

NGM.COM NOVEMBER 2010

NATIONAL GEOGRAPHIC

MYSTERIES OF

Great Migrations

What Guides Them
Into the Unknown?



Supplement Map: World's Amazing Migrations

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Giant Antpitta
(*Grallaria gigantea*)

Size: Head and body length, 24 - 26.5 cm (9.5 - 10.4 inches)

Weight: 204 - 266 g (7.2 - 9.4 oz)

Habitat:

Humid montane forest in a few small regions in the Andes Mountains of Colombia and Ecuador

Surviving

number: Estimated at 1,000 - 2,500

Photographed by Pete Oxford

WILDLIFE AS CANON SEES IT

An invisible giant? Not quite, but the giant antpitta is heard much more than it is seen. It stays out of sight in dark, dense undergrowth, where pairs go their separate ways to forage but remain within earshot of each other. In addition to its calls, the antpitta is capable of singing 60-100 notes over a span of just four to six seconds, and the male's song advertises his fitness as a mate while warding off intruders to his territory. The virtuoso singer isn't

much at flying, however, and sticks near the forest floor to probe the soft earth for food. But with its habitat being eaten up by deforestation, the antpitta is in real danger of disappearing forever.

As we see it, we can help make the world a better place. Raising awareness of endangered species is just one of the ways we at Canon are taking action—for the good of the planet we call home. Visit canon.com/environment to learn more.

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NATIONAL GEOGRAPHIC

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Great Migrations

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The Lost Herds Are Found

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By Matthew Teague Photographs by George Steinmetz

Southern Sudan's Shaky Peace

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By Matthew Teague Photographs by George Steinmetz

3 Degrees of Japan's Seas

90 The waters host arctic crabs, temperate squid, tropical sharks.
Photographs by Brian Skerry

Unburying the Aztec

110 Diggers find eagles, fur-wrapped knives, no emperor's tomb.
By Robert Draper Photographs by Kenneth Garrett and Jesús López

Special Supplement: Great Migrations/World Map



Blood drips from her lips as she squats to give birth. That's the duality of Tlaltecuhltli, Aztec earth goddess. No one knows what happened to the 12-ton monolith's midriff. Story on page 110.

KENNETH GARRETT

NATIONAL GEOGRAPHIC

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CONSERVATION

Tracking Gorillas

Humans make them nervous. So census takers use clues like dung, nests, and trails.

OCEANS

Underwater Exploration

Milestones include the only manned trip to the deepest point on Earth, the Sealab II habitat, and the discovery of the *Titanic*.

GEOGRAPHY

Children at Work

Across the globe, 215 million youngsters make pots, sell trinkets, toil in agriculture.

HEALTH

Medical Marijuana

It's legal in a dozen-plus states; a poll shows support for such laws in the rest of the U.S.

THE BIG IDEA

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Designers devise a low-cost infant warmer, a purifying straw, a paper asthma device, and more.

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On the Cover

Wildebeests kick up dust as they barrel across Liuwa Plain National Park in Zambia at sunset.

Photo by Chris Johns



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Cape buffalo on the move in Botswana's Okavango Delta play a vital role in the region's ecosystem.

I awoke at sunrise to a day on the Serengeti Plain that scarcely resembled the peaceful night before. The landscape that had been so quiet and empty was filled with thousands of wildebeests. They had followed the rain in search of grass, but this hardly seemed like an organized migration. It was anarchy in motion; wildebeests bucked and staggered in tight circles. They are comical-looking animals. African folklore says they were made from spare parts left from the creation of other beasts, but their role in sustaining the Serengeti is serious. Their migratory patterns are critical.

Bison once played a similar role on the North American prairie. In 1806 William Clark wrote: "I assended to the high Country and from an eminence I had a view of...a greater number of buffalow than I had ever seen before at one time. I must have seen near 20,000 of those animals feeding on this plain." When Clark journeyed west with Meriwether Lewis, tens of millions of bison lived on the grasslands, shaping vegetation, dispersing seeds, coexisting with burrowing owls and prairie dogs. By the late 1800s bison had been hunted nearly to extinction.

Fortunately, many other migratory spectacles survive. This month the world of migrations comes to life on the pages of our magazine, on the National Geographic Channel, and at *nationalgeographic.com*. Our photographers and writers spent two years on the project. They were astonished and inspired by the determination and grace of these animals. I am sure you will be too.

A handwritten signature in black ink, reading "Chris Johns". The signature is stylized, with a large, flowing "C" and "J".

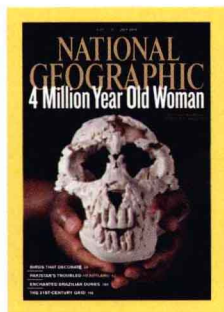


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July 2010

Evolutionary Road

The title on the July 2010 cover reading "4-Million-Year-Old Woman" was a bit sensational and even misleading. A less interesting but more accurate title would have been "4-Million-Year-Old Female Hominid." The term "woman" refers to our own species and not to females of other species.

BRIAN RITTER
Huntington Beach, California

This article is the best description of human evolution that I have ever read. Besides being understandable to a layperson (me), it illustrates the diligent work and dedication of the many archaeologists, paleontologists, and geologists who have devoted their lives and talents to this study. This article should elicit many responses from the creationists. Please publish some of these letters.

RICHARD D. STACY
Montrose, Colorado

I thought you might find it interesting to see that your printer has messed up the July issue. Imagine my surprise when I cracked it open only to find the inside has articles from *Evolution Today* magazine. I was

crestfallen as I discovered that my joyful romp through wonderful lands to learn about other people and places had been replaced by a scientific treatise. I can only hope that next month the printer corrects the error so that I can resume reading the material I was interested in when I paid for my subscription.

DAVE BUEHLER
Shoreline, Washington

Bowerbirds

It took me a long time to get past the second page because I was deciding which bower I would have chosen! I wasn't even aware that I was doing it until I decided: bower #1 on page 70, for sure. It won on its symmetry and color scheme. I am also pretty sure that if my husband were a bowerbird, his bower would have been #4 on page 71—which would not even have been in the running.

SUSAN DYRUD MACDONALD
Plymouth, Minnesota

I think the first time that I laughed out loud at a *National Geographic* photo was in the "Animals at Play" article from December 1994. The second time was seeing the confounded-looking bowerbird holding the pink paper clip.

MATT JUDGE
Indianapolis, Indiana

The 21st-Century Grid

Your article about the grid did not mention the linemen that keep the grid up and running. As a lineman's wife, I know firsthand the part these men and women play in the construction, upkeep, and repair of the grid. From transmission lines to distribution lines, without linemen, make no

mistake, there would be no grid. The function of a lineman used to be recognized as a valuable part of society. Glen Campbell romanticized it in the song "Wichita Lineman," and the book about a lineman's life, *Slim*, was made into a movie. However, this acknowledgment seems to have gone by the wayside. I fear the very idea of such a technologically complicated and vastly modern new grid has led us to forget the men and women who use hard work and know-how to keep the electricity flowing.

NANCI LEICHING
Somers, Connecticut

You might have mentioned the grid's vulnerability to an electromagnetic pulse (EMP) attack. An EMP is a high-energy magnetic wave that is created upon detonating a nuclear device. A high-altitude nuclear detonation destroys sensitive electrical equipment over a wide area. This would include computers that control the grid—many are not shielded for such an event. Military experts testifying to the U.S. Congress on this issue warned that as more rogue nations obtain nuclear capability, the United States becomes more vulnerable to attack. This could cause a cascade failure across the United States, which would be an infrastructure disaster.

GREGORY L. SMITH
Chatham, New Jersey

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and daytime telephone. Letters may
be edited for clarity and length.

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Vibrancy and Variety The world is alive with colors and textures, shapes and perspectives. Your photos are too. In fact, the best ones document diversity—poignant tableaux, landscape panoramas, and so much more. So keep that in mind, and keep sending us your best. Every month this page features two photographs: one chosen by our editors, one chosen by our readers via online voting. For more information, go to ngm.com/yourshot.



EDITORS' CHOICE

Paul Cotter Charlotte, North Carolina

As his mother's health declined, Cotter, 52, thought "of all her small acts of kindness—like the tomato soup she made for me when I was a little boy." This shot was his way to say "farewell and to thank her for warming my heart."

Navid Baraty Brooklyn, New York

Most evenings San Francisco's Ocean Beach is foggy, cold, and empty. But last fall Baraty, 29, caught this sunset sight: a "multitude of little silhouettes on the glistening sand with mist encroaching."



READERS' CHOICE



▲
Mt. Emei waterfall.

Shot using the Samsung NX10
with 18-55mm lens, f/22,
ISO 400, 4 exposure.

Photography Flows on China's Sacred Mountain

There is an abundance of beauty on the slopes of Mt. Emei, in the Sichuan Province of Western China. Much of this beauty comes from the many Buddhist temples that dot its slopes, making the mountain a popular destination for pilgrims of all ages.

It is the facet of Emei's natural beauty, however, that *National Geographic* photographer Tyrone Turner was moved to capture—resulting in the almost surreal image you see above.

Turner describes: "It was taken at the end of a hike down Mt. Emei. Discovering this scene, I knew that I wanted to shoot it with a long exposure so that the water would flow through the bottom of the image, framed by the boulders."

Having come upon such an opportunity, he wasted no time: "I hopped over the railing, scrambled into the water, and set up the camera on a tripod in the stream. The convenient size of the NX10 made it all so easy; it's a camera that doesn't get in the way, wherever you need to go to get your shot."

Not only did the AMOLED help him perfectly frame the scene, but the multi-exposure settings lent the water a luminous quality. Turner says: "Thanks to its large APS-C sensor, the NX10 gives me the supreme picture quality I need."



**TYRONE
TURNER**

Tyrone Turner is a photojournalist based in Arlington, Virginia. His assignments have taken him from Brazil to Baghdad to the bayous of Louisiana with his camera in hand. In addition to his work for *National Geographic*, Turner has produced award-winning photographs for national and international publications such as *Time*, *Newsweek*, *U.S. News and World Report*, and the *Los Angeles Times*.



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TURN ON TOMORROW



Scotland Peering through glass, visitors at the Edinburgh Zoo regard—and are regarded by—Tibor, a Sumatran tiger. The three-year-old male was born in captivity. About 400 of this subspecies, the world's smallest tiger, live in the wild.

PHOTO: DAVID CHESKIN, PRESS ASSOCIATION/AP IMAGES



Kenya Aimed skyward from photos atop a train, the eyes of women pierce a rooftop landscape in Nairobi's Kibera slum. The display, part of a global art project, paid tribute to women from Africa, Brazil, India, and Cambodia.





United States A 14-week-old male fawn gazes out a window at the Sarvey Wildlife Care Center. The Arlington, Washington, facility rehabs regional animals, including up to 30 orphaned or injured young deer each spring.

