

VOL. 3 ISSUE 1

KENYA'S WATER WOES | LAOS AFTER THE BOMBS

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# NATIONAL GEOGRAPHIC MAGAZINE

## POPE

# FRANCIS

## REMAKES THE VATICAN





# NATIONAL GEOGRAPHIC

AUGUST 2015 • VOL. 3 • NO. 1

Gatherings such as this wedding celebration are important ceremonial occasions for tribespeople living around Lake Turkana.

## 70 Last Rites for the Jade Sea?

Projects upstream from Kenya's Lake Turkana threaten to turn the world's largest permanent desert lake into a dust bowl disaster. *By Neil Shea Photographs by Randy Olson*

## 42

### Will the Pope Change the Vatican?

Or will the Vatican change Pope Francis, who has focused on serving the poor and reforming the church?

*By Robert Draper  
Photographs by Dave Yoder*

## 96

### Still Life

A century ago taxidermy played a key part in fostering wildlife conservation. Today its role is less clear.

*By Bryan Christy  
Photographs by Robert Clark*

## 114

### Life After the Bombs

Laos is, per capita, the most heavily bombed nation on Earth. It's also among the most resilient.

*By T. D. Allman  
Photographs by Stephen Wilkes*

### 134 Proof | Portraits of Katrina

On the ten-year anniversary of the devastating U.S. Gulf Coast hurricane, photographers share scenes of both destruction and resurrection.

**On the Cover** After his Christmas 2014 speech to throngs in St. Peter's Square, Pope Francis made an unexpected visit to the Sistine Chapel—the kind of spontaneous art he's known for. *Photo by Dave Yoder*

**Corrections and Clarifications** [Go to ngm.com/more.](http://go.ngm.com/more)



Archaeologist Chris Fisher leads a team searching for ruins of an ancient city hidden in the jungle in La Mosquitia, Honduras.

## 114 Lure of the Lost City

Laser-mapping technology uncovers extensive ruins in a Honduran jungle rumored to contain a mythic White City. *By Douglas Preston Photographs by Dave Yoder*

50

### Mystery Man

Fossils found deep in a South African cave raise new questions about what it means to be human.

*By Jamie Shreeve  
Photographs by Robert Clark*

74

### Wild Heart of Sweden

Glaciers' handiwork surrounds visitors to Laponia, one of Europe's largest wilderness areas.

*By Don Belt  
Photographs by Orsolya Haarberg and Erlend Haarberg*

90

### Lifeblood

The Congo River is the main road through the heart of Africa—for those who dare to travel it.

*By Robert Draper  
Photographs by Pascal Maitre*

134

### Sea Wolves

Beachcombing wolves swim among Canadian islands, eating whatever the ocean serves up.

*By Susan McGrath  
Photographs by Paul Nicklen*

## 150 Proof | Abstraction Finds Beauty in Beasts

Deconstructing their likenesses can make even terrifying creatures more likable.

*Story and Photo Illustrations by Michael D. Kern*

**On the Cover** Paleoartist John Gurche used fossils from a South African cave to reconstruct the face of *Homo naledi*, the newest addition to the genus *Homo*. *Photo by Mark Thiessen, NGM Staff*

**Corrections and Clarifications** Go to [ngm.com/more](http://ngm.com/more).



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## Tracking Ivory

In Africa some militias fund operations by trading elephant ivory. Can a fake tusk help thwart them?

By Bryan Christy  
Photographs by Brent Stirton

102

## True Colors

Scientists explore the chameleon's expressive color changes, trick tongue—and vanishing habitat.

By Patricia Edmonds  
Photographs by Christian Ziegler

120

## Rescuing Mes Aynak

In Afghanistan a fortune in copper ore lies buried beneath a trove of ancient Buddhist artifacts.

By Hannah Bloch  
Photographs by Simon Norfolk

## 138 Proof | Art From an American Backyard

Armed with a cell phone, a photographer catalogs the local flora and fauna.

