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Rates of species-level origination and extinction: Functions of age, diversity, and history

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Global-scale data on the Oligocene to Recent planktic foraminifers and coccoliths from the tropical Pacific and Atlantic Oceans are employed for quantitative testing of alternative models (Red Queen and Stationary Hypotheses) of the relationship between speciation rates, extinction rates, taxonomic diversity, abiotic events, and history of the paleosystem. The results demonstrate that although the Law of Constant Extinction is supported by the data, the theoretical implications are quite ambiguous because the two considered models appear as endmembers of a continuum.

Key words: Evolution, extinction, Red Queen Hypothesis, Foraminiferida, Coccolithophorida.