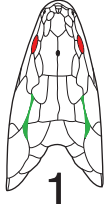


Assemble time-calibrated phylogeny of 59 taxa with skull and orbit preservation bracketing water-land transition



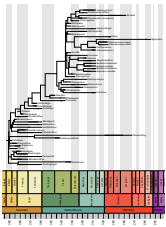
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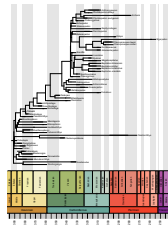
Measure orbits

Measure skull length

Randomly resolve phylogenetic uncertainties to generate 1000 trees; simulate evolution of size-corrected orbits for each tree



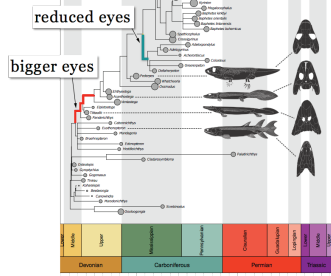
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use computational trait evolution to identify locations of selective regime change



Group socket lengths according to trait evolution results: before bigger eyes, during transition, after transition, and after reverting to smaller eyes

Estimate mean and standard deviation of pupil size for each group

Compute light fields for selected visual environments



Compute range to 10 cm black target for each visual environment across finned and digitated pupil means  $\pm$  1SD