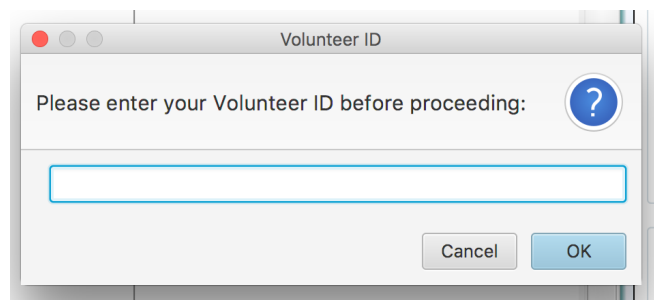Please try the following exercise to evaluate the current version of our new application Phylo-Pen. PhyloPen is an interface that lets you interact with a phylogenetic tree and a matching trait matrix to explore features about organisms and their relationships to each other.

If you have any difficulties during the exercises, please feel free to ask for assistance. Also, re-member to consult the tables that show what gestures can be performed in PhyloPen (i.e. pen and multitouch gestures.)
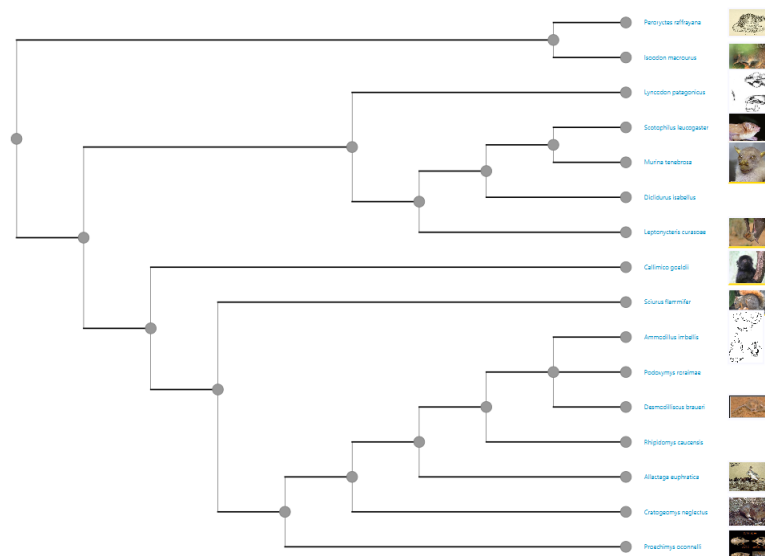
If it is needed, PhyloPen is equipped with an"Undo" action capability found under the "Edit" menu item on the top left corner of the PhyloPen interface.

Exercise:

• Please open PhyloPen and select the lesson 'mammals25-phylopen-v10.nested-json'
• When prompted, please enter the random participant ID number you were provided.

• You should now see a mammal phylogenetic tree displayed in PhyloPen that looks similar to the figure immediately below. Please familiarize yourself with moving around the tree and ex-ploring the interface.

- Your task in this exercise is to annotate this tree as if you were preparing it for a publication or for teaching others. Add colors, highlight and annotate major clades with casual names.

- The tree can be annotated as three, multi-tip clades and two single tips. For your task, color at least the edges and possibly the nodes as well so each major clade is a different color.

- The three large clades to color contain: (1) bandicoots, (2) bats, (3) rodents.

Coloring Nodes and Edges

- To change the colors of edges and/or nodes, draw a "Selection" gesture around the objects of interest. Then click the "Process Gesture" button or click a single quick dot on the interface outside the selection to indicate you are finished. A highlighted region should appear around the selected objects.

- Then choose the "Customize" tab from the controls (usually on the right) and you will see selectors for the node color, the edge color, and node and edge sizes. These controls will change whatever nodes and edges are currently selected. If there is no selection, the controls will apply to the whole tree (the entire set of edges and nodes).

