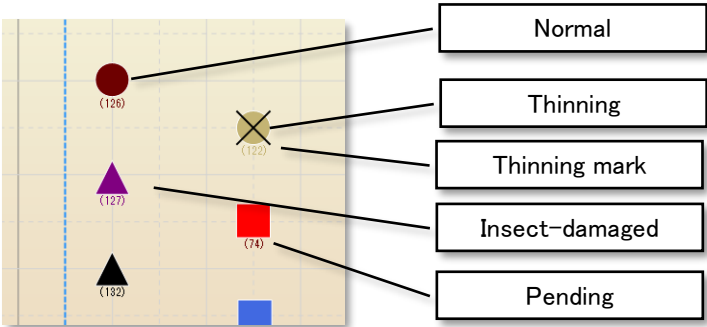
Tree symbol

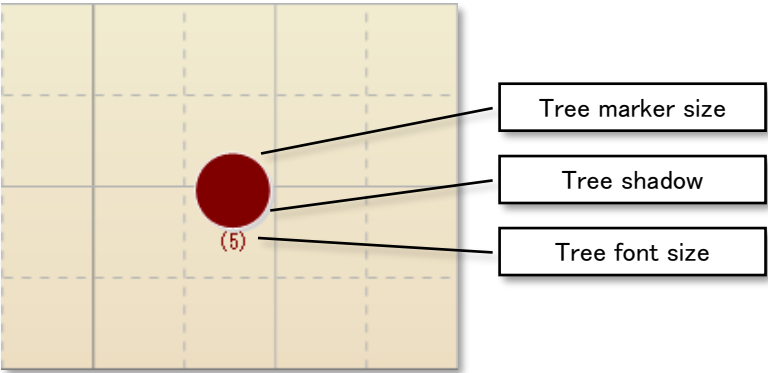
Normal		Thinning		Thinning Mark	
Unknown		Withered		Insect-damaged	
Highlight		Pending		List cursor	
Boundary		Crown width			

Tree font size: 10 pt

Tree marker size: 8 pt

☐ Enable tree shadow





3) Scan point

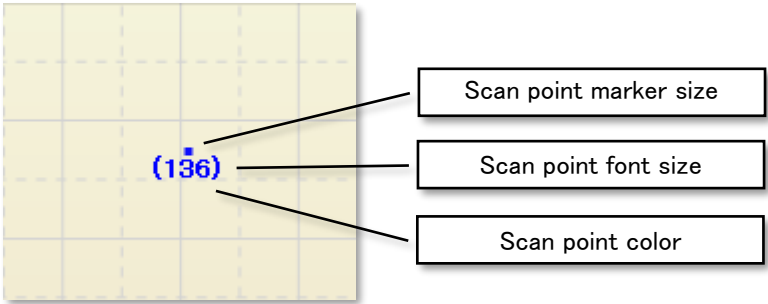
Scan point symbol

☒ Visible scan point

Scan point font size: 12 pt

Scan point font size: 4 pt





Scan point

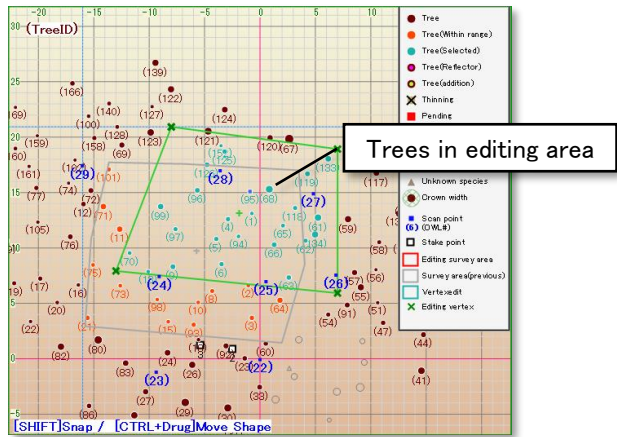
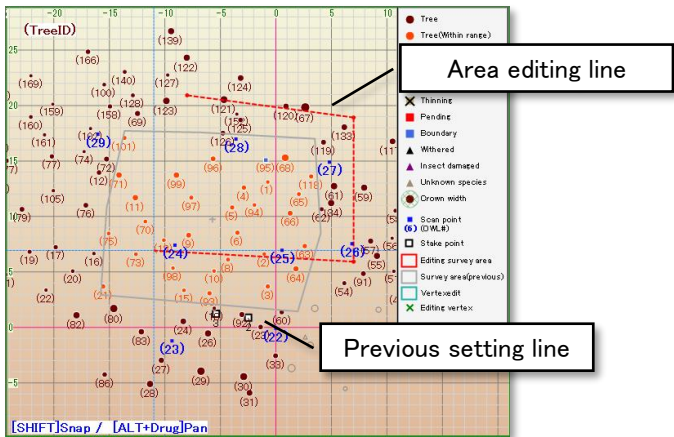


Scan points are removed from the display if the "Display scan points" box is unchecked.

