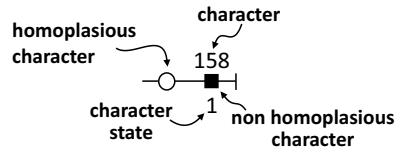
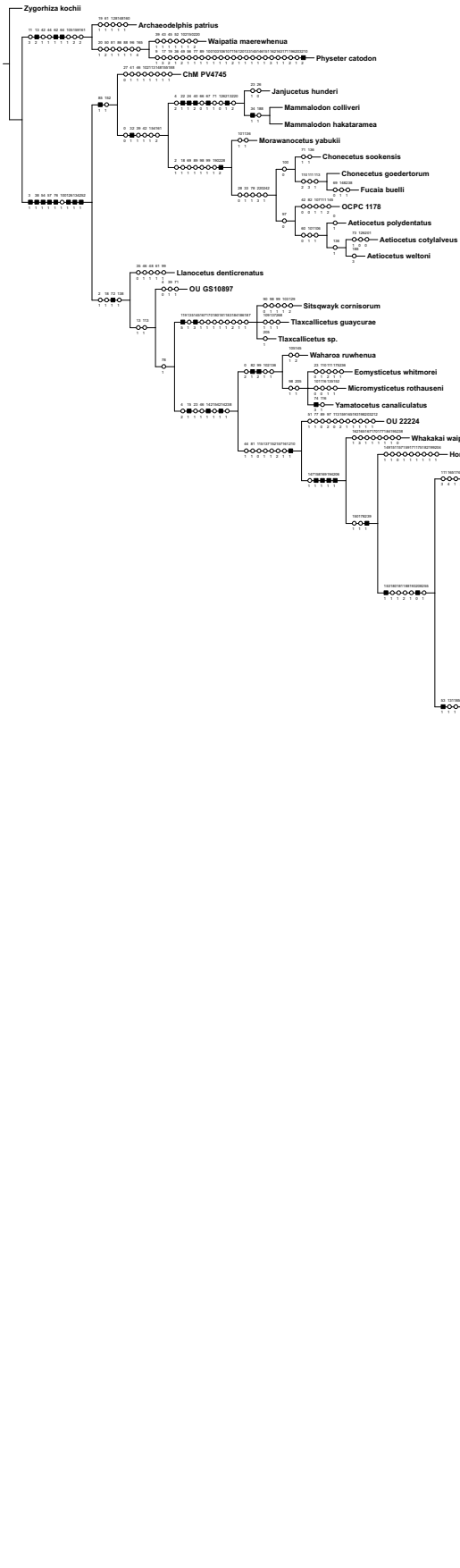


APPENDIX 2

CHARACTER MAP, EQUAL WEIGHTS

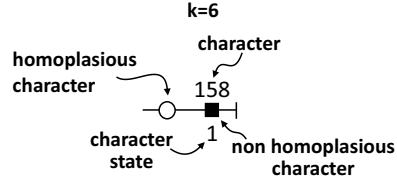


Characters numerated from 0-271 (1-272)

