In 1993, Rohan Pethiyagoda used his own money to found the Wildlife Heritage Trust in Colombo, Sri Lanka. He and his colleagues began a census of Sri Lanka's disappearing wildlife, systematically searching the 750 square kilometers of remaining rain forest, which once covered 15,000 square kilometers. To his surprise, he kept finding frogs he couldn't identify.

Pethiyagoda first showed the animals to frog systematists. They estimated there might be 200 new species, based on the morphology and other characteristics of 1000 specimens. Subsequent genetic studies reduced that number to 120 or so. Claims of a vast number of new species are often greeted with skepticism, but the new data are compelling, say the researchers' colleagues. This work, which combines traditional and molecular approaches, "is right at the forefront of what work in biodiversity should entail," says Roy McDiarmid, a systematist at the U.S. Geological Survey who is based at the Smithsonian National Museum of Natural History in Washington, D.C. Adds Wake, "The molecular data gives a certain validation to the assertion that these things are really different species."

The new species fall into two groups. One consists of just five species, all of which lay eggs in foam nests on leaves, rocks, or branches suspended above water. Once big enough to be out of danger from many aquatic predators, the hatched tadpoles slide off into the stream or pond below. But most of the newfound frogs are "direct developers" whose young never get their feet wet. These eggs incubate individually in leaf litter instead of foam nests, and they hatch as miniature adults, skipping the tadpole stage altogether. This water-free lifestyle "gives species a lot more latitude," McDiarmid explains, and "lends itself to geographic isolation and speciation."

Schneider thinks that these frogs have escaped the fate of other amphibians because disease, ultraviolet light, and other potentially deadly influences appear to be most dangerous to water-based young. "By skipping the aquatic [stage], they may bypass a life stage when they are most vulnerable," he suggests.

But there seem to be some dangers even these direct developers have not escaped. Co-author Kelum Manamendra-Arachchi of the Wildlife Heritage Trust traveled to museums containing specimens similar to the newly discovered ones, looking to confirm his species designations. He found many frogs—perhaps 100 species—that had been collected from Sri Lanka more than 100 years ago that were not among their current finds. "It means a huge number of species must have gone extinct already," says Wake, most likely because so much of the island's rain forest has been lost.

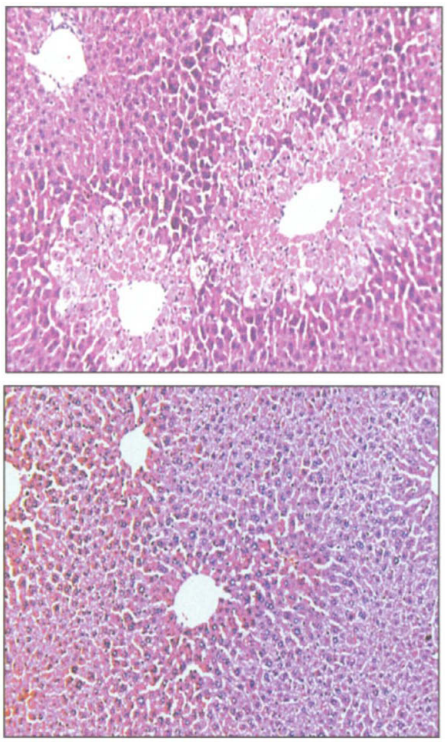
Therein lies the challenge for biodiversity's champions, says Paul Speck, president of the Arlington, Virginia–based Amphibian Conservation Alliance. "We're at a very precarious moment," he says; "there are a lot of species still out there [and] there is the opportunity to save many of them, but we need to act quickly." –ELIZABETH PENNISI

TOXICOLOGY

Protecting Liver From Painkiller's Lethal Dose

Last week a committee of the U.S. Food and Drug Administration recommended that medicines containing acetaminophen, a commonly used painkiller sold under the brand name Tylenol and in many over-the-counter cold and flu remedies, carry stronger warnings about its dangerous side effects. Every year in the United States overdoses of the painkiller cause acute liver failure in as many as 800 people, one-third of whom die as a result. New results help explain just how acetaminophen harms the liver. They may also provide a target for treating liver failure due to overdoses of acetaminophen and perhaps of other drugs as well.

