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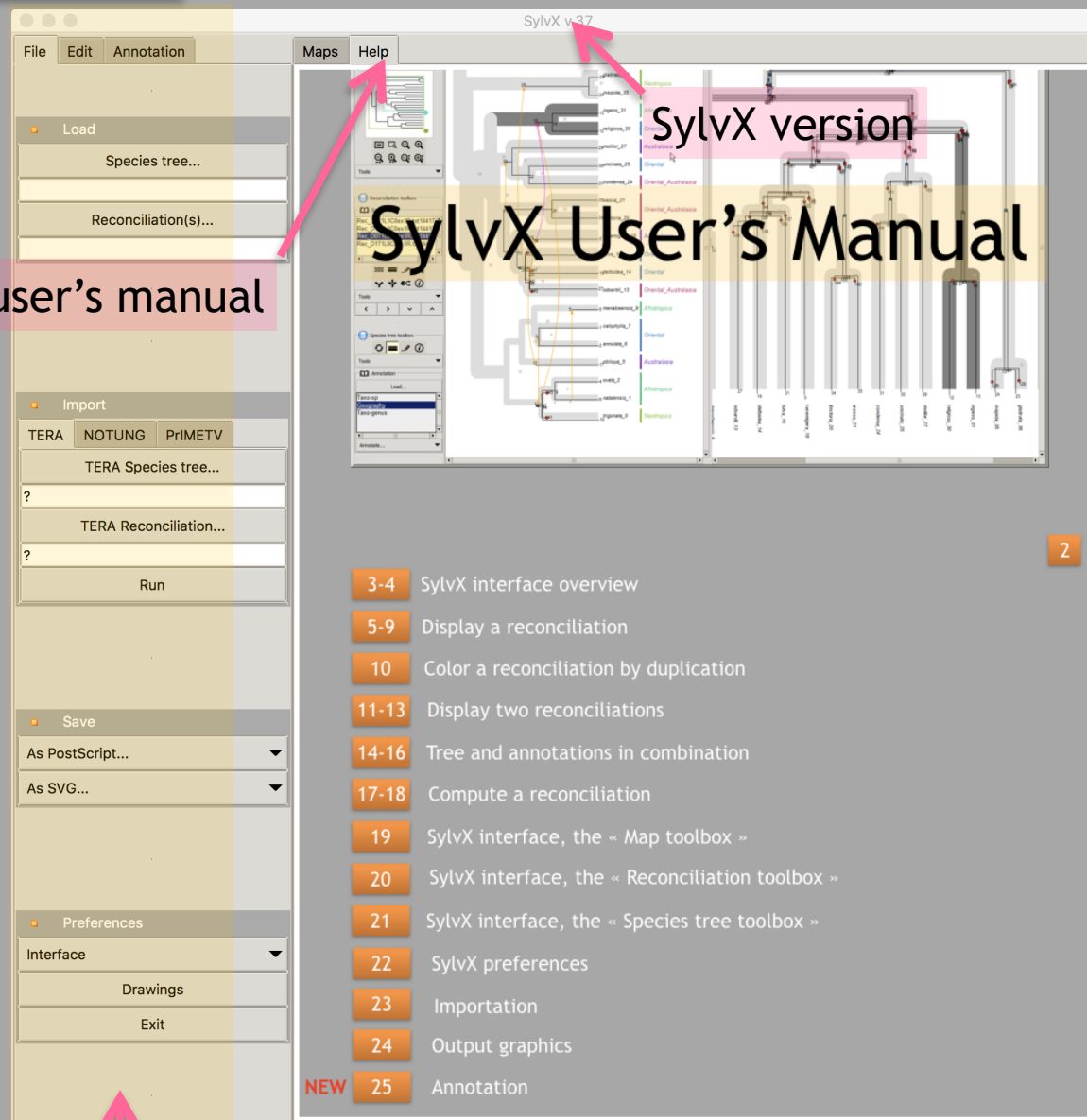
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SylvX user's manual



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All the SylvX's controls are on the left side of the interface

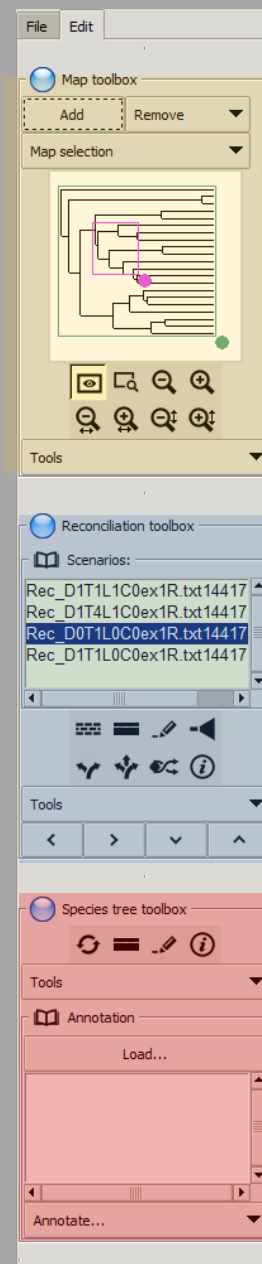
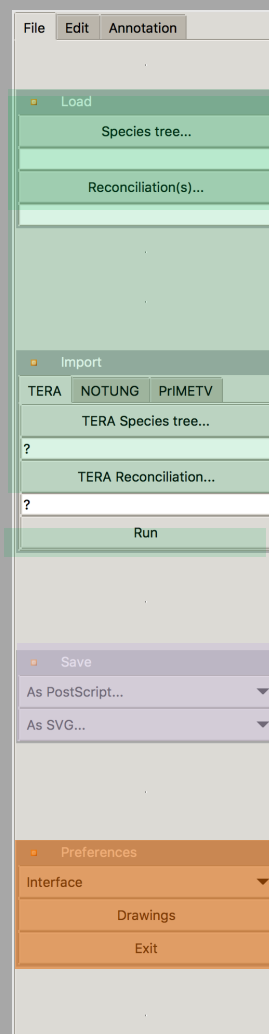
SylvX input, either :
Load
Import



SylvX output



SylvX preferences



« Map » toolbox
(tools working on species
trees AND reconciliations)



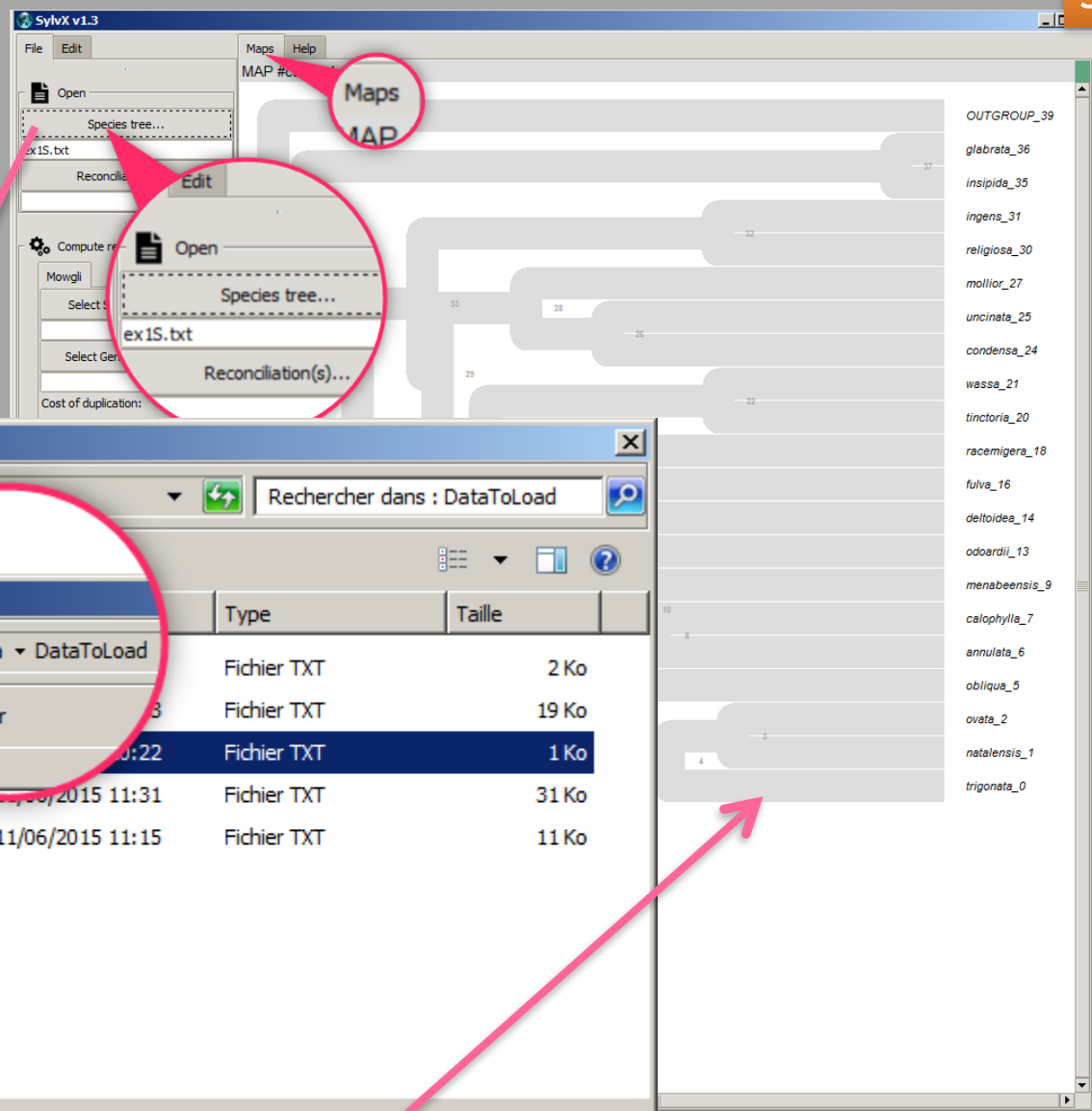
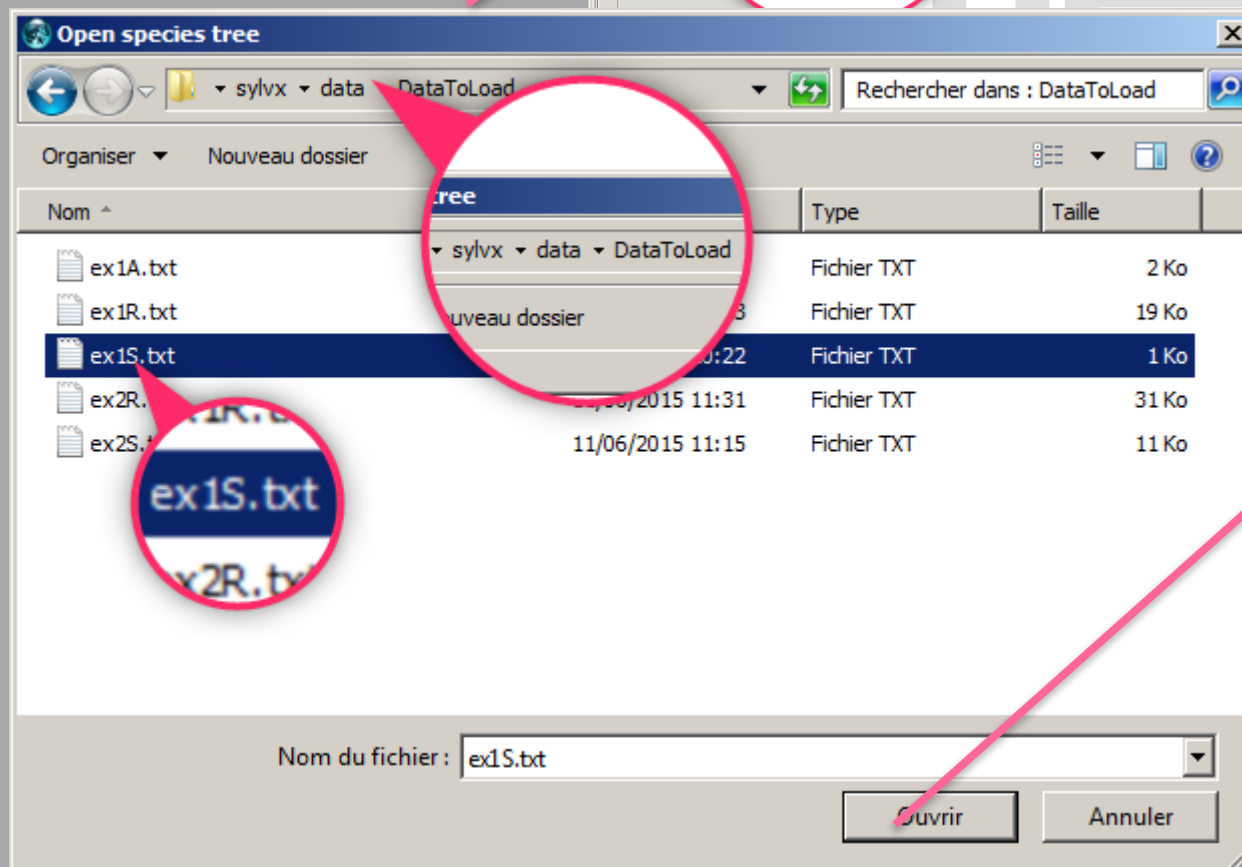
« Reconciliation »
toolbox



