

# Nuts go furthest with the early bird

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Toucans in the tropics disperse nutmegs the furthest in the morning, according to research by Wageningen UR ecologist Patrick Jansen.

Imagine that you are a wild nutmeg tree in South America and you want to give your descendents a good start in life. What would you do? The best method would be to discharge the nuts in the morning and make sure that they travel for about an hour in the crop of a hungry toucan. The nuts will then have the best chances of ending up as far away from the mother tree as possible.

Wild nutmeg trees in South America depend mainly on toucans for [seed dispersal](#). These birds are crazy about these fruits. Not for the nut itself, but for its outer pulp, called mace. That bright red casing is full of fats and proteins. After peeling away the casing, the bird regurgitates the seed.

A lot has already been known about this way of seed dispersal. However, one thing remains unsuccessful: to determine how far toucans disperse these seeds. Tracking birds in a thick forest is practically impossible. Until now. Jansen (Center for Ecosystem Studies) and colleagues followed the daily movements of toucans in Panama by hanging on them backpacks with equipment. A [GPS device](#) maps the location and an [accelerometer](#) indicates clearly when the bird is eating.

Subsequently in Artis, a zoo in Amsterdam, it was determined how long it takes before a toucan regurgitates a processed seed. When these details are matched, the dispersal chances of seeds can be calculated. It has been

estimated that seeds are dispersed an average of 144 metres from the mother tree. One out of five seeds travels 200 metres and some [seeds](#) even make it to a kilometre. By the way, toucans fly the furthest in the morning.

Provided by Wageningen University

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