

## Ecology

## Forest elephants census

## Gabon last bastion of endangered tuskers

PONGARA NATIONAL PARK, Gabon, Nov. 23, (AP): Loss of habitat and poaching have made African forest elephants a critically endangered species. Yet the dense forests of sparsely populated Gabon in the Congo River Basin remain a "last stronghold" of the magnificent creatures, according to new research that concluded the population is much higher than previous estimates.

Counting forest elephants is a far bigger challenge than surveying plains-dwelling savanna elephants from the air. It takes difficult and dirty scientific work that doesn't involve laying eyes on the elusive animals that flee at the slightest whiff of human scent.

Instead, researchers have been trekking for years through dense undergrowth collecting dung from Gabon's forest elephants and analyzing the DNA from thousands of samples to determine the number of individual elephants in each plot of land examined.

Now the survey by the New York-based Wildlife Conservation Society and the National Parks of Gabon, released Thursday, has concluded that the central African country of about 2.3 million people harbors about 95,000 forest elephants.

Previous estimates put the population at 50,000 to 60,000 — or about 60% of the world's remaining African



Stokes

forest elephants.

Herds have nearly been decimated elsewhere in the region Gabon shares with conflict-ridden countries such as Cameroon, Congo and Central African Republic, according to researchers.

Central Africa has the largest number of forest elephants in the world, although figures have fallen by more than 86% over a 31-year period, according to the International Union for Conservation of Nature, which cites increasing threats of poaching and habitat loss.

The latest new survey in Gabon is the "first nationwide DNA-based assessment of a free-ranging large mammal in Africa," according to the researchers. The technology is also being used to count elephants and tigers in India.

"Gabon is quite unique, certainly for forest elephants. But actually across Africa where elephants occur, it's very unique in that ... what we call potential elephant habitat pretty much covers the entire country," said Emma Stokes, the WCS Africa regional director.

## Distributed

"We found elephants were distributed across almost 90% of the total surface area of the country," she said. "And you know, Gabon has forest cover of up to 88% of the country. That's very unusual."

In Gabon, tourists may still see some elephants on the beaches and coastal forests of the Atlantic coast. But, unlike their bigger savanna cousins that roam the plains of southern Africa in abundance, most forest elephants live in dense forests so counting them is painstaking work.

The solution: Trail their dung for genetic material. For three years, research teams would spend a month in the bush, walking 12 kilometers (about 7 miles) a day seeking elephant fecal samples, breaking only for a week at a time.

The team trudged through patches of savanna, thickets, densely wooded wetlands and rivers following elephant tracks marked by broken tree branches, old dung piles and footprints, looking for fresh dung.

"We got some dung here," Fabrice Menzeme, a ranger, shouted after walking for about three kilometers (1.8 miles) in Pongara National Park on the Atlantic coast during fieldwork in 2020. Animated team members rushed in. Upon closer inspection, disappointment followed. The dung was more than a day old.

Researchers want the dung "steaming fresh," Stokes said. "So, it's warm, it's fresh, it has a sheen to it. And the idea is to take the outer surface of that dung pile; a very small amount is needed in purpose-built tubes that are taken out by the field teams."

The fecal swabs were put into small test tubes and taken to a government wildlife genetic analysis laboratory in the capital, Libreville, where scientists extracted DNA from about 2,500 samples collected countrywide.

Extracting DNA from dung samples is "a bit like a cooking recipe, following several steps" to remove vegetation and seeds arising from elephants' diet or bacteria or organisms that develop on the dung, said Stéphanie Bourgeois, a research scientist with the parks agency and co-author of the research paper. "That's why you have to clean them and try to purify your DNA before you do your analysis."

"DNA is unique for every individual, the same for humans as it is for elephants. So DNA is just a tool to help us identify individuals and the number of times we sample each of these individuals," Bourgeois said at the laboratory. "We use a complex statistical model and from this we estimate the number of elephants that are in the area we sampled."

This is Gabon's first nationwide elephant census in 30 years. Only 14% of the elephant habitat in the country had been surveyed in the last decade, according to researchers. Previous surveys relied on dung counts, which can be more expensive, more difficult and less reliable than DNA sampling on large-scale surveys, they said.

