## Tuning In on the Weevil's Chomp

Insect infestations are usually spotted by the symptoms they leave on plants. But often the destruction starts invisibly within trees, plants, and roots—and shows up only when damage is far advanced.

Scientists at the U.S. Department of Agriculture's lab at the University of Florida, Gainesville, think that they've found a way to get the jump on these bugs: by listening for the tiny vibrations made by beetle grubs, Indian meal moth larvae, or termites as they chow down.

Physicist-turned-entomologist Richard W. Mankin and colleagues are developing ways to eavesdrop on unseen pests via sensors that are pushed into soil, clamped onto a plant stem or tree trunk, or attached to a food container. The vibrations given off by the insects are fed into amplifiers. Mankin has developed software that can identify the sound "fingerprints" of different species. In field tests, researchers are now trying to detect weevils in citrus groves and in the pots of ornamentals. Lab tests are focused on finding Indian meal moths in dry pet food packages and exotic insect pests in endangered bromeliads in Florida. "Ultimately," says Mankin, "we hope to develop an acoustic system that could easily detect insects in packages without opening them."

**Weevil larva buried in the stem of an endangered tropical bromeliad makes crunching sounds detectable by sensor attached to leaf.**

Cornell University entomologist Cole Gilbert says that this work "can be especially useful for assessing the population density of hidden insects"—once the technical bugs, such as interference from natural background noises, are under control.

## Birth Control by Remote

In a mark of frustration over India's perennially stalled family planning efforts, the country's health minister has come up with a somewhat Orwellian proposal: distribute television sets to the masses to keep their minds off procreation.

India's population passed the 1 billion mark last summer, and members of Parliament have been expressing concern about the unceasing growth. In response, minister for health and welfare Chandreshwar Prasad Thakur suggested last month to the Indian Parliament that "entertainment is an important component of the population policy." To drive down birth rates, he said, "we want people to watch television."

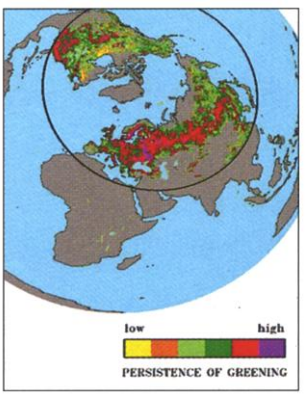
Members of the opposition scoffed at the idea—if only because it would be expensive. And it's been met with derision in the press. "Will the boob-tube as the alternative to the tubectomy change forever the connotation of 'family' entertainment?" queried *The Hindustan Times*.

Population experts, meanwhile, say the minister's proposal betrays the false assumption that India's poor breed merely because they have nothing better to do. Says Anjali Nayyar, project director at the Population Council in New Delhi: "Sex is a basic human need and certainly not the only form of entertainment available to the Indian masses."

## Greenhouse Is Here

The Northern Hemisphere really is greening up, thanks to greenhouse gases and global warming, according to an analysis of 18 years of satellite data. Spring is coming earlier, fall later, and growing seasons have lengthened by as much as 18 days in Eurasia. The phenomenon is especially pronounced in Siberia and eastern Russia, where almost two-thirds of the vegetated areas above 40° north latitude (the level of New York City) show increases in density, compared with about 30% of such areas in North America.

Those conclusions are reported in the 16 September *Journal of Geophysical Research–Atmospheres* by Liming Zhou of Boston University and colleagues at NASA. To track Earth's greening, they used a measure called the normalized difference vegetation index (NDVI), which relies on satellite-based spectral measurements that document chlorophyll in greenery. Greenness correlated well with data from meteorological stations all over the Northern Hemisphere indicating an average rise of 0.8°C in surface temperature since the early 1970s.




**Increased vegetation density in the Northern Hemisphere above 30° latitude.**

## A Virus in the Family?

An Australian researcher has come up with a provocative idea: that humans, and all complex life, are the descendants of an ancient virus-bacterium partnership.

Conventional wisdom holds that all living things descended from a single-cell ancestor that appeared some 4 billion years ago. But molecular biologist Philip Bell of Sydney's Macquarie University has added a twist to that story.

In the September *Journal of Molecular Evolution*, he argues that one day, about 2 billion years ago, a virus infected one of those early bacterium-like organisms and hijacked its reproductive machinery. It is this virus-bacterium hybrid, he believes, that eventually evolved into complex, or eukaryotic, cells with their gene-packed nuclei.

The new hybrid had "novel capacities, including the ability to capture other simpler prey," which gave it an edge over less advanced organisms, and it could feed itself by engulfing neighboring organisms that had to make do with nonliving raw materials, Bell suggests. To support his case, Bell points to features of the nucleus that also turn up in some viruses—such as the way it tops and tails its messenger RNA before sending it out to the rest of the cell. "The transition from a primitive cell to a complex one involves so many changes, it's hard to imagine them all occurring together without the involvement of a virus," he says.

It is too soon to tell if the theory will fly, says evolutionary geneticist Simon Easteal of the Australian National University in Canberra. "But he certainly pulls together enough circumstantial evidence to make a compelling story."