ants, rats, and people: Seed dispersal of an economically important rainforest tree in Tanzania

Author(s)

Carrie E. Seltzer

Colin T. Kremer

Henry J. Ndangalasi

Norbert J. Cordeiro

Abstract

Background/Question/Methods An international market is emerging for oil-rich seeds from the African tree genus Allanblackia. Allanblackia stuhlmannii (Clusiaceae) is a canopy tree endemic to the Eastern Arc Mountains of Tanzania. Recently, humans have begun heavily collecting seeds throughout the Amani Nature Reserve (ANR) in spite of its prohibition, and there is concern that illegal seed harvest will diminish the regeneration of Allanblackia over the long term. The objective of this project was to determine how Allanblackia seed fate and dispersal varies under different levels of seed availability. Twelve 50 by 50 m plots containing at least 4 fruit-bearing trees were established in ANR. Seed addition within plots was recorded by counting the number of fresh fruits during each visit to the plot. Within each plot, removal trials were conducted at seed stations containing 16 seeds each. Each seed was weighed and marked with a wire, flag, and thread bobbin to aid in the post-dispersal recovery. Seeds were checked after 4, 8, 12, and 28 days and monthly thereafter. The location, dispersal distance, and condition of seeds was recorded at each visit. Each plot had one camera to identify seed dispersers at a subset of seed stations. Results/Conclusions Preliminary analyses show that increasing fruit abundance decreased the probability of seed removal and increased the time to seed predation/disappearance, but did not affect the distance seeds were moved. Seed weight did not influence the probability of being removed from a seed station but the distance moved increased with seed weight. Giant pouched rats (Cricetomys gambianus) were the most common seed dispersers (79% of 1514 photos). Seeds were broken off of the wires for nearly half of the seeds at some point in the experiment meaning the ultimate fate is unknown because it could have been

re-cached or eaten. Monthly monitoring continues to follow seed fate of the remaining seeds. From these results we conclude that reduced seed availability, potentially due to human harvesting, alters Allanblackia seed predation and dispersal in ways that may decrease regeneration.