

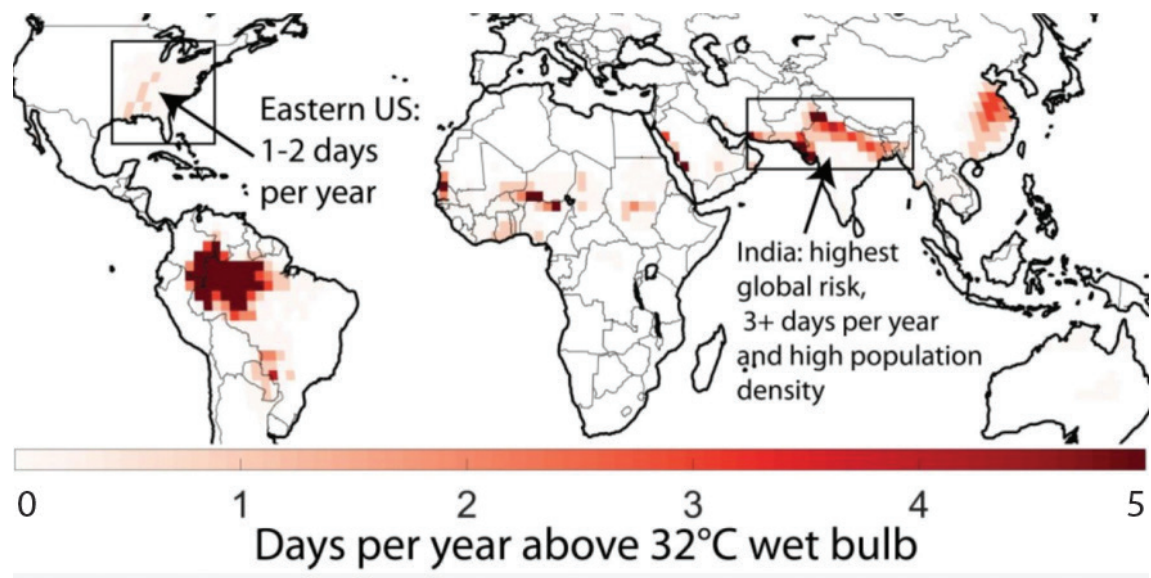
## Environment News Futures

### Humidity May Prove Breaking Point for Some Areas as Temperatures Rise, Says Study

#### From US south to China, heat stress could exceed human endurance

December 22, 2017—The Earth Institute at Columbia University

Climate scientists say that killer heat waves will become increasingly prevalent in many regions as climate warms. However, most projections leave out a major factor that could worsen things: humidity, which can greatly magnify the effects of heat alone. Now, a new global study projects that in coming decades the effects of high humidity in many areas will dramatically increase.



### Panning for Silver in Laundry Wastewater

December 20, 2017—American Chemical Society

Silver nanoparticles are being used in clothing for their anti-odour abilities but some of this silver comes off when the clothes are laundered. The wastewater from this process could end up in the environment, possibly harming aquatic life, so researchers have attempted to recover the silver. Now, one group reports in that detergent chemistry plays a significant role in how much of this silver can be removed from laundry wastewater.

Some clothing manufacturers incorporate silver nanoparticles into their products because these tiny bits of metal can kill odour-causing bacteria. But researchers have found that some of that silver is washed away as the garments are laundered. These silver nanoparticles can be toxic to many

aquatic organisms and can impact the effectiveness of bacterial processing in wastewater treatment plants. But recovering the nanomaterial from laundry water isn't an easy process because of low concentrations of silver in the water, high concentrations of competing ions and an uncertainty as to which exact forms of silver are present. Previous research by Sukalyan Sengupta and Tabish Nawaz showed that ion-exchange technology is highly selective for silver, but this study did not examine the role of detergent chemistry, which could interfere with this method. So that's what they wanted to examine in the current report.

The researchers analyzed how silver interacts with individual detergent ingredients. The team found that silver mainly exists as a positively charged ion, and this form will interact with several detergent compounds under certain conditions. For example, the positively charged silver ion will interact with negatively charged ions in the detergent at different pH ranges. The group also used an ion-exchange resin, which recovered as much as about 99 percent of the silver, depending on the pH and concentration of the competing ions. The resin was then tested with detergent components and reused over five cycles, and it maintained the ability to remove silver. But the addition of products, such as bleaching and water-softening agents, negatively impacted the efficiency of the resin.

## **Human Impacts on Forests and Grasslands Much Larger and Older than Previously Assumed**

December 21, 2017—Alpen-Adria-Universität Klagenfurt | Graz | Wien

Human biomass utilization reduces global carbon stocks in vegetation by 50%, implying that massive emissions of CO<sub>2</sub> to the atmosphere have occurred over the past centuries and millennia. The contribution of forest management and livestock grazing on natural grasslands to global carbon losses is of similar magnitude as that of deforestation. Currently, these effects are underappreciated in existing global carbon models and assessments of the greenhouse gas emissions (GHG) from land-based production. Without full consideration of land management effects, global climate forecasts and calculations of the GHG effects of future bioenergy policies are error prone, seriously jeopardizing the robust evaluation of measures that would help achieving the 1.5°C target of the Paris Agreement.

## **Climate Change May Favour Large Plant Eaters over Small Competitors**

December 19, 2017—National Institute for Mathematical and Biological Synthesis (NIMBioS)

In the drive to survive changing climates, larger herbivores may fare slightly better than their smaller competitors, according to new research from the National Institute for Mathematical and Biological Synthesis and the Yale School of Forestry and Environmental Studies.

## Nepal's Last Known Dancing Bears Rescued

Dec 24, 2017—AFP

**Kathmandu:** Nepali authorities have rescued the country's last known "dancing bears", officials said on Sunday, ending the medieval tradition of abuse of the beasts for entertainment. The Himalayan nation banned performing bears back in 1973 but the illegal practice, a traditional occupation for some street performer communities, lingered on in parts of its southern region.

Police and animal charities said they spent more than a year hunting the captors of the sloth bears before they were traced to the Rautahat district near the border with India on Tuesday. (*See also Snapshot*)

## First-ever Hybrid Bird Species from the Amazon Discovered

Dec 26, 2017—PTI

**Toronto:** Scientists have discovered the first known hybrid bird species to be found in the Amazon rainforest—a golden-crowned manakin with yellow feathers.

Through a series of genetic and other tests researchers found that the golden-crowned manakin—first discovered in Brazil in 1957 but not seen again until 2002—is in fact a hybrid species. "While hybrid plant species are very common, hybrid species among vertebrates are exceedingly rare," said Jason Weir, from University of Toronto in Canada.

A hybrid species forms when two parental species mate to produce a hybrid population, which then stops being able to freely interbreed with the parental species. In this case the two parents are the snow-capped manakin, named for its bright snowy-white crown feathers, and the opal-crowned manakin, named for its brilliant iridescent crown feathers. Researchers gathered genetic and feather samples over two separate field trips to Brazil.

## Top Polluter China Unveils Nationwide Carbon Market

Dec 19, 2017—AFP

**Beijing:** China, the world's biggest polluter, unveiled plans today for a national carbon market likely to become the world's largest exchange for emissions credits. Environmentalists praised the move as an important step in the battle against climate change as China burns more coal than any other country, giving it the ignominious title of top greenhouse gas emitter.

Although the long-delayed emissions exchange scheme will initially cover just the power generation sector, it is expected to surpass the European Union's carbon market, currently the world's biggest.

"The purpose of this programme is to reduce greenhouse gas emissions," said Zhang Yong, vice chairman of China's National Development and Reform Commission. The country is the largest investor in renewable energy but has faced an uphill battle transitioning from coal, which is used to generate roughly three-quarters of its power, according to the International Energy Agency. China

is seen as a potential leader in the fight against climate change after the US retreated from the Paris accord.

## Lizard, Turtle Among More Than 100 New Species Found in Mekong Region

Dec 19, 2017—AFP

**Bangkok:** A Vietnamese ‘crocodile lizard’ and a Thai turtle found on sale in a local market are among more than 100 new species discovered in the ecologically diverse but threatened Mekong region last year, researchers said Tuesday. The Southeast Asian countries flanking the Mekong river, which snakes down from the Tibetan plateau to the South China Sea, are among the most biodiverse in the world.

Each year, scientists announce scores of new species discovered in the region, which includes Thailand, Myanmar, Cambodia, Laos and Vietnam. But there are fears that many more species could die out before they are found in a region whose jungle and river ecosystems are increasingly threatened by roads, dams and a thriving illegal wildlife trade. In total, scientists confirmed 115 new species in 2016 after a lengthy vetting process, according to the World Wildlife Fund (WWF). They include 11 amphibians, two fish, 11 reptiles, 88 plants and three mammals.

“While the global trends are worrisome, and the threats against species and their habitats here in the Greater Mekong are massive, these new species discoveries give us enormous hope,” said WWF’s Lee Poston. “But we have to do more to protect their habitat and prevent them from entering the illegal wildlife trade,” he added.

The new finds include a bat with a horseshoe-shaped face and a snail-eating turtle discovered by a scientist in a local market in northeastern Thailand. The Crocodile Lizard, a scaly reptile that hails from northern Vietnam’s evergreen forests, was also among the new species announced on Tuesday. (*See also Snapshot*)