US FWS/RYAN VON LINDEN, NY DEPT OF ENVIRON. CONSERV./SPL

London and her colleagues analysed the ranges of nearly 1,400 threatened vertebrate species and more than 200 non-native organisms worldwide. The authors also used two databases that list the causes of the animals' decline. They found that 22% of all threatened animals are imperilled by invasive organisms, but none was threatened by non-natives alone.

The invasive organism that threatened the most vertebrates was a lineage of the chytrid fungus *Batrachochytrium dendrobatidis*, which has killed many amphibians.

Proc. R. Soc. B 283, **20152454 (2016)**

MICROBIOLOGY

What makes *Listeria* deadly

A group of six genes causes some strains of a foodborne bacterium to become highly dangerous, or virulent.

Listeria monocytogenes (**pictured**) can be found in many foods, including unpasteurized milk, and can cause miscarriage in pregnant women or kill infected people if the pathogen moves to the brain. All strains are currently considered to be equally virulent, but Sylvain Brisse and Marc Lecuit of the Pasteur Institute in Paris and their colleagues found differences in virulence when they analysed genomic and epidemiological data from more than 6,600 *L. monocytogenes* isolates taken from food and human samples. Food-associated strains mainly infected people who had weakened immune systems, but more-virulent clinical isolates were found in healthy people. The 'CC4' group of strains carried a six-gene cluster that, when deleted, made the bacteria less capable of invading brain and placental tissues in mice.

Public-health surveillance efforts for foodborne illnesses should look out for these hypervirulent strains, the authors say.

Nature Genet. **http://dx.doi.org/10.1038/ng.3501 (2016)**

CNRI/SPL

ASTRONOMY

Widest-known planetary orbit

A planet takes 900,000 years to orbit its star, with the two objects separated by a distance almost 7,000 times that between Earth and the Sun.

Niall Deacon at the University of Hertfordshire in Hatfield, UK, and his colleagues found that the previously known star and the planet — located about 32 parsecs (104 light years) from Earth — move across the sky at the same speed and in the same direction, which suggests that the two form a pair.

The star, TYC 9486-927-1, is young, at just a few tens of millions of years old. And the planet has a mass between 12 and 15 times that of Jupiter — which makes it big and bright enough to be spotted from Earth through a telescope, unlike most other exoplanets.

Mon. Not. R. Astron. Soc. **in the press; preprint at http://arxiv.org/abs/1601.06162 (2016)**

GEOPHYSICS

Unnatural shaking in California

Oil and gas exploration could be triggering earthquakes in California, where natural quakes might mask the induced ones.

The injection of millions of litres of wastewater into underground oil and gas reserves has been linked to earthquakes around the world, including in central parts of the United States, such as Oklahoma. Thomas Goebel of the University of California, Santa Cruz, and his colleagues analysed three quakes of magnitude-4 and higher that happened on the same day in September 2005 along southern California's White Wolf fault. They found unusual seismic patterns and, using a hydrogeological model, concluded that nearby fluid injection that began just months before was probably responsible.

More analysis is needed to identify human-induced earthquakes in California, the authors say.

Geophys. Res. Lett. **http://doi.org/bb6k (2016)**

ECOLOGY

Bat cave choice affects disease

The susceptibility of bats to a deadly disease is influenced by the humidity of the caves in which they hibernate.

White-nose syndrome, which has killed millions of bats in North America, is caused by infection with the fungus *Pseudogymnoascus destructans*. The disease is thought to speed up bats' use of energy reserves during hibernation, putting the animals at risk of starvation.

To find out why only some bat populations survive these infections, David Hayman at Massey University in Palmerston North, New Zealand, and his team used a computer model to predict winter survival times for four species. Humidity significantly reduced survival, which could explain why the little brown bat (*Myotis lucifugus*; **pictured**) — a resident of warm, humid caves during hibernation — has been affected more than other bat species.

Larger bats, including some that live in Europe, are more likely to survive the infection.

Sci. Adv. 2, **e1500831 (2016)**

MICROBIAL ECOLOGY

Archaea revealed from genomes

Researchers have pieced together the genomes of a newly identified group of single-celled organisms, unearthing clues about their metabolism.

Archaea are different from bacteria and are generally less studied. To find new, uncultured archaea, Brett Baker at the University of Texas at Austin in Port Aransas and his colleagues extracted and analysed DNA in underwater sediment cores from estuaries in North Carolina. They reconstructed three near-complete genomes of archaea belonging to a new group that the team called Thorarchaeota. The organisms have many genes for breaking down proteins and transporting amino acids, suggesting that proteins are their main carbon source. The microbes could also be biochemically cycling sulfur in sediments.

Identification of these organisms fills in a key part of the archaeal tree of life, the authors say.

ISME J. **http://doi.org/bb7p (2016)**

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