



Dispatches From The Wild, Weird World Of Humanity And Its Biosphere

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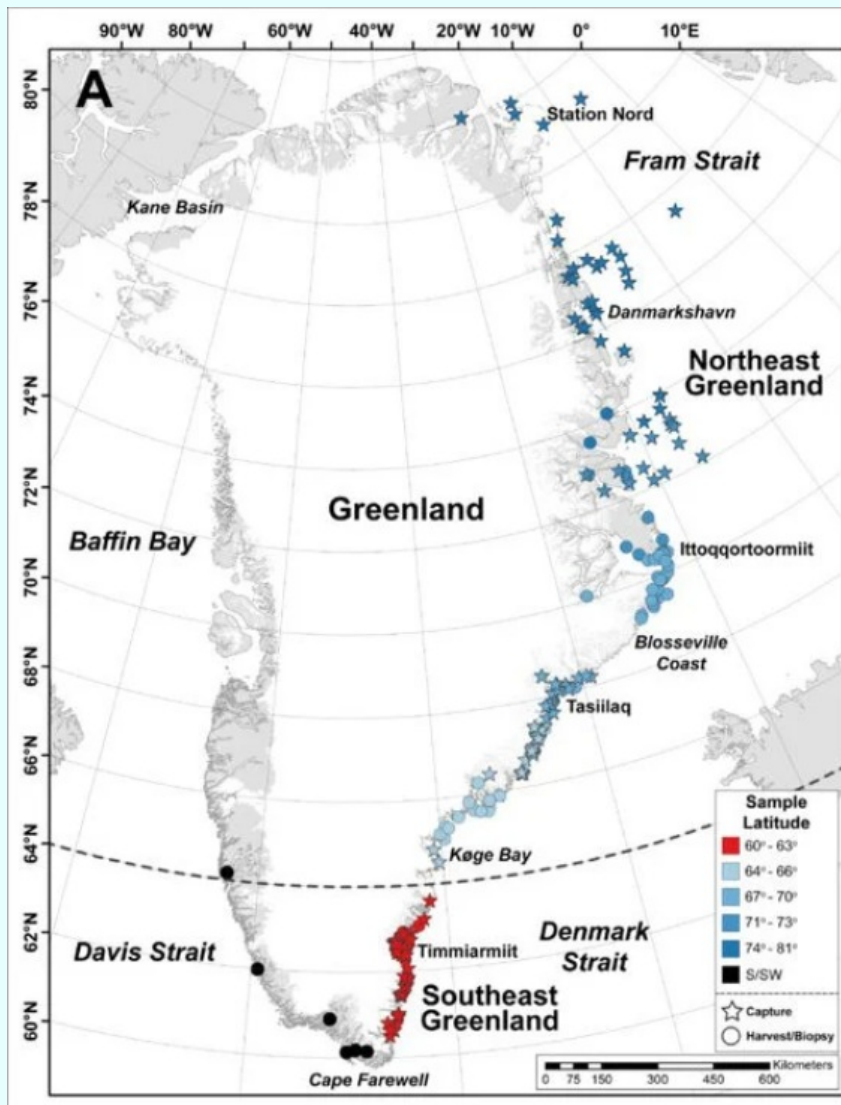
Greenland



In a fascinating new finding, researchers have discovered an isolated and highly genetically distinct population of polar bears in southeast Greenland that, unlike all other members of their species, have adapted to hunt without sea ice. "They are the most genetically isolated population of polar bears anywhere on the planet," [said renowned genetics researcher Dr. Beth Shapiro, coauthor of the new study](#). "We know that this population has been living separately from other polar bear populations for at least several hundred years, and that their population size throughout this time has remained small."

"We wanted to survey this region because we didn't know much about the polar bears in Southeast Greenland, but we never expected to find a new

subpopulation living there," [added lead author Dr. Kristin Laidre](#). "We knew there were some bears in the area from historical records and Indigenous knowledge. We just didn't know how special they were."



