



animals were wearing radio-tracking collars. Two “were the only collared members of their packs, so now we can’t track those packs.” Only one wolf wearing a specialized GPS collar is now left in the study. The killings, which were legal, occurred outside the park during the annual wolf hunting season that opened this fall in Montana, Idaho, and Wyoming. Some researchers fear hunters are targeting collared wolves (*Science*, 23 October 2009, p. 506), and have asked state officials to establish buffer zones around the park to protect the animals. Only Montana, however, has taken steps to protect wolves in one boundary region. <http://scim.ag/wolfkills>

Agadir, Morocco 4

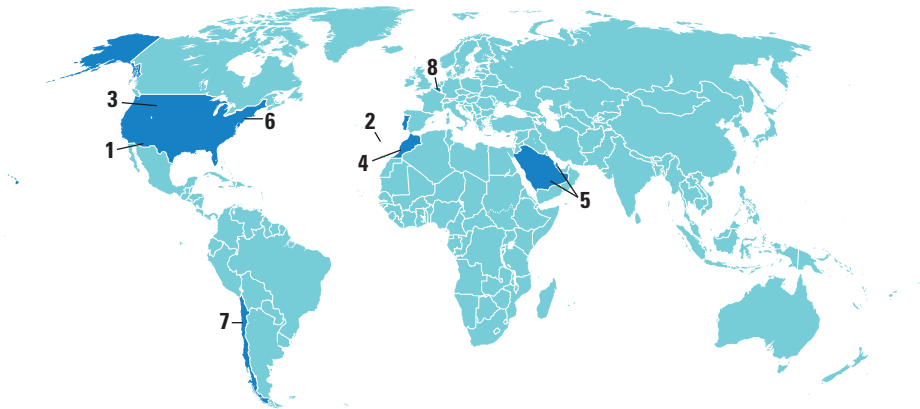
Prospects Brighten for Shark Conservation

For the first time, the International Commission for the Conservation of Atlantic Tunas (ICCAT) agreed last week to consider explicitly including shark conservation in its mandate. “This is unprecedented,” says Elizabeth Wilson of the Pew Environment Group, an environmental advocacy organization based in Washington, D.C.

ICCAT, which was established in 1966, manages some 30 migratory species, including swordfish, marlin, and other tunalike species. But the commission does not set catch limits for sharks. Most kinds of sharks are caught accidentally by vessels hunting for tuna and tunalike species, although a few



AROUND THE WORLD



Tucson, Arizona 1

Biosphere 2 Launches Key Watershed Experiment

An iconic glass ziggurat in the desert, Biosphere 2 has shed its turbulent past and undergone a scientific rebirth over the past few years (*Science*, 8 July 2011, p. 146). This week, researchers began experiments with massive artificial watersheds on which they are betting Biosphere’s future.

The 10-year experiment, called the Landscape Evolution Observatory, is designed to improve understanding of the



interactions of ecology, hydrology, and soils under climate change. It consists of three hillslopes, each 33 meters long and made of 650 tons of crushed volcanic rock. Researchers will measure how water and nutrients flow through soil using 1800 sensors embedded in each hillslope. Because the hillslopes are inside the Biosphere 2 domes, researchers can control temperature, precipitation, and light (but not the composition of the atmosphere, as Biosphere 2 is no longer airtight). “What makes it stand out is that it’s big enough for interesting things to happen,” says Gordon Grant, a hydrologist and geomorphologist with the U.S. Forest Service in Corvallis, Oregon, who is not involved in the project.

Madeira, Portugal 2

Dengue Outbreak Strikes European Outpost

An outbreak of dengue fever on the Portuguese island of Madeira, some 700 kilometers west of Morocco, has sickened more than 1300 people since 3 October. Dengue—which does not usually kill but causes crippling muscle and joint pains—occurs in many tropical and subtropical countries, but Europe has not seen sustained transmission since the 1920s, the European Centre for Disease Prevention and Control in Stockholm said last week. No deaths have been recorded, but 89 patients had to be hospitalized.

The dengue virus can be transmitted by several mosquito species; *Aedes aegypti*, the most effective vector, invaded Madeira in 2004 and has been spreading since, says Francis Schaffner, a parasitologist at the University of Zurich in Switzerland. Authorities initially tried to control the insects, “but it didn’t work and they stopped,” he says. *A. aegypti* does not occur in mainland Europe, but its cousin, *A. albopictus*—better known as the Asian tiger mosquito—is established in most Mediterranean countries and could act as a vector, albeit a weaker one, in the summer, Schaffner warns.

