Assignment 1: Trees

Find a published article from a scientific journal that contains a phylogeny. Refer to the phylogeny to answer the questions below. If you do not know where to begin to look, consider the journals *Systematic Biology*, *Molecular Biology and Evolution*, *Evolution*, *Molecular Phylogenetics and Evolution*, and *Genetics*.

1. Is the phylogeny rooted or not?
2. Does your phylogeny contain one or more outgroups? If so, identify them.
3. How many taxa are represented in your phylogeny? What biological taxonomic level is represented by a leaf on your phylogeny?
4. How many leaf nodes and internal nodes are in your phylogeny? How many edges?
5. Do the edges in the phylogeny have lengths? If so, what do these lengths represent?
6. If your phylogeny has edge lengths, is the phylogeny ultrametric or not?
7. Are the edges or nodes in your phylogeny labeled wih numbers? If so, what do these numbers represent?
8. Does your phylogeny have polytomies or is it a binary tree? If it has polytomies, are they hard or soft?
9. Find a clade with between 5 and 15 taxa in your phylogeny (or the entire phylogeny itself). What is the total number of possible rooted trees with this number of taxa? What about unrooted?