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We must put an end to wildlife trafficking and unsustainable wildlife trade

We dig up a plant here, trap a turtle there. We humans are one voracious species, taking what we want from the wild to meet our needs and satisfy our desires—and much of our consumption is illegal. Wildlife trafficking is a lucrative business, raking in an estimated \$7 to \$23 billion every year.

Here in the United States, we conveniently point to other countries as the traffickers, the black-market traders—but in truth, the United States is a big player. We're one of the largest—if not *the* largest—consumers of trafficked wildlife and products. Millions of pounds of live animals—and meat, fins, feathers, shells, and plants—stream into and out of our country every year.

Wildlife trafficking and unsustainable trade have dire consequences for the natural world; scientists point to our direct exploitation as the second leading cause of the catastrophic disappearance of other species. Trafficking puts

individuals and entire societies in extraordinary danger, as well. As we ransack nature, we jeopardize our own security, undermine the rule of law, and threaten local economies that rely on nature.

And wildlife trade spreads disease. Researchers believe that the novel coronavirus now threatening the entire planet likely jumped to us through close interactions between humans and wildlife. And, this isn't the first time we have suffered for our actions: SARS, Ebola, and HIV all likely rose because we exploited nature, including taking threatened and endangered species from the wild.

Strong, responsible wildlife policies and adequate funding for conservation initiatives are necessary to protect our health and communities, and even our future. We must put an end to wildlife trafficking and unsustainable wildlife trade. The time to act is now.

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Meat, fins, and extracts are in many consumer goods

Scalloped hammerhead shark

Sphyrna lewini

Scalloped hammerhead sharks live in warm waters around the world. They are named for the distinctive notches on their hammer-shaped head that look like scalloping on a seashell. And that head is loaded with unusual sensors, including eyes that see 360 degrees and specialized cells that detect electrical charges of prey. They are social sharks and often swim in impressive groups of more than 100.

Instead of bones, sharks have pliable cartilage. With no shark bones to study, scientists examine their teeth—and they have a lot of those, rows and rows of them. When a shark tooth wears out, it falls out, and dozens do, every day. A long-lived shark may go through more than 30,000 teeth in its lifetime. Sharks are apex predators, at the top of their food

chain, and play an important role in their ecosystem by keeping species lower on that chain in check. They prey on boney fish and crustaceans, and they particularly

like stingrays.

True

cost

Up to

98% lost

Four separate populations of scalloped hammerheads in U.S. waters are protected under the Endangered Species Act, but one is not, and that unprotected population is found in lucrative commercial fishing grounds. Swimming in those waters, and without legal protections, puts that population at heightened risk. The biggest threat to sharks worldwide, and certainly to the scalloped hammerhead, is that they are caught and killed in commercial fishing gear meant to catch other fish, like tuna or swordfish. Scalloped hammerhead sharks—and many other prized sharks—are also commonly caught as gamefish in sport fishing.

Meat, fins, and extracts from scalloped hammerheads are in many consumer goods—ground into pet food, and used in lip balm, sunscreen, anti-aging creams, and more. Even though most of these hammerheads are protected by law, their meat ends up on menus, often mislabeled as coming from another type of shark. A full 5 percent of fins used in Chinese shark fin soup comes from hammerheads.

Markets and trade are about supply and demand, and when it comes to sharks, our demand is high. But the supply is limited, and unless we take aggressive action, the scalloped hammerhead may be swimming to extinction.

POPULATION: Unknown, but in decline

STATUS: Threatened (2 populations) / Endangered (2 populations); Critically Endangered, IUCN Red List

RANGE: Temperate and tropical ocean waters worldwide

HABITAT: Over continental shelves and nearby deep waters







Pangolin

Manis crassicaudata, M. culionensis, M. javanica, M. pentadactyla, Phataginus tetradactyla, P. tricuspis, Smutsia gigantea, S. temminckii

Pangolins are the most trafficked mammal on the planet; all eight species are classified by the International Union for Conservation of Nature as vulnerable to critically endangered. Populations are not monitored uniformly, but data and trafficking patterns suggest that all of them are in sharp decline.

Pangolins live in diverse habitats—tropical forests to arid deserts—in southern Asia and sub-Saharan Africa. They are the only species in their order (Pholidota) and the only mammal with scales. While they look like cousins of an armadillo or anteater, their closest relatives are in the order Carnivora—cats, dogs, and bears. Pangolins are toothless

insect eaters, preferring only a few kinds of bugs—some eat just ants and termites.

A pangolin's sticky tongue, longer than its body, retracts deep into the pelvis when it isn't deep in a termite mound. Lacking ears and having poor eyesight, they rely on their sense of smell. They are muscular and low-slung, and the largest species can reach two to three feet in length and weigh 70 pounds. When frightened, a pangolin rolls into a tight ball, with its keratin scales as nearly impenetrable armor.

Pangolins are primarily nocturnal, solitary mammals. They meet only to mate, and their reproduction rate is low; African species give birth to a single offspring, while Asian species produce one to three. Captive pangolins may live up to 20 years, but we don't know their lifespan in the wild.

Pangolins, primarily their meat and scales, are coveted commodities on a thriving black market that is largely unchecked, in spite of a proxy ban on international trade. Pangolin meat is highly sought after, especially in Asia,

where it's considered a sign of wealth. Scales are heavily used in traditional medicine, primarily in China and Vietnam. As Asian pangolin populations decline, populations in Africa are increasingly at risk of exploitation; several of the pangolin species may decline by as much as 50 to 80 percent over the next three generations. And the United States is not an innocent bystander—a significant portion of demand stems from this country. Meanwhile, only one pangolin species is protected under the Endangered Species Act; the remaining seven have been waiting since 2015 to receive protections, too.

True
cost
50-80%
lost

POPULATION: Unknown but in marked decline

STATUS: IUCN Red List: Individual species listed as Vulnerable, Endangered, Critically Endangered; one endangered under ESA

RANGE: Sub-Saharan Africa and southern Asia, including all of India

HABITAT: Tropical forests to grassy savannahs and arid desert regions







A favored bird of the illicit chuparosa trade

Rufous Hummingbird

Haliotis kamtschatkana

In the dark world of illicit trade over the U.S./Mexico border, hummingbirds pay with their lives. They are smuggled here as chuparosas, Latin American love charms steeped in spirituality and tradition. A chuparosa wraps together spices, potions, and the dried body of a tiny, glittering hummingbird. And why this bird? Its search for sweetness never ends.

Rufous hummingbirds, a favored bird of chuparosa trade, weigh in at about an eighth of an ounce. For as fragile as they might seem, though, hummingbirds have extraordinary endurance. Some migrate as much as 4,000 miles, from nesting grounds in southeastern

Alaska and the Pacific Northwest to winter homes in the highlands of south-central

Mexico—one of the longest migrations, relative to body size, of any bird in the world. Like all hummingbirds, the rufous feeds almost continuously on nectar and insects to support its high energy output. In normal flight, its wingbeat rate is about 50 to 60 beats per second. During a courtship flight, that rate can skyrocket to 200 beats per second. And those beating wings hum—they *hum*.

Many of us know the joy of seeing a rufous hovering at a backyard feeder or flowerbed, but they are disappearing—their population plummeted by 62 percent between 1966 and 2014. The rufous faces serious challenges—climate change, development, intensified agriculture, and pesticides and invasive species all imperil it. And then there's the chuparosa trade for which hummingbirds—potentially thousands of them—are captured and killed every year.

Even though trafficking a hummingbird is a federal crime—they are protected by the Migratory Bird Treaty Act and the anti-smuggling provisions of the Lacey Act—the chuparosa trade is not just a back-alley business: It's now commercialized, with tubes of hummingbird cadavers sporting "Made in Mexico" stickers. Until about a decade ago, the trade was so secretive that federal government officials didn't even know it existed. By 2019, the Fish & Wildlife Service had examined some 800 confiscated chuparosas—likely a small fraction, though, of the real number traded.

These beautiful birds that have hummed in backyards for decades are slipping toward endangerment, and must be protected from illegal trade and trafficking.

POPULATION: Estimated at 19 million but in decline

STATUS: Protected under Migratory Bird Treaty Act and Lacey Act

RANGE: Southeastern Alaska through the western United States to south-central Mexico

HABITAT: Shrubby clearings, meadows, oak-pine forests to midelevation



cost





Diamondback terrapin

Malaclemys terrapin

Diamondback terrapins are the only turtles in the world that live exclusively in brackish waters. They are found in tidal marshes and estuaries along the Gulf and Atlantic coasts from Texas through the Florida Keys and north to Cape Cod. While their range extends throughout this very long but narrow slice of coastline, individual terrapins are homebodies; they don't migrate or travel much. They are named for their shells' distinctive diamond patterns of ridges.

Terrapins eat small fish and invertebrates with relatively soft shells, like aquatic snails and fiddler crabs. Females often have stronger jaws and can eat hard-shelled mollusks, too. As top predators in estuaries, terrapins play an important role

in protecting salt marsh ecosystem functions.

Terrapins are strong and muscular, with webbed feet for swimming, and they spend most of their lives in the water. Indeed, diamondback terrapins only come on land to breed in the spring. Females lay one to three clutches each year—ranging from 1 to 20 eggs—and hatchlings emerge in two to three months. Only a small number of eggs hatch and survive to adulthood, so it is critical that adult terrapins live long lives and have the opportunity to lay many eggs.

Terrapins can live up to 40 years, but that life is not always easy. While they are impacted by a number of threats today—climate change, propeller strikes, crab traps—terrapin populations have been decimated by the legal and illegal wildlife trade. Through the mid-1800s into the 20th century,

terrapin soup surged in popularity in the United States, resulting in staggering harvests. While that soup largely disappeared from dinner tables, the terrapin's population never rebounded.

There is a high demand for terrapins as pets, both in the United States and abroad, and some Asian countries still use them for meat and traditional medicine. Most states ban commercial terrapin trapping, but Louisiana and Delaware still allow it. High demand has prompted illegal trapping; poachers have been apprehended with thousands of illegally taken specimens.

In addition to cracking down on traffickers, we can give terrapins a fighting chance by relieving other threats, too—coastal habitat loss, mortality in crab pots, road kills, and climate change.

POPULATION: Unknown but in decline

STATUS: Endangered (Rhode Island); Threatened (Massachusetts); IUCN Near Threatened

RANGE: Texas Gulf Coast through Florida Keys to Cape Cod

HABITAT: Brackish tidal marshes and estuaries



95-99%

lost



not a roadside exhibit



Tiger

Panthera tigris

Tigers are the largest cats to prowl the planet; a Bengal or Siberian male may push 800 pounds. These solitary cats roam large territories—a home range can cover hundreds of square miles. While tigers may breed throughout the year, spring is peak birthing season, and litters of three to four are common. Apex predators, tigers are at the top of their food chain and help maintain critical ecosystem balance.

Tigers were once found from eastern Turkey to the coast of Japan, but their range is now just 4 percent of what it was. Their population has declined dramatically too. One hundred years ago, there were about 100,000 tigers in the wild; fewer than 4,000

are left. In fact, more tigers live in captivity in the United States than remain in

the wild worldwide.

We've caged tigers for centuries, using them to symbolize power and entertain us. In the United States, most tigers live in extreme confinement in roadside exhibits, pseudo-sanctuaries, traveling shows, and even backyards. They are often exploited for photo-ops and pay-to-play displays, which rely on speed breeding and abuse of mothers and cubs. Once a tiger ages out of a petting zoo—at about 3 months old—it may be warehoused and used to breed more cubs, sold off to a collector, or even killed. Evidence suggests that they're traded illegally, too; their skins, teeth, bones, and other body parts are in high demand in international markets.

Tiger poaching and trafficking are lucrative businesses, and perpetrators face few consequences. The availability of U.S.-bred tigers in the wildlife trade could help sustain a market that also drives poaching of wild tigers, and

all of this is pushing tigers toward extinction. The United States needs new laws to prevent tigers from being kept as pets or petting zoo novelties. Captive tigers should live out their lives in qualified sanctuaries, with no handling by the public, and conservation efforts should focus on protecting wild tigers and native habitats. In the meantime, individuals should never pay to pet a tiger, whether in the United States or abroad.

POPULATION: Fewer than 4,000 remaining

in the wild

96% lost

STATUS: IUCN Red List: Endangered,

Critically Endangered (Malayan and Sumatran

subspecies)

RANGE: Portions of Siberian, India,

and Sumatra

HABITAT: Temperate to subtropical and

tropical forests





Venus flytrap

Dionaea muscipula

Snap! This carnivorous plant can close its trap in the blink of an eye—just one tenth of a second. Venus flytraps prefer bugs that crawl—only about 5 percent of their diet is bugs that fly. If a crawling bug touches two trigger hairs in quick succession, that trap snaps shut. Digesting a bug takes about 10 days, leaving no edible leftovers.

The Venus flytrap is found only in southeastern North Carolina and northeastern South Carolina—a small area in a 75-mile radius of Wilmington, NC. And just as the flytrap's range is small, their headcount is, too. More than 4 million lived in the wild 50 years ago, but only about 800,000 remain today—a 80 percent decline since 1979.



A single specimen might live for about 20 years if left untouched, but the Venus flytrap faces significant challenges. Habitat loss due to wildfire suppression, commercial and residential development, and recreation are major threats throughout its range. The flytrap relies on cyclical wildfires to suppress competing plant species, but without adequate seed dispersal outside the fire zone, new colonies can't achieve critical mass.

And they are directly imperiled by us—collecting them from the wild puts these plants at significant risk. It's been illegal to harvest flytraps in North Carolina since 1956, and in 2014, the state made poaching them a felony. These popular houseplants are easy to grow legally in a nursery, but the black market for them is thriving. In fact, customs agents at Baltimore-Washington International Airport once intercepted a suitcase containing 9,000 poached flytraps bound for the

Netherlands. Many populations are monitored by cameras now, but the poaching continues.

If you're on the hunt for a flytrap, head to a reputable nursery or garden center and don't look at just one—examine a whole tray of them. Nursery-grown plants will be relatively uniform in size and potted in commercial soil, and they won't be sharing that soil with weeds. And if you live in North Carolina, buy a Venus flytrap license plate; proceeds will go to conservation groups protecting these imperiled plants.

POPULATION: About 800,000

STATUS: Not listed for protections

RANGE: Southeastern North Carolina and

northeastern South Carolina

HABITAT: Longleaf pine forests with sandy

soil and ample sun





Yellow-headed Parrot

Amazona oratrix

Bright green with a yellow head, this parrot is striking. Quick to learn and easy to train, they can mimic several hundred words and carry on lively conversations—given an audience, they'll belt out a song. These birds like to be the center of attention.

Yellow-headed parrots, also called amazons, live in evergreen and riparian forests in Mexico and northern Central America—small populations have also been introduced in California, Florida, and Puerto Rico. And they live in homes: We've kept these parrots for five centuries. Yellow-headed parrots are social and entertaining birds.

Like other amazons, this parrot has a sturdy build with a stout beak and a squared-off tail, and they're large: Adults average 15 to 17 inches long.

Partnering monogamously for life, they live in pairs during breeding season and cooperatively raise their young. Clutches of two or three eggs hatch after four weeks, and the young fledge at eight to twelve weeks. Parrots' feet have two forward and two backwards toes, and they can use them to bring food—nuts, seeds, berries—to their mouth.

Second only to habitat loss, illegal trafficking is a major threat to this species and has caused populations to plummet by as much as 90 percent since 1990; today, there are fewer than 5,000 yellow-headed parrots left in the wild. They are protected by law from international trade but remain a desirable item on the black market. These birds are expensive—one can cost \$3,000—and poaching is lucrative, though about half to three-quarters of captured birds die before they are sold.

Trafficking contributes significantly to declines of Latin American bird species. In Mexico alone, between 65,000 and 78,500 wild parrots may be illegally trapped annually, with thousands headed for the United States. And the black market is difficult to penetrate. Traffickers are often smuggling drugs, guns, and ammunition, too, but due to insufficient funding, personnel, and political will, few are ever caught.

If you're interested in birds, consider enjoying their beauty in non-destructive ways such as birding or ecotourism.

POPULATION: Fewer than 5,000

STATUS: IUCN Endangered; CITES Appendix I

RANGE: Mexico and northern Central America

HABITAT: Riparian and evergreen forests





Tokay gecko

Gekko gecko

True

cost

50% lost

Geckos have an amazing superpower: The pads of their feet are covered in microscopic hairs with a grip force so strong that they can hang vertically, even upside down, by just one toe. Scientists have long been fascinated by these extraordinary feet and have used them as a model to make an incredibly strong synthetic adhesive.

The tokay gecko is native to Southeast and East Asia, and has become established in Florida and Hawaii, too, as people have released pet geckos into the wild. Gray to blue-gray, with orange-red or black speckles, they can be a foot long. They are lightning fast, but if a predator does manage to grab its tail, a gecko has another trick:

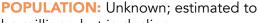
It can instantly shed that tail—leaving it wriggling in the predator's mouth as the gecko escapes—and grow another within a few weeks. These lizards

never blink; lacking eyelids, they can't, so they wash their eyes with a flick of the tongue, instead. Geckos are an important part of the food

web and are solitary hunters. They seek each other out only to mate.

Ten years ago, a rumor circulated that tokay gecko parts would cure AIDS. The demand for them spiked, and millions were captured and sold into the Asian traditional medicine trade. Geckos are also part of a skyrocketing demand for exotic pets, and the United States plays an outsized role in this trade, importing nearly 180,000 live tokay geckos between 2007 and 2016—96 percent of them captured in the wild. Native populations in China, Vietnam, Thailand, Myanmar, Indonesia, the Philippines, and Bangladesh have likely declined by as much as 50 percent.

Commercial breeding serves as a cover for poaching enterprises that doctor export permits and launder millions of wild-caught geckos as captive bred. While new international efforts are being made to crack down on illegal markets, the United States must step up its own efforts to stop this trade. And we can help: If you see a gecko for sale, walk on by. The future of tokay geckos may depend on it.



be millions, but in decline

STATUS: Not listed for protections

RANGE: Historically, Southeast and East Asia; introduced to tropical regions

elsewhere, including Florida

HABITAT: Rainforests; adapts to areas

inhabited by humans





Pinto abalone

Haliotis kamtschatkana

Abalone is one of the most sought-after delicacies we reap from the sea. Wild-caught abalone is the most valuable, especially in Asian markets, where an entrée can set you back hundreds of dollars; the annual abalone trade tops \$100 million. While abalone are found along almost every coast of every continent except Antarctica, these large marine snails are vanishing. Prized, coveted, and disappearing: The perfect storm for a lucrative black-market trade. Their pearly shells have been prized for thousands of years by cultures around the world.

Similar to other species of abalone, the pinto lives in shallow waters along rocky reefs, where it feeds on kelp and is fed upon, in turn, by fish, large crustaceans, and marine mammals—it is a primary food source for the highly-endangered

California sea otter. And like all other abalone species, the pinto is an efficient housekeeper, cleaning the ecosystem by filtering out microalgae and bacteria.

While the pinto abalone's historic range spanned from Alaska's Salisbury Sound along Canada's coast and south to Baja California, Mexico, populations have declined by as much as 98 percent throughout their range. They are virtually gone from waters off California and Oregon, and pinto abalone from Washington State into Alaska live in clusters so small and scattered that effective breeding is difficult, if not impossible. A large female can release as many as 10 million eggs in just a few hours, but those eggs will go unfertilized unless a male is no more than a few feet away. Breeding is not currently sufficient to replace populations as they die off.

As climate change impacts our oceans, the pinto abalone's ecosystem is deteriorating: Kelp forests are disappearing, and shell-eating acid is on the rise. But another important threat to this species' survival is uncontrolled harvesting and poaching—our lust for the exotic. Predictions for the pinto abalone are grim; the species will almost certainly go extinct unless we act by embracing science, pushing for national and international protections, and establishing strong, enforceable penalties to curtail illegal harvesting and trade.

POPULATION: Unknown, but in decline

STATUS: Endangered on the IUCN Red List, Endangered under Canada's Species at Risk Act

RANGE: Alaska's Salisbury Sound to Baja

California, Mexico

98% lost

HABITAT: Rocky kelp beds in shallow

nearshore waters





Saguaro Cactus

Carnegiea gigantea

If you've ever watched a cowboy classic, you've seen a saguaro cactus—that towering, prickly column with skyward arms that defines the American West. Saguaros grow in a narrow slice of the Sonoran Desert stretching from northwestern Mexico into southwestern Arizona and southeastern California.

This cactus is long-lived but slow-growing, reaching just a few inches at five years, a few feet at ten, and then towering to 40 or 50 feet at maturity. If a saguaro grows arms—not all do—it typically sprouts its first at 75 or 100 years old, and may then live on for another 100 years. These desert dwellers collect and store rainwater that they draw on during dry seasons; a fully saturated giant can top the scales at 6 to 8 tons.

True cost At least 31% lost A keystone species, the saguaro plays a critical role in its ecosystem by providing food and shelter to many other species. Bats, birds, and bees feed on its flowers, and its water reserves sustain scores of insects and mammals. The fruit sustains many creatures, from ants to birds, mice, and coyotes. Birds nest on and in them, using holes drilled by woodpeckers. Indigenous peoples have long used the saguaro—its fruit, seeds, sturdy spines, and

Cacti throughout the world are disappearing; a 2015 study of some 1,500 species determined that 31 percent were in decline. Like other cacti, saguaros are vulnerable—they are impacted by climate change and wildfires, and are losing habitat to the border wall and urban sprawl. And landscapers and home decorators around the world covet them. The U.S. market is robust; seizures of saguaro cacti at the Mexico border went from 411 in 2013 to 2,600 in 2014, alone. Even though damaging or

stealing a saguaro carries serious penalties, the black market for them is hot; a good specimen can fetch \$100 per foot. The problem is so severe that that National Park Service officials have microchipped more than 700 of them in Saguaro National Park.

Craving a cactus? Steer clear of the international market and look for U.S. sellers advertising seed-grown specimens. Go for colorful and symmetrical plants; they're more likely to come from a nursery than from the wild.

POPULATION: Unknown, but likely in the millions

ribs—for sustenance and ceremony.

STATUS: Listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora; protected by law in Arizona

RANGE: Small region of the Sonoran Desert in Mexico, Arizona, and California

HABITAT: Rocky, south-facing slops at moderate elevations from sea level to 4,000 feet



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