On page 422, a team led by David Moore of Baylor College of Medicine in Houston, Texas, reports that the so-called constitutive androstane receptor (CAR) plays a central role in bringing about the biochemical



Protective effect. Liver cells die (pale areas) when exposed to high doses of acetaminophen (*top*), but a CAR inhibitor protects against such damage (*bottom*).

CREDITS: DAVID MOORE/BAYLOR COLLEGE OF MEDICINE

ScienceScope

Misconduct Aftershocks Bell Laboratories is moving to clear the wreckage created by the misconduct of its one-time nanoscience star, Jan Hendrik Schön. Officials at the Murray Hill, New Jersey, lab said this week that they are withdrawing six patent applications that are based on Schön publications, which an investigating committee has concluded contain fake data (*Science*, 4 October, p. 30). The lab had already asked U.S. and foreign patent offices to put the applications on hold, pending completion of the investigation. Lab parent Lucent Technologies had once hoped the patents, which involve novel transistors and electronic switches, might become cash cows.

Anger in Italy The heads of Italy's 107 research institutes are protesting government plans to cut science budgets and redirect ongoing reforms. Their strongly worded letter last week to Guido Possa, the government's vice minister for research, escalates a controversy that began last summer, when researchers attacked a leaked government plan to revamp Italian science (*Science*, 16 August, p. 1106). Now, they fear that a rumored 10% cut in the National Research Council's $500 million budget would virtually eliminate $50 million for new projects—along with about twice that amount in matching funds from other sources. Possa had not responded to the letter as *Science* went to press, but he told researchers earlier that he would meet with them next month.

Canadian Student Aid Canadian Prime Minister Jean Chrétien's swan song to his country contains an ode to graduate researchers. Last week Chrétien promised to boost spending on graduate studies and research in his first "Speech From the Throne" since this summer's announcement that he would retire in February 2004. His words lend support to a proposal by the nation's three granting councils for a 10-year, $2 billion program to help train young academics, although Industry Minister Allan Rock says that details await the new budget, due out next spring.

"There's a need for more money per student and more students," says Canadian Institutes of Health Research president Alan Bernstein. "There's 25% more people doing research than there were 2 years ago, and they all want good students and postdocs."

Any expansion, however, must find room in a tight government budget. And Chrétien's ability to set the political agenda is also in doubt after a de facto coup by former Finance Minister Paul Martin forced him to declare his pending departure.

the mirror is in the "did move" state, the "did not move" state, or a superposition of the two, and they can measure how long the superposition lasts.

If the experiment actually puts a mirror into superposition, it will suggest that there is nothing fundamental about large things that makes them behave like classical objects rather than quantum ones. "If quantum mechanics hasn't gone wrong at the size of a cell," Tegmark says, "it probably won't go wrong with something the size of a mouse or a human." Bouwmeester's team is already testing components that will go into the lab setup, which requires very high vacuums, very cold temperatures, and very precise measuring equipment. Should the team overcome those formidable hurdles, Schrödinger's hypothetical tabby might become more than a pet notion. **–CHARLES SEIFE**

SWITZERLAND

Compromise Allows Transgenic Trials

BERN—Swiss biologists believe they have won a decisive victory in a 9-year battle with campaigners opposed to genetically modified (GM) organisms. After 11 hours of rancorous debate, the National Council, the lower house of the Swiss parliament, voted last week to accept watered-down legislation governing gene technology. To the relief of researchers, the council deleted measures that would restrict research and impose a 5-year moratorium on commercial release of GM organisms. The new version is "a good sign for young scientists to stay in the field," says Heidi Diggelmann, president of the Swiss National Science Foundation's Research Council.

Don't eat this. Swiss officials have approved field tests of wheat engineered to resist the stinking smut fungus, which smells and apparently also tastes "just like rotten fish."

Anti-GM groups first aired the Gene-Protection Initiative in 1993 to ban all research on GM animals and patenting of any GM organism. Researchers went on the offensive, attempting to convey to the public the importance of their research. In 1996 a bill was put forward as a compromise, plugging gaps in existing law without aggressively curbing GM research. The initiative was decisively defeated in a national referendum (*Science*, 12 June 1998, p. 1685).

