

# Giant tortoises show rewilding can work

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'Rewilding with taxon substitutes', the intentional introduction of exotic species to fulfil key functions in ecosystems following the loss of recently extinct species, is highly controversial, partly due to a lack of rigorous scientific studies.

In a paper published today in [Current Biology](#), Christine Griffiths of Bristol's School of Biological Sciences and colleagues present the first empirical evidence that rewilding can work.

Exotic giant Aldabra tortoises, *Aldabrachelys gigantea*, were introduced to Ile aux Aigrettes, a 25-hectare island off Mauritius, in 2000 to disperse the slow-growing ebony *Diospyros egrettarum* (*Ebenaceae*), which once covered the island, but today is critically endangered following intensive logging for firewood that lasted until the early 1980s.

To highlight the extent to which the ebony forest had been decimated, the researchers surveyed and mapped all ebony trees in an island-wide survey in 2007 and located a total of 3,518 adult trees. However, large tracts of the island remained denuded of ebony, particularly in the northern and eastern coastal areas nearest to the mainland where logging was most intense.

There had been no regeneration in these areas even though logging ceased thirty years ago because, with the [extinction](#) of the island's native giant tortoises, there were no large fruit-eating animals left to disperse the seeds of these critically-endangered trees.

The introduced Aldabra [tortoises](#) not only ingested the large fruits and dispersed large numbers of ebony seeds, but the process of passing through a tortoise's gut also improved [seed germination](#), leading to the widespread, successful establishment of new ebony seedlings in the heavily logged parts of the island.

Christine Griffiths said: "Our results demonstrate that the introduction of these effective seed dispersers is aiding the recovery of this critically endangered tree whose seeds were previously seed-dispersal limited. Reversible rewilding experiments such as ours are necessary to investigate whether extinct interactions can be restored."

Professor Stephen Harris, co-author of the study, said: "Ecological restoration projects generally involve the plant community, as more often the animal components are extinct. There is, however, increasing evidence that restoration ecologists should be most concerned with the decline of species interactions, rather than species extinctions per se. Species interactions structure ecological communities, and provide essential ecosystem processes and functions such as pollination, seed dispersal and browsing, that are necessary for the self-regulation and persistence of a community."

**More information:** Christine Jane Griffiths, Dennis Marinus Hansen, Carl Gwynfe Jones, Nicolas Zuël and Stephen Harris, Resurrecting extinct interactions with extant substitutes, *Current Biology* (2011).

Provided by University of Bristol

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