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FRONTLINE DISPATCHES - JULY 2020 VOL II, NO. 7

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North & South America



California's Academy of Sciences BigPicture Photo Competition celebrates some of the world's most striking nature and conservation images in hopes of inspiring viewers to protect and conserve the diversity of life on Earth. *Biographic* presents this year's 12 winning [photos](#).

High-tech help for Smokey the Bear. A team from Michigan State University has built a forest-fire detection and alarm system powered by the movement of tree branches in the wind. As [reported](#) on June 24 in *Advanced Functional Materials*, "The self-powered sensing system could continuously monitor fire and environmental conditions without requiring maintenance after deployment."

Hunting for game wardens: a shortage of conservation officers threatens wildlife, says a recent [story](#) in *The Revelator*. US states need help to protect natural resources and wildlife and several factors, including declining numbers of qualified applicants, long hours, low wages and rural locations, contribute to the dearth of game wardens. COVID-19 budget cuts will make this worse.

The Nature Conservancy has bought two miles on the Virgin River for \$4.3 million, [reported](#) *The Salt Lake Tribune* on June 2. The purchase, near Utah's Zion National Park, will protect four of the river's six at-risk native fish species and other wildlife including migratory birds.

Composting carcasses on ranches keeps both livestock and predators alive, says a June 11 *Mountain Journal* [article](#). Removing cattle carcasses provides fewer free meals for wolves, mountain lions and bears and reduces conflict.

Louisiana's coastal habitat is being rebuilt 10 years after the Deepwater Horizon oil spill in the Gulf of Mexico. State and federal agencies are immersed in more than \$250 million worth of restoration projects funded by penalties, according to a June 9 [post](#) on the Theodore Roosevelt Conservation Partnership website. The BP oil spill killed 100,000 birds and was the highest-profile case brought under the US Migratory Bird Treaty Act. But, as [noted](#) in *Dispatches* in March, the Trump Administration plans to scale back the century-old law, which protects more than 1,000 species.

US national parks receive 1,000+ tons of plastic dust annually, according to a June 11 [article](#) in *Science*. Many of the microscopic bits—from carpets, clothing, spray paint, etc.—may come from storms passing over nearby cities. The findings add to mounting evidence that microplastic pollution is common worldwide.

Mule deer are hypersensitive to oil & gas development. A U. of Wyoming [study](#) in the *Journal of Wildlife Management* on June 10 shows that mule deer's use of migration corridors declined sharply when disturbance from oilfield roads and well pads surpassed 3% of the surface. Similar thresholds likely vary across development types—wind, solar, residential, etc.—as well as regions. the next steps will be identifying disturbance thresholds for migrating pronghorn and wintering mule deer.

Sea otters are worth more than they eat, according to a University of British Columbia [study](#) published in *Science* on June 11. Since their re-establishment on the Pacific coast in the 1970s, sea otters' appetite for shellfish has caused conflict with people who rely on these fisheries. But the long-term benefits of otter recovery—healthier kelp forests, higher fish catches, carbon storage and tourism—could offset commercial losses by \$7 million per year.

Fast, agile aerial drones can keep up with young bluefin tuna in the Gulf of Maine while measuring individual fish lengths and widths, and the distance between fish, to less than a centimeter. The [findings](#) were released by the Northeast Fisheries Science Center in Woods Hole, Massachusetts, on June 5. Highly migratory species like bluefin tuna often move faster than boats trying to sample them, so this may be a breakthrough in collecting data on this important fish.

Ecuadorian communities are conserving the Amazon forest through sustainable agroforestry. Some 55,000 Kichwa people inhabit more than 1 million hectares (2.5 million acres) of rainforest threatened by fire, cattle, roads, slash-and-burn agriculture, human settlement, logging, mining and oil & gas extraction. New, unique market-based approaches to conservation are diversifying their income while protecting their home, [reported](#) Mongabay.com on May 20.