[These bears' corner of southeast Greenland \(pictured, red dots on the map\)](#) is far south enough that it only gets 100 days of sea ice per year. Most polar bears use sea ice exclusively as their platform from which to hunt seals, and were previously thought to not be able to live in such conditions. But this populatio has adapted to use "[glacial mélange](#)," the chunks of freshwater ice breaking off the melting Greenland Ice Sheet, as a hunting platform. This is very heartening for the future of the species, because there may not be much sea ice left in

the Arctic by 2100, but there's almost certainly still going to be some glaciers still left. (The Greenland Ice Sheet is melting historically fast due to climate change, [even faster than predicted](#), but even under worst-case scenarios it would take hundreds of years to fully melt and that could be [pushed back by 5000 years if we address emissions this century](#)). The rest of Greenland, and other Arctic glacial locations like Svalbard, might well look like this low-sea-ice part of southeast Greenland in the near future, and it's good to know that it's possible for polar bears to live in that kind of habitat.

There are also several other interesting findings in the study that support the nation that these polar bears could have created a new *modus vivendi* for their kind. They've been observed scrambling over mountains to get from fjord to fjord, another unusual but potentially helpful behavior. And genetics data suggests that two polar bears among them might be immigrants from the northeastern Greenland subpopulation, and they seem to be perfectly competent at hunting on glacial mélange, raising the tantalizing possibility that individual polar bears can learn these flexible ways as adults. Overall, a fascinating and hope-inspiring discovery!



Clean Energy

Clean energy just continues to surge ahead, from the policies to the technologies. There's more and more news every week!

The **European Union** has [doubled down on clean energy](#) in response to Putin's brutal invasion of Ukraine, sustained in large part by Russia's fossil fuel revenues. As sporadically covered in this newsletter, governments have been making new commitments to and investments in renewables left and right. As of early June, 19 governments had accelerated their decarbonization plans, [raising the projected share of renewables in EU electricity from 55% by 2030 to 63% by 2030 and decreasing planned fossil fuel generation in 2030 by 31%](#) compared to the plans as of 2019. [For a rundown of all the sweet, sweet new energy policies, check out think tank Ember's report.](#)

China's [CO2 emissions fell 1.4% in the first quarter \(first three months\) of 2022](#), continuing falls in Q3 and Q4 2021. That's the longest drop in a decade. And China's also [on track to install a massive 108 gigawatts of new solar power in 2022, up from 54.88 GW in 2021](#). (Ethics note: China's regime commits [horrific atrocities](#), but it's still good news for their people and the world that they're accelerating clean energy use).

Current wind, solar, and battery tech is more than good enough to power the world; implementation is now the major bottleneck. But the technology still keeps getting better: researchers have [developed the first viable perovskite solar cell!](#) **Perovskites** [\(a class of mineral compounds\)](#) have many advantages as a material: their crystal structure is good for solar power, and unlike silicon (the current major solar panel material) it can be made flexible and transparent, and furthermore tends to last for 30 years instead of the industry-standard 20. It can also be manufactured into solar cells at room temperature, while silicon requires a 3000 degrees Fahrenheit furnace. The major problem has been that it's also much more fragile and breakable, but the researchers' [new ultra-ultra-thin capping layer](#) seems to have solved that. Spectacular work!



Monarchs

In recent years, scientists have been concerned about the well-being of

monarch butterflies (*Danaus plexippus*, [pictured](#)) as several well-monitored winter colonies in Mexico have shown sharp population declines. However, a [new study published in Global Change Biology](#) drew on 25 years of citizen science data (with over 135,000 individual observations) from



across North America to conduct the most detailed assessment of monarch populations ever. They found that although there are many local areas of decline, there are also many areas where populations are increasing, and they roughly cancel each other out. Analyzing all the data suggests that monarch numbers are actually increasing by 1.36% per year overall, although the error bars on that number are large. "Our question was, 'Are monarchs declining across their breeding range?' The key take home message was yes, monarchs are declining in some places, but increasing in other locations...For example, there are populations now that will overwinter in California, Florida or even southern Georgia because it's become more feasible with increasing winter temperatures," [said study lead author Dr. Michael Crossley](#). "We may see fewer migrants because monarchs are doing well, staying in Florida and not joining the migration [to Mexico]...It seems like breeding monarchs in North America are not in trouble despite winter colony declines." Great news!

The Weekly Anthropocene

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