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Birds increase forest recovery by dispersing seeds

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Tropical forests, teeming with life, rely heavily on birds to recover naturally. [Birds](#) like the collared araçari play a vital role in the growth of diverse young forests by dispersing seeds of various tree species.

Recent findings from the lab of Professor Thomas Crowther at [ETH Zurich](#) shed light on a significant barrier to natural forest regeneration. In the Atlantic Forest of Brazil, where data was gathered, wild birds enhance carbon storage by up to 38%. This uplift is vital for the forest's health and our planet's climate.

What is carbon storage?

Carbon dioxide (CO₂) is a greenhouse gas. This means it traps heat within Earth's atmosphere, contributing to the overall warming of our planet. Excessive amounts of CO₂ lead to significant disruptions in



atmosphere. During photosynthesis, they absorb CO₂ and convert it into sugars for energy. The carbon from the CO₂ is then stored within the tree's trunk, branches, leaves, and roots, helping the tree grow.

Large, healthy forests act as massive carbon sinks. This means they actively remove significant amounts of CO₂ from the atmosphere. Reducing the levels of CO₂ in our air helps mitigate the effects of climate change and protects the planet for future generations.

Seed dispersal in forests by birds

Birds play a crucial role in seed dispersal, particularly in maintaining the health and regeneration of forests. Many birds feed on fruits that contain seeds. As they eat, they ingest the seeds along with the fruit.

After eating, birds fly across various distances, carrying the seeds within them. This mobility allows seeds to be dispersed over a wider area than many other natural dispersal mechanisms.

Eventually, the seeds are excreted by the birds in different locations from where they were consumed. This dispersal through bird droppings introduces plant species into new areas.

The seeds, now in a new location and often mixed with natural fertilizers from the bird's droppings, can germinate and grow into new plants.

Fragmented forests: A problem for birds, seeds and us

Deforestation doesn't just remove trees; it disrupts crucial ecological processes like seed dispersal by [birds](#). Smaller birds tend to consume large quantities of seeds but favor smaller seeds from trees with limited carbon storage potential.

Larger birds, like the Toco toucan, target larger, carbon-rich seeds. However, they are less inclined to venture across the open spaces created by deforestation. This means fragmented forests lose out on



forest recovery. Landscapes maintaining at least 40% forest cover, with distances between forest patches not exceeding 133 meters (around 435 feet), allow birds greater freedom of movement. This translates to increased seed dispersal and a better chance for the forest to regenerate.

“This crucial information enables us to pinpoint active restoration efforts – like tree planting – in landscapes falling below this forest cover threshold, where assisted restoration is most urgent and effective,” explained Daisy Dent, lead scientist at the Crowther Lab.

Bird seed dispersal beyond tree planting

While planting trees is a crucial aspect of reforestation efforts, it doesn't guarantee a fully restored, functional forest ecosystem. This study emphasizes that successful forest regeneration goes beyond just the sheer quantity of trees.

Natural processes, like seed dispersal by [birds](#), have evolved over millennia. These processes ensure that the right mix of tree species thrives in a given environment. This leads to a more resilient and biodiverse forest with increased long-term benefits.

Sometimes, creating the right conditions is all it takes for nature to work its magic. Restoring forest connectivity and protecting key species, like fruit-eating birds, creates a space for natural regeneration to flourish. This approach recognizes that the most effective solutions often involve working in tandem with nature rather than trying to replace it.

How we can help the forests and birds seed dispersal

To ensure a balanced relationship between forests and [bird](#) seed dispersal, the following steps can be considered:

Connect the fragments

bird species.

- Promoting diversity: Corridors not only allow for safe passage, but they expand the foraging range for birds. This increases the chances of seeds from a wider variety of plants being dispersed as birds move about.

Fruit feast

- Supporting the seed spreaders: Native fruit trees fulfill the dietary needs of local bird populations, making them more likely to stay in the area and continue dispersing seeds. These trees are a vital food source, especially during times when other resources may be scarce.
- The right kind of fruit: Planting the native fruit trees that birds have co-evolved with ensures better success. These are the fruits the birds naturally recognize and prefer, making them more effective seed distributors for the local ecosystem.

No hunting zones

- Ecosystem balance: Poaching disrupts the natural balance by removing birds from their vital roles as seed dispersers. Protecting them maintains healthy populations that contribute directly to the forest's ability to regenerate.
- Beyond just birds: Often, anti-poaching measures and protected areas benefit a wide variety of wildlife, not just birds. These can have cascading effects on the health of the forest as a whole.

Spread the word

- Changing perceptions: Many people might not understand the intricate relationship between birds, seeds and forests. Educational campaigns can shift this mindset and promote the appreciation for birds as more than just pretty creatures.
- Advocacy and action: Increased public awareness can lead to greater support for conservation policies, funding for restoration projects, and individual choices that have positive impacts on bird habitats.

forest restoration,” explained study co-author Danielle Ramos.

Study significance

“We have always known that birds are essential, but it is remarkable to discover the scale of those effects,” said Professor Crowther. This study shows us that forests aren’t just a bunch of trees – they’re complex communities.

By protecting and restoring these habitats and the amazing creatures that call them home, we’re not just saving birds, we’re investing in our planet’s future.

The study is published in [Nature Climate Change](#).

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