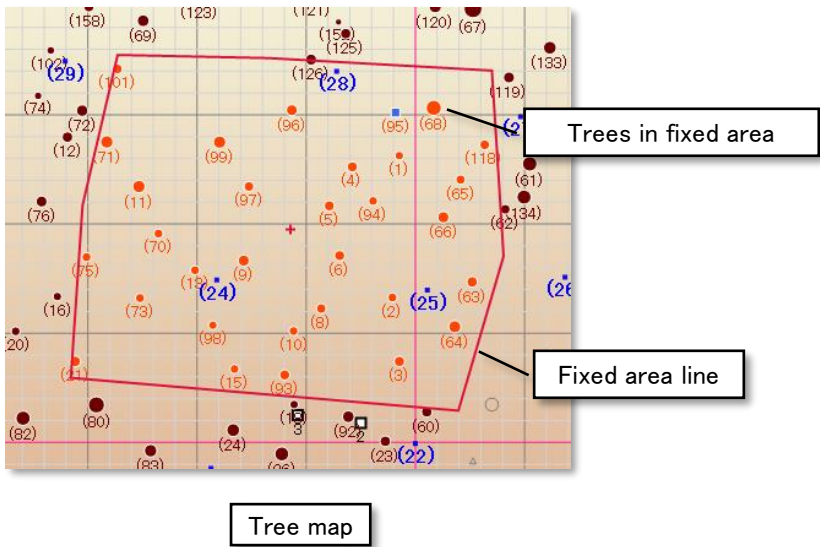
4) Survey area range

Survey area range

Trees in fixed area		Trees in editing area	
Fixed area line		Area editing line	
Previous setting line			









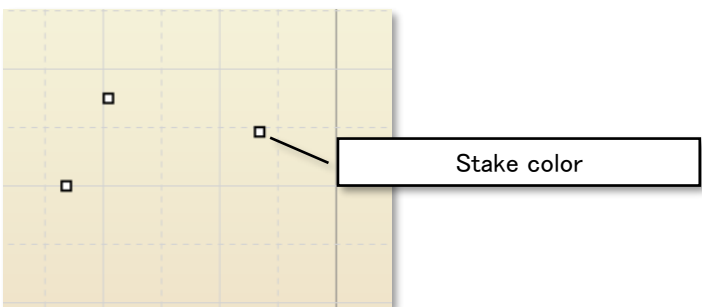
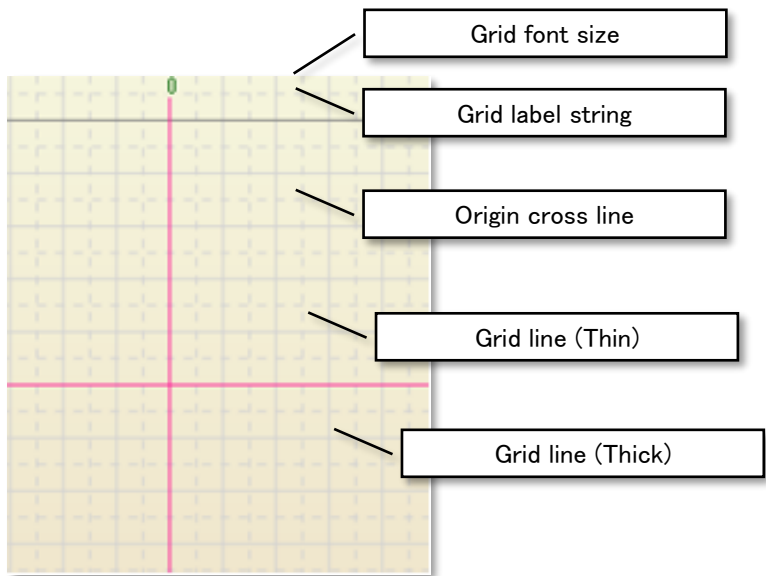
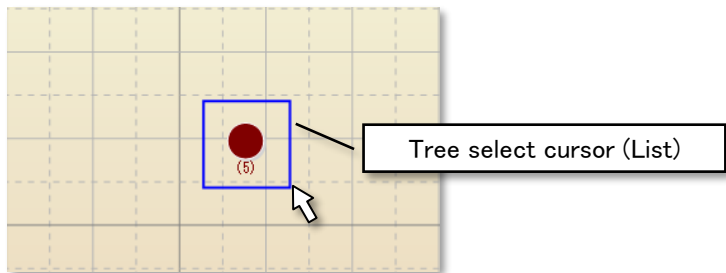
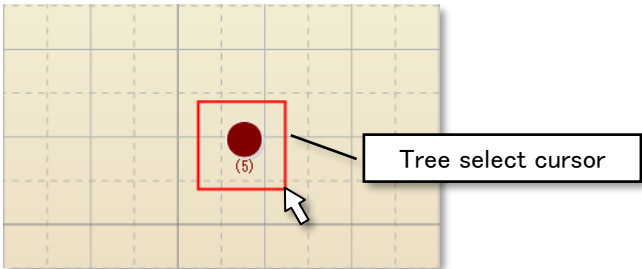
Survey Area Range Setting window



5) Miscellaneous

Other settings

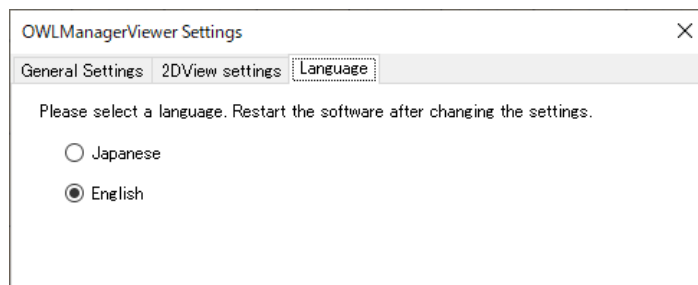
Tree select cursor		Tree select cursor(List)	
Grid line(Thick)		Grid line(Thin)	
Grid label string		Grid font size:	<input type="text" value="9"/> pt
<input checked="" type="checkbox"/> Visible origin cross line:			
Origin cross line		Stake color	<input type="text"/>



9 – 3 Language Settings

Select the language used in the software.

Quit the software after changing the language.



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