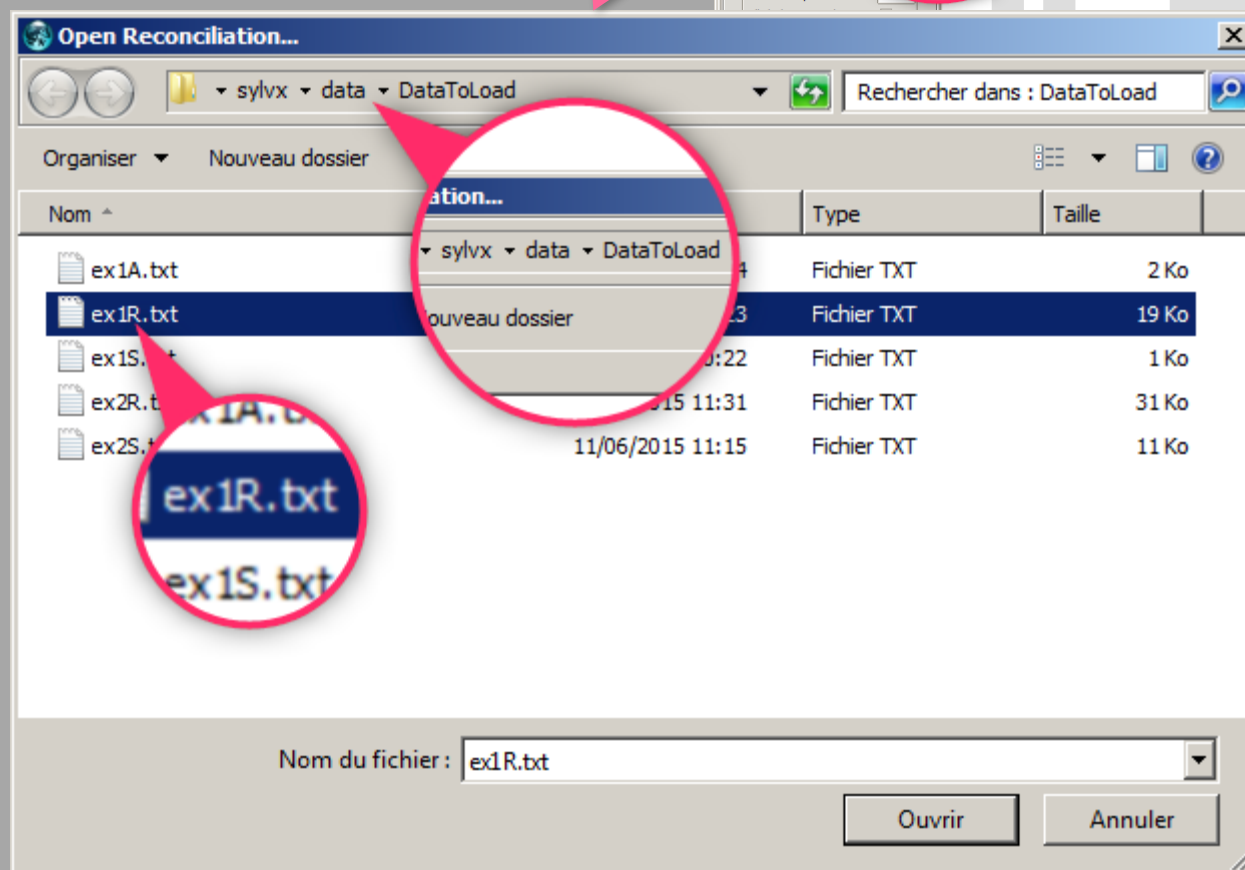
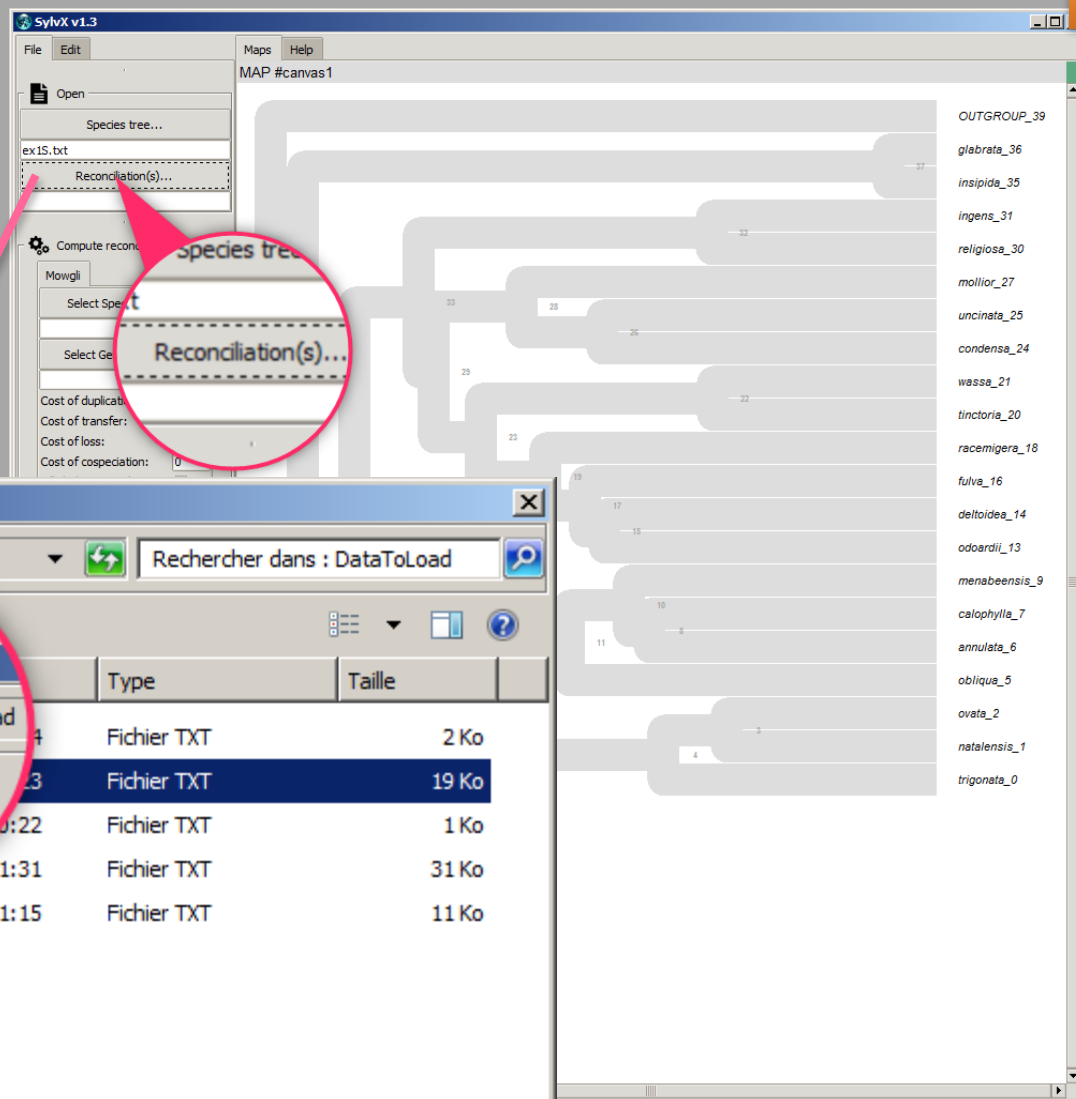
« Species Tree »
toolbox



Display a reconciliation
1) open a species tree, in this example the ex1S.txt file