From Mexico to Argentina, jaguar poaching is on the rise. A [study](#) in *Conservation Biology* and a June 11 *New York Times* [article](#) review the illegal trade in jaguar parts and link Chinese investors to the trafficking of the species.

Europe



The CIC's latest e-zine covers the impact of the pandemic on wildlife conservation and hunting. Read the publication—from the International Council for Game and Wildlife Conservation—online in [English](#), [German](#) or [French](#).

The Forestry & Wildlife Dept. of the Province of Trento in northern Italy has published an annual large-carnivore report since 2007. Its 2019 [Large Carnivores Report](#) gives detailed information on bear, wolf and lynx in Trentino and related management issues in connection with cross-border management of meta populations of these predators. More information on

the protection and management of large carnivores in modern Europe is at [KORA Carnivore Ecology and Wildlife Management](#).

Bulgaria's court has suspended Pirin National Park's new management plan, which would have allowed construction in 66% and logging in 48% of the park, [reported](#) the *Green Times* on May 5. In “a victory for nature and the rule of law,” the court ruled that the plan's omission of environmental impact assessments is illegal. Covering some 40,000 hectares (98,800 acres) in southwest Bulgaria, Pirin, which is also a World Heritage Site, is an uplands ecosystem. Its coniferous forests shelter the oldest tree on the Balkan peninsula—a 1,300-year-old Bosnian pine—as well as populations of brown bear, grey wolf, chamois and 159 bird species.

The Alpine chamois is one of the few wildlife species that is included in the European Union's Council Directive 92/43/EEC (“on the conservation of natural habitats and of wild fauna and flora”) on the one hand and can be sustainably hunted on the other. A new 75-page study, [Die Gams in Europa](#) (“The Chamois in Europe”) gives a comprehensive overview on the status of the chamois in the EU and Switzerland, and explains chamois monitoring and hunting methods. The study is a joint project of the *Deutschen Wildtier Stiftung* and [CIC](#), the International Council for Game and Wildlife Conservation.

A new carnivore density [study](#) from Finland shows that the national Protected Areas network does not support higher densities than non-protected habitat for three of the four species investigated. The researchers evaluated Eurasian lynx (*Lynx lynx*), gray wolf (*Canis lupus*), wolverine (*Gulo gulo*) and brown bear (*Ursus arctos*) and found that protected areas do not affect population densities for lynx, wolf and wolverine. Hunting carnivores is allowed in Fenno-Scandinavia based on quotas determined through population estimates.

Africa



The pandemic has created a conservation crisis across Africa, say experts from Kenya, Namibia, Tanzania and the US in a May 20 [commentary](#) on Mongabay.com. The loss of nearly all tourism revenue may lead to a surge in poaching and illegal wildlife use, and potentially the conversion of private and community conservancies to other land uses. But the crisis, they write, is also an opportunity to question assumptions, refine existing models and improve conservation practices. How conservationists respond to the pandemic will determine the future of Africa's wildlife.

Kruger Park is "encircled by a ring of human hunger triggered in part by the COVID-19 pandemic," says a May 20 *Daily Maverick* [article](#). Regions of Mozambique and Zimbabwe that border the park on the east and north are suffering acute food shortages. Meanwhile, the labor-intensive tourism sector on the South African side of the park has collapsed.

A silverback gorilla was poached in Bwindi Impenetrable National Park in Uganda. *Africa Geographic* [reported](#) on June 12 that four men were arrested and charged with killing the animal with a spear. The men admitted to poaching small game in the park, but say they killed the gorilla in self-defense when it attacked them.

Hunting is important to land conservation in South Africa, write researchers from universities in South Africa, Australia, Finland and Sweden in a May 22 [study](#) in *Conservation Science and Practice*. A ban on trophy hunting can significantly impact the viability of private properties as well as their biodiversity and the livelihoods that such areas support. Land use change could follow.

