POLLEN PERCH: A monarch butterfly feeds on a Tennessee coneflower. The plant's population has grown in the past 30 years.

© WILLIAM DESHAZER/THE NEW YORK TIMES/REDUX

Back From the Dead

THE TENNESSEE CONEFLOWER IS A TINY SURVIVOR. THE PURPLE FLOWER seemed to disappear in the first half of the 20th century. Some thought it extinct. But in the late 1960s, a Vanderbilt University botanist named Elsie Quarterman spotted a purple bloom jutting out of a gravel pit in a central Tennessee lot. The coneflower, it seemed, was back from the dead.

The flower is one of several plants, animals and insects deemed extinct and then rediscovered generations later. These "Lazarus species"—a term alluding to a biblical story in which a man named Lazarus is brought back from the dead—

CONTINUED ON PAGE 10

CONTINUED FROM PAGE 9

are often endangered. Sometimes, though, as in the case of a South American peccary, they're alive in large numbers; scientists simply didn't know where to find them.

Lazarus species, noun:
A species that is rediscovered after having been thought extinct for a generation or more.

After its rediscovery, the Tennessee coneflower became one of the first plants to be listed as endangered in the United States. Quarterman, a specialist in the coneflower's limestone cedar glade habitat and a groundbreaking botanist in an era when there were few women in the field, advocated for the preservation of the cedar glades. Tennessee was growing rapidly, and the cedar glades, which look rocky and barren to the untrained eye, were threatened by planned developments.

For more than two decades, a team of agencies and nonprofits, including The Nature Conservancy, worked to bolster the plant's population. The Conservancy even purchased nearly 1,000 acres of cedar glade habitat to protect the flower. In 2011, the wildflower was removed from the federal Endangered Species List—the flower's success indicating not only that the coneflower was no longer struggling to survive, but that its habitat and those other species that relied on it were likely healthy, too. —JENNY ROGERS

MORE SPECIES BACK FROM THE DEAD

These animals were thought extinct before being rediscovered many years later. Conservationists have fought to help bolster their populations, especially in the case of the black-footed ferret, for which TNC has worked with ranchers to protect habitat.

HORNED MARSUPIAL FROG
Gastrotheca cornuta

FERNANDINA GIANT TORTOISE
Chelonoidis phantastica

COELACANTH
Coelacanthiformes

BLACK-FOOTED FERRET
Mustela nigripes

BY THE NUMBERS

862

Acres TNC bought in western Iowa's Loess Hills region in May to protect the native tallgrass prairie and woodlands there from development. The land abuts Stone State Park and a property managed by the Iowa Department of Natural Resources—which together total nearly 3,000 acres of unfragmented land used by migrating birds like the bobolink and grasshopper sparrow.

2,354

Acres of a Wyoming ranch now under a conservation easement with TNC to prevent the land from being subdivided or developed. The ranch, known as the Lazy BV, is home to endangered black-footed ferrets, mule deer and Yellowstone cutthroat trout. In the 1980s, the ferrets—long thought extinct (see "More Species Back From the Dead," left)—were rediscovered on the Lazy BV, and the ranch's owners have now established an easement to protect the ranch and ferret habitat.

955

Acres of Blue Ridge wilderness TNC donated to Jones Gap State Park in South Carolina in July. When TNC acquired the property in 2017, it was the last large unprotected piece of land in a 40,000-acre corridor linking two watersheds that provide water for the city of Greenville. It is home to black bears, big-eared bats and green salamanders.

THIRSTY CITY: Residents of Chennai—India's third-largest city—carried home water collected in jugs this past summer. Amid a water crisis, some taps ran dry.

Tapped Out

THE PLASTIC WATER POTS LINING SIDEWALKS IN CHENNAI, a city of nearly 5 million on India's southeastern coast, signal a hard truth: The water truck brings a more dependable trickle than the kitchen tap. Chennai's water crisis—the most dire in 15 years—stems from unchecked growth, the loss of its water-storing wetlands and weak monsoon rains this year. Yet there's hope for change: Local groups, partnered with TNC and the government, are working toward transforming Chennai into a city of thriving lakes again by restoring its wetlands, says Nisha Priya Mani, TNC's water project manager there. —DUSTIN SOLBERG

ONLINE: Read more about TNC's work in India at nature.org/india.

ONLINE

Watch seaweed farmers demonstrate their craft at nature.org/belizeaquaculture.

Sea Greens

GROWING SEAWEED SUSTAINABLY IS A HANDS-ON AFFAIR, AND LEARNING to set good policies to manage seaweed farming even more so, according to The Nature Conservancy's aquaculture and carbon specialist in Belize, Wilbur Dubon. In May, Dubon and his team took nine staff members from the Belize Fisheries Department out to Turneffe Atoll Marine Reserve to show them the ropes—literally. There, fishers are raising seaweed on ropes in shallow water to supplement their livelihoods and decrease pressure on overexploited fish stocks. Seaweed fetches $10-$15 a pound and is used as a thickener in soups and stews as well as in products like lotions and toothpaste. "We just want to help this nascent industry grow the right way," says Dubon, who notes that seaweed from Asia usually commands only $1-$2 per pound because it has debris and bacteria in it. "Belize is not an industrialized nation," he says, and so its coastal waters are comparatively pristine. "We have a really clean, really healthy product." —DANIELLE S. FURLICH

THE CROP: Mariko Wallen harvests seaweed on her farm near Placencia, Belize.

OPPOSITE PAGE: PHOTO: © RANDY OLSON

KIDS BOOKS

Bird Watch

Children 4 to 8 years old can learn to spot and count warblers, hummingbirds, hawks and other birds in the watercolor illustrations of this picture book. *Harper Collins, February 2019*

When Sue Found Sue

Elementary school-age kids will be inspired by this story about the life of Sue Hendrickson, the paleontologist who unearthed Sue the T. Rex, the most complete and complex set of T. Rex fossils yet found. *Abrams Books, May 2019*

Señorita Mariposa

Colorful illustrations and bilingual rhymes—the story is told in both English and Spanish—will capture the attention of preschoolers as they learn about the great migration of the monarch butterfly. *Nancy Paulsen Books, August 2019*

"Earth is our shared home no matter where we live. Endemic, native, migrant, or accidental ... We are not the only species that flies around the world."

—Terry Tempest Williams

Wild Thoughts

Erosion's essays explore how people and landscapes face the same forces of change

***EROSION: ESSAYS OF UNDOING* TAKES** on a familiar subject for Utah writer and conservationist Terry Tempest Williams, whose numerous books have often delved into the American West. Part memoir and part natural history, *Erosion* combines 33 essays, poems and interviews—some previously published—in an exploration of modern environmental issues.

Williams invites readers to join in her own sense of wonder at the landscape around her. Among the many hikes and wildlife encounters she describes throughout the book, she recounts that upon seeing a giant tortoise in the Galapagos make its long journey from the volcano top to the edge of the sea, she ponders evolution. She writes, "What can we do for the tortoise? Step aside. Give her the right-of-way. Kneel."

Such scenes add emotion and urgency to her more cerebral discussions of contemporary environmental debates. She's concerned about the future of the Endangered Species Act and about designated national monuments, and she's worried, too, that humans haven't yet found a way to adapt to a new climate norm. Humanity and the landscapes it relies on face the same challenges, "subject to the same laws of natural selection," she writes. The only constant is change, *Erosion* argues, and the only way both humans and nature can survive is to adapt. "Imagination leads us to creative acts," she writes. "Wilderness in the twenty-first century is not a site of nostalgia for what once was, but rather the seedbed of creativity for what we have yet to imagine." *Sarah Crichton Books, October 2019* —J.R.

Flooded Future

THE SEAS ARE RISING ON THE Eastern Shore of Maryland and Virginia two to three times faster than the global average. On a remote strip of water-logged land in Maryland, the water will likely claim a new, or rather very old, victim in the next few decades: a small, forgotten family cemetery.

Joe Fehrer, a coastal projects manager for The Nature Conservancy who was alerted to the cemetery on TNC's 900-acre Robinson Neck Preserve, is meticulously documenting each of the 10 graves and the history of the Revolutionary War-era family buried there. The graves cannot be moved or protected—they're only 8 feet from tidal wetlands already and will soon be underwater, he says—and there are ethical reasons to not move or alter human burial sites. Fehrer knows the cemetery cannot be saved, but he says the people buried there can be remembered for posterity. "I just don't want this site to be lost," he says. —JENNY ROGERS

"I have no idea who these people were but I feel a connection there because this is my place, too."

—JOE FEHRER
COASTAL PROJECTS MANAGER FOR TNC

FROM LEFT: © GORDON CAMPBELL/AT ALTITUDE GALLERY; MATT KANE/TNC

ON THE BRINK: Joe Fehrer (above) documents the graves of a family that once lived on TNC's Robinson Neck Preserve. The cemetery is one of many historical sites along the coast threatened by sinking land and rising seas. Coastal wetlands like those at Virginia's Godwin Island (left) help protect the mainland from eroding waves.

THEN AND NOW: A 1952 fire on the Cuyahoga River (top) and the river in Cleveland today.

Cuyahoga Comeback

WALK BESIDE THE CUYAHOGA RIVER IN Cleveland, Ohio, and you'll see high school rowing teams and birds diving for fish. It's a stark contrast to the scene 50 years ago, when oily debris in the river caught fire. Fires were common on industrialized rivers, but the 1969 fire was reported in *Time* magazine and caused a public outcry that galvanized support for the establishment of the U.S. Environmental Protection Agency and the Clean Water Act. The river is now a source of civic pride, says TNC's Amy Brennan, who directs conservation programs in Ohio. She looks forward to the day the Cuyahoga is known "not as the river that caught on fire, but the river that came back." —LISA BRAMEN

CLEANING UP

The Conservancy owns part of the Cuyahoga River's headwaters at its Lucia S. Nash Preserve in Ohio. Such natural areas help keep the river healthy—but they would be overwhelmed without the federal clean water laws that put an end to widespread industrial dumping.

ONLINE: Explore the river's headwaters at nature.org/LuciaNashPreserve.

1827 — The Cleveland-to-Akron section of the Ohio & Erie Canal opens, transforming the Cuyahoga region into a center of commercial transportation and industrial development.

1868 — First fire on the Cuyahoga reported in the Cleveland *Plain Dealer*, likely caused by a spark igniting an oil slick.

1969 — The 13th major fire on the Cuyahoga, now a center of steel production and one of the most severely polluted rivers in the United States, is reported in *Time* magazine. The article ignites a national uproar.

1972 — Congress passes Clean Water Act legislation. The U.S. Environmental Protection Agency later uses this authority to list "impairments" that must be addressed on the Cuyahoga.

2000 — Cuyahoga Valley National Park is established. The park protects 22 miles of river and 190 miles of tributary streams between Cleveland and Akron.

2017 — The EPA announces that public recreation and access opportunities on the Cuyahoga are no longer impaired.

2019 — The EPA lifts restrictions on consuming fish caught in the Cuyahoga River.

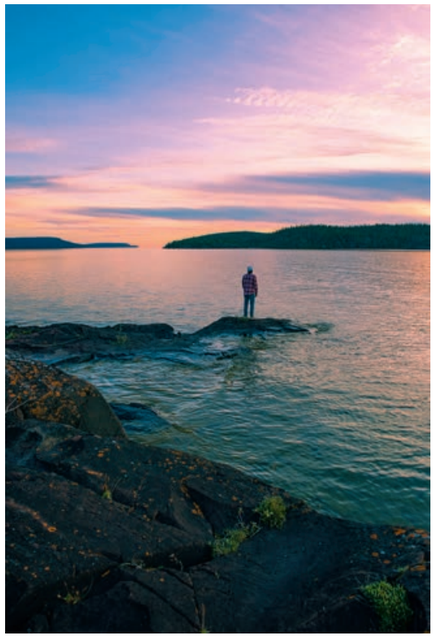
THIS PAGE FROM TOP: © BETTMANN/GETTY IMAGES; SWAPAN JHA/GETTY IMAGES.

ALTER EGOS: The Yunnan golden monkey is also known as the Yunnan snub-nosed monkey or the black-and-white snub-nosed monkey.

Golden Opportunity

IN THE RUGGED FORESTS OF SOUTHWESTERN CHINA'S YUN LING Mountains, habitat loss and poaching have taken a toll on lichen-loving Yunnan golden monkeys. But a new protection network launched by TNC and other conservation partners in the region aims to protect the endangered primates and restore their fragmented forest. It's the first conservation network in mountainous Yunnan, China's most biodiverse province, says TNC conservation specialist Haohong Liao. "Protecting the golden monkey will also benefit hundreds of other important flora and fauna" that rely on the same habitat. —KIRSTEN WEIR

ONLINE: Learn more about Thaidene Nëné at natureunited.ca.



THIS PAGE: © PAT KANE (ALL). OPPOSITE PAGE: © XI ZHINONG/NATURE PICTURE LIBRARY

ANCIENT LANDS: Dakota Clark and Isiah Drybones from the Łutsël K'é Dene First Nation play outdoors in Canada's newest national park, Thaidene Nëné. Located near Yellowknife on the eastern edge of Great Slave Lake—North America's deepest lake—the park's 6.5 million acres will be co-governed by the federal and territorial governments and the First Nation, whose ancestors lived on the land there. Grizzly bears, caribou and other wildlife live among the land's tundra and boreal forests.

Ancestral Land

THAIDENE NËNÉ IS A LAND BRIMMING with rivers and lakes just south of the Arctic Circle. In August, 6.5 million acres here became a new protected area, including Canada's newest national park. It will be co-governed by the Łutsël K'é Dene First Nation, the territorial government and the Canadian federal government.

"This is what our ancestors meant when they entered into treaty with Canada [long ago]," said Steven Nitah of the Łutsël K'é Dene First Nation at a signing ceremony announcing the new indigenous protected area. Nitah acted as the chief negotiator of the deal on behalf of the First Nation. "We agreed to share the land, its resources, the responsibility for management, and to benefit together."

The new protected area honors the First Nation's traditional rights to hunt, fish, trap and gather on the lands. It comes with the support of a newly created endowment, the Thaidene Nëné Fund, seeded with $15 million from Nature United, The Nature Conservancy's affiliate in Canada.

Thaidene Nëné, which means "land of the ancestors" in the Dënesųłiné language, protects a vast area of tundra, boreal forest and rock cliffs at the northeast end of Great Slave Lake, the deepest lake on the continent. The area provides habitat for caribou, grizzly bears and diverse bird life in the Northwest Territories near the Thelon Wildlife Sanctuary. Together these indigenous-managed areas total more than 18 million acres, making this stretch one of North America's largest protected land areas. —D.S.