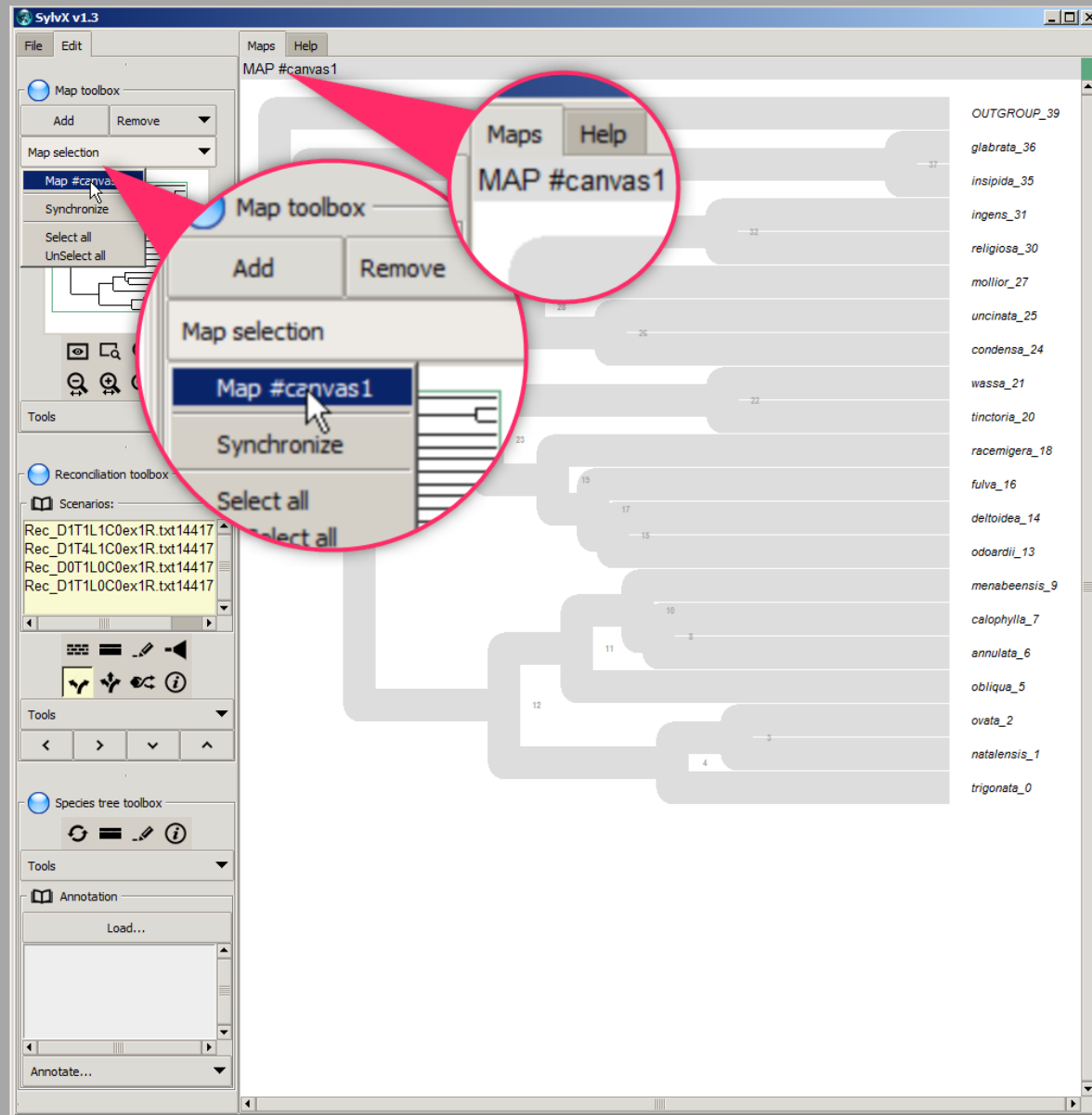
Display a reconciliation
2) open a reconciliation file,
in this example the ex1R.txt
file, which contains 4
reconciliations



