

# Paper: Environmental uncertainty, autocorrelation and the evolution of survival

---

*Source:* <http://sci.tech-archive.net/Archive/sci.bio.evolution/2007-07/msg00045.html>

---

- *From:* "Robert Karl Stonjek" <[rstonjek@xxxxxxxxxxxxxxxx](mailto:rstonjek@xxxxxxxxxxxxxxxx)>
  - *Date:* Sun, 15 Jul 2007 19:12:22 -0400 (EDT)
- 

Environmental uncertainty, autocorrelation and the evolution of survival  
Issue Volume 274, Number 1622 / September 07, 2007  
Pages 2153–2160  
Article Type Research–Article  
DOI 10.1098/rspb.2007.0561

## Authors

C.J.E. Metcalf, D.N. Koons

## Abstract

Survival is a key fitness component and the evolution of age- and stage-specific patterns in survival is a central question in evolutionary biology. In variable environments, favouring chances of survival at the expense of other fitness components could increase fitness by spreading risk across uncertain conditions, especially if environmental conditions improve in the future. Both the magnitude of environmental variation and temporal autocorrelation in the environment might therefore affect the evolution of survival patterns. Despite this, the influence of temporal autocorrelation on the evolution of survival patterns has not been addressed. Here, we use a trade-off structure which reflects the empirically inspired paradigm of acquisition and allocation of resources to investigate how the evolutionarily stable survival probability is shaped in variable, density-dependent environments. We show that temporal autocorrelation is likely to be an important aspect of environmental variability that contributes to shaping age- and stage-specific patterns of survival probabilities in nature.

Source: The Royal Society

<http://www.journals.royalsoc.ac.uk/content/a1127732tr4936g4/>

Posted by

Robert Karl Stonjek