

Evolutionary paleoecology, trait fitness and the biology of extinction

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Theoretical framework

Mammalian Cosmopolitan–Provincial Dynamics

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**)

Evolutionary paleoecology

Fitness

expected time till extinction

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

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

Survival

Cosmopolitan–Provincial Dynamics