A long, thin, pointed bone artifact found in deposits more than 60,000 years old at the Klasies River Main site, along the Eastern Cape coast of South Africa, appears to be an arrowhead. It predates the earliest evidence of bow hunting technology from southern Europe (around 45,000 years ago) and Asia (Timor island, ca. 35,000 years ago) and signals advanced cognitive abilities of *Homo sapiens* such as abstract thought, analogical reasoning, multitasking and the ability to “think outside the box.” The [story](#) is in Vol. 236 of *Quaternary Science Reviews*.

Rhinos are keystone species with essential ecological roles, [explain](#) researchers in *Africa Geographic* on May 20. Along with ample photography, the authors discuss geo-forming, complex food chains and vegetation modification carried out by these mega-herbivores.

Between 2008 and 2018, South Africa exported 422 live cheetahs, with the top three importers being China (101 animals), the US (64 animals) and the United Arab Emirates (47 animals). Between 600 and 1,000 cheetahs are estimated to be in captivity in South Africa, in 80 breeding and tourism facilities. Many breeders say they preserve genetic material and promise to reintroduce cheetahs into the wild, but a *Green Times* [report](#) on May 19 found that only a handful of reintroductions into the meta-population take place annually.

African Parks will manage Matusadona and Iona National Parks. The nonprofit conservation organization has [signed](#) long-term partnership agreements with Zimbabwe and Angola. These are the 16th and 17th parks to enter the organization’s portfolio. Both have extremely high potential for conservation and tourism.

Lion counts are being questioned by a University of Queensland (AUS) researcher who [reports](#) that population and density data based on tracking, audio-lure surveys and “expert solicitation” are not accurate enough to understand lion populations. He proposes a new technique of active searching for lions and then taking high-quality photographs to identify individuals and note their locations through an analytical method known as Spatially Explicit Capture-Recapture. SECR is already being used by the Kenya Wildlife Service.

Asia



Shorebirds and developers want the same real estate. Princeton University researchers studying the loss of migratory shorebirds and tidal flats in the East Asia–Australasia Flyway have discovered that the birds overwhelmingly rely on the upper tidal flats closest to dry land, which are exactly the locations most often lost to development. Their [paper](#), published in June in the *Proceedings of the Royal Society*, calls for integrating upper tidal flats into conservation plans.

A previously unknown market is driving bear trafficking. A team from San Diego Zoo Global has found that pregnant women and young mothers in Cambodia use traditional medicines made with bile and gallbladders from illegally killed bears to treat headaches, abdominal cramps, diarrhea and symptoms of post-partum depression. With wildlife declining across Southeast Asia, understanding this new consumer base is critical, the researchers [write](#) in the *Journal of Ethnobiology and Ethnomedicine* on June 29.

Prints on pangolin scales can now finger poachers and traffickers.

The University of Portsmouth (UK) [announced](#) in June that a team of scientists has been able to lift fingerprints from pangolin scales with 74% accuracy. Now workshops are being held in Africa and Asia to train law enforcement agencies to use the method. Up to 2.7 million pangolins are poached every year, making them the most illegally trafficked mammals in the

world. Pangolin meat is a delicacy in China and Vietnam and the scales are used in traditional Asian and African medicine.

China has removed pangolin scales from its official list of traditional medicines, according to a *Daily Maverick* [report](#) on June 11. Pangolins sold in a Chinese wildlife market were the most likely vector between bats and humans in the COVID-19 outbreak. The removal could shut down pangolin poaching across Africa and Asia and conservationists are calling this “the most significant conservation decision ever made” for pangolins.

Pandemic poaching spiked in South Asia, too. TheThirdPole.net [reported](#) in late May that cranes and other migratory birds were being targeted in Pakistan’s Baluchistan and Khyber Pakhtunkhwa provinces, as were musk deer in Nepal’s Sagarmatha National Park and leopard, one-horned rhinoceros, chinkara, chital deer and other animals across India. Worldwide, as countries went into lockdown, illegal hunting—for profit and for food—has proliferated.