Display a reconciliation

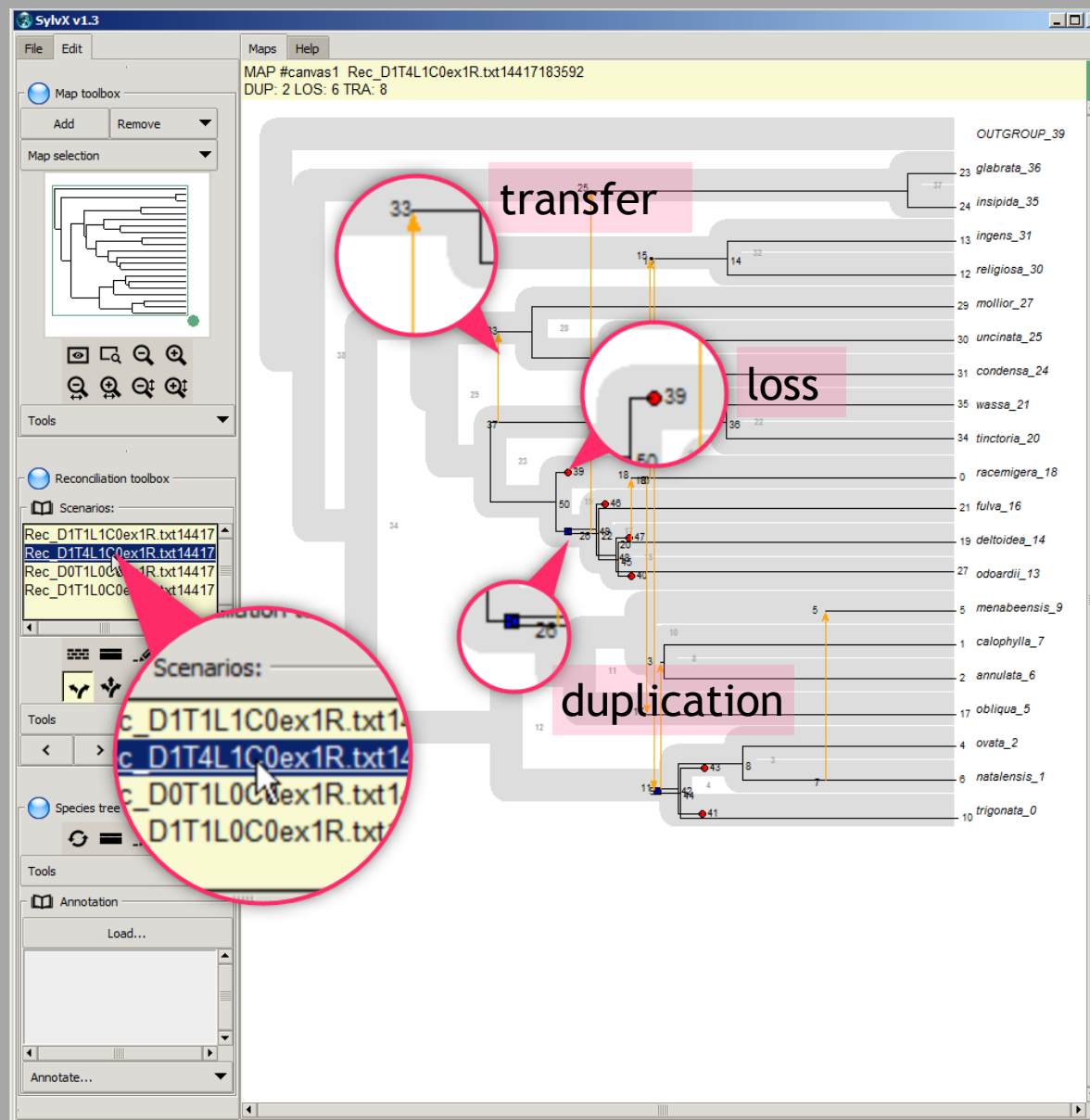
3) target a map

7



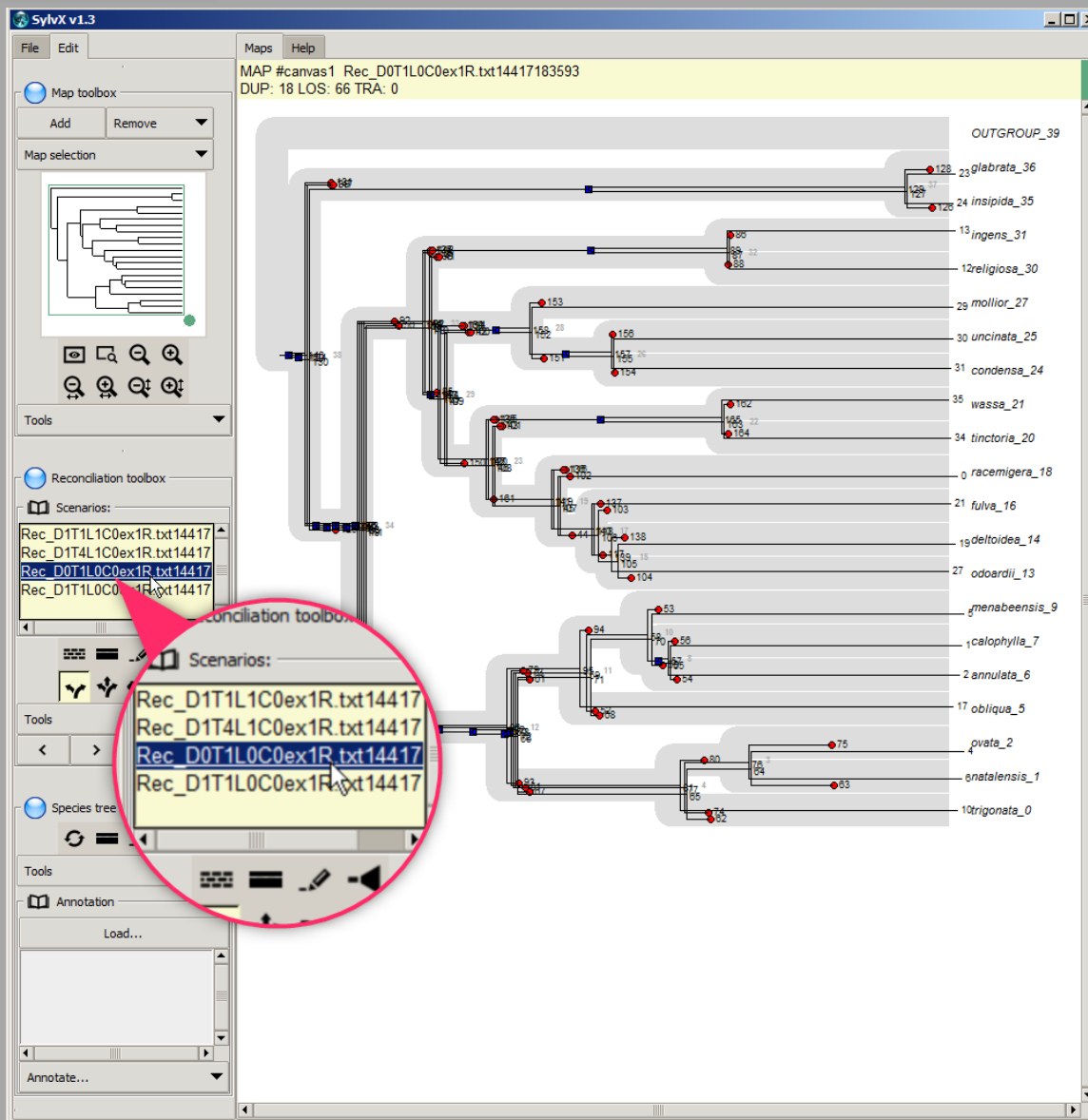
Display a reconciliation

4) select a reconciliation



Display a reconciliation

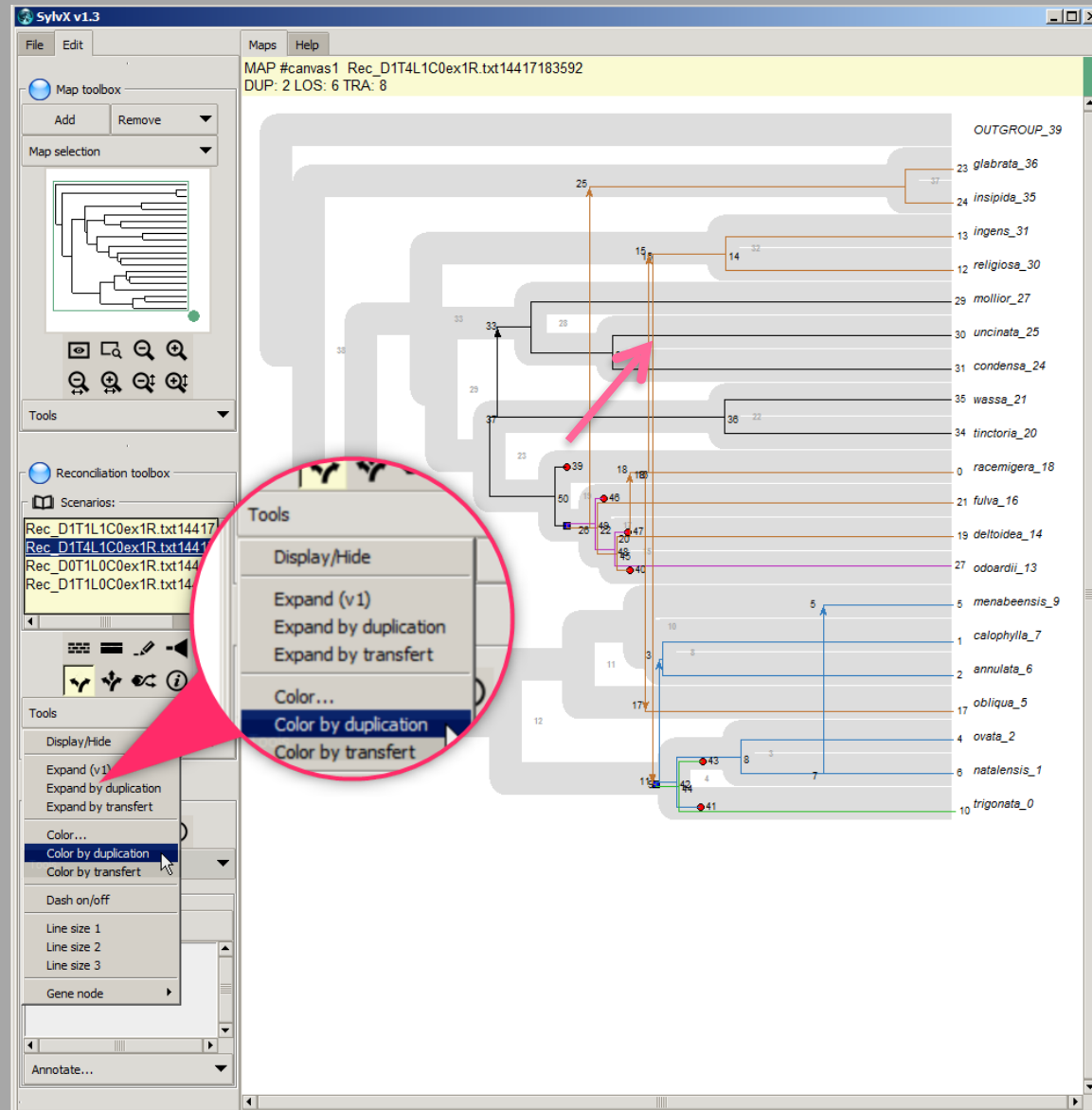
5) select another reconciliation



Color a reconciliation by duplication

10

The command is applied to the selected map(s)



Display two reconciliations

1) Add a map

11

The screenshot displays the SylVx v1.3 software interface. The main window is divided into two panes, 'MAP #canvas1' and 'MAP #canvas2'. The left pane shows a reconciliation map with a species tree and a gene tree. The right pane shows a similar map. A red circle highlights the 'Map toolbox' in the left sidebar, with a red arrow pointing to the 'Add' button. The 'Reconciliation toolbox' and 'Species tree toolbox' are also visible. The 'Scenarios' list on the left includes several files, with 'Rec_D1T4L1C0ex1R.txt14417' selected. The 'Annotation' section at the bottom has a 'Load...' button and an 'Annotate...' button. A text box in the bottom right corner states: 'A new map is displayed with the same species tree'.

MAP #canvas1 Rec_D1T4L1C0ex1R.txt14417183592
DUP: 2 LOS: 6 TRA: 8

MAP #canvas2

OUTGROUP_39
glabrata_36
insipida_35
ingens_31
religiosa_30
mollior_27
uncinata_25
condensa_24
wasssa_21
tinctoria_20
racemigera_18
fulva_16
deltoidea_14
odoardi_13
menabeensis_9
calophylla_7
annulata_6
obliqua_5
ovata_2
natalensis_1
trigonata_0

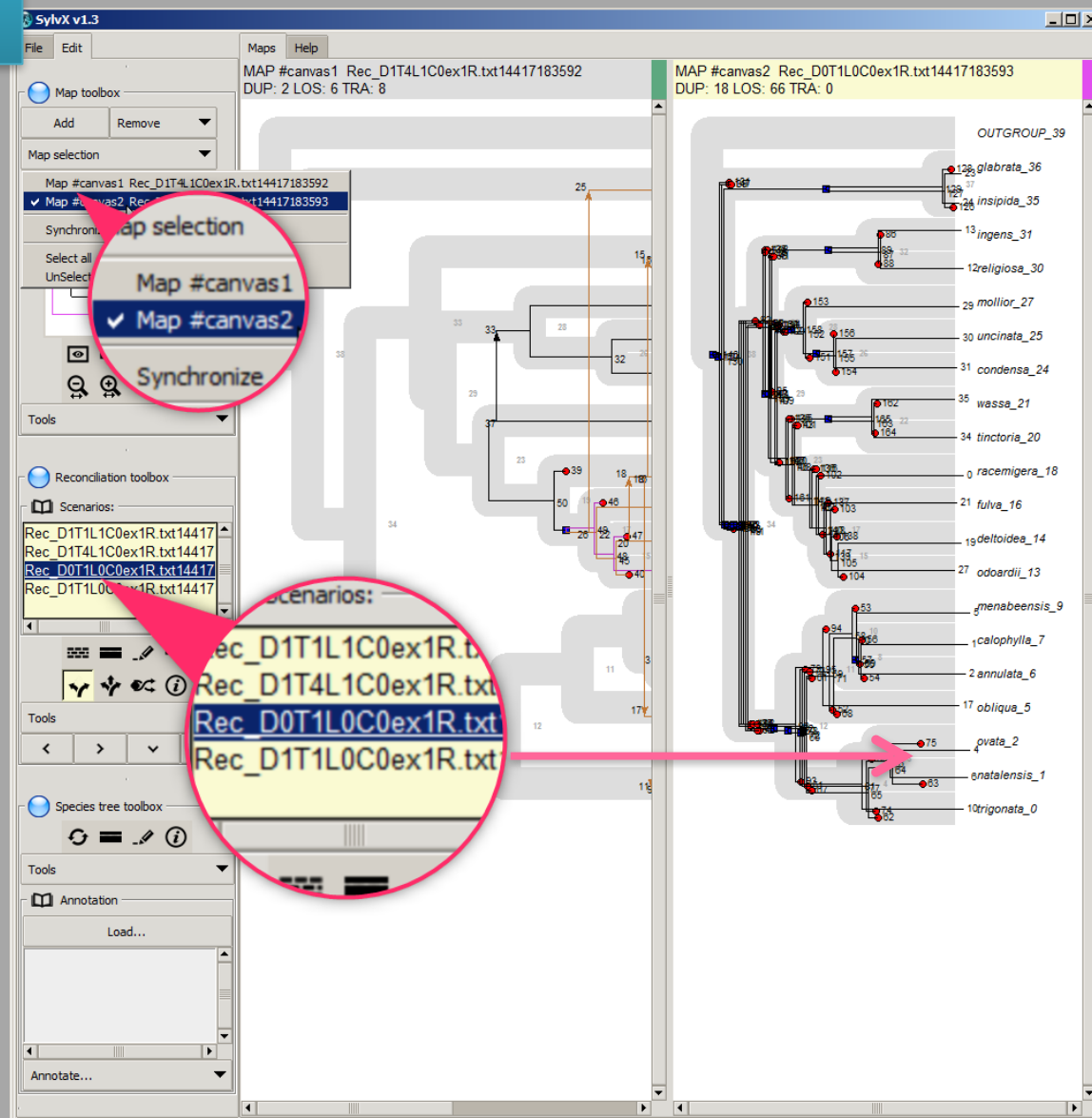
A new map is displayed with the same species tree

