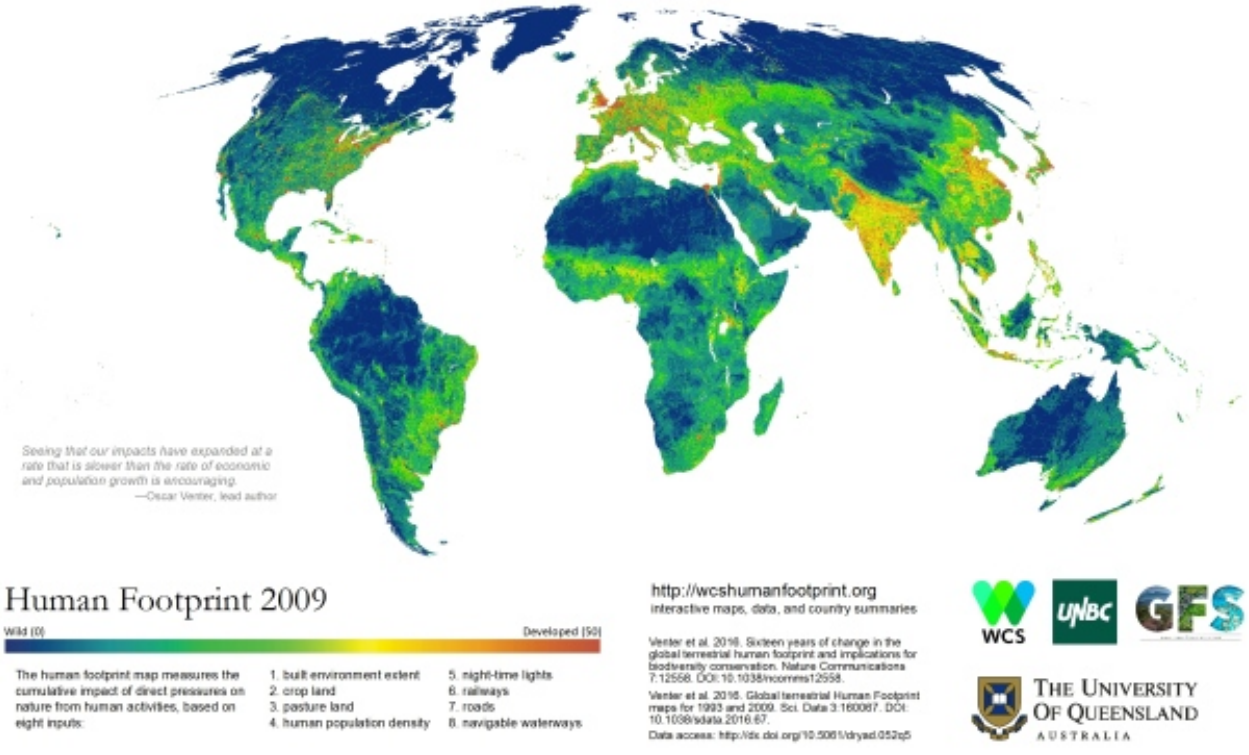
Average human's ecological impact on the planet shrinking, study suggests

But overall, habitats around the world are deteriorating, especially biodiversity hot spots

By Emily Chung, CBC News
Posted: Aug 24, 2016 11:22 AM ET
Last Updated: Aug 24, 2016 12:57 PM ET

A new study has some hopeful news about our future — the average human's impact or ecological "footprint" on natural habitats around the world is declining.

The bad news is that because human populations are increasing, humans are destroying more of the planet's natural habitats overall — especially those where the most animal and plant species live, new maps of the human footprint show.



The new maps, produced by a Canadian-led team of researchers and the Wildlife Conservation Society, look at how human agriculture and infrastructure have affected natural environments. (Wildlife Conservation Society)

The maps, produced by a Canadian-led team of researchers and the U.S.-based conservation group Wildlife Conservation Society, look at how human agriculture and infrastructure, from cities to roads to nighttime lights, have affected the natural environments across the surface of the Earth — and therefore the animals and plants that live there. It didn't include human impacts that don't directly affect land use, such as pollution and climate change.

- **Explore the human footprint maps from the Wildlife Conservation Society**

The study, published this week in Nature Communications, was based on data from 2009 and compared to results from 1992, the last time similar maps were produced by the Wildlife Conservation Society.

One surprising result was the discovery that the human footprint grew nine per cent between 1992 and 2009, even as the human population grew 23 per cent and the world economy be 153 per cent — that is, the footprint per person declined.

Footprint vs. economic growth

University of Northern British Columbia researcher Oscar Venter, lead author of the new study, said he and his colleagues had expected the human footprint to be closely linked to economic growth, but they found "there was a subset of countries which had managed to grow their economies while shrinking human footprint, which showed to us that maybe it was possible in some cases to decouple economic growth from environmental impacts, which is ultimately the direction that we'd want to head."

