Protected areas don't always boost biodiversity

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A Pied Avocet. Credit: Robert Blanken

Protected areas such as national parks have a "mixed impact" on wildlife, according to the largest ever global study of their effects.

The findings show that managing parks to protect species and their habitats is crucial—and without such management, parks are more likely to be ineffective.

Next month world leaders will gather in China to set the agenda of global conservation efforts for the next decade. Plans to formally protect 30% of the Earth's surface by 2030 are gathering pace, but the study's authors say this alone will not guarantee the preservation of biodiversity. They are arguing that targets need to be set for the quality of protected areas, not just the quantity.

The study focussed on waterbirds, examining the impact of 1,500 protected areas (in 68 countries) on more than 27,000 waterbird populations, but the findings are likely to have wider relevance to conservation.

The study was led by the universities of Exeter and Cambridge and is published in the journal *Nature*.

"We know that protected areas can prevent habitat loss, especially in terms of stopping deforestation," said lead author Dr. Hannah Wauchope, of the Center for Ecology and Conservation on Exeter's Penryn Campus in Cornwall.

Black Tailed Godwit. Credit: Robert Blanken

"However, we have much less understanding of how protected areas help wildlife.

"Our study shows that, while many protected areas are working well, many others are failing to have a positive effect.

"Rather than focussing solely on the total global area protected, we need more focus on ensuring areas are well-managed to benefit biodiversity."

The study uses a "before-after-control-intervention" method—comparing waterbird population trends before protected areas were established with trends afterwards, and also comparing the trends of similar waterbird populations inside and outside protected areas.

This provided a much more accurate and detailed picture than previous

studies.

"We are not saying protected areas don't work," Dr. Wauchope said.

"The key point is that their impacts vary hugely, and the biggest thing this depends on is whether they are managed with species in mind—we can't just expect protected areas to work without appropriate management.

A Pied Avocet. Credit: Robert Blanken

"It also appears that larger protected areas tend to be better than smaller

ones."

The study focussed on waterbirds because they are well studied and found in many locations worldwide, and their mobility means they can quickly colonize or leave a location based on the quality of the conditions.

The research team included Wetlands International and the universities of Bangor, Queensland, Copenhagen, and Cornell, and the research relied on the efforts of many thousands of volunteers across the world to collect the data on waterbird population numbers.

Professor Julia Jones from Bangor University, a co-author of the study, said "To slow biodiversity loss, we need a much better understanding of which conservation approaches work, and which don't. This analysis gives really useful indications of how conservation can be improved to deliver better outcomes for species."

A Ruddy Shelduck. Credit: Imran Shah

Data on waterbirds in North America came from the National Audubon Society. The research team included Wetlands International and the universities of Bangor, Queensland, Copenhagen, and Cornell, and the research relied on the efforts of many thousands of volunteers across the world, organized by the Christmas Bird Count (National Audubon Society) and the International Waterbird Census (Wetlands International), to collect the data on waterbird population numbers

The paper is entitled: "Protected areas have a mixed impact on waterbirds, but management helps."

More information: Hannah Wauchope, Protected areas have a mixed impact on waterbirds, but management helps, *Nature* (2022). DOI: 10.1038/s41586-022-04617-0. www.nature.com/articles/s41586-022-04617-0

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