## Population

"This is an exciting paper because it substantially raises the population estimates of forest elephants in Gabon and establishes a new, rigorous country-level monitoring methodology," said John Poulsen, associate professor of tropical ecology at Duke University's Nicholas School of the Environment, who was not involved in the research.

"At the same time," Poulsen said, "the government of Gabon now has an enormous responsibility for conserving forest elephants in the face of poaching, and especially human-elephant conflict and crop-raiding."

About 65% to 70% percent of all African forest elephants surviving today live in Gabon, according to Lee White, Gabon's minister of water and forests.

"That's an indication of the fact that Gabon has resisted the slaughter and the tragedy that has played out in the countries around Gabon," said White.

Conservation efforts include massive public awareness campaigns and efforts to deter cross-border poachers.

"You see it around Africa. Countries that have lost their elephants, have lost control of their natural resources, have often actually lost control of their countries," White said. "The countries that have almost no elephants have been through civil wars and are much less stable than the countries that have preserved their elephants."

Still, the minister said, Gabon is facing elephant problems of its own in addition to cross-border poaching for ivory, which he says has declined since China banned ivory imports.

One big problem, he said in an interview at the recent climate conference in Glasgow, is human-elephant conflicts that kill about 10 people a year. "When I go into rural Gabon, I get a lot of angry people who are screaming at me because the elephants have eaten their crops and, tragically, even occasionally have killed their relatives."

One reason elephants are raiding village crops, White said, may be that global warming has dramatically reduced the abundance of forest fruit over the past 40 years. "So, it looks like climate change is starting to impact the forest," he said. "And that means the elephants are hungry."



Cadell Walker comforts her daughter Solome, 9, as nurse Cindy Haskins administers a Pfizer COVID-19 shot at a vaccination clinic for young students at Ramsey Middle School on Saturday, Nov. 13, in Louisville, Ky. Scientists say vaccinating kids against COVID-19 should not only slow the spread of the coronavirus but also help prevent potentially-dangerous variants from emerging. (AP)

## Coronavirus

## Canada approves Pfizer's COVID vaccine for kids

## Jabs for kids help prevent new variants

LOUISVILLE, Ky., Nov. 23, (AP): Cadell Walker rushed to get her 9-year-old daughter Solome vaccinated against COVID-19 — not just to protect her but to help stop the coronavirus from spreading and spawning even more dangerous variants.

"Love thy neighbor is something that we really do believe, and we want to be good community members and want to model that thinking for our daughter," said the 40-year-old Louisville mom, who recently took Solome to a local middle school for her shot. "The only way to really beat COVID is for all of us collectively to work together for the greater good."

Scientists agree. Each infection — whether in an adult in Yemen or a kid in Kentucky — gives the virus another opportunity to mutate. Protecting a new, large chunk of the population anywhere in the world limits those opportunities.

That effort got a lift with 28 million US kids 5 to 11 years old now eligible for child-sized doses of the Pfizer-BioNTech vaccine. Moves elsewhere, like Austria's recent decision to require all adults to be vaccinated and even the US authorizing booster shots for all adults on Friday, help by further reducing the chances of new infection.

Vaccinating kids also means reducing silent spread, since most have no or mild symptoms when they contract the virus. When the virus spreads unseen, scientists say, it also goes unabated. And as more people contract it, the odds of new variants rise.

David O'Connor, a virology expert at the University of Wisconsin-Madison, likens infections to "lottery tickets that we're giving the virus." The jackpot? A variant even more dangerous than the contagious delta currently circulating.

"The fewer people who are infected, the less lottery tickets it has and the better off we're all going to be in terms of generating the variants," he said, adding that variants are even more likely to emerge in people with weakened immune systems who harbor the virus for a long time.

Researchers disagree on how much kids have influenced the course of the pandemic. Early research suggested they didn't contribute much to viral

spread. But some experts say children played a significant role this year spreading contagious variants such as alpha and delta.