However, under pressure from anti-GM groups, the bill was modified to include provisions such as limiting releases of GM organisms to biosafety experiments that could be guaranteed to be 100% risk free and could not be performed with conventional means. These were poison pills to many scientists, who argued that the terms would amount to a de facto ban on basic transgenic research. The proposed legislation would also have banned antibiotic resistance genes in deliberately released GM organisms and would have held producers of GM products liable for damages for up to 30 years, even for nondefective, grossly misused products.

Some members of parliament rallied against these measures, and last-minute negotiations succeeded in defanging the bill. Under the approved measures, there will be no commercial moratorium, and restrictions on the release of GM organisms for research will be eased. In addition, antibiotic resistance genes in released GM organisms will be allowed until 2008, and in general, producers of GM products will be liable only for defective products. The legislation still has to go to the upper chamber of parliament for final revisions, but a moratorium looks unlikely.

Although many scientists are satisfied with the outcome, they are not dancing in the streets. Gottfried Schatz, president of the Swiss Science and Technology Council, a government advisory group, says that the approved measures were "the best that could be hoped for given the current climate of mistrust." Daniel Ammann, director of the Swiss Gene-Technology Working Group, an anti-GM umbrella organization, confirms that the group plans to continue its fight by seeking a ban on any commercial release of GM organisms.

The modifications dispel a cloud of uncertainty that had been hanging over Switzerland's first-ever field trial of GM plants. On 13 September, Moritz Leuenberger, head of Switzerland's Department of Environment, Transport, Energy, and Communications, approved the trial of wheat engineered to make a protein toxic to a crop pest called stinking smut fungus. Regulatory authorities had rejected the proposed experiment last year on the grounds that the transgenic plants contain an antibiotic resistance gene (*Science*, 7 December 2001, p. 2067). Leuenberger approved the trial "solely for legal reasons," as current laws do not require such an experiment to exclude all possible safety risks. Final approval is expected in a few months. **–MIN KU**

Min Ku is a writer in Bern, Switzerland.

ScienceScope

A Pox on Polygraphs In the first major U.S. government report on polygraphs since 1983, a panel of the National Academy of Sciences this week said the government should not use the so-called lie detectors to see if an employee poses a security risk. The study, commissioned by the Department of Energy (DOE) in the wake of the Wen Ho Lee affair (*Science*, 15 September 2000, p. 1851), says that although the devices can be a help to criminal investigators, they are too crude to screen out possible spies.

The panel, led by statistician Stephen Fienberg of Carnegie Mellon University in Pittsburgh, Pennsylvania, notes that lie detection research "has not progressed ... in the manner of a typical scientific field." It calls for expanded tests of the polygraph and other "indicators of deception."

The panel has briefed DOE and other agencies that now test thousands of employees. Fienberg didn't say if any was planning a change in policy, but polygraph critics say the course is clear. Physicist Alan Zelicoff of DOE's Sandia National Laboratories in Albuquerque, New Mexico, says the panel has come to a "very strong conclusion. ... As a screening test, [the polygraph] has now been tossed onto the ash heap of history."

Hatchet Buried After years of wrangling, Russia and the World Health Organization (WHO) have agreed to cooperate in attacking the country's tuberculosis (TB) crisis. The deal, reached late last month, will funnel up to $150 million in World Bank loans into a revitalized TB monitoring and treatment system.

TB has soared to epidemic levels in Russia, and the disease now claims 30,000 lives annually. But many Russian specialists rejected WHO's insistence on tying aid to the use of Western anti-TB strategies, such as microscopy for detection, saying that homegrown methods, such as mass x-ray screening, worked fine (*Science*, 12 July, p. 170). New results from 18 projects that integrate Russian and WHO methods, however, helped end the standoff. The projects, begun in 1994, have boosted detection and lowered incidence rates, officials say.

"Five years ago ... we couldn't find common ground," Anatoly Vialkov, a deputy health minister, said in announcing the deal. "Today we understand each other." The World Bank must still approve the loan.

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