***Elephas maximus*, the Asian elephant, is the lone survivor of its genus.** *Elephas* originated in Africa more than 5 million years ago and then migrated to Eurasia. Today it is found in 13 Asian countries in three subspecies—on the Asian mainland, in Sri Lanka and on the island of Sumatra. There are fewer than 50,000 Asian elephants in the wild and about 15,000 in captivity. African elephants belong to the genus *Loxodonta*; learn more about [Elephas](#) from the International Union for Conservation of Nature’s Asian Elephant Specialist Group.

The oldest-known [banded curlew sandpiper](#) was first netted by the Hong Kong Waterbirds Ringing Group as an adult on April 13, 2002; it was given leg band number NV83515 and released. On March 21, 2020, in Mai Po Nature Reserve, the HKWRG captured it again. Thus it is at least 19 years old now. Since curlew sandpipers breed in the Arctic and winter in Australasia, it is likely the bird has traveled more than 400,000 km (248,000 miles) to date.

World



A toolkit for making decisions around climate change has been developed by the Potsdam Institute for Climate Impact Research. This interactive online [platform](#) can help policy makers, businesses and individuals assess global warming and ways to limit its impact in specific situations. Called the SENSES Toolkit, the platform offers 10 modules (with more to come) that guide the user through climate scenarios, fossil-fuel risks, CO2 emissions, electrification, mitigation and more.

Governments and the WHO are pressed to ban trade in wild animals, but this would criminalize millions of people, says a May 26 [article](#) in *The Guardian* entitled “What does more environmental damage: eating meat from the wild or a factory farm?” Many epidemiologists, ecologists, human-rights and indigenous peoples’ groups say that replacing bushmeat with factory-farmed meat would accelerate wildlife decline and the destruction of the world’s remaining wild lands by undercutting their value.

Beavers are gnawing away the permafrost, “massively changing landscapes in the Arctic.” Thanks to climate change, they are also spreading rapidly into tundra regions where they've never been seen before, creating a host of new bodies of water. This could accelerate the thawing of the permafrost and intensify climate change, a American-German research team [reports](#) in *Environmental Research Letters* on June 29.

Community management of natural resources in Mexico, Guatemala, Nepal and Namibia demonstrates that sustainable and inclusive development is possible. A [study](#) by the Center for International Forestry Research picked out the factors for success: In Mexico they studied communally farmed lands known as *ejidos*; timber, other forest products such as food and medicine, and ecotourism in the Maya Biosphere Reserve in Guatemala; community forestry in Nepal; and the 83 registered communal conservancies in Namibia.

The 2020 Whitley Fund for Nature award [winners](#) are Patricia Medici, head of the Lowland Tapir Conservation Initiative in Brazil, and six other conservation leaders, who work with the rare Hirola antelope in Kenya, the helmeted Hornbill in Indonesia, Nigeria's rare chimpanzees, black lion tamarins in Brazil, South African amphibians and musk deer in Bhutan. Each receives £40,000 (\$50,000) in project funding.

The UN Environment Programme's 2020 edition of "[The State of the World's Forests](#)" is now downloadable as a PDF. This 214-page document, subtitled "Forests, Biodiversity and People," summarizes the prevailing state of global forests and notes that solutions that balance conservation and sustainable use are critically needed and still attainable.

Almost 10 million acres of tropical forest was destroyed in 2019, per a June 2 *New York Times* [article](#) titled "Going in the Wrong Direction." This was about 3% more loss than in 2018 and released more than 2 billion tons of carbon dioxide—more than the emissions from all on-road vehicles in the US in a typical year. Brazil alone was responsible for more than a third of the global loss.

Surviving forests hold younger, shorter trees thanks to increased carbon dioxide and more frequent and severe disturbances such as wildfire, drought, wind damage and logging. This dramatic decrease in the age and stature of forests has broad impacts on global ecosystems, according to a May 29 [study](#) in *Science*.

What forest loss means to biodiversity. Using 5 million records collected over 150 years of biodiversity research at more than 6,000 locations around the world, a new [study](#) from the Universities of Edinburgh and St. Andrews—published in June in *Science*—details how plants and animals respond as tree cover is lost. Forests support around 80% of all land species, and their loss amplifies both gains and losses in different species as well as in biodiversity overall.