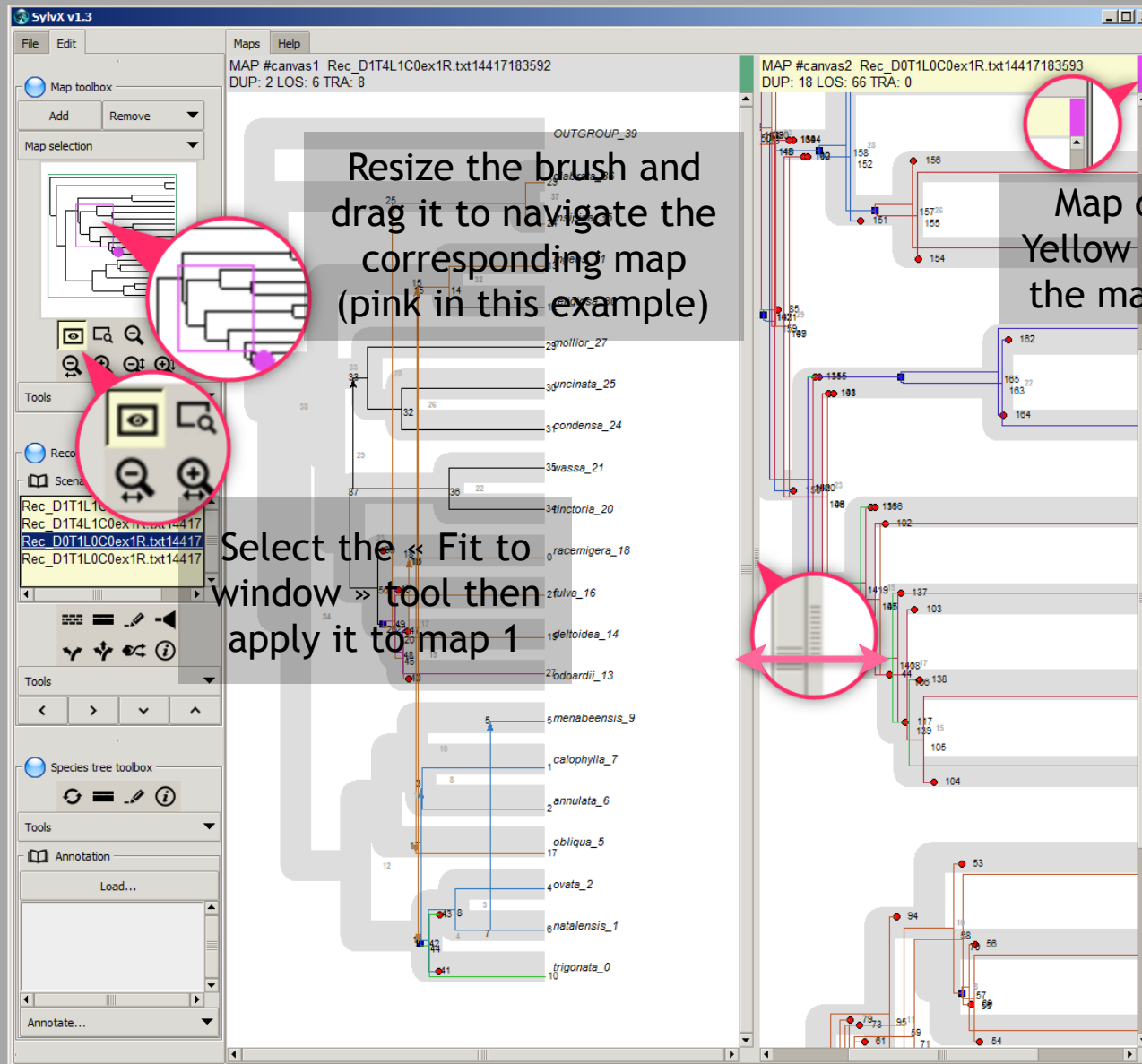
Display two reconciliations

2) select a map, then select a reconciliation

Unselect map#1
and select map#2

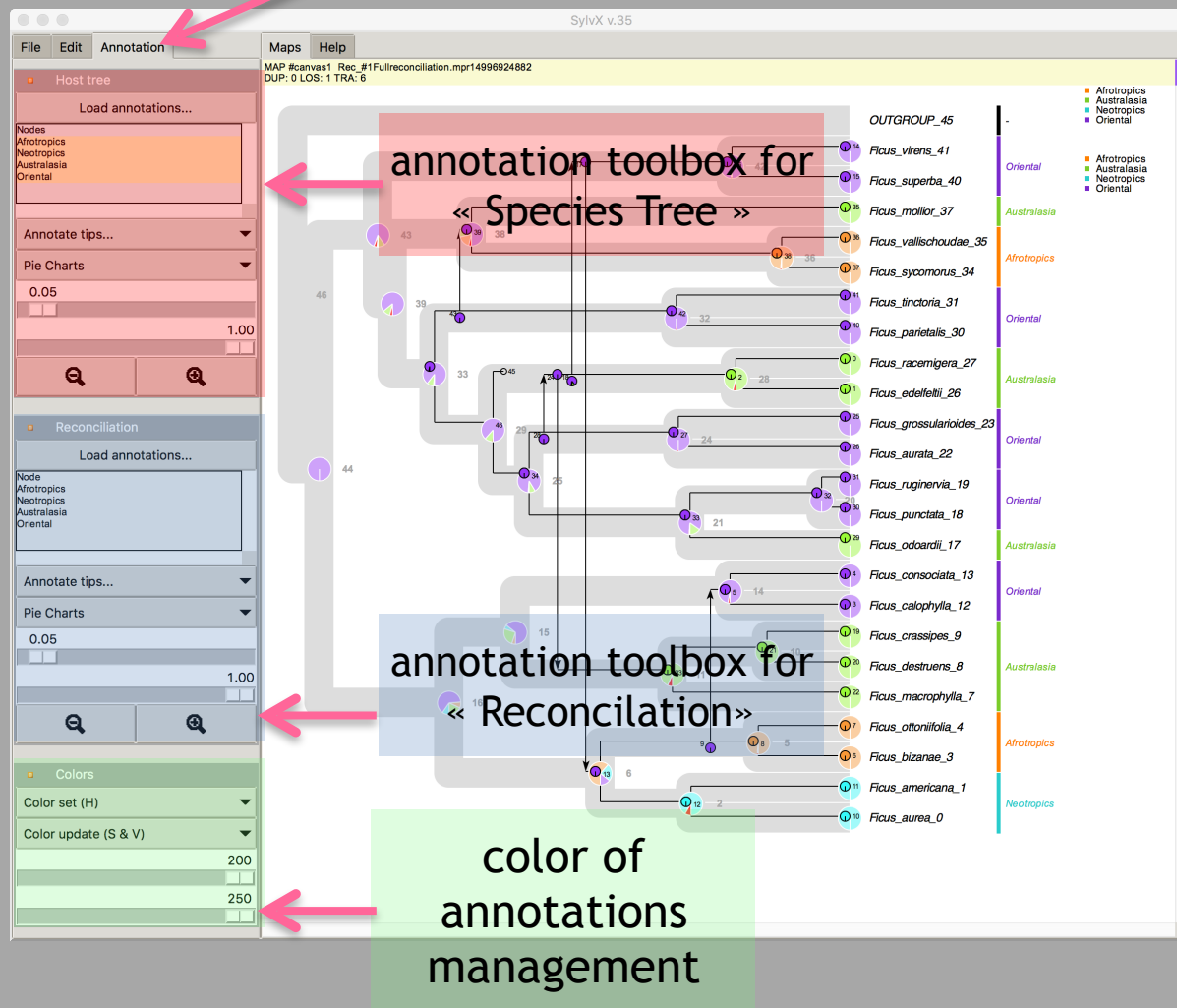
Select the
reconciliation to
display



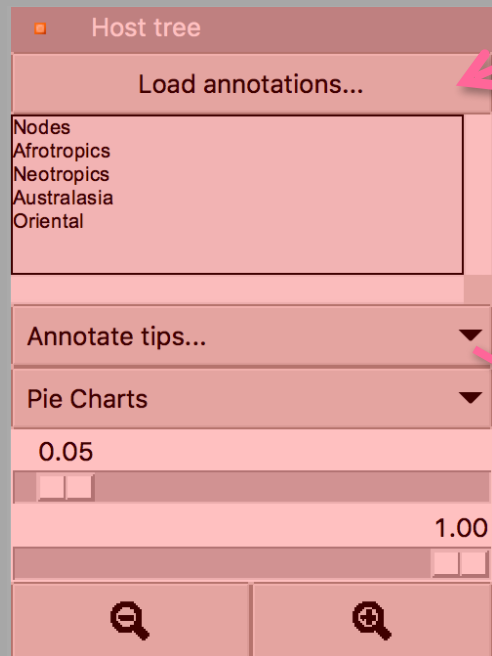


Tree, reconciliations and annotations in combination

Annotation tab



Tree, reconciliations and annotations in combination

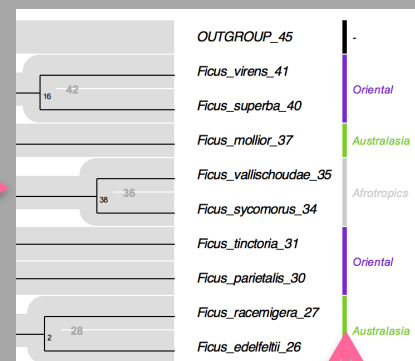
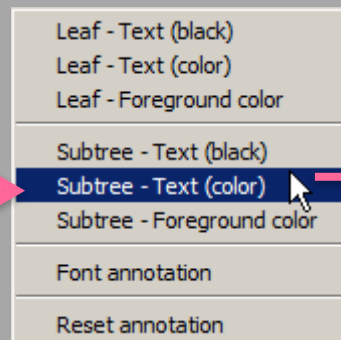


```

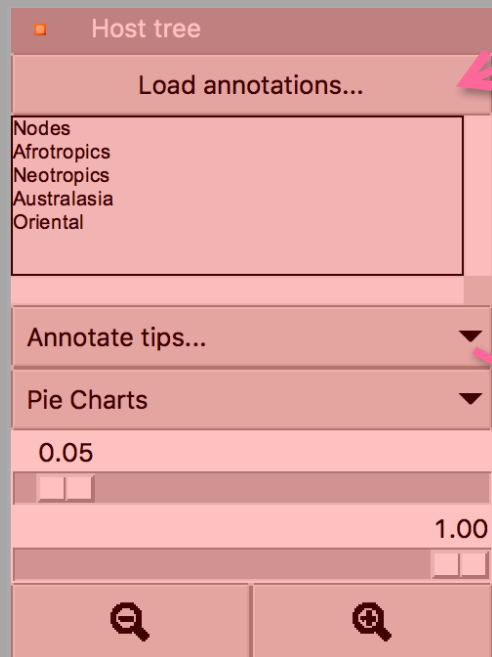
AnnotS.txt
Nodes,Afrotropics,Neotropics,Australasia,Oriental
16,0.00,0.10,0.18,0.64
6,0.65,0.25,0.0,0.15
2,0.04,0.91,0.01,0.04
Ficus_aurea_0,0.00,1.00,0.00,0.00
Ficus_americana_1,0.00,1.00,0.00,0.00
5,0.98,0.01,0.00,0.01
Ficus_bizanae_3,1.00,0.00,0.00,0.00
Ficus_ottomifolia_4,1.00,0.00,0.00,0.00
15,0.05,0.06,0.25,0.64
11,0.01,0.01,0.94,0.04
Ficus_macrophylla_7,0.00,0.00,1.00,0.00
10,0.00,0.00,1.00,0.00
Ficus_destruens_8,0.00,0.00,1.00,0.00
Ficus_crassides_9,0.00,0.00,1.00,0.00
14,0.00,0.00,0.02,0.98
Ficus_calophylla_12,0.00,0.00,0.00,1.00
Ficus_consociata_13,0.00,0.00,0.00,1.00
43,0.03,0.01,0.10,0.85
39,0.03,0.01,0.11,0.86
33,0.01,0.00,0.09,0.90
29,0.01,0.00,0.11,0.88
25,0.00,0.00,0.09,0.90
21,0.01,0.01,0.15,0.84
Ficus_olugadila_17,0.00,0.00,1.00,0.00
20,0.00,0.00,0.00,1.00
Ficus_punctata_18,0.00,0.00,0.00,1.00
Ficus_ruginervia_19,0.00,0.00,0.00,1.00
24,0.00,0.00,0.01,0.99
Ficus_aurata_22,0.00,0.00,0.00,1.00
Ficus_crassides_23,0.00,0.00,0.00,1.00
  
```

CSV format

select
annotation(s)
then select an
operation of
highlighting



Tree, reconciliations and annotations in combination

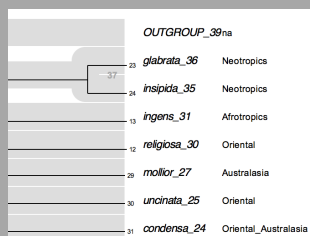
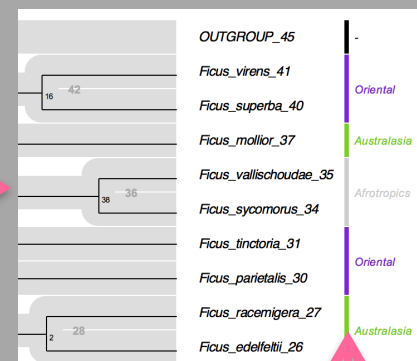
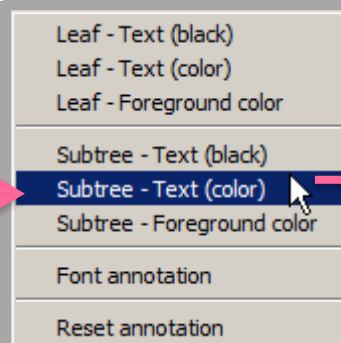


```

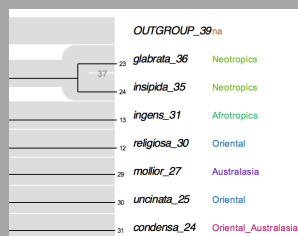
AnnotS.txt
Nodes,Afrotropics,Neotropics,Australasia,Oriental
16,0.08,0.10,0.18,0.64
6,0.65,0.25,0.0,0.15
2,0.04,0.91,0.01,0.04
Ficus_aurea_9,0.00,1.00,0.00,0.00
Ficus_americana_1,0.00,1.00,0.00,0.00
5,0.98,0.01,0.00,0.01
Ficus_bizanae_3,1.00,0.00,0.00,0.00
Ficus_gibsoniifolia_4,1.00,0.00,0.00,0.00
15,0.05,0.06,0.25,0.64
11,0.01,0.01,0.94,0.04
Ficus_macrophylla_7,0.00,0.00,1.00,0.00
10,0.00,0.00,1.00,0.00
Ficus_destruens_8,0.00,0.00,1.00,0.00
Ficus_crassipes_9,0.00,0.00,1.00,0.00
14,0.00,0.00,0.02,0.98
Ficus_calophylla_12,0.00,0.00,0.00,1.00
Ficus_consociata_13,0.00,0.00,0.00,1.00
43,0.03,0.01,0.10,0.85
39,0.03,0.01,0.11,0.86
33,0.01,0.00,0.09,0.90
29,0.01,0.00,0.11,0.88
25,0.00,0.00,0.09,0.90
21,0.01,0.01,0.15,0.84
Ficus_olneyi_17,0.00,0.00,1.00,0.00
20,0.00,0.00,0.00,1.00
Ficus_punctata_18,0.00,0.00,0.00,1.00
Ficus_ruginervia_19,0.00,0.00,0.00,1.00
24,0.00,0.00,0.01,0.99
Ficus_aurata_22,0.00,0.00,0.00,1.00
Ficus_...
  