Getting kids vaccinated could make a real difference going forward, according to estimates by the COVID-19 Scenario Modeling Hub, a collection of university and medical research organizations that consolidates models of how the pandemic may unfold. The hub's latest estimates show that for this November through March 12, 2022, vaccinating 5- to 11-year-olds would avert about 430,000 COVID cases in the overall US population if no new variant arose. If a variant 50% more transmissible than delta showed up in late fall, 860,000 cases would be averted, "a big impact," said project co-leader Katriona Shea, of Pennsylvania State University.

Delta remains dominant for now, accounting for more than 99% of analyzed coronavirus specimens in the United States. Scientists aren't sure exactly why. Dr. Stuart Campbell Ray, an infectious disease expert at Johns Hopkins University, said it may be intrinsically more infectious, or it may be evading at least in part the protection people get from vaccines or having been infected before.

## Evidence

"It's probably a combination of those things," he said. "But there's also very good and growing evidence that delta is simply more fit, meaning that it's able to grow to higher levels faster than other variants that are studied. So when people get delta, they become infectious sooner."

Ray said delta is "a big family" of viruses, and the world is now swimming in a sort of "delta soup."

"We have many lineages of delta that are circulating in many places with no clear winners," Ray said, adding that it's hard to know from genetic features which might have an edge, or which non-delta variants might dethrone delta.

"I often say it's like seeing a car parked on the side of the road with racing slicks and racing stripes and an airfoil on the back and a big engine," Ray said. "You know it looks like it could be a real contender, but until you see it

on the track with other cars, you don't know if it's going to win."

Another big unknown: Dangerous variants may still arise in largely-unvaccinated parts of the world and make their way to America even as US children join the ranks of the vaccinated.

Walker, the Louisville mom, said she and her husband can't do anything about distant threats, but could sign their daughter up for vaccination at Jefferson County Public Schools sites on a recent weekend. Solome is adopted from Ethiopia and is prone to pneumonia following respiratory ailments after being exposed to tuberculosis as a baby.

She said she wants to keep other kids safe because "it's not good to get sick."

As a nurse leaned in to give Solome her shot, Walker held her daughter's hand, then praised her for picking out a post-job sticker appropriate for a brave kid who just did her part to help curb a pandemic.

"Wonder Woman," Walker said. "Perfect."

## Also:

**HALIFAX, Nova Scotia:** Canada's health regulator approved Pfizer's kid-size COVID-19 shot on Friday and announced it will allow Canadians returning from short trips abroad to use a quicker, less-expensive test for the coronavirus.

Health Canada authorized the shots for children ages 5 to 11. And as in the US, the doses will be just a third of the amount given to teens and adults.

But Canada's National Advisory Committee on Immunization has suggested that the country's provinces, which administer health care in the country, offer the two doses at least eight weeks apart.

In the US 5- to 11-year-olds receive two low doses, three weeks apart, the same schedule as everyone else in the US. Canada had problems getting vaccines into the country early this year and delayed a second dose for adults until more supply came in, but Canadian officials say delaying a second dose provides better protection.

"A longer interval between doses leads to stronger immunity," said Howard Njoo, the deputy public health officer of Canada.



A woman bathes her daughter in the Yamuna River, covered by a chemical foam caused by industrial and domestic pollution as the skyline is enveloped in toxic smog, in New Delhi, India, Wednesday, Nov. 17. (AP)



McCarron

McVey

## Discovery

## Space telescope launch delayed:

The European Space Agency says the launch of a new NASA telescope to replace the famed Hubble observatory is being postponed to allow experts to check the device for possible damage following an incident at its spaceport in French Guiana.

The ESA said in a statement late Monday that technicians had been preparing to attach the James Webb Space Telescope to a launch vehicle adapter when a clamp band suddenly loosened, jolting the delicate observatory.

"A NASA-led anomaly review board was immediately convened to investigate and instituted additional testing to determine with certainty (that) the incident did not damage any components," ESA said. "NASA and its mission partners will provide an update when the testing is completed at the end of this week."

