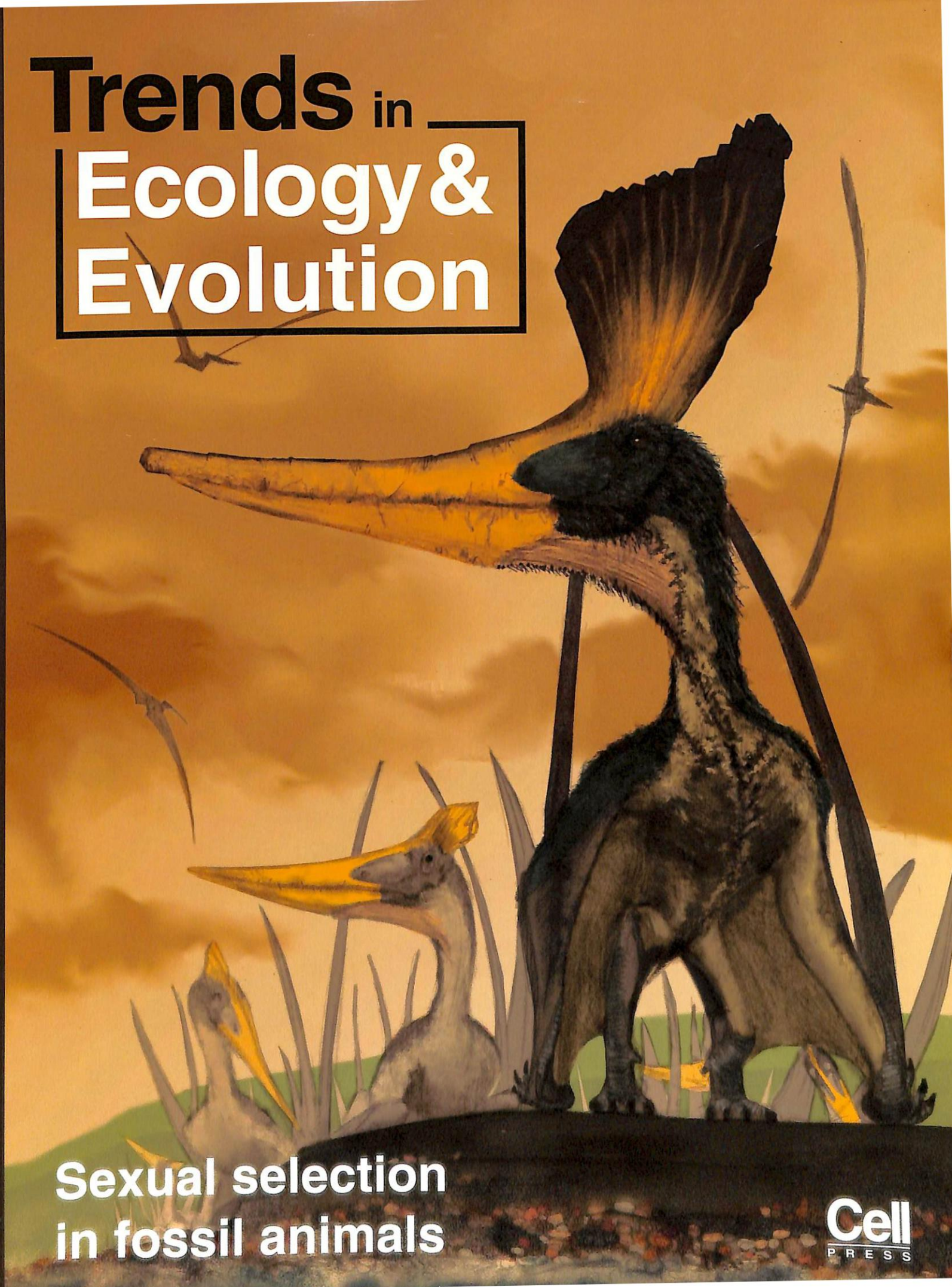
Trends in Ecology & Evolution January 2013 Vol. 28 No. 1, pp. 1–66 ISSN 0169-5347

# Trends in Ecology & Evolution



## Sexual selection in fossil animals

Cell PRESS

# Trends in Ecology & Evolution

January 2013 Volume 28, Number 1 pp. 1–66







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**Cover**: The crests and horns seen in contemporary species are often interpreted as evidence of sexual selection. Attempts to understand the same kinds of features in fossil animals is difficult and controversial. In this month's issue, Rob Knell and colleagues argue that it is not impossible to test for sexual selection in fossil species and examine some cases where an interpretation of sexual selection appears strongly supported. The cover shows a potential example of sexually selected sexual dimorphism in a species of *Pteranodon*. Original cover image by Mark Whitton.

Trends in Ecology & Evolution

February 2013 Volume 28, Number 2 pp. 67–126





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**Cover:** In a provocative and stimulating Opinion article on pp. 78–85 of this issue, Jonathan Waters, Ceridwen Fraser and Godfrey Hewitt discuss density dependence as a process that spatially structures biodiversity. They show that apparently different processes such as gene surfing, high-density blocking and competitive exclusion could all be the result of an underlying "founder takes all" principle. This is illustrated on this month's cover by king penguins on Marion Island, Southern Indian Ocean. (Photo by Ceridwen Fraser.)

Trends in Ecology & Evolution

March 2013 Volume 28, Number 3 pp. 127–186



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**Cover:** For many animals, acoustic signals are known to have a role in mate choice, resource defense and species recognition. Many have therefore suggested they have a role in evolutionary divergence and speciation. However, the likely mechanisms for this are poorly understood. On pp. 156–166 of this issue Matthew Wilkins, Nathalie Seddon, and Rebecca Safran set out a conceptual framework for understanding and testing the processes that might be involved in acoustic divergence. The cover shows a calling Canyon Wren, *Catherpes mexicanus*. (Photo by Jeff Mitton.)

Trends in Ecology & Evolution

April 2013 Volume 28, Number 4 pp. 187–248



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**Cover:** The evolutionary biology of venoms provides a fascinating case study of molecular evolution in an ecological context. On pages 219–229 of this issue, Nicholas Casewell and colleagues review recent advances in 'omics' technology as applied to the evolution of venoms. They find a fascinating story that also has important pharmacological implications. The cover shows a Mohave rattlesnake, *Crotalus scutulatus*. (Photo: Nick Casewell).

Trends in Ecology & Evolution

May 2013 Volume 28, Number 5 pp. 249–316



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**Cover:** In this month's cover article, William Laurance brings together evidence that the presence of scientific researchers can increase the level of protection of conserved areas. The evidence is anecdotal at present and this article calls for further study to examine this probable relationship. The cover shows doctoral student Eric Katovai searching for illegal logging in a protected forest in the Solomon Islands (photo: William Laurance).

# Trends in Ecology & Evolution

June 2013 Volume 28, Number 6 pp. 317–376





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**Cover:** New approaches to phylogeography are overturning the current view of how marine biodiversity originates. On pp. 359–366 of this issue, Brian Bowen and colleagues discuss the implications of these new studies and find that ecological partitions and archipelagoes both have a prominent role in generating marine biodiversity and that hotspots can both export and accumulate species. (Photo: Brian Bowen.)

Trends in Ecology & Evolution

July 2013 Volume 28, Number 7 pp. 377–442



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**Cover:** There is good evidence that human activities can cause ecological regime shifts at a local or regional scale. Some recent publications have suggested that these can become scaled up to generate a global tipping point. But is this suggestion likely and how does the available evidence stack up? This month's Focus Issue contains two Opinion articles, on pp. 389–395 and pp. 396–401, giving the opposite sides of the argument. There is also a linked Cell Press Discussion. (Background image, ©iStockphoto.com/Erick Jones; planet Earth, ©iStockphoto.com/Jan Rysavy; design, Terry Hughes.)

Trends in Ecology & Evolution

August 2013 Volume 28, Number 8 pp. 443–496



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**Cover:** Animals can show cognitive biases leading to apparently irrational behaviour. Amongst these, the question of overconfidence has received most attention, partly because it can reveal itself in interactions such as conflict, illustrated by the two gold dust day geckos (*Phelsuma laticorda*) fighting on a banana plant in Réunion. Clearly an evolutionary approach to questions of cognitive biases is useful but how this is done has recently been criticized. In this month's Focus Issue, we examine the evolutionary approach to cognitive biases exemplified by overconfidence and deception. (Photo by Thierry Caro, via Wikimedia Commons.)

Trends in Ecology & Evolution

September 2013 Volume 28, Number 9 pp. 497–570





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**Cover:** The Cuban tree frog (*Osteopilus septentrionalis*) on this month's cover has swallowed a Christmas tree light. An apparently strange behaviour, except that the lights accidentally mimic luminescent insects, the frog's more usual experience of small lights on trees. This is an example of an evolutionary trap, where rapid change leaves a species 'stuck' performing a behaviour that results in the lowest fitness reward. On pp. 552–560 of this issue, Bruce Robertson, Jennifer Rehage, and Andrew Sih look for some general principles in understanding evolutionary traps and what they might mean for species in the face of rapid anthropogenic change. Photo: James Snyder (jamesfsnyderphotography.com).

# Trends in Ecology & Evolution

October 2013 Volume 28, Number 10 pp. 571–622







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**Cover:** Evolutionary developmental biology (evo-devo) has emerged over the last 15 years as one of the areas with most potential for enhancing our understanding of biology. However, it has developed along two lines with little cross talk: the first is mechanistic, molecular and typological and based on bimodal phenotypes while the other is quantitative and based on multidimensional phenotypes but with little consideration of underlying genetic mechanisms. On pages 584 – 591 of this issue, Kevin Parsons and Craig Albertson discuss how recent advances can now unite these stands leading to a more complete formulation of evo-devo with greater explanatory power. (Cover image: Craig Albertson.)

Trends in Ecology & Evolution

November 2013 Volume 28, Number 11 pp. 623–680



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Trends in Ecology & Evolution




December 2013 Volume 28, Number 12 pp. 681–736



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**Cover:** It is 50 years since Niko Tinbergen published what have become known as his "four questions". Knowing the nature of the questions being asked has helped guide research in ethology and beyond. On pp. 712–718 of this issue, Pat Bateson and Kevin Laland evaluate the effect Tinbergen's questions have had but they also update them and look forward to their continuing influence on the study of evolution and behaviour. (Cover image: Max Planck Gesellschaft, via Wikimedia commons.)