

Are some rainforests too rainy?

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For decades, biologists who watched these annual migrations up and down mountains believed the impetus was [food availability](#). New evidence from The University of Western Ontario, however, suggests that birds are instead escaping bad weather.

The research by Alice Boyle, an NSERC postdoctoral fellow in Western's Department of Biology and the Advanced Facility for Avian Research (AFAR), and her co-authors (Ryan Norris, University of Guelph and Chris Guglielmo, Western) is published in an upcoming edition of the [Proceedings of the Royal Society B](#), the Royal Society's flagship biological research journal.

Boyle and colleagues studied a species of small tropical fruit-eating bird, the White-ruffed Manakin (*Corapipo altera*), on the Atlantic slope of Costa Rica. They hypothesized that these birds risk running out of energy when torrential downpours make it impossible for them to forage for food.

In previous work, Boyle showed that higher-elevation breeding sites have more food so the reason why some birds migrated away was a mystery. However, lower elevations (where the birds migrate to) receive only half the rainfall, and she observed that the smallest birds and the birds in poor condition were the ones to leave.

The authors show that birds respond adversely to heavy rain, and that birds who do not migrate and remain at higher elevations are worse-off than birds that migrate downhill. They also found that as soon as the weather begins to deteriorate, the migrants arrive in the lowlands.

“All the puzzle pieces have come together,” says Boyle. “We knew that birds that eat mostly fruit and nectar were more migratory than insect eaters, but the patterns of food availability didn’t match what you’d predict. Now, with information on ways that rain stresses birds, it makes sense that the small birds that eat what is essentially ‘junk food,’ would run out of energy the soonest when rains prevent them from foraging.

“We know that in coming decades the timing and intensity of storms in the tropics are going to change, so these results imply that migration patterns of many species may change dramatically. Understanding how weather affects movement patterns will help us better conserve tropical animals.”

Provided by University of Western Ontario

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