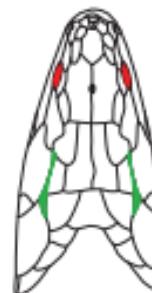


Early tetrapod paleontology

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



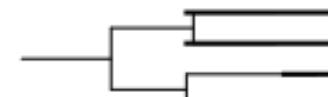
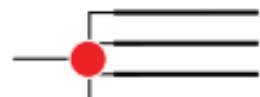
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Measure eye socket and skull length

Create distribution of 1,000 phylogenetic trees to account for phylogenetic uncertainty



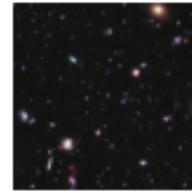
Use computational trait evolution to identify locations of selective regime change across all 1,000 trees (Fig. 2)

Computational visual ecology

Group socket lengths by trait evolution results (Fig. 3)

Estimate pupil size for each group

Compute light fields for selected visual environments



Compute range, volume and derivatives for viewing object across conditions using pupil estimates (Fig. 4)