Annotation of Tree Regions

PhyloPen supports annotation regions of the tree by following this sequence of steps: (1) click the Annotate Tree button on the Control tab at right, (2) use the pen's Selection gesture to enclose the nodes that should be in the annotated region, and (3) touch the pen to the canvas outside the enclosed region to "complete" the selection. A dialog menu should pop up allowing you to enter text and select a color for the annotation region. Hit the OK button when you are finished with the annotation information.
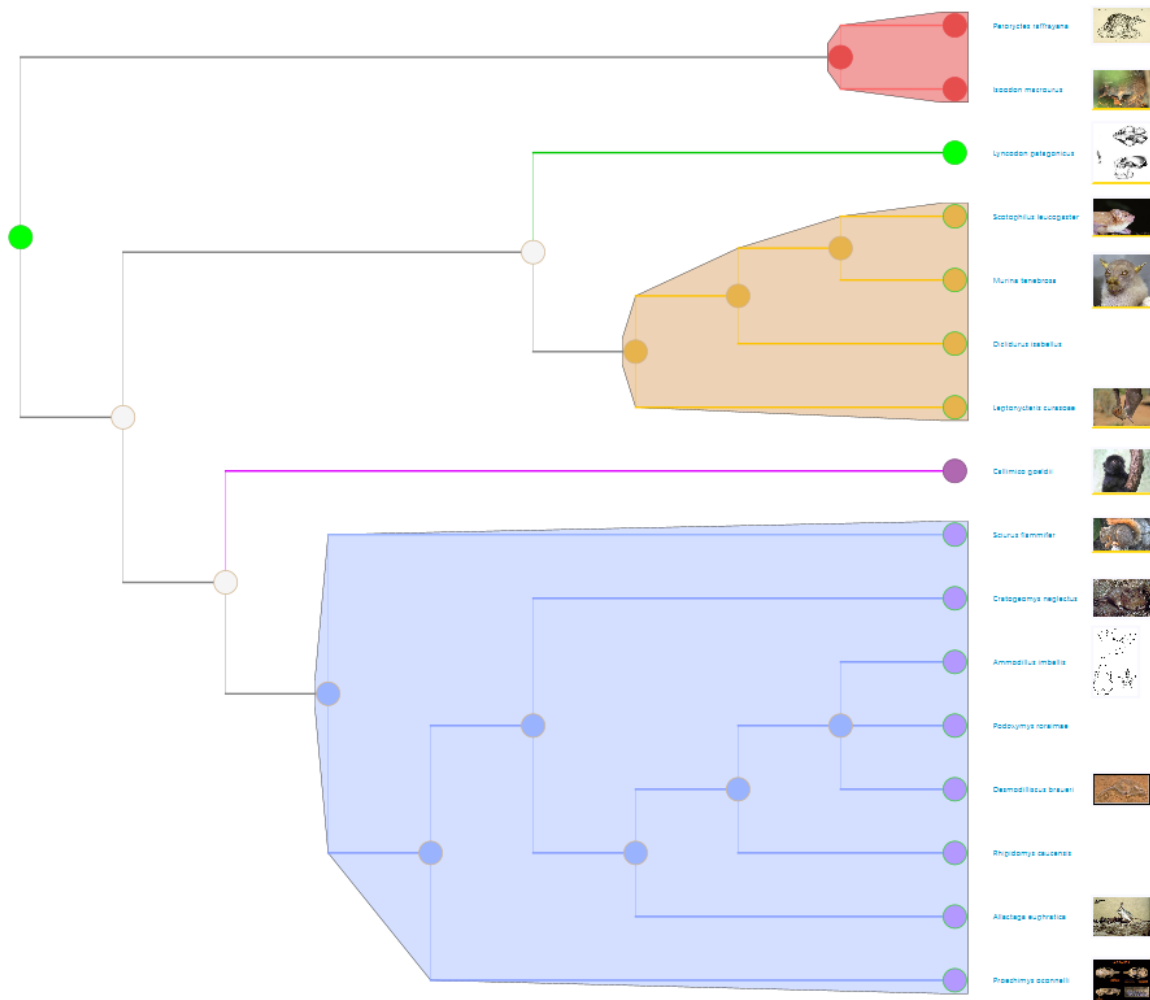
The text should display now when the pen hovers over the region. If a region is created in correctly, the Annotations Tab on the right of the interface allows you to select and edit or delete annotations until you are satisfied with the annotations.

Rotate Children in a Clade

The final "ready for publication" state of the tree shown below has one clade in a different configuration than the original loaded dataset. Please compare and decide which clade to rotate. Use the pen to make the "Child Order Swap" gesture around the node where children should be rotated. Clicking "Process Gesture" or tapping the screen with the pen away from the gesture should rotate the children of the selected node. Remember the "Undo" capability if you have any trouble.

Final Appearance

Try to make the final annotation image look somewhat similar to this image below. You don't have to match it exactly, just get familiar with how you would perform the color and annotation changes. The colored regions are three annotations added to the tree as described above.

- When you are finished, please show the assistant your completed example and take the post-questionnaire to provide us feedback on your PhyloPen experience.

- If you haven't yet taken the Mesquite experience to compare, please ask the assistant to help you switch to the same test using Mesquite.