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Borders Harm Non-Human Climate Refugees Too

Fencing along the U.S.-Mexico border alone would block 122 species from their ideal habitat.

By
Olivia Rosane
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How would you feel if your home moved out from under you and you couldn't follow it?

This could be the fate of nearly 700 mammal species as the climate crisis shifts their ideal habitat to the other side of human-made border walls or fences, according to ground-breaking research published in the Proceedings of the National Academy of Sciences this month.

"There's increasingly good evidence from around the world that species' distributions are changing as they adapt to rising temperatures," co-lead author and Durham University doctoral student Mark Titley explained to Treehugger. "But until now, there hadn't been any consideration of how species might need to move into different countries – this matters because the threats and protections that species face can vary greatly from country to country. It's also the first global-scale investigation of how border walls and fences could obstruct species on the move – our findings show this could be an overlooked obstacle for many species as they adapt to climate change."

To come to their conclusions, the researchers modeled the 2070 climate niches of around 80 percent of the world's land-based mammals and birds based on low to high levels of greenhouse gas emissions. They then compared the new niches to a map of the world's borders. In the highest emissions future, they found that 35 percent of mammals and 28.7 percent of birds would have to adapt to a world in which more than half of their climate niche had moved into another country.1 Further, 60.8 percent of mammals and 55 percent of birds would see at least a fifth of their niche cross a border by 2070 under a high emissions scenario.

This is especially a problem for non-flying animals confronted with borders that are fortified with walls or fences. The researchers compared the location of these mammals' new niches under a high emissions scenario with border walls that either exist now or are in the process of being constructed. They found that these barriers would prevent a total of 696 mammal species from moving with their ideal habitat.1 Fencing along the U.S.-Mexico border alone would block 122 species, including jaguars, jaguarundi, and Mexican wolves.

Wildlife and the U.S.-Mexico Border

Scientists and wildlife advocates have long highlighted the danger that fencing along the U.S.-Mexico border already poses to non-human life, even before former President Trump moved to expand it.

"Our experience is that wildlife populations are being harmed already by walls imposed by the previous five Presidential administrations," Dan Millis, the Sierra Club's Grand Canyon Chapter Borderlands Program Manager, told Treehugger. "I have personally seen deer, rattlesnakes, cottontail rabbits, roadrunner, and other animals blocked by border walls. They walk along the wall in a hopeless effort to cross, until they finally give up."

Millis pointed to two studies that looked at the impacts of the border wall under current climate conditions and before Trump's expansion. One, from 2011, found that four globally threatened species were at risk from current walls, and that this number would jump up to 14 if more barriers were added. A second, from 2013, found that barriers along the border decreased the numbers of puma and coati found in those areas.

More fencing was added and the situation deteriorated further. A 2017 study from the Center of Biological Diversity (CBD) found that the additional border fencing planned by the Trump administration put 93 threatened or endangered species at greater risk.

Borders Do More Than Impede Movement

New barriers don't only threaten these species by impeding movement, CBD Endangered Species Director Noah Greenwald told Treehugger.

“The border wall is more than just a border wall,” Greenwald explained.

It also means roads, lights, vehicles, and border patrol activities that disturb the existing homes of plants and animals, such as the Quitobaquito pupfish, which exists only in the Quitobaquito springs and pond in Organ Pipe Cactus National Monument in the Arizona desert.

This UNESCO biosphere reserve saw the controversial construction of new 30-foot steel barriers during the Trump administration, including blasting on Monument Hill, a place considered sacred by the Tohono O’odham.

The authors of the latest study acknowledged the current threats posed by the border. They added:

“However, our analysis suggests that its impacts could be more damaging still under climate change and that, from this ecological standpoint, it may be one of the worst international borders on the planet along which to build such a wall.”

But the U.S.-Mexico border isn’t the only area of concern. The other two physical barriers that pose the greatest threat to wildlife in the context of climate change are the Russian and Chinese border and the border fence currently being built between India and Myanmar. The Russian and Chinese border, like the U.S. and Mexican border, blocks animals from traveling north or south as climate zones shift. It would threaten animals including the Tibetan antelope, the goitered gazelle and the Tibetan fox. The Indian and Myanmar border interrupts a biodiversity hotspot and could threaten animals like the Indian pangolin and the sloth bear, “familiar to many as Baloo from 'The Jungle Book,'" Titley said.

In order to protect these animals, Titley recommended that governments design their border walls with animals in mind, either by including small gaps or building wildlife bridges or habitat corridors.

Greenwald pointed to the example of Glacier National Park in the U.S. and Waterton Lakes National Park in Canada, which combined in 1932 to become the first-of-its-kind Waterton-Glacier International Peace Park.4 This allows animals in both countries to move between the southern and northern parts of their range.

However, Titley, Greenwald, and Millis agreed that the best option was to forgo border walls altogether.

Removing Barriers, Protecting Wildlife

"[T]he evidence for their ability to prevent human movement is mixed, but they are almost universally bad for wildlife," Titley said.

In the context of the U.S.-Mexico border, Titley and Greenwald saw some hope in the fact that President Joe Biden has put a halt to further border wall construction. Greenwald said the CBD is now lobbying Biden to remove sections of the wall already in place.

"We could remove the border wall, the sections that have been built, and work to restore those areas" that have been damaged, Greenwald said.

Millis, meanwhile, outlined five steps that the Biden administration could take to protect wildlife in the borderlands.

1. End the legal waivers that have allowed border wall construction to proceed without standard environmental reviews and liability for damages.
2. Stop seizing private land for wall building.
3. Cancel all contracts for border walls.
4. Prosecute wall-building companies that have engaged in corruption.
5. Remove all existing barriers.

However, the ultimate solution to the problems identified by the study is larger than any one border region. The researchers also assessed the impact that climate change would have on species biodiversity within countries and found that the countries that had contributed least to the problem were the most likely to see their biodiversity diminish.

The Need for Global Cooperation

Previous studies have shown that the same inequality holds for human beings: many countries that did the least to contribute to climate change are the most vulnerable to impacts like sea-

level rise and extreme temperature swings that might force their human populations to migrate as well.56 As many as 1.2 billion people are in danger of becoming climate refugees by 2050.

To address the broader crisis, Titley called on wealthier countries to make ambitious commitments at both the UN's COP26 climate conference in Glasgow this November and the COP15 Biodiversity Convention in Kunming in May.

Greenwald also highlighted efforts to preserve 30 percent of the globe by 2030 and 50 percent by 2050.

“That actually goes a long way to addressing climate change as well because land clearance is a substantial source of emissions,” he said.

But all of these solutions require nations to work together.

“Our study shows how countries must look beyond their borders and coordinate conservation efforts to help species adapt to rising temperatures,” Titley said. “Even more critically, they must cooperate to tackle the emissions at the root of the problem.”