

Project Updates: November 2013

Preliminary experimental trails on seed predation and seed formation of *Coffea kihansiensis* in the Kihansi gorge forest

We conducted experimental trails in November 2013 to test for the effect of seed predation and to gain insight on the animals predated seeds of the endangered Kihansi coffee. Seed predation cages (N = 23 sets) were installed across the species range; Mhalala (n = 5), Kihansi Upper (n = 6), Kihansi Lower (n = 5) and Kihansi research Station (n = 7) following elevational gradients. Each set of the experiments received three treatments, cage-complete protection (invertebrates- allowable, T1); cage-with one hole to allow rodents and invertebrates (T2) and unprotected seeds (C-control) (Fig 1a-b). These treatments were used along with 10 coffee dry fruits each and were left for 5 days. Inspection of the cages was done after every 24 hours until the fifth day after which the experiment was halted and remained seeds removed.

Preliminary results indicate that post-dispersal coffee seeds do face significant pressures of seed predators. Circumