

Your name: _____

For each of the two different trees on the next page, map the most parsimonious evolutionary steps to show the DNA evolution for the four species in the sequence alignment below.

- **Rows** are the nucleotide at each position 1-5 for the given species
- **Columns** represent homologous nucleotide positions across the four species
- **The bottom row** is the DNA sequence for the common ancestor of these four species.

	1	2	3	4	5
mongoose	A	C	C	A	T
aardvark	T	G	A	A	G
llama	T	G	G	A	T
manatee	A	G	C	A	T
(Ancestor)	T	G	G	A	G

Instructions:

- Be sure to map directly onto the branch where the change occurred. **See how mapping was done during lecture!**
- Place the position in parentheses/circled next to the mapped change, for example writing "A → C (1)" for a change in column 1 from A to C.
- Next to each tree, write the final parsimony score for your solutions in the given box, and then **CIRCLE the tree that is most parsimonious.**
- Make sure to answer the **Pre-mapping questions** too!

Logistics for completing this assignment:

- **If you have access to a printer**, print off this document and **legibly and cleanly complete it**. Then, scan back into your phone using one of the apps (Dropbox, Notes for iPhone, or CamScanner) OR you may take a picture of the how.
- **If you do not have access to a printer**, complete the assignment on regular paper. You will need to **cleanly redraw the trees** and map along them. Then, scan the paper (or a LEGIBLE picture) to your phone.
- **No matter what, please ensure your submission is CLEAN AND LEGIBLE!!**

Pre-mapping questions. For each DNA position 1-5, state if it is **variable or constant** among **LIVING SPECIES**

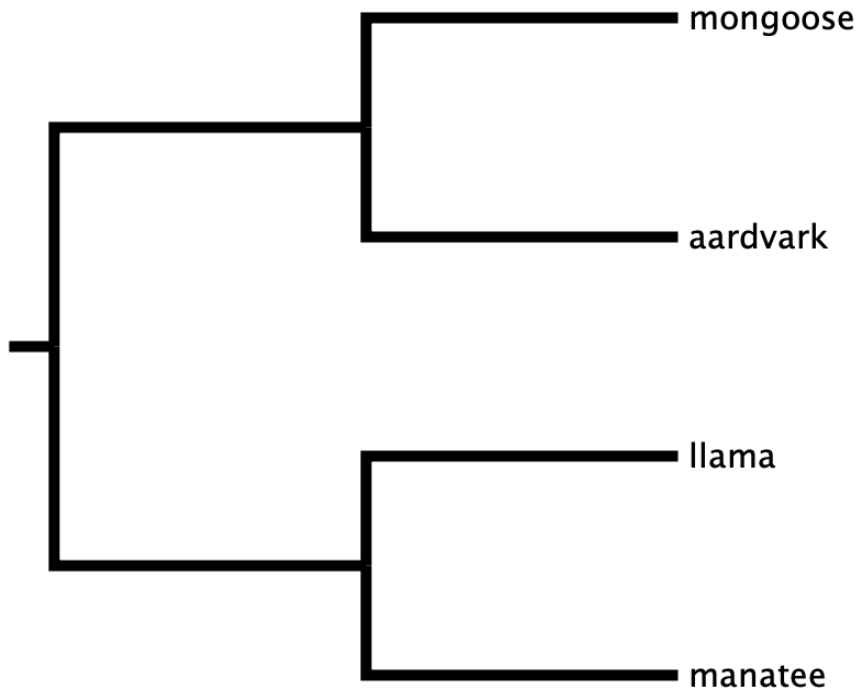
1. Position 1 is _____
2. Position 2 is _____
3. Position 3 is _____
4. Position 4 is _____
5. Position 5 is _____

Mapping evolutionary change on phylogenies

BIOL01104 Spring 2020, Dr. Spielman

Due **SCANNED!!** to Blackboard Thursday 4/9/20 at 11:59 pm

TREE #1:



TREE #2:

