



the weekly anthropocene

dispatches from the wild, weird world of humanity and its biosphere



By Sam Matey

Maine and US Climate Policy. On February 28th, Maine Governor Janet Mills (pictured) announced a suite of ambitious new climate policies. First, she formally joined the U.S. Climate Alliance, a league of states (and Puerto Rico) that have pledged to uphold America's Paris Accords emissions reduction targets. Maine is the 22nd member of the Climate Alliance, which now represents over half of America's population and GDP. Governor Mills also pledged that in the next few weeks, she would introduce legislation to create the Maine Climate Council, a group of scientists, state leaders, and representatives of climate-impacted industries that will be responsible for developing emissions reduction and climate adaptation action plans. Finally, she set much-needed goals to increase the role of renewable energy in Maine, setting a target of 80% of the state's electricity from renewables by 2030 and 100% by 2050. Already, an array of bills in support of renewable energy are before the state legislature, many of which could substantially aid in achieving Governor Mills' goals. Especially of note is LD 797, "An Act To Limit Greenhouse Gas Pollution and Effectively Use Maine's Natural Resources," which would strengthen Maine's existing climate action plan, incentivize wind energy development, and set new emissions reduction goals. To join Governor Mills in advocating for climate action in Maine, please sign Maine Conservation Voters' petition in support of LD 797 at goo.gl/7f2xuy! For Mills' full, very inspiring speech, check out goo.gl/j57vfS.



In sum, Governor Mills' announcement is spectacular news, and another example of how substantive policy action on climate change is finally taking off in America. This newsletter hasn't covered day-to-day political fluctuations around the Green New Deal or the 2020 presidential primary, but it is worth noting that climate change is already an unprecedentedly substantial component of the 2020 election policy conversation. The day after Mills' announcement, Governor Jay Inslee (D-Washington) declared that he was running for president on a climate change action platform, saying "Our country's next mission must be to rise up to the most urgent challenge of our time-defeating climate change." Inslee is well known as a leader on climate change—he cofounded the US Climate Alliance in 2017 and is currently pushing a bill in his state's legislature to transition Washington to generating 100% of its electricity from renewables by 2045. We may, at long last, be seeing an inflection point in American politics here. Great news!





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Marshall Islands. The Republic of the Marshall Islands consists of 29 Pacific Ocean atolls, only about 6 feet above sea level. They're home to 75,000 people, and a vital US missile defense system on Kwajalein Atoll. Along with the world's other three "atoll nations" (Kiribati, Tuvalu, and the Maldives) the Marshallese face the prospect of losing all of their territory to rising sea levels within the next few decades. Now, Marshall Islands President Hilda Heine has announced that her nation will be working to physically raise the elevation at least some their islands, calling for national and international dialogue on how best to accomplish this. This is a fascinating example of how some nations may require unprecedented transformations to survive in the Anthropocene. For more, see goo.gl/fVvkVw.

New Research: Turning Carbon Dioxide Back into Coal. Given concerted global effort, it's entirely possible to prevent catastrophic climate change using only the technologies currently available, such as renewable energy and reforestation. However, several innovative "moonshot" research programs around the world are developing new technologies that, although not yet fully viable, have the potential to transform the climate action landscape. These range from Carbon Engineering's unprecedented air-to-fuel program at its pilot plant in British Columbia (check out carbonengineering.com/), to revolutionary as-yet-unbuilt designs for low-waste molten-salt nuclear reactors (see goo.gl/aKyS1c) to the array of companies working to grow "clean meat" from animal cells in the lab to replace resource-intensive livestock agriculture. Now, an international research team centered at Australia's RMIT University has developed an astonishing new method of removing carbon dioxide from the atmosphere, at room temperature no less. Using liquid gallium, indium, cerium, and tin as catalysts, they have transformed atmospheric carbon dioxide back into solid carbon (i.e. coal), that can then be either buried to sequester the carbon or used commercially as an electrode. This is a spectacular breakthrough that, with more refinement and wide-scale application, has the potential to be a vital tool for stopping or even beginning to reverse climate change. Great news! For more, see goo.gl/LTjL7A and goo.gl/iQmyhr.

New Research: Omnipresent Plastics. In a shocking new study, a British research team has found that human-created plastic waste is all-pervasive in even the most remote areas of the globe. The researchers used baited traps to collect amphipods (tiny crustaceans) from the bottom of the Mariana Trench, the deepest part of the ocean, as well as five other Pacific trenches. They found that every single amphipod they collected from the Mariana, and 72% of all amphipods from across the Pacific, had plastic fibers in their guts. This is a sobering reminder of how much human activity is transforming the Earth of the Anthropocene. For the full story, see goo.gl/uQPnN9 and goo.gl/fSU3CQ.



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Two New “Lazarus Species”: Wallace’s Giant Bee. In

the first of two recent rediscoveries of species thought extinct, an expedition to Indonesia’s North Moluccas archipelago has confirmed that the world’s largest bee is still among us.

Wallace’s giant bee (*Megachile pluto*, pictured) was discovered by the famed Alfred Russell Wallace (independent discoverer, with Darwin, of the theory of evolution) in 1859. It was collected again in 1981 and 1993, but the 2019 expedition was



the first to collect pictures or video. Wallace’s giant bee grows up to 1.5 inches long, with a wingspan of 2.5 inches. It also boasts massive mandibles which it uses to scrape out tree resin to line its nests, which it builds within termite mounds. "It was absolutely breathtaking to see this 'flying bulldog' of an insect that we weren't sure existed anymore," said Clay Bolt, the professional nature photographer (specializing in bees) who took the first-ever pictures of this incredible species. Now, researchers are pushing to give the bee legal protection, such as endangered species status and protection from unscrupulous insect collectors and traders. For more, see goo.gl/iPFotb and goo.gl/172KAJ. Great news!

Two New “Lazarus Species”: Fernandina Giant Tortoise.

In a second, possibly even more astonishing rediscovery, a team of a conservationist, four park rangers and an Animal Planet TV show host have found an individual from a giant tortoise species last seen in 1906. The Fernandina giant tortoise (*Chelonoidis phantasticus*) is one of 15 species of Galapagos giant tortoise, three of which have already gone extinct. The Fernandina tortoise was long thought to have been a



fourth, but a chance sighting of tortoise dung on the uninhabited Fernandina Island in 2017 sparked hope that they had survived. The six-person team, a joint venture of Ecuador’s Galapagos National Park, the Galapagos Conservancy, and Animal Planet, found a female Fernandina giant tortoise (pictured, above) on February 17th. She was taken to a breeding center on Santa Cruz Island to ensure that she remains safe, and is estimated to be over 100 years old! However, it gets even more exciting-the team also found recent tortoise tracks a mile away from where they found the female, indicating that there’s at least one other tortoise on the island. If it’s a male, this could signal the rebirth of the whole species! The team will be returning to Fernandina later this year to find out. For more on this amazing story, see goo.gl/QkPQkL.