```

CSV format

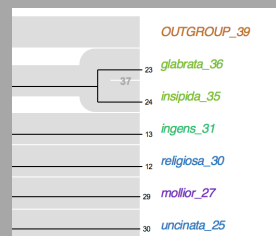
select
annotation(s)
then select an
operation of
highlighting



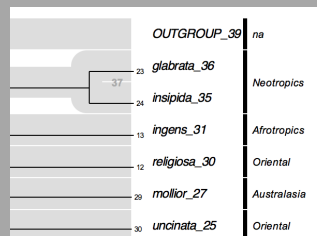
Leaf text (black)



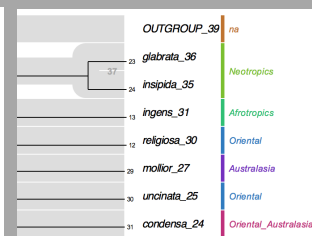
Leaf text (color)



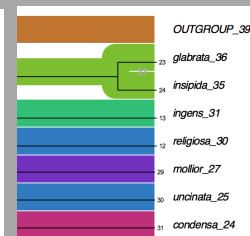
Leaf foreground color



Subtree text (black)

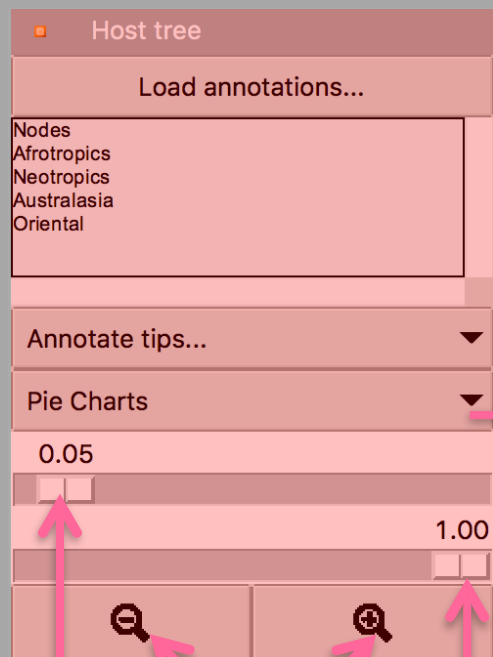


Subtree text (color)



Subtree foreground color

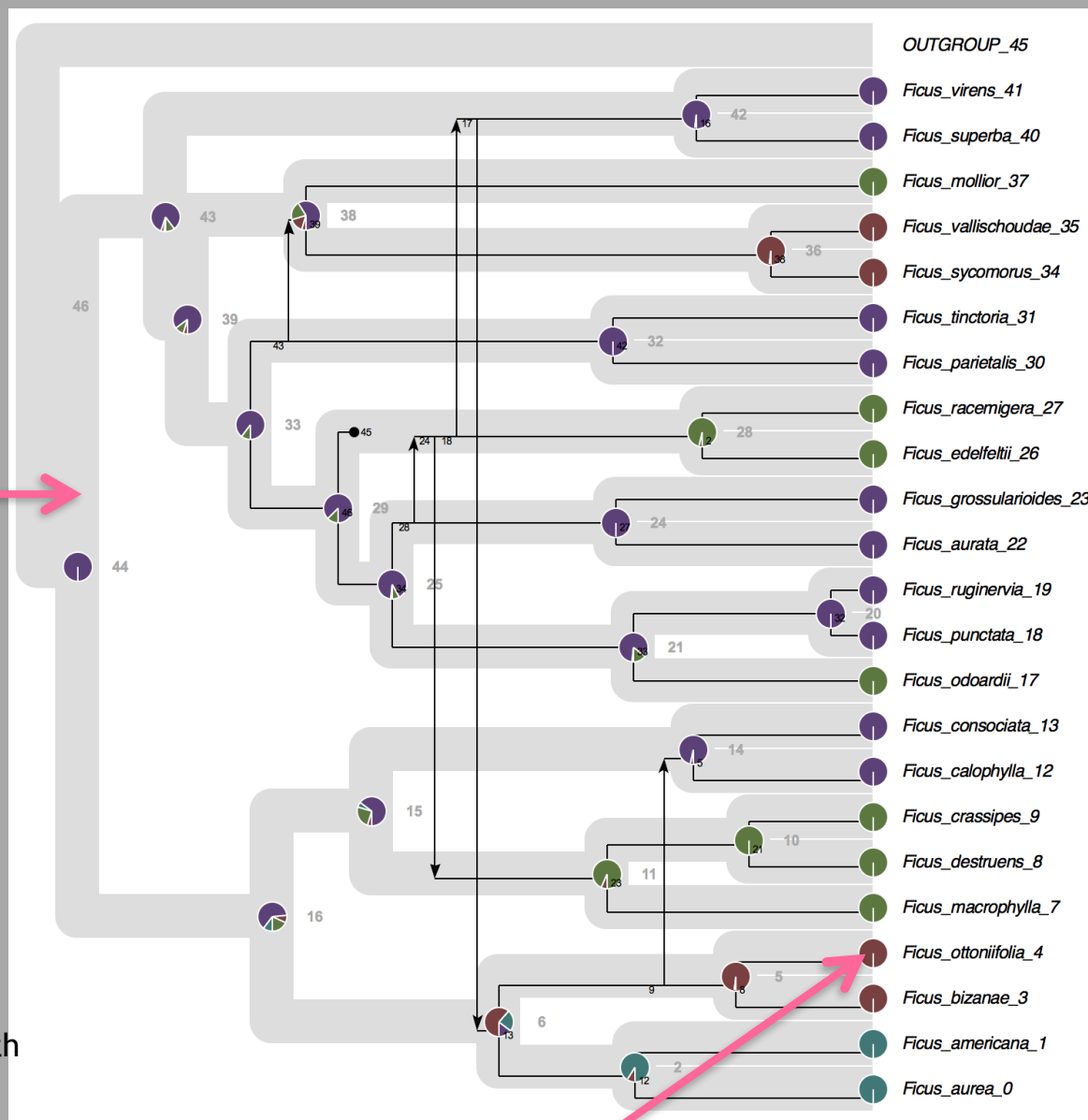
Tree, reconciliations and annotations in combination



piechart zoom in/out

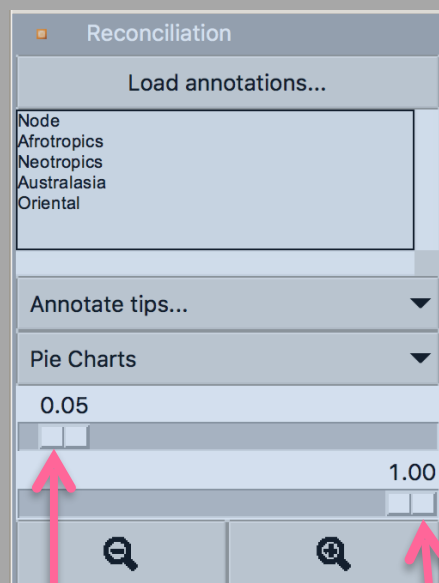
annotation values under this threshold will be summed and represented in one black color class in the piecharts

Piecharts with a majority annotation with a value above this threshold will not be displayed



piecharts for tips can be hidden

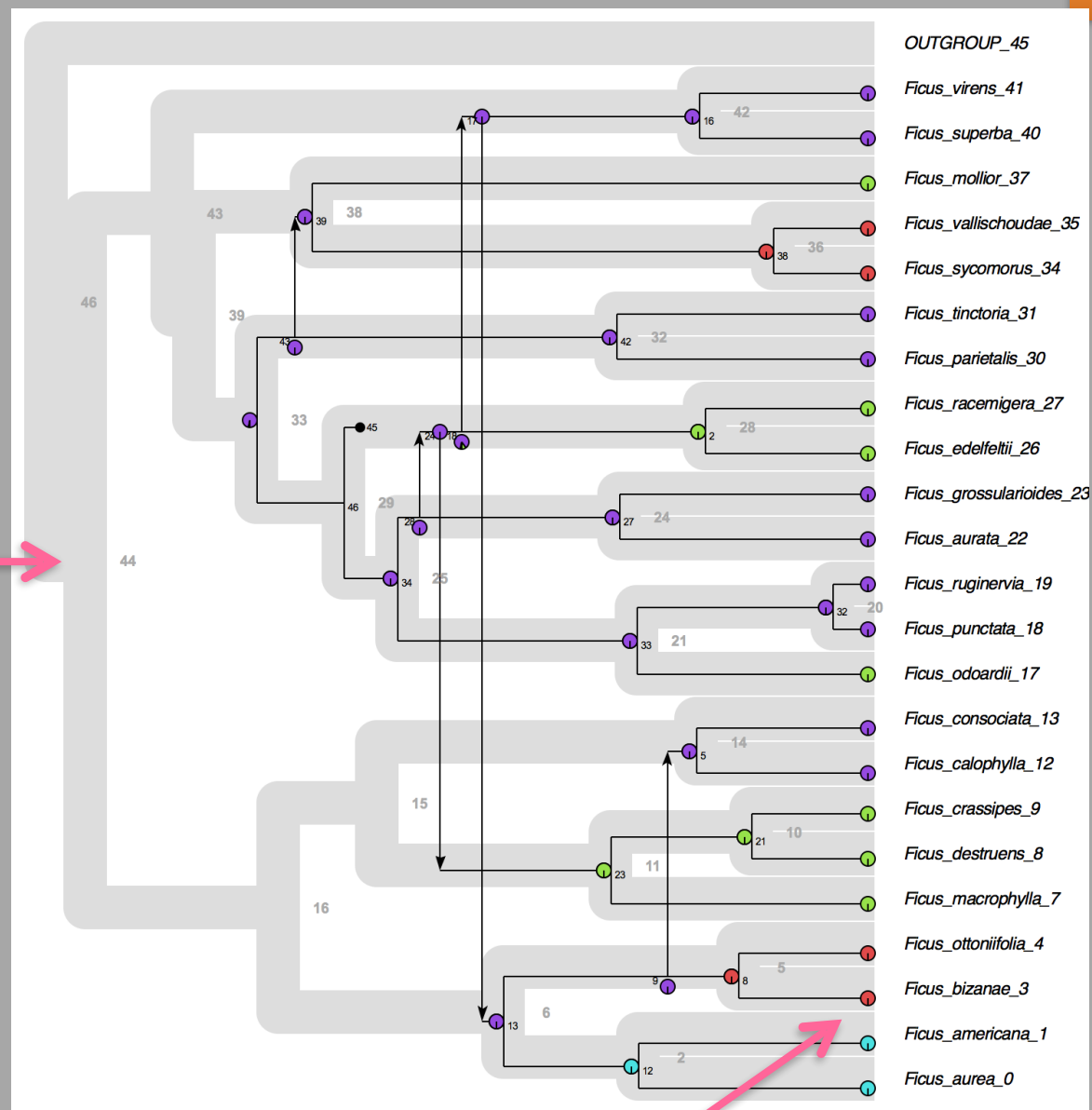
Tree, reconciliations and annotations in combination