By James Estrin Photographs by Joshua White

**On the Cover** An artificial tusk like this one was outfitted with a transmitter and planted in the ivory market so that its travels—and traders' illegal activities—could be tracked. Photograph by Rebecca Hale, NGM Staff

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## 72 Point of No Return

Is Hkakabo Razi in fact the tallest mountain in Myanmar? Attempting to take its measure, a team of climbers risked everything. By Mark Jenkins Photographs by Cory Richards

Above a sea of clouds, Renan Ozturk pauses on a slope of Hkakabo Razi. He was one of three climbers making a summit attempt on the mountain, believed to be Myanmar's highest.



A sea of photovoltaic panels surrounds the runway at the Eberswalde-Finow Airport, 30 miles north of Berlin. Germany is at the same latitude as Labrador, Canada, but has installed more solar capacity than any other country. Most panels are on rooftops. Story on page 62.

PHOTO: LUCA LOCATELLI

## The Climate Issue

### How to Fix It

#### 48 Survival Guide 1

From signing global accords to building tiny houses, climate change antidotes come in all sizes.

#### 62 The Will to Change

If Germany can ditch fossil fuels, maybe, just maybe, other countries can too.

By Robert Kunzig Photographs by Luca Locatelli

### How to Live With It

#### 88 Survival Guide 2

Higher heat, wilder weather, warmer water. Face it, things are changing, and we'll have to adapt.

#### 100 Melting Away

Ice is fading in Greenland and with it ancient hunting traditions in small villages.

By Tim Folger Photographs by Ciril Jazbec

#### 120 Against the Tide

As seas rise, residents of the island nation of Kiribati fight to keep their culture afloat.

By Kennedy Warne Photographs by Kadir van Lohuizen

#### 136 Who Will Thrive?

A warming planet will affect every living species. Which ones will make the cut?

By Jennifer S. Holland Photographs by Joel Sartore

#### 146 Pulse of the Planet

Earth is clearly stressed out. New sensors allow scientists to track its vital signs in real time.

By Peter Miller

On the Cover Photo by Robert Simmon, NASA Earth Observatory/NOAA/DOD

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At Copenhagen's Nordic Food Lab, researchers distilled gin from a plentiful resource: ants. The taste? Pleasantly lemony, they insist.

## 122 The Science of Delicious

Taste receptors, volatiles, gustatory cortex: There's more to *yum* than you might think.  
By David Owen Photographs by Brian Finke

## 56

### The World's Most Powerful Woman

The Virgin Mary is both a personal intercessor and a global sensation.

By Maureen Orth  
Photographs by Diana Markosian

## 80

### New New York

The bird's-eye views of the skyline make it clear: This city may never sleep, but it surely does change.

By Pete Hamill  
Photographs by George Steinmetz

## 102

### Out of the Shadows

Leopards can adapt to living near humans—so well, in fact, that we may not know they're around.

By Richard Conniff  
Photographs by Steve Winter

**On the Cover** The Virgin Mary has been depicted by many renowned artists. This detail is from the circa-1480 painting "The Virgin and the Child," by Sandro Botticelli. Poldi Pezzoli Museum Collection, Milan; photo by Malcangi. Image composed of eight photographs

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Flies swarm the head and mat the chest of this Rüppell's vulture, photographed in the Serengeti National Park in Tanzania.



## 70 **Bloody Good**

Vultures seem vile, dining on the dead. But Earth desperately needs these birds.

*By Elizabeth Royte Photographs by Charlie Hamilton James*

## 28

### **This Land Is Your Land**

As America's national park system turns 100, we celebrate and reflect with a yearlong series.

*By David Quammen Photographs by Stephen Wilkes*

## 48

### **This Is Your Brain on Nature**

Spending time in the natural world benefits human brains.

*By Florence Williams Photographs by Lucas Foglia*

## 96

### **Into Thin Ice**

Earth cools when sunlight reflects off Arctic sea ice—which is melting away. Where does that leave us?

*By Andy Isaacson Photographs by Nick Cobbing*

## 116

### **Riding Rubber's Boom**

The rising global demand for car tires may pay off for Southeast Asia's poor, but at a cost to the planet.

*By Charles C. Mann Photographs by Richard Barnes*

## 136 **Proof | Remnants of a Failed Utopia**

In disused machines and abandoned buildings, a photographer sees the overreach of technology.

*By Rena Silverman Photographs by Dania Tkachenko*

**On the Cover** Research ship *Lance* makes its way "convoy" style after a distant coastguard vessel which breaks a trail, following leads or fractures in the ice system. *Photograph by Nick Cobbing*

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A grizzly bear eats a ground squirrel—one of the many edibles available to the omnivore in Denali National Park and Preserve.

**86 Denali | The Power of Parks: A Yearlong Exploration**

The national park covers six million acres of Alaska. How can that not be enough?  
By Tom Clynes Photographs by Aaron Huey

**40**

**London Down Under**

Beneath one of Europe's oldest capitals lies a "rich archaeological layer cake" of historic artifacts.

By Raff Smith  
Photographs by Simon Norfolk

**60**

**Seeing the Light**

From the unsophisticated to the ultrasharp, eyes have evolved to see to species' needs.

By Ed Yong  
Photographs by David Littschwager

**116**

**The Changing Face of Saudi Women**

With degrees, jobs, and digital media, they're living in a wider world.

By Cynthia Gorney  
Photographs by Lynsey Addario

**140 Proof | Afterglow**

Lights, cameras, snow, and night skiing combine in a photographer's dream shoot.

By Jeremy Berlin Photographs by Oskar Enander

**On the Cover** What history lies under Londoners' feet? Excavation for a new subway line has turned up artifacts from many eras—more than enough to fire an artist's imagination. Art by Imaginary Forces

**Corrections and Clarifications** Go to [ngm.com](http://ngm.com) more





To escape the fierce tropical sun on the Seychelles atoll of Aldabra, giant tortoises take shelter under any available foliage, in layers if necessary.

## 108 Return of the Seychelles

Ecological restoration gives nature a second chance in this Indian Ocean island nation.

By Kennedy Warne Photographs by Thomas P. Peschak

### 36

#### Waste Not, Want Not

About a third of the planet's food goes to waste—some because it's not picture-perfect.

By Elizabeth Royte  
Photographs by Brian Finke

### 62

#### The Other Iraq

Kurds in northern Iraq have created an oasis of prosperity and peace. Will ISIS destroy it?

By Neil Shea  
Photographs by Yuri Kozyrev

### 84

#### The Cold Rush

With howling winds and subzero temperatures, even a melting Arctic is a brutal place to work.

By Joel K. Bourne, Jr.  
Photographs by Evgenia Arbugaeva

### 128 Proof | First Bird

The bald eagle may be a majestic national symbol—but it's also one tough bird.

By Klaus Nigge

### 136 Proof | Tsunami Memories

Survivors of Japan's 2011 tsunami pose amid remnants of their flooded-out lives.

By Jeremy Berlin Photographs by Alejandro Chaskielberg

**On the Cover** The large amount of U.S. food that's wasted includes produce that is "perfectly edible even if it's less cosmetically attractive," says the National Resources Defense Council. Photo by Hans Gissinger

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The koala (*Phascolarctos cinereus*) usually gives birth to one joey at a time. It's a marsupial, not a bear. In eastern Australia, where they live, koalas dine on eucalyptus trees by day and doze by night. Photographed at Australia Zoo Wildlife Hospital, Beerwah.

## 34 Every Last One

Photographing thousands of animals to help ensure that species are preserved: That's the Photo Ark project. *By Rachel Hartigan Shea Photographs by Joel Sartore*

### 50

#### The Crossing

Is death an event or more of a progression? Science and human experience offer answers.

*By Robin Marantz Henig  
Photographs by Lynn Johnson*

### 73

#### Where Death Doesn't Mean Goodbye

These Indonesian villagers keep their late loved ones close. Literally.

*By Amanda Bennett  
Photographs by Brian Lehmann*

### 90

#### Ghost Lands

The Out of Eden Walk passes through nations haunted by their history: Armenia and Turkey.

*By Paul Salopek  
Photographs by John Stanmeyer*

### 110

#### Urban Parks

When you're there, civilization can feel very far away—even if it's all around. Welcome to the world's urban parks.

*By Ken Otterbourg  
Photographs by Simon Roberts*

### 132 Proof | 93 Days of Spring

With an image a day, a Minnesota photographer welcomes the season to his state.

*Story and Photographs by Jim Brandenburg*

**On the Cover** A lemur by any other name, the Coquerel (*Propithecus coquereli*) is one of three species of sifaka. What all endangered sifakas have in common is the threat of destruction of their forest habitats. Joel Sartore shot this month's cover image at Houston Zoo, Texas.

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## YELLOWSTONE

# America's Wild Idea 28

By David Quammen

Principal photography by

Michael Nichols | David Guttenfelder | Charlie Hamilton James | Erika Larsen | Joe Riis

### 50 PART ONE The Paradox of the Park

What wilderness means to people—and how it is managed—has steadily changed since Yellowstone National Park was founded.

64 *It All Starts With Heat*

74 *For the Benefit and Enjoyment of the People*

### 80 PART TWO Into the Backcountry

Yellowstone has become a natural laboratory for tracing the delicate web of relationships that keep an ecosystem alive and healthy.

94 *The Carnivore Comeback*

102 *Tracking the Wildlife Highways*

### 110 PART THREE Living With the Wild

Yellowstone's wildlife is adapting to its changing realities. Now people must adapt as well if the park is to remain untamed—and intact.

122 *The Dance of the Bison and Elk*

132 *Land of the People*

### 142 EPILOGUE The View From the Beginning



A male elk surveys his winter domain, the 24,700-acre National Elk Refuge near Jackson, Wyoming.

PHOTO: CHARLIE HAMILTON JAMES

**On the Cover** The North American Grizzly Bear is a top-of-the-chain predator. There are more than 700 grizzlies in the Greater Yellowstone Ecosystem and their numbers are on the rise. While people may perceive them as cute and cuddly, they are creatures of the wild and any human-grizzly interaction is potentially fraught with danger. *Photo by Ronan Donovan*

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Not surprisingly, this area of sand flats and shallow water in the northern Bahamas is called Tiger Beach.

## 34 Swimming With Tigers

The writer dives with tiger sharks, awesome predators that are critical to ocean health. *By Glenn Hodges Photographs by Brian Skerry*

52

### Plundering the Past

Illegal trade in antiquities is wreaking havoc on humanity's archaeological heritage

*By Tom Mueller  
Photographs by Robert Clark*

76

### Peru's World Apart

Manu National Park is a natural wonder, protected—for now—by isolation and its residents

*By Emma Marrs  
Photographs by Charlie Hamilton James*

104

### Juárez Returns to Life

The long-dangerous city on the U.S.-Mexico border has seen crime decline and civic life revive

*By Sam Quinones  
Photographs by Dominic Bracco II*

### 122 Proof | The Art of Solar Energy

The interplay of nature and human activity forms patterns in the Nevada desert

*Story and Photographs by Jamey Stillings*

**On the Cover** King Tut's burial mask hasn't been taken by looters, but many other treasures have. *Photo illustration by Javier Jasso. Photos: Kenneth Curran. National Geographic's editorial staff. The photographs clearly images ignore.*

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Even in shark-filled waters like these, near Australia's Neptune Islands, no one has ever seen great white sharks mate or give birth.

## 68 Great White Mystery

They are the world's most famous sharks — yet we know so little about them.

By Erik Vance Photographs by Brian Skerry

## 42

### Beyond Reasonable Doubt

Criminal forensics has been accused of being more craft than science. Can it shake that reputation?

By Veronique Greenwood  
Photographs by Max Aguilera-Hellweg

## 86

### The Battle for Virunga

At one of the world's most dangerous parks, survival depends upon making peace with desperate, discontented neighbors.

By Robert Draper  
Photographs by Brent Stirton

## 114

### Greece, Gods, and the Beyond

Ancient Greeks believed that gods played a role in all life, from the underworld to realms above.

By Caroline Alexander  
Photographs by  
Vincent J. Must and David Coventry

## 134 Proof | Smartphone Americana

After more than 20 years abroad, a photographer explores his own country

Story and Photographs by David Gutfelder

**On the Cover** Fingerprint analysis, which investigators have used to help solve crimes since the late 1800s, is now being reevaluated, along with other forensic science practices. Photograph by Jeffery Mager

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