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Poorly protected areas: human impacts are destroying nature's safeguards

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ABSTRACT

We found that roughly one-third of the global protected area estate (amounting to six million km^2) is under intense human pressure. Governments around the world are claiming that their protected areas are set aside for nature, while at the same time approving huge developments inside their boundaries or failing to prevent illegal damage.

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Since Yellowstone National Park became the world's first nationally designated protected area in 1872, nations around the world have created more than 200,000 terrestrial protected areas. Clumped together they would cover all of Latin America – from Mexico to the southern tip of Chile – an area of over 20 million km^2.

These protected areas are established so that plants and animals can live without the human pressures that might otherwise drive them towards extinction – things like agriculture, livestock grazing, and urbanization. They also give numerous benefits to humans, including providing clean water, mitigating climate change and acting as a setting for recreational activities, but their primary purpose is securing biodiversity.

Recognizing the value of safeguarding space for all other species on Earth, almost every nation on Earth has adopted the United Nations Strategic Plan for Biodiversity, agreeing to conserve at least 17% of their land within protected areas by 2020. With the 2020 deadline fast approaching, many countries are striving to meet this target, but there has been no global assessment of the degree of human pressure inside those areas designated as protected. This means we have no idea of whether these protected

areas are actually preventing the human pressures that harm biodiversity, or are simply protected on paper.

To understand the extent and intensity of human pressure across the global protected area estate, we utilised the updated terrestrial Human Footprint, a measure that combines satellite data on buildings, intensive agriculture, livestock grazing, human population density, night time lights, roads, railways, and navigable waterways. It is well-established that these activities are directly linked to species declines and extinctions worldwide, so if they occur on protected land they will reduce the ability of that land to conserve biodiversity. Put simply, these human pressures are not compatible with nature conservation.

We found that roughly one-third of the global protected area estate (amounting to six million km²) is under intense human pressure. Roads, mines, farms, townships, and cities all threaten these supposedly protected places.

Somewhat incredibly, 137 nations (70%) have more than half their protected land under intense human pressure. Protected areas in Western Europe and southern Asia are under the most debilitating levels of human pressure. Only 42 percent of land safeguarded for conservation — made up of only 4,334 individual protected areas — is completely free of measurable human pressure. Most of these low-pressure areas are deep in the Amazon rainforest, in the deserts of Australia and Africa, or in the far north of Canada and Europe – all places unable to support high human populations.

After discovering that human pressure was so widespread throughout protected areas, we assessed what that might mean for nation's progress towards their 17% protection target. To investigate this, we re-assessed the progress of each country but removed any protected land that is under intense human pressure.

While 111 countries have officially reached their 17% goals, if protected land under intense human pressure was excluded, 74 of these nations — just over two-thirds — would drop off that list. Moreover, the protection of some ecological types (for example, mangroves and temperate forests) would decrease by more than 70%.

Encouragingly, we did find that protected areas with strict biodiversity conservation objectives have much lower levels of human pressure compared to those permitting a wider range of human activities.

But overall our results do not tell an optimistic story. Governments around the world are claiming that their protected areas are set aside for nature, while at the same time approving huge developments inside their boundaries or failing to prevent illegal damage. This is likely a major reason why biodiversity continues to decline despite massive increases in the amount of protected land.

Our study provides a timely chance for nations to undertake an assessment of the true condition of their protected areas. Nations must start acknowledging and accounting for levels of human pressure inside protected areas when reporting on progress toward their conservation targets. This will also help identify where protected areas can be improved through ecological restoration efforts or by increasing the level of protection.

There are also some positives: when well-funded, well-managed and well-placed, protected areas are humanity's best tool for halting the threats that cause species extinctions. Recognizing this, it is time for the global conservation community to stand up and hold governments to account so they take their conservation investments seriously. This means

conducting a full, frank and honest assessment of the true condition of our protected areas.

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