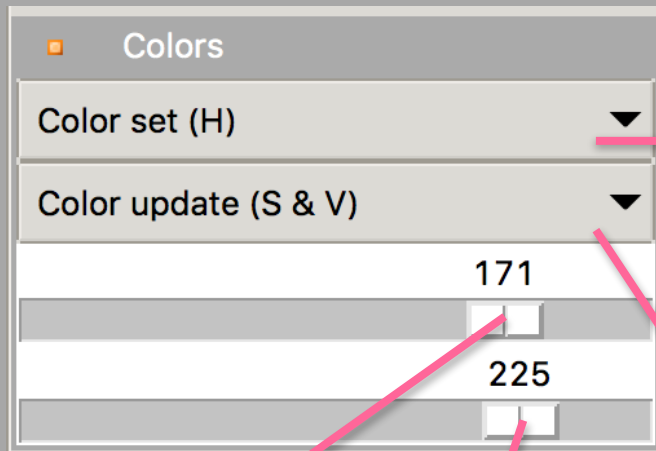
piechart zoom in/out

annotation values under this threshold will be summed and represented in one black color class in the piecharts

Piecharts with a majority annotation with a value above this threshold will not be displayed



piecharts for tips can be hidden

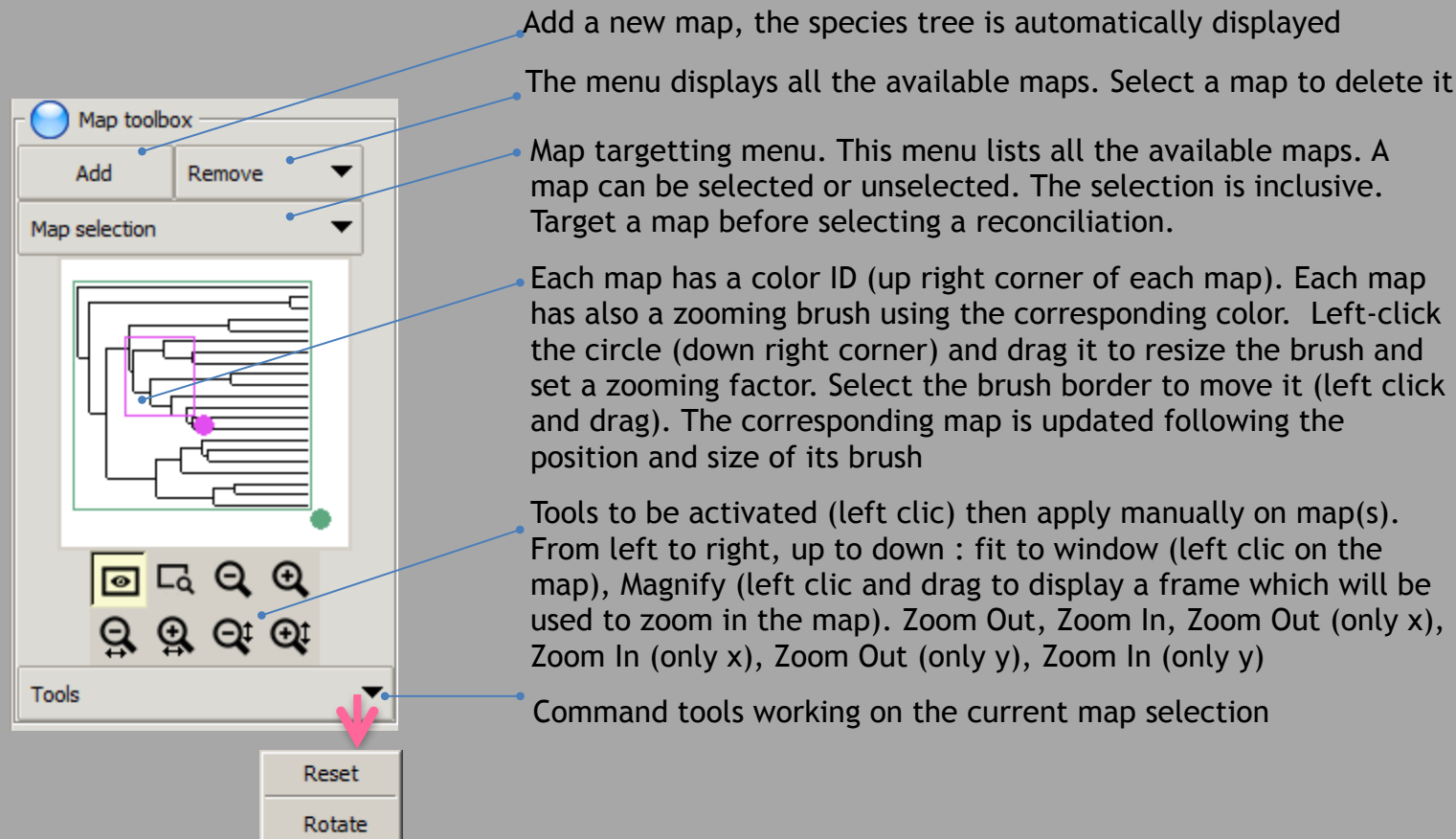


The screenshot shows a 'Colors' dialog box with two dropdown menus at the top: 'Color set (H)' and 'Color update (S & V)'. Below these are two horizontal sliders. The top slider is labeled '171' and the bottom slider is labeled '225'. Pink arrows point from the text 'Saturation' to the top slider and from the text 'Value' to the bottom slider. Another pink arrow points from the 'Color set (H)' dropdown to the first bullet point on the right. A third pink arrow points from the 'Color update (S & V)' dropdown to the second bullet point on the right.

Saturation

Value

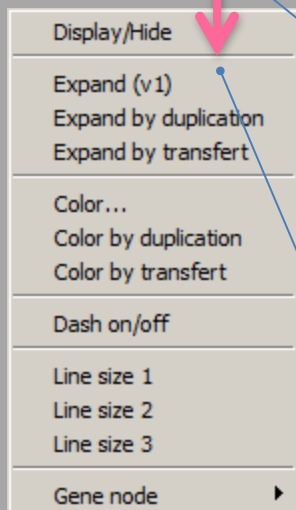
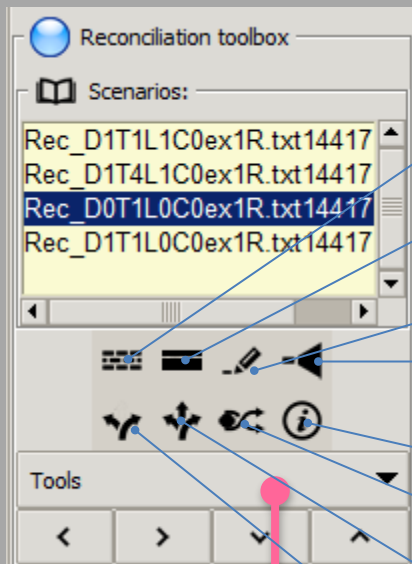
- select an annotation (Species/Host tree or Reconciliation) to switch to another color (Hue value) the graphic will be updated on the fly
- add a legend to the graphic
- select the annotation family you want to modify (Saturation and/or Value) : tips annotation, Species/Host tree or Reconciliation)



The image shows the SylvX Map toolbox interface with several annotations:

- Add a new map, the species tree is automatically displayed**: Points to the 'Add' button.
- The menu displays all the available maps. Select a map to delete it**: Points to the 'Remove' button.
- Map targetting menu. This menu lists all the available maps. A map can be selected or unselected. The selection is inclusive. Target a map before selecting a reconciliation.**: Points to the 'Map selection' dropdown menu.
- Each map has a color ID (up right corner of each map). Each map has also a zooming brush using the corresponding color. Left-click the circle (down right corner) and drag it to resize the brush and set a zooming factor. Select the brush border to move it (left click and drag). The corresponding map is updated following the position and size of its brush**: Points to a map visualization showing a species tree with a colored zooming brush.
- Tools to be activated (left clic) then apply manually on map(s). From left to right, up to down : fit to window (left clic on the map), Magnify (left clic and drag to display a frame which will be used to zoom in the map). Zoom Out, Zoom In, Zoom Out (only x), Zoom In (only x), Zoom Out (only y), Zoom In (only y)**: Points to the toolbar containing icons for fit to window, magnify, zoom out, zoom in, and zoom out/in only x/y.
- Command tools working on the current map selection**: Points to the 'Tools' dropdown menu.

Below the toolbox, there are two buttons: 'Reset' and 'Rotate'.



Dash line. Left-click the tool to activate it, then apply it on the fly to internal nodes of a reconciliation to set on/off dash line of the corresponding subtree

Line width. Left-click the tool to activate it, then apply it on the fly to internal nodes of a reconciliation to set increase/decrease (Shift-left-click) the line width of the corresponding subtree

Foreground color. Left-click the tool to activate it, then apply it on the fly to internal nodes of a reconciliation to set increase/decrease (Shift-left-click) the line width of the corresponding subtree

Shrink. Left-click the tool to activate it, then apply it on the fly to internal nodes of a reconciliation to hide the corresponding subtree (including transfert events).

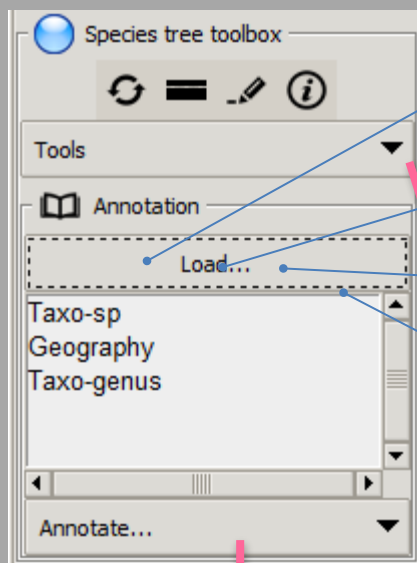
Information. Left-click the tool to activate it, then apply it to an internal node of a reconciliation to insert an annotation.

Expand. Left-click the tool to activate it, then apply it to internal node of the species tree to expand underlying duplications.

Move subtree. Left-click the tool to activate it, then apply it on the fly to a segment of a reconciliation to move the underlying subtree

Commands working on the whole reconciliation(s) (targeted ones)

Move segment. Left-click the tool to activate it, then apply it to the segments of a reconciliation to move it (including transfer events). The translation is local.