Can a forest be a risky investment? As governments invest in forests—by reforestation and preventing deforestation, to soak up carbon dioxide—they must also consider the risks to those investments. These include fire, insect infestations, drought and severe storms, often exacerbated by climate change itself. A University of Utah [paper](#), published in June in *Science*, and [video](#) explain the challenges.

Motivate tourists to drive conservation, argues a new [study](#) from the University of Helsinki, which found that wildlife-based tourism operations often fail to provide information on conservation, much less opportunities for tourists to engage in conservation action. The study offers a number of suggestions: promote positive messaging, provide actionable information, engage tourists in research and practice, link experience with consumption choices and foster long-term interactions. Visitors' emotional engagement with wildlife can empower them to take action.

Cement must clean up its act, says a May 23 [article](#) in the Sierra Club magazine. Making cement into concrete requires very high temperatures and the chemical reaction releases CO₂. In 2018, CarbonBrief [found](#) that if the cement industry were a country, it would be the third-largest producer of greenhouse gases on Earth.

High-tech tools for future farming include artificial meat, nano-drones, self-fertilizing crops, soil sensors and dozens more innovations that have been identified as keys to transforming our global food system and reducing its environmental impact. The list and [discussion](#) are at *Nature Food*.

Some of the world's largest, least known animals are disappearing, finds a June 9 [study](#) in *Frontiers in Ecology and Evolution*. The Tibetan wild yak, Patagonia's huemul, Bhutan's takin and Vietnam's saola are nearly gone. According to the lead author, "For many assemblages of animals, we are nearing a moment in time when, like Humpty Dumpty, we will not be able to put things back together again." Humans and domestic animals now comprise 97% of the planet's animal biomass.

The pace of extinctions is accelerating. In 2015, Stanford biologist Paul Ehrlich coauthored a study declaring the world's sixth mass extinction was underway. Five years later, Ehrlich and colleagues say the extinction rate is likely much higher than previously thought and is degrading nature's ability to provide vital services to people. Their [video](#) and a new [paper](#), published last month in the *Proceedings of the National Academy of Sciences*, reports that the

wildlife trade and other human impacts have wiped out more than 500 species of land vertebrates—a loss that would have taken 10,000 years to occur naturally—and that about 500 more could be lost in the next two decades as human activities accelerate extinctions toward a critical tipping point.

Losing 20 species per year would be an improvement, according to researchers who propose this as a [goal](#) for a global nature rescue plan. Scientists from the Karlsruhe Institute of Technology point to the Paris Agreement’s climate target (to hold the global average temperature increase to “well below 2°C above preindustrial levels”) and propose an analog for conservation: to reduce species extinctions to only 20 per year for the next 100 years. This is 10 times the background (*i.e.*, prehistorical) rate of extinction for some two million known species (all fungi, plants, invertebrates, and vertebrates) and corresponds to about 20 extinct species per year. After 100 years, the target should be to return extinctions to prehistoric rates.

The Arctic Ocean is turning acid even more quickly than feared as it absorbs more manmade CO₂ from the atmosphere than predicted by most climate models. This is likely to significantly impact the entire Arctic food chain up to fish and marine mammals. The [report](#), by Swiss and French climate scientists, was published in *Science* in June.

In the Antarctic, a million square km of summer sea ice has disappeared in just five years—an area twice the size of Spain. The [findings](#) appeared in June in the journal *Geophysical Research Letters*. Sea ice provides habitat for many species, including penguins and seals, and helps drive critical oceanic currents.

And finally, as you reach for a drink: Humans, chimpanzees, bonobos and gorillas have an unusually high tolerance for alcohol because of a shared genetic mutation that allows us to metabolize ethanol 40 times faster than other primates. But most other mammals do not possess the mutation and in some species, including elephants, dogs and cows, the ethanol-metabolizing gene has lost all function, says an April [study](#) in *Biology Letters*.



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