

Bite-sized science

Forest fires fuel atmospheric carbon levels



Russia's forests hold so much carbon that extensive fires can tip the overall balance between Eurasia storing carbon and emitting it.

Now France Gerard, of the Centre for Ecology & Hydrology, Monks Wood, and colleagues say year-to-year

variations in mid-latitude climate may influence Siberian fires, which in 2003 burnt 38,000km². France explained, 'High pressures at mid-latitudes bring warmer temperatures to northern Eurasia, supporting more and drier vegetation, and making

extensive fires more likely.'

The researchers say northern hemisphere fires could be why carbon in the atmosphere rose by more than two parts per million in 2002 and 2003—the first two consecutive years to show this.

Youngsters' begging behaviour is genetic

The amount of begging young burying beetles show is linked to their genetic make-up, say Allen Moore, Per Terje Smiseth and Judith Lock of the University of Manchester. And the level of care parents provide is matched to the behaviour they expect. Allen explained, 'When we got beetle parents to foster unrelated offspring, the youngsters' behaviour often didn't match what the parents expected, and these fostered beetles did less well than true offspring.' He added, 'There are also environmental influences—related individuals moderate their behaviour based on the social environment—but the relationship between parent and offspring behaviour was primarily influenced by genetics.' (Allen is now at the University of Exeter.)

Herbicide-tolerant crops may affect seedbanks for several years

Growing crops that are genetically modified to resist herbicides may have long-term effects on biodiversity, according to research led by scientists from the Centre for Ecology & Hydrology.

Herbicide-tolerant GM crops are sprayed to kill weeds, and this can mean fewer weed seeds are available as food for birds and insects. The scientists looked at the number and diversity of weed seeds left in the soil of fields used in Britain's farm-scale trials of genetically modified crops, and found some of the herbicide regimes used on GM crops were worse for

biodiversity than conventional agriculture. After the trials, the researchers evaluated a further two years of conventional crops.

The new research shows that for GM maize and spring oilseed rape, the effect of herbicides on the seedbank persists for at least two years. But the same was not true for GM beet crops. Les Firbank, co-ordinator of the original farm-scale trials, said, 'The new study confirms our impression of what would happen when we released the initial results from the trials in 2003.'

Fast-evolving fruit flies

Biologists often use fruit flies (below) as model organisms for investigating genetics because they breed quickly and are easily reared in captivity. Now Shengjiang Tan, Bill Amos and Simon Laughlin of the University of Cambridge have looked at what effect captivity has had on the flies. They find that as little as 50 years living in bottles leads to a significant reduction in eye size. Bill explained that processing visual information takes a lot of energy. Large eyes give better acuity but cost proportionately more to run, costs that must be justified by more efficient foraging to better escape from predators. In a bottle, life's needs are on hand and big eyes are an expensive luxury that evolution rapidly whittles down to more frugal proportions.

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