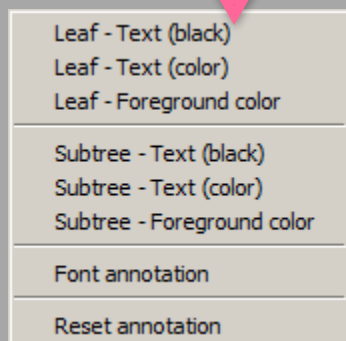


Swap, left-clc the tool to activate it, then apply it (left-clc) to internal nodes of the species trees (note that this operation resets the tree with its reconciliation)

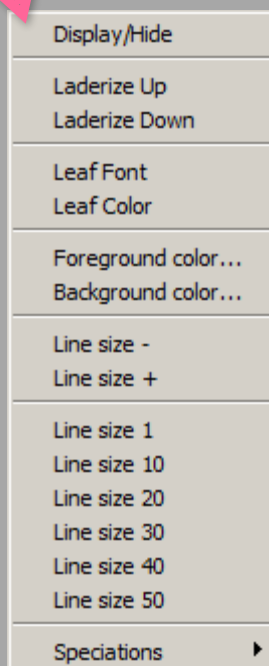
Line width, left-clc the tool to activate it, then left-clc species tree segments to increase their sizes or Shift/left-clc to decrease their sizes

Foreground color. Left-clc the tool to activate it, then select a color and apply it To the species tree segments

Information. Left-clc the tool to activate it, then apply it to internal node of the species tree to insert an annotation.



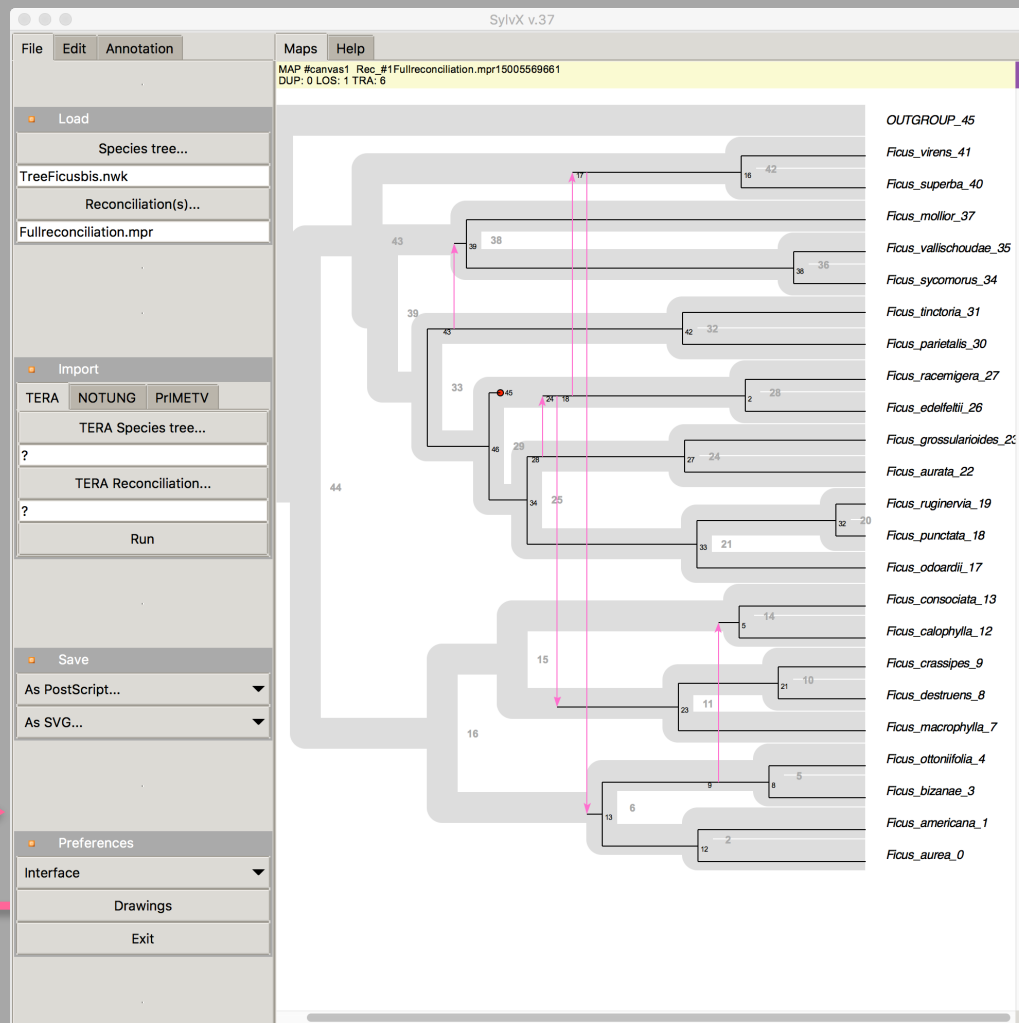
Highlighting operations for annotation



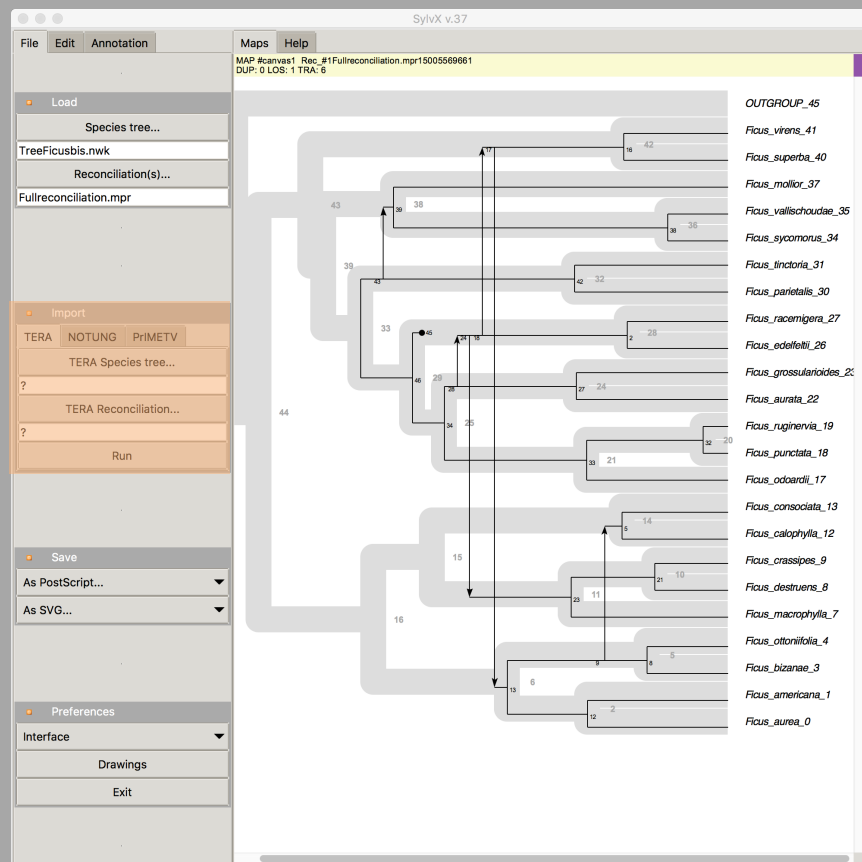
Commands working on the whole species trees (targeted ones)

SylvX Preferences

Connector Curvature	0
Transfer Curvature	0
Duplication Size	3
Loss Size	3
Transfer Color	
Duplication Color	
Loss Color	
Apply	
Save	
Restore	
Close	



by default Loss and Transfer color is black

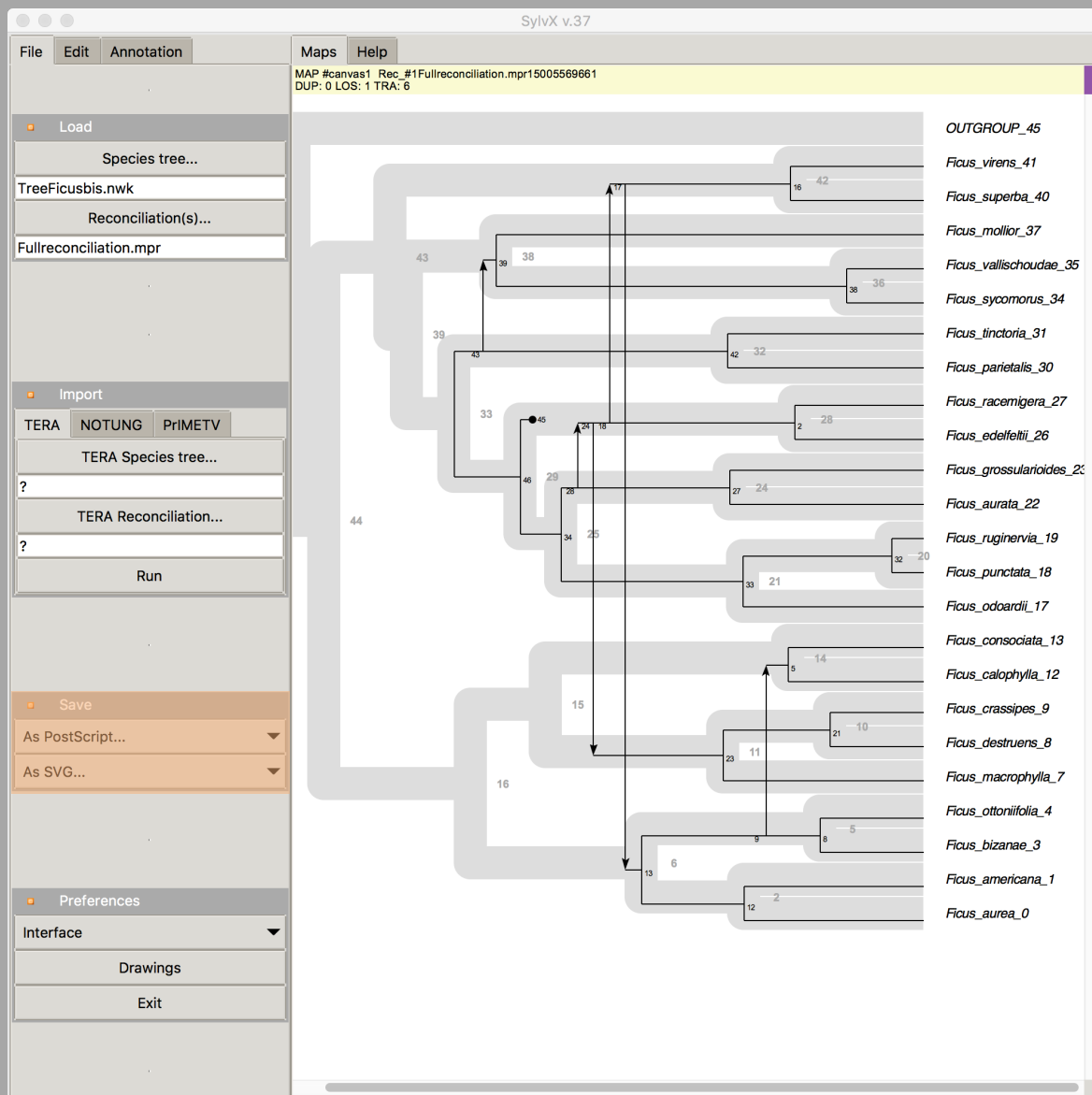


Import data from the TERA package :
(for instance from the « Data/
DataToImport/fromTERA folder of the SylvX
package):

- select the TERA output « species tree »
- select the TERA output « reconciliation »
- run the import procedure

SylvX display the species tree in a new
map and display the new reconciliation in
the listbox of the reconciliation toolbox

NB : the import procedure is a Perl
procedure, the interpreter must be
installed on the computer running SylvX



- 1) Select the « File » tab
- 2) According to the output needed, either PostScript (PS) or Scalable Vector Graphics (SVG), select the corresponding menu and target the map to be exported
- 3) SVG output can be easily edited with software like Inkscape for additional annotations and keeping a high quality graphic