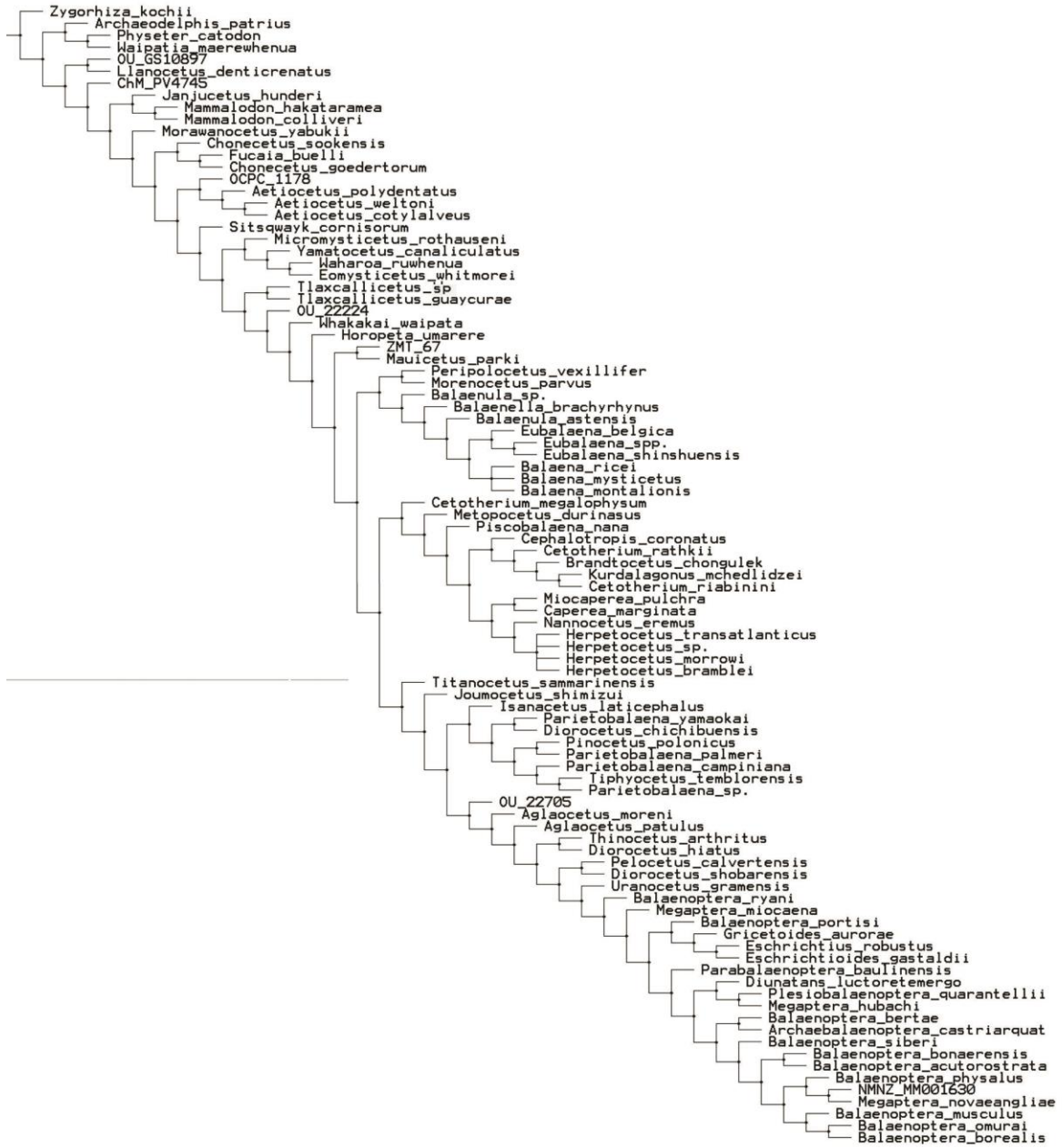


APPENDIX 2

CHARACTER MAP, EMLPIED WEIGHTS



Characters numerated from 0-271 (1-272)



Appendix 3. Phylogenetic arrangement under implied weights analysis (k=3).



Appendix 4. Phylogenetic relation of *Ilaxcallicetus*. Equal weights analysis, strict consensus of 260 equally parsimonious trees. Tree length is 1474. The number in each branch denotes the branch length.



Appendix 5. Phylogenetic relation of *Traxcallicetus*. Implied weights analysis (k=6), strict consensus of three equally parsimonious trees. Tree length is 1338. The number in each branch denotes the branch length.

## Appendix 6

Backbone constraint tree, basen on Gatesy et al. (2013)

Code using command 'force /' in TNT software (Goloboff et al., 2008a):

```
(3 ((11 44) (27 (41 ((16 14) ((19 (17 20)) (21 62))))))));
```

### TRANSLATE FROM THE MATRIX

```
3   Physeter_catodon
11  Balaena_mysticetus
14  Balaenoptera_acutorostrata
16  Balaenoptera_bonaerensis
17  Balaenoptera_borealis
19  Balaenoptera_musculus
20  Balaenoptera_omurai
21  Balaenoptera_physalus
27  Caperea_marginata
44  Eschrichtius_robustus
41  Eubalaena_spp.
62  Megaptera_novaeangliae
```

Gatesy J., Geisler, J.H., Chang, J., Buell, C., Berta, A., Meredith, R.W., Springer, M.S., and McGowen MR. 2013. A phylogenetic blueprint for a modern whale. *Molecular Phylogenetics and Evolution*, 66(2):479-509. doi: 10.1016/j.ympev.2012.10.012