

# Missing Data in Phylogenomics

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Be Afraid

Be Very

Afraid



**KEEP  
CALM  
AND  
CARRY  
ON**

# Outline

Fears about missing data

History of the problem

Why it's no longer a problem

Why it's still a problem

Wrap up





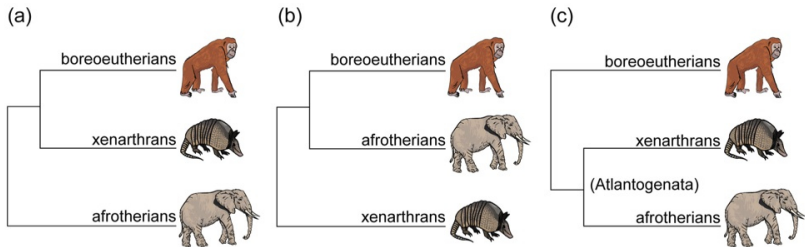
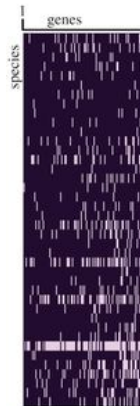


Figure 1. The root of the evolutionary tree of living placental mammals. (a) Afrotherian root. (b) Xenarthran root. (c) Atlantogenatan root.

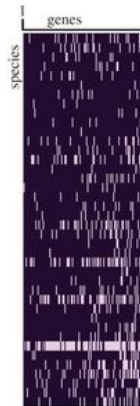


Gonzalez et al. 2015





Gonzalez et al. 2015



Gonzalez et al. 2015









Who says missing  
data is a problem?







# Morphology



# Morphology



# Morphology



# Morphology

# Small genetic datasets

Perhaps it was a problem  
eg Novacek, 1992; Wiens Reeder, 1995;  
Wilkinson, 1995; Kearney, 2002)  
Huelsenbeck, 1991; Hartmann Vision, 2008).?  
(Weins and Moen 2008)

# Small genetic datasets

Problem may be less due to what's missing  
than what's available (Weins 2003)

empirical studies show no effect

plants  
eukaryotes  
carnivores  
yeast  
iguanians  
scorpions  
above will be images



method doesn't matter



# Simulation studies

# Simulation studies showing problems

can be refuted