ESA said the telescope will now launch aboard an Ariane 5 rocket no earlier than Dec 22 — four days after the original planned liftoff date of Dec 18. (AP)

**Biologists remove 'jug' on bear:** A bear cub wandering around a North Carolina neighborhood with a jug stuck on its head is running free in the forest again thanks to wildlife biologists and some observant residents.

Wildlife biologists with the NC Wildlife Resources Commission spent two days searching for the bear cub, according to a news release. The commission said the bear likely got stuck while going through some trash and was wandering around an Asheville neighborhood.

District Biologist Justin McVey got the initial report about the bear on Monday night. Commission officials reached out to the public to help identify its location.

McVey said a combination of responses to a message posted to NextDoor by the commission and direct calls to biologists, local residents led personnel directly to the bear cub.

The bear was anesthetized before the jug was taken off its head. Biologists performed a health check before relocating it to a remote area in western North Carolina. (AP)

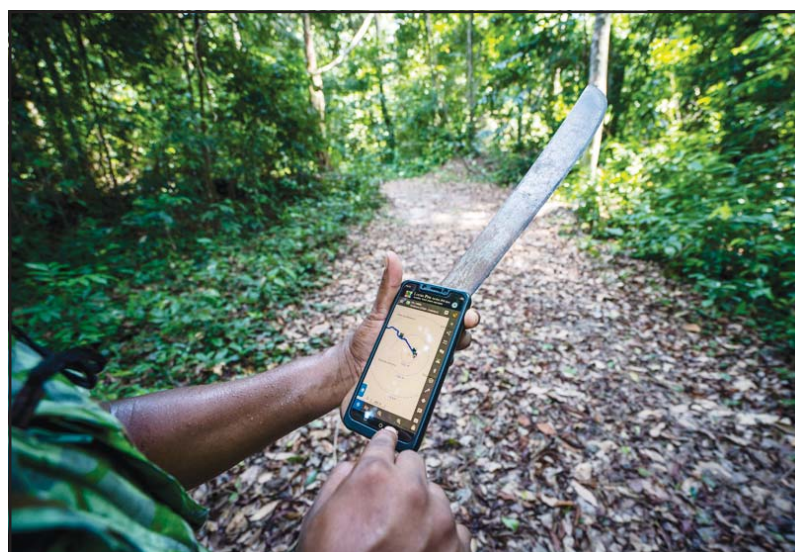
**'Ban on lobster fishing':** A US appeals court has reinstated a ban on lobster harvesting in hundreds of miles of productive fishing waters off the Maine coast to try to protect rare whales.

The Maine Lobstering Union had won

emergency relief to stop the closure of lobstering grounds, which federal regulators ruled was needed to help protect endangered North Atlantic right whales

from extinction.

But the 1st US Circuit Court of Appeals ruled that the closure is back on. Removing the ban prevents the government



A Park ranger uses a GPS in Gabon's Pongara National Park dense forest to track forest elephant, on March 09, 2020. Gabon holds about 95,000 African forest elephants, according to results of a survey by the Wildlife Conservation Society and the National Agency for National Parks of Gabon, using DNA extracted from dung. (AP)

from performing its task of protecting the whales from death by entanglement in gear, the court ruled.

The government's role is "assuring the right whales are protected from a critical risk of death," the court ruled.

The whales number less than 340 and are vulnerable to lethal entanglement in fishing gear and collisions with large ships. The New England lobster fishery has had to contend with a host of new restrictions to try to protect the whales. The new rules make an approximately 950-square-mile area of the Gulf of Maine essentially off limits to lobster fishing from October to January.

The appeals court's ruling sent the case back to the US district court level to resolve any disputes that concern the removal of the banned gear from the restricted area. Previously, the district court ruled there was not enough evidence the whales gather in the area with enough frequency to render it a whale "hot spot."

The Maine Lobstermen's Association will continue to fight the fishing restrictions in court, said Patricia McCarron, the group's executive director.

"Nevertheless, it foreshadows the grave future our lobster fishery faces if NMFS's 10-year whale plan is not rescinded in favor of a plan based on science," McCarron said. (AP)