

RESEARCH HIGHLIGHTS

ASTRONOMY

Galactic striptease

Astrophys. J. **692**, 298–308 (2009)

Most astronomers agree that spiral galaxies, which were dominant billions of years ago, morphed into the lens-shaped galaxies that are so prevalent today. One idea describing how this happened assumes the existence of regions of hot gas in the intergalactic space of massive galaxy clusters. The hot gas strips away gas in spiral galaxies as they whip through the intergalactic space, turning them into lenticulars.

But David Wilman of the Max Planck Institute for Extraterrestrial Physics in Garching, Germany, and his colleagues have observed lenticular galaxies forming as easily in sparse groups of galaxies, in which the stripping effect of hot gas is negligible. This suggests that, as some astronomers had suspected, galactic mergers are instead an important mechanism.

PLANT SCIENCE

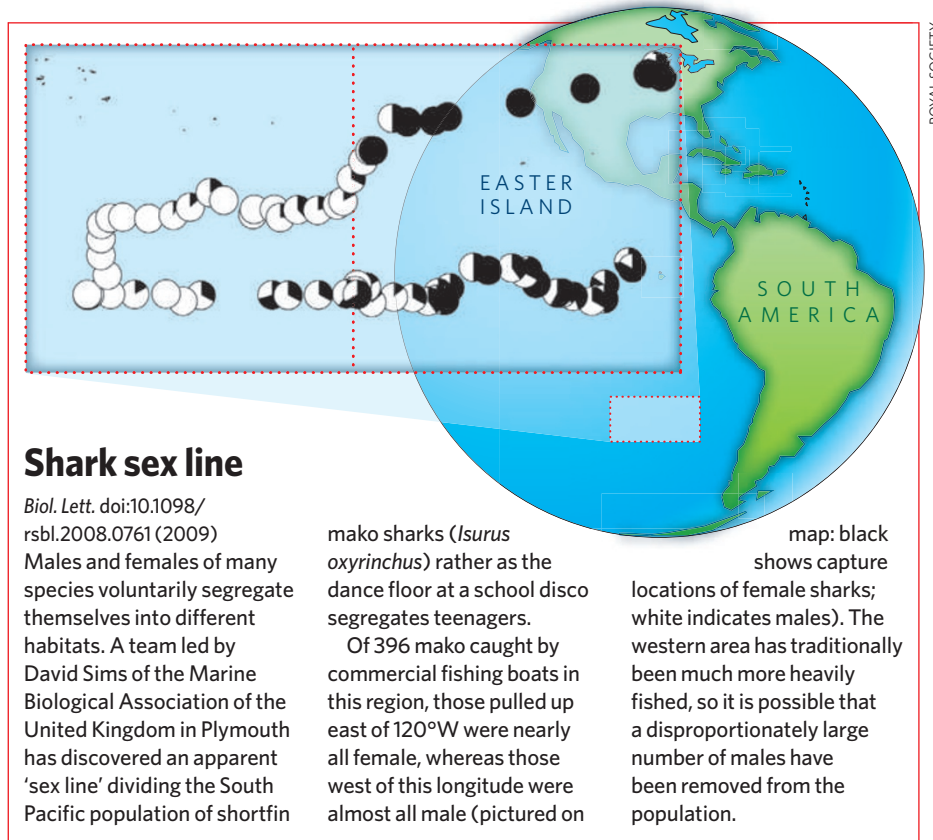
Pigment puzzle

J. Am. Chem. Soc. doi:10.1021/ja809065g (2009)

Researchers at Florida International University in Miami have discovered the 'animal' pigment bilirubin in the seeds of the white bird of paradise tree, *Strelitzia nicolai*. This is the first example of bilirubin occurring naturally in plants.

Cary Pirone and her colleagues cannot yet account for the presence of the bright orange substance, which is a product of the breakdown of the haem chemical group that, in animals, is found in haemoglobin. In plants, haem's normal metabolic product is the light-sensing pigment of the important protein phytochrome.

Although the plant the team studied has white flowers (pictured), the seed part, called the aril, has the hue of oxygenated blood.



Shark sex line

Biol. Lett. doi:10.1098/rsbl.2008.0761 (2009)

Males and females of many species voluntarily segregate themselves into different habitats. A team led by David Sims of the Marine Biological Association of the United Kingdom in Plymouth has discovered an apparent 'sex line' dividing the South Pacific population of shortfin

mako sharks (*Isurus oxyrinchus*) rather as the dance floor at a school disco segregates teenagers.

Of 396 mako caught by commercial fishing boats in this region, those pulled up east of 120°W were nearly all female, whereas those west of this longitude were almost all male (pictured on

map: black shows capture locations of female sharks; white indicates males). The western area has traditionally been much more heavily fished, so it is possible that a disproportionately large number of males have been removed from the population.

ZOOLOGY

Nightingale serenade

Proc. R. Soc. B doi:10.1098/rspb.2008.1726 (2009)

Male nightingales that sing during the night are serenading females, whereas those that sing at dawn are letting other males know that the territory is occupied, report Tobias Roth of the University of Basel in Switzerland and his co-workers.

The researchers caught ten female nightingales (*Luscinia megarhynchos*) and moved them 70 km to a site in the Rhine Valley in France where the team has studied nightingales since 1994. Radio transmitters glued on the backs of the incomers revealed that unpaired females fly around at night visiting several males, at a time when bachelor males are singing more frequently than paired males. All males sing vociferously during the dawn chorus, however.

GENETICS

Hopping hope

Science doi:10.1126/science.1163040 (2009);

Nature Biotechnol. doi:10.1038/nbt.1526 (2009)

Recent studies of human tumours have suggested that solid cancers carry a host of different genetic mutations. Working out

which of these set off the disease is tricky, but a team led by David Largaespada of the University of Minnesota in Minneapolis has found a way.

The group engineered mice that contain a jumping gene, or transposon, that can be switched on or off in specific tissues. When it is turned on, it hops around the genome, disabling other genes by inserting copies of itself into them.

Largaespada and his colleagues have used this approach to identify 77 genes potentially involved in human colorectal cancer and 19 that are strongly implicated in liver cancer, some of which were not previously known to be mutated in human tumours.

NEUROSCIENCES

Child abuse 'scars' DNA

Nature Neurosci. **12**, 342–348 (2009)

Childhood abuse may leave its mark on DNA in ways that have an effect on stress responses decades later.

Previous research has shown that rat pups reared by inattentive mothers accumulate more methyl groups on a region of DNA that regulates the expression of a receptor for glucocorticoid hormones. As a result, fewer receptors are made, potentially enhancing the animal's response to stress.

