

Assessing confidence intervals for stratigraphic ranges of higher taxa: The case of Lissamphibia

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To evaluate stratigraphic evidence for the time of origin of the clade of extant amphibians (Lissamphibia), we attempt to establish a confidence interval on the lower bound of the stratigraphic range of this clade. This is based on the stratigraphic distribution of 1207 fossiliferous localities that have yielded lissamphibians, the relative area of sedimentary rocks from various periods (upper Paleozoic to present) exposed on the continents, and ten exponential–growth models of lissamphibian diversity that differ by the assumed effects of three major biological crises and the assumed starting times of lissamphibian diversification. The results suggest a more recent origin of Lissamphibia than advocated in most recent molecular studies. They are also more compatible with monophyly than with polyphyly of the extant amphibians, but heavily depend on poorly constrained assumptions about lissamphibian extinction rates during biological crises. Counts of lissamphibian diversity through time that consider ghost lineages and stage durations show moderate declines across the Cretaceous–Paleogene and Oligocene–Miocene boundaries.

Key words: Lissamphibia, origination time, evolution of biodiversity, stratigraphic range, fossil record, mass extinction

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 [Supplementary file \(40.3 kB\)](#)