



STUDY IN AUSTRALIA

Rs. 290,000 FOR

LEARN MORE

Science News from research organizations

Print Email Share

Interactive map shows where animals will move under climate change

Date: August 29, 2016
Source: University of Washington
Summary: Researchers have created an animated map showing where mammals, birds and amphibians are projected to move in the Western Hemisphere in response to climate change.
Share: Facebook Twitter Google+ LinkedIn + Email

RELATED TOPICS FULL STORY

- Plants & Animals
- Nature
 - New Species
 - Endangered Animals
- Earth & Climate
- Geography
 - Environmental Awareness
 - Climate



This map shows where mammals, birds and amphibians are projected to move in the Western Hemisphere in response to climate change.
Credit: Dan Majka/The Nature Conservancy

Scientists predict that as Earth warms and climate patterns morph in response, animals will be forced to move to survive. That usually means hightailing it to higher latitudes as equatorial areas become too hot and dry.

This movement pattern has happened fluidly and naturally in the past as climates have shifted, but now with human developments such as cities, highways and agriculture, critical animal migrations will be limited in surprising and troubling ways.

The University of Washington and The Nature Conservancy have created an animated map showing where mammals, birds and amphibians are projected to move in the Western Hemisphere in response to climate change. The visualization draws upon flow models from electronic circuit theory, taking inspiration from existing visualizations of wind flow across the U.S.

"This is the best visualization of any of these studies we've done. It's much more compelling than our static maps," said Joshua Lawler, a UW professor in the School of Environmental and Forest Sciences and lead author of the study informing this animated map. "The flow diagram really makes the data much more accessible."

In 2013 Lawler, along with Julian Olden, a UW associate professor of aquatic and fishery sciences, then UW graduate student Aaron Ruesch and Brad McRae of the Conservancy, published a landmark study in *Ecology Letters* that considered the likely movement patterns of nearly 3,000 species under climate change -- determining which areas will be hot spots for animal migration in the coming decades and centuries.

In the U.S., they predict that the Appalachians will likely serve as a highway for species moving north. In the west, mountain ranges and protected areas will also serve as conduits, but many of the higher mountains will also serve as refuges themselves.

The researchers had created fixed maps showing species' movement and patterns, but the data practically begged to be animated to visualize the full effect of the paper's results, Lawler said.

They asked data whiz Dan Majka with the Conservancy's science team to produce an animation, and in mid-August Migrations in Motion launched.

The map is color-coded to depict separate movement patterns for mammals, birds and amphibians. The animations show a mass exodus toward northern regions, with empty black zones showing where large cities or landscape features like the Great Lakes block migration. It's important to note that each dot and subsequent streaking line show the accumulation of species' movement, not just one animal's future migration, Lawler explained.

The researchers were surprised to see how clearly migration routes appeared once the data were visualized. They knew from the data that the Appalachians and the Rocky Mountains were important movement areas, but once the data were animated on a map, those routes popped out like well-trodden paths, Lawler said.

"It was shocking to see these features emerge so clearly. You can really see them when the data are visualized like this," he said.

In South America, the most striking pattern is a projected movement of species west out of the Amazon, Lawler added.

The researchers plan to calculate migration shifts for species in the U.S., particularly in the western regions, at finer resolutions, then apply that information to find the places most important to protect for movement under climate change. They also hope to visualize that data.

Full map: <http://maps.tnc.org/migrations-in-motion/#4/19.00/-78.00>

Story Source:

The above post is reprinted from materials provided by **University of Washington**. The original item was written by Michelle Ma. *Note: Content may be edited for style and length.*

Cite This Page:

MLA APA Chicago

University of Washington. "Interactive map shows where animals will move under climate change." ScienceDaily. ScienceDaily, 29 August 2016. <www.sciencedaily.com/releases/2016/08/160829163603.htm>.

Powered by Google



Drinking more water associated with...



Why an ice age occurs every 100,000 years: Clim...



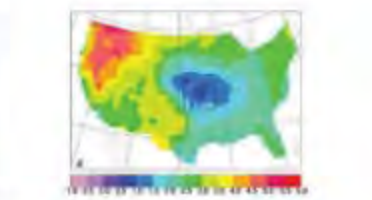
Big freeze plunged Europe into ice age in months



Don't drink the (warm) water, study says



Don't throw out old, sprouting garlic -- it has...



Researchers Discover 'Hole' In Global Warming...



Vegetarian and 'healthy' diets could be more ha...



