

Evolutionary paleoecology and the biology of extinction

Peter D Smits

Committee on Evolutionary Biology, University of Chicago

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Theseus' ship

The ship wherein Theseus and the youth of Athens returned from Crete had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and stronger timber in their place, in so much that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same.

(Plutarch, **Theseus**)

Theoretical Framework

Mammalian Cosmopolitan–Provincial Dynamics

Mammalian Evolutionary Paleoecology

Permian Brachiopod Survivorship

Fundamentals

Macroevolution

patterns of speciation (origination) and extinction dynamics over time.

Semiotics in (paleo)biology

Importance of metaphor

Fitness

defintion

expected time till extinction

(Cooper 1984 J. theor. Biol.)

$$E[t_{ext}] = \sum_{t=0}^{\infty} p_t t \quad (1)$$

$$E[t_{ext}] = \int_0^{\infty} \phi(t) t dt \quad (2)$$

Survival

Evolutionary paleoecology

... the consequences of distinct ecological factors on differential rate dynamics, particularly rates of faunal turnover and diversification.

(Kitchell 1985 Paleobio.)

après Almon

Cosmopolitan–Provincial Dynamics

Predictions

Preliminary Results

Survivorship and Extinction

Predictions

Surviving in place

Predictions