Yellowstone National Park 3

Hunters Kill Research Wolves

Hunters have killed an estimated 10 wolves from Yellowstone National Park this month, adversely affecting a park research program that has tracked the animals since their reintroduction in 1995. At least 88 wolves remain in Yellowstone, but the killings have “been a big hit to us scientifically,” says project leader Douglas Smith. Particularly problematic, he says, is that seven of the



The Secret of the Black Dahlia

Gardeners can choose from more than 20,000 varieties of dahlias, including whites, yellows, deep reds, and magentas. But especially alluring are the rarer black ones. Now, a team of researchers in Austria has turned the eye of science on what makes a dahlia black. The team collected 14 varieties of black dahlia—with names such as “Black Barbara,” “Arabian Night,” “Karma Choc” (left), and “Tisa” (right)—and five with tamer colors, then extensively analyzed their petals. They measured the activity of enzymes that make pigments, investigated gene expression, and measured the pigments themselves. Their conclusion: The black color comes from high levels of anthocyanins, the pigments that—at lower levels—also give orange and red dahlias their colors. The team reports in *BMC Plant Biology* that they think that most black dahlias raise their anthocyanin levels by blocking an enzyme in the pathway that makes flavones, another molecule that has the same precursor as anthocyanins. If scientists could figure out that trick, they might be able to engineer dahlias to make more black varieties.

species, such as shortfin makos, are targeted directly for their meat and large fins.

Although conservationists failed to win new protections for threatened sharks in the Atlantic Ocean at ICCAT’s annual meeting, which concluded last week, they hope to make significant progress over the next few years as changes to the treaty are negotiated.

Saudi Arabia and Qatar 5

Four More Cases of New Coronavirus Confirmed

Three new confirmed infections in Saudi Arabia—including a fatal one—and another in Qatar have prompted the World Health Organization (WHO) to urge countries to step up vigilance for a new coronavirus first reported in September. The four new cases bring the total to six, including two deaths, WHO said in a 23 November statement.

The new, as yet unnamed, virus is related to SARS; where it came from or how it spreads is a mystery. Two of the Saudi cases,

including the fatal one, were family members living in the same house. Lab tests are pending for another member of that household who also died and had similar symptoms; a fourth, nonfatal case in the same cluster tested negative. Countries should “consider testing” unexplained pneumonia cases for the new virus, WHO said, and thoroughly investigate such cases in doctors and nurses, who are at greater risk during disease outbreaks.

New York 6

Neurologist Implicated In Insider Trading Case

Federal authorities filed charges last week in what they said is the most lucrative insider trading case in history. According to the Securities and Exchange Commission (SEC), Sidney Gilman, a neurology professor at the University of Michigan, Ann Arbor, fed secret information about clinical trials of an Alzheimer’s drug to Mathew Martoma, a former portfolio manager at a division of the hedge fund SAC Capital Advisors, allowing

THEY SAID IT

“Government at all levels must recognize [the Sasquatch] as an indigenous people and immediately protect their human and Constitutional rights.”

—Melba S. Ketchum, director of DNA Diagnostics, in a press release on the firm’s unpublished claim to have sequenced the genome of the long-sought creature commonly called Bigfoot.

Martoma to make more than \$276 million in illicit profits and avoid losses with well-timed stock purchases and sales.

The drug, bapineuzumab, was a once-promising Alzheimer’s therapy originally developed by Elan and Wyeth. Based on information from Gilman, Martoma allegedly invested more than \$700 million in the companies’ stocks when the prospects for bapineuzumab looked good, and later unloaded more than \$960 million worth of stock in just over a week when the news turned bad.

SEC alleges that Gilman, a former chair of the Michigan neurology department who served as chair of the trial’s Safety and Monitoring Committee, received nearly \$108,000 for his consultations with Martoma from a New York–based firm that connects investors with technical experts. Gilman is cooperating with authorities in exchange for non-prosecution. <http://scim.ag/Martoma>

Atacama, Chile 7

New Director for ALMA

The Atacama Large Millimeter/submillimeter Array (ALMA) in Chile has appointed French astronomer Pierre Cox as its new director. Cox, an expert in millimeter and infrared astronomy, will take over ALMA’s stewardship in April 2013. More than half of the array’s 66 antennas are already in place on a high plateau in northern Chile, and the telescope has been taking observations for about a year. The complete array is expected to start operations by March 2013, right before Cox begins >>

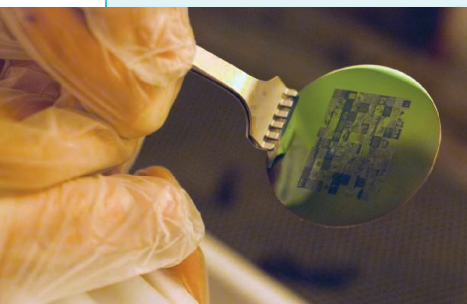


Random Sample

Art in Space

The longest-lasting contribution that Massachusetts Institute of Technology (MIT) graduate student Adam McCaughan will make in his promising career probably won't be a scientific paper or an invention. A message to aliens that he transcribed onto a metal disk last spring could outlast Earth itself.

American artist Trevor Paglen connected with MIT scientists in 2009, hoping they would help him launch tiny images, including a Texas dust storm and refugees experiencing the sea for the first time, on a 5-centimeter-wide disk into perpetual orbit. Paglen envisioned hyperevolved beings from our world or others as future recipients. Some of his inspiration for the grandiose project came from the plaque and audio record affixed to NASA probes Pioneer and Voyager, respectively. Both cosmic messages were etched into gold.



But MIT quantum nanostructures expert Karl Berggren noted that over the eons, grains in gold metal could shift and degrade the images. "We settled on [using] silicon with a layer of silicon oxide," says McCaughan, who transcribed the images using lithographic techniques used for making microchips. "No one really knows what happens in billions of years," Berggren told Paglen, "but this should work for a couple of hundred million." The 100 images on the disk require a microscope to be seen clearly and include depictions of human industry, oppression, technology, and climate change. MIT aerospace engineer Brian Wardle and astrophysicist Joel Weisberg at Carleton College in Northfield, Minnesota, designed a star chart as a protective cover.

The art piece was successfully launched on 20 November bolted to communications satellite EchoStar XVI. Both will orbit Earth at 38,000 kilometers.



>> AROUND THE WORLD

his tenure. Cox currently heads the Institute of Millimeter Radioastronomy in Grenoble, France. His knowledge of Spanish should serve him well in his new position.

Brussels 8

No Budget Set for E.U. Scientists

European researchers have to wait a bit longer to hear how much money they will have to spend in the coming years, but the outlook isn't bright. Last week, the leaders of all 27 E.U. member countries met in Brussels, yet failed to strike a deal for an overall budget agreement for 2014 through 2020. Still, the latest proposals for the "competitiveness for growth" budget, which includes research and education funding, call for up to 15% less than the €156 billion originally proposed by the European Commission, the European Union's executive branch. The downgrade stems primarily from E.U. countries lobbying for more agricultural and so-called cohesion funds. The state of

negotiations "does not bode well" for the research budget, says Helga Nowotny, president of the European Research Council. <http://scim.ag/noEUbudget>

FINDINGS

A Grand Old Canyon

Parts of Arizona's Grand Canyon may be millions of years older than previously thought, suggests a study of helium atoms in mineral samples from the western reaches of the canyon.

Helium, formed in minerals called apatites as a result of radioactive decay of uranium, diffuses through the mineral's crystal structure at deep underground temperatures above 70°C. But as the minerals rise toward Earth's surface—or as erosion carves a canyon toward the minerals—the rocks sur-

BY THE NUMBERS

20% Drop in new HIV infections worldwide since 2001, according to figures released by the Joint United Nations Programme on HIV/AIDS.

\$100 million Amount committed last week by AstraZeneca, Pfizer, and the Canadian province of Quebec to create the NEOMED Institute, a drug research facility in Montreal, Canada.

rounding them cool, trapping more of the helium within the apatite grains. Helium concentrations in apatite can, therefore, serve as a geological time clock.

The new study finds that much of the western portion of the Grand Canyon was carved to within a few hundred meters of its current depth by about 70 million years ago, scientists reported online this week in *Science*. That age is a far cry from the 5 to 6 million years previous researchers estimated by identifying when sediment from eastern portions of the canyon first appeared at the western end of the gorge. <http://scim.ag/oldcanyon>



Science LIVE

Join us on Thursday, 6 December, at 3 p.m. EST for a chat on **whether science can defeat influenza**. <http://scim.ag/science-live>