University of Northern British Columbia researcher Oscar Venter was the lead author of the new study. (Courtesy Oscar Venter)

The countries that showed that pattern were generally wealthy countries with strong control of corruption, mostly in Western Europe, although Venter said Canada and the U.S. also did "fairly well." Increasing urbanization seemed to be the main factor driving the reduced footprint per person.

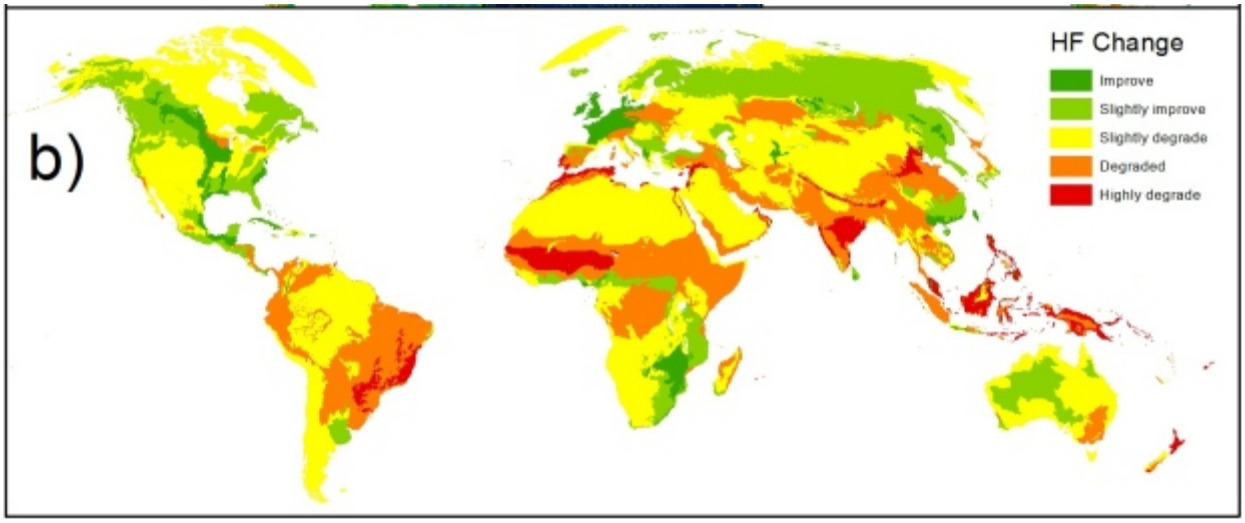
"Housing needs and transportation needs are concentrated in a much smaller area, sparing a lot of the wider landscape from our impacts," Venter said.

However, he added that the researchers are unsure whether these wealthy countries are simply "exporting their impacts overseas" by having other countries grow their crops and produce their goods.

While the researchers called the declining average footprint per person in some countries "encouraging," the maps also showed some bad news.

"Overall, the environmental condition had deteriorated quite a bit over the last 20 years," Venter said.

Only three per cent of the world saw declines in human pressure, where as 71 per cent saw average increase of 20 per cent or more.



The human footprint grew nine per cent between 1992 and 2009,
even as the human population grew 23 per cent and the world economy by 153 per cent.
(Wildlife Conservation Society)

Biodiversity hot spots hit hard

The human footprint expanded most rapidly in biodiversity hot spots — those "jam-packed with unique species," such as Brazil and Indonesia, which are developing countries seeing rapid population and economic growth, Venter said. "It's a bit unfortunate because these countries do need to develop, but at the same time, they house a lot of the most important places for nature on the planet."

Researchers say the maps are important for understanding patterns where animal and plant species are found, where they're moving to, where they're at risk of extinction, and where conservation efforts need to be focused.
(Thiago Filadelpho/Science/Associated Press)

Overall, 75 per cent of the Earth's land surface is experiencing human impacts and the remaining 25 per cent are mostly places like deserts and mountains.

Venter told CBC's *Daybreak North* that the goal of the study was to "create a fairly comprehensive picture of how humans have changed the environment over the last 20 years."

That kind of picture is important for understanding patterns where animal and plant species are found, where they're moving to, where they're at risk of extinction, and where conservation efforts need to be focused, Venter said in a separate interview with CBC News.

"Where the human footprint is high, you don't get a lot of species or species are unable to move through [those landscapes]."

Canada had the second lowest human footprint except for Greenland, due to its large size and relatively small population. The study showed that unlike most of the world, Canada still has a lot of wilderness left, although a lot of it is seeing increasing development pressures in places like the North. Venter said the study points to "important questions in terms of how we manage wilderness going forward."

http://www.cbc.ca/news/technology/human-footprint-1.3733738