

# RESEARCH HIGHLIGHTS

Selections from the scientific literature

## ASTRONOMY

### Cosmic jets trigger star birth

Stars could be forming in an unusual way in a distant galaxy — in the backwash of a massive jet of gases spraying from the galaxy's core.

A team led by Yasir Rashed of the University of Cologne, Germany, used the MERLIN radio telescope array in the United Kingdom to study a galaxy some 1.4 billion parsecs from Earth. Gases shoot outwards from the galaxy's centre, presumably fuelled by a supermassive black hole.

Further observations showed that stars are probably forming near the galaxy. The authors suggest that the outflowing jets produce pressure pockets in the gas outside the galaxy, creating ideal spots for star birth.

*Astron. Astrophys.* 558, A5 (2013)

## EVOLUTION

### Big weapons have little downside

The huge horns on male rhinoceros beetles come surprisingly cheap.

Biologists have long thought that the extreme body parts that males use to gain mates — such as showy plumage or aggressive antlers — are costly because they make the animals vulnerable in other ways. By that logic, the horns of a male rhinoceros beetle should exact a toll.

But when Erin McCullough and Douglas Emlen at the University

of Montana in Missoula set about quantifying probable costs in dozens of wild and laboratory-raised beetles (*Trypoxylus dichotomus*; pictured), they found none. Horn size had little or no effect on flying ability, survival, immune response or the growth of other body structures.

The researchers suggest that weapons may evolve along with traits that let males make best use of them, offsetting survival costs. The low cost could help to explain how the beetles' horns became so elaborate



CYRIL RUOSO/JH EDITORIAL/MINDEN PICTURES/GETTY

## ZOOLOGY

### Seabird stress response is oceans apart

Seabirds that lay more eggs and die young are more likely to look after their chicks in times of stress than are longer-lived, less-fertile birds.

Jannik Schultner of the Norwegian University of Science and Technology in Trondheim and his colleagues implanted Atlantic and Pacific populations of black-legged kittiwakes (*Rissa tridactyla*) with tubes of corticosterone, a hormone associated with food shortages.

Compared with Atlantic kittiwakes, Pacific

populations of the bird have fewer offspring and higher adult survival rates. Pacific kittiwakes with artificially boosted hormones neglected their young, so their chicks were more likely to die than Atlantic ones. Extra hormones had the opposite effect on the Atlantic colony, and actually increased chick survival rates.

Animals' life strategies can predict their short-term responses to stress, the authors suggest.

*Proc. R. Soc. B* 280, 20132090 (2013)

and diverse, the authors say. *Anim. Behav.* <http://doi.org/n34> (2013)

## PERSONAL GENOMICS

### A tool to interpret tricky mutations

Researchers have developed software to predict whether certain genetic variants are harmful.

The effects of most mutations are unclear, especially for those in the 99% of the genome that does not code for proteins. Chris Tyler-Smith at the Sanger Institute in Hinxton, UK, and Mark Gerstein at Yale University in

New Haven, Connecticut, and their colleagues took non-coding regions that had been identified as functional in a large-scale genomics project and used sequencing data from more than 1,000 people to catalogue how these regions varied in healthy individuals.

This revealed likely patterns of harmful mutations, such as those in DNA sequences to which regulatory proteins bind. The scientists incorporated the patterns into a predictive tool and applied it to genomes from cancer biopsies. This found nearly 100 non-coding variants that could contribute to the disease. *Science* 342, 84 (2013)

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