Daughters of interracial parents more likely th...

Recommended Articles

- Detour ahead: Cities, farms reroute animals seeking cooler climates
University of Washington, ScienceDaily, 2013
- Eastern US needs 'connectivity' to help species escape climate change
Georgia Institute of Technology, ScienceDaily, 2016
- High-speed search methods to better estimate climate threats to biodiversity
University of Washington, ScienceDaily, 2015
- Nearly one tenth of hemisphere's mammals unlikely to outrun climate change
University of Washington, ScienceDaily, 2012
- 80 percent of 'irreplaceable' habitats in Andes unprotected
Duke University, ScienceDaily, 2012

- Climate Change Likely To Spread "Deadly Dozen" Diseases [↗](#)
Catharine Paddock PhD, Medical News Today, 2008
- Fish brains gave us our hand gestures [↗](#)
Markus MacGill, Medical News Today, 2013
- Decoding Dance [↗](#)
IEEE Pulse, 2014
- H7N9 Bird Flu Virus May Be Human Transmissible [↗](#)
Medical News Today, 2013
- Use of IS901 and IS1245 in RFLP typing of Mycobacterium avium complex: relatedness among serovar reference strains, human and animal isolates [↗](#)
V. Ritacco et al., Int J Tuberc Lung Dis, 1998

Shop for wide selection of Canon Lenses

Free Shipping

DigitalRev



Related Stories

- High-Speed Search Methods to Better Estimate Climate Threats to Biodiversity
Oct. 14, 2015 — Researchers have found that although Arctic areas have experienced the most rapid warming to date, climate-related threats to the Amazon basin's biodiversity will eclipse those in other regions ... [read more »](#)
- Detour Ahead: Cities, Farms Reroute Animals Seeking Cooler Climes
June 19, 2013 — Half a dozen regions could provide some of the Western Hemisphere's more heavily used thoroughfares for mammals, birds and amphibians on their way to cooler environments in a warming world. This ... [read more »](#)
- Nearly One Tenth of Hemisphere's Mammals Unlikely to Outrun Climate Change
May 14, 2012 — A safe haven could be out of reach for 9 percent of the Western Hemisphere's mammals, and as much as 40 percent in certain regions, because the animals just won't move swiftly enough to ... [read more »](#)
- Ancient Climate Change Has Left a Strong Imprint on Modern Ecosystems
Oct. 7, 2011 — As Earth's climate cycles between warm and cool periods, species often must move to stay within suitable conditions. Scientists have now mapped how fast species have had to migrate in the past to ... [read more »](#)

Nestlé Milkmaid

Cherry & Nut Toffee

Try out a sweet delight

Click for recipe

150 YEARS



Strange & Offbeat

- PLANTS & ANIMALS
- Hiding in Plain Sight: Vast Reef Found Hiding Behind Great Barrier Reef
- A Mammoth Undertaking: Can De-Extinction Be Ecologically Responsible?
- 300 Teeth: Duck-Billed Dinosaurs Would Have Been Dentist's Dream
- Well-Wrapped Feces Allow Lobsters to Eat Jellyfish Stingers Without Injury
- EARTH & CLIMATE
- Anti-Friction Solutions? Very Thin Layers of Water Can Become Ice-Like at Room Temperature
- More to Rainbows Than Meets the Eye
- X-Raying the Earth With Waves from Stormy Weather 'Bombs'
- Endangered Cuban Solenodon Evolved After the Extinction of Dinosaurs
- FOSSILS & RUINS
- New Tiny Species of Extinct Australian Marsupial Lion Named After Sir David Attenborough
- 'Cyclops' Beetles Hint at Solution to 'Chicken-and-Egg' Problem in Novel Trait Evolution
- Ancient Air Pockets Changing the History of Earth's Oxygen
- Pre-Hispanic Mexican Civilization May Have Bred and Managed Rabbits and Hares

Discover the Gentle Power of Cetaphil®

LEARN MORE



Print Email Share

Free Subscriptions

Get the latest science news with ScienceDaily's free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

Email Newsletters

RSS Feeds

Follow Us

Keep up to date with the latest news from ScienceDaily via social networks:

Facebook

Twitter

Google+

LinkedIn

Mobile Apps

Get the latest news from ScienceDaily via our free mobile apps, available for download on the following platforms:

iPhone/iPad

Android

Have Feedback?

Tell us what you think of ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

Leave Feedback

Contact Us