RESEARCH HIGHLIGHTS

Selections from the scientific literature

VIROLOGY

Wide area of Ebola risk in Africa

The region in Africa at risk of an outbreak of the Ebola virus is larger than previously thought.

Simon Hay at the University of Oxford, UK, and his team mapped data from 23 Ebola outbreaks in humans, including the current one, and 51 reports of Ebola in other animals. They combined the data with information on human mobility and the range of animal hosts suspected of carrying the virus, such as Old World fruit bats.

The team found that the potential reservoir for the virus spans 22 countries in western and central Africa, and includes an area containing more than 15 million people, where Ebola cases have already occurred.

This finding, combined with other recent trends such as increasing urbanization, may account for an apparent increase in the frequency and size of outbreaks since 2000.

eLife **http://doi.org/vms (2014)**

DANIEL KARP

ECOLOGY

Bird diversity at risk from farming

Birds that have the longest evolutionary history are also the most threatened by agriculture.

Luke Frishkoff at Stanford University in California, Daniel Karp at the University of California, Berkeley, and their team studied 12 years of bird survey data, covering nearly 500 species from three types of land use in Costa Rica: forests, diversified agriculture and intensive farming of just a few crop species. They found that on farmland, evolutionarily distinct birds, which are related to few other living species — such as the rufous-tailed jacamar (*Galbula ruficauda*; pictured) — went extinct locally at higher rates than those that had evolved more recently.

However, less-intensive agriculture fostered greater levels of phylogenetic diversity than intensive farming, so the authors suggest that this type of agriculture could help to conserve some bird evolutionary history.

Science 345, **1343–1346 (2014)**

PALAEONTOLOGY

How a shark used its saw-like jaw

Despite having a set of teeth shaped like a circular saw, an extinct shark probably devoured only soft-bodied prey.

The spiral-shaped tooth arrangement (**pictured**) of *Helicoprion davisii*, an animal some 300 million years old, has puzzled palaeontologists for more than a century. Last year, a team determined that the teeth were surrounded by the shark's lower jaw.

In a follow-up study, Jason Ramsay at the University of Rhode Island in Kingston and his team used computed tomography scans of the fossils to reconstruct the jaw muscles and model the mechanics of the jaw and teeth to determine how and what the animal ate. They concluded that older teeth at the front of the jaw snagged prey whereas younger, stronger teeth deeper in finished them off.

The shark teeth were rarely worn or broken, suggesting the animals ate soft-bodied sea creatures such as cephalopods.

J. Morphol. **http://dx.doi.org/10.1002/jmore.20319 (2014)**

GLACIOLOGY

Surface heat led to ice-shelf demise

The collapse of Antarctica's giant Larsen B Ice Shelf in 2002 was probably caused by warming at the surface rather than by instability at the bottom of the ice sheet.

Eugene Domack at the University of South Florida in St Petersburg and his colleagues mapped the sea floor below where the shelf used to be. They also analysed marine sediment cores to reconstruct characteristics of the ice shelf's grounding zone — where the floating ice shelf meets underlying bedrock — before the ice collapsed.

They found that this zone had remained stationary for some 12,000 years, challenging the idea that structural changes at the bottom of the ice shelf might have caused Larsen B's

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