RESEARCH HIGHLIGHTS

Selections from the scientific literature

BOTANY

Final frontier of flowering plants

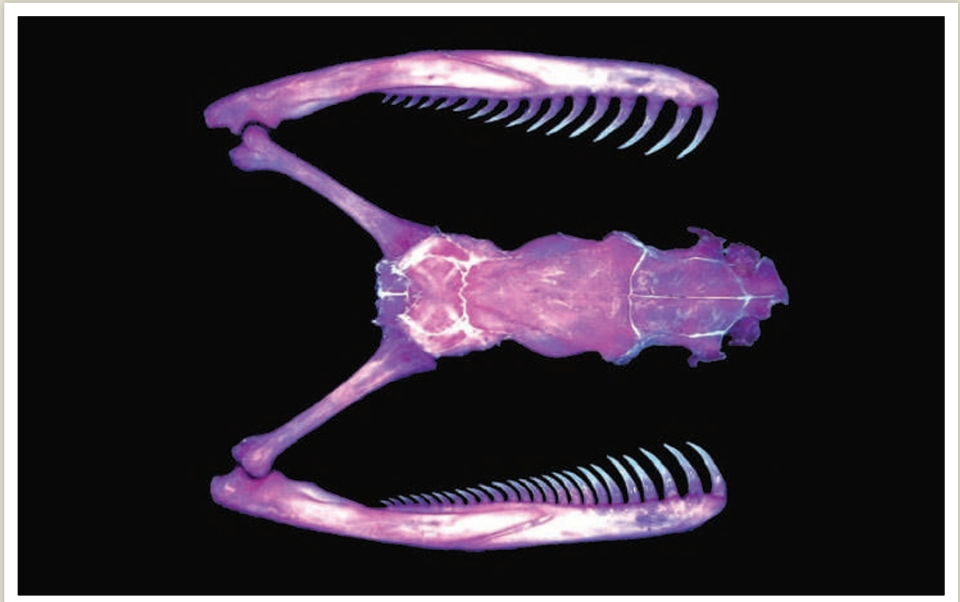
Half of the world's yet-to-be-discovered flowering plant species may already have been collected, and now languish in herbarium cabinets.

While reclassifying varieties of *Strobilanthes*, a genus of purple-flowered plants from Asia, Robert Scotland of the University of Oxford, UK, and his colleagues noticed that many of the 60 species they described had been collected many years before. This lag ranged from 1 to 210 years and averaged more than 30 years for more than 3,000 species in 6 plant genera, including *Strobilanthes*. Just 16% of these plants were classified within 5 years of discovery.

If this trend holds for other flowering plants, 47% to 66% of the planet's estimated 70,000 undiscovered species are waiting to be unveiled in herbaria.

Proc. Natl. Acad. Sci. USA **doi:10.1073/pnas.1011841108 (2010)**

For a blog entry on this research, see go.nature.com/vcqqjg.



EVOLUTION AND ECOLOGY

Twisted tale of snail evolution

Dextral snail shells coil rightwards, and sinistral shells coil leftwards. Sinistral *Satsuma* snails cannot mate with right-coiling *Satsuma* species, leading scientists to wonder how sinistrality could have spread through dextral populations.

Masaki Hoso of Tohoku University in Sendai, Japan, and his colleagues show that sinistrality has arisen independently multiple times in *Satsuma*, and more often where snakes in the Pareatidae family occur.

The team found that the *Pareas iwasakii* snake, which preys on the molluscs, must stick to right-coiling species as its jaws are specialized for grasping them. (Snake jaw, with extra teeth on the lower mandible, **pictured**.) That gave sinistral individuals an adaptive advantage, allowing left-coiling species to emerge.

Nature Commun. **doi:10.1038/ncomms1133 (2010)**

For a longer story on this research, see go.nature.com/9fetev.

ANIMAL BEHAVIOUR

Caterpillars whistle for safety

When under attack, walnut sphinx caterpillars (*Amorpha juglandis*; **pictured**), whistle. An 1868 *Canadian Entomologist* paper, "Musical larvae," first reported these shrieks, but their purpose wasn't clear.

J. YACK

Jayne Yack at Carleton University in Ottawa, Canada, and her team now show that the whistle, produced through openings along the body called spiracles, is a defence against predators. Simulated attacks with blunt tweezers caused the caterpillars to pull their heads back, forcing air through two of the spiracles in a succession of squeaks.

When confronted by their real predators, yellow warblers, the caterpillars whistled each time the birds swooped in for attack, repelling multiple assaults until the warblers gave up.

J. Exp. Biol. 214, **30–37 (2011)**

For videos, see go.nature.com/zgeqyc.

NANOTECHNOLOGY

Pressed to breaking point

Every day in labs around the world, a technique using high-frequency sound waves — ultrasonication — is used to break up carbon nanotubes. But no one really understands the underlying mechanism. Kyung-Suk Kim at Brown University in Providence, Rhode Island, and his collaborators have shed some light on the interplay between nanotubes and the minute bubbles created by the sound waves under water.

When the bubbles implode, tubes in the water near them are suddenly compressed along their lengths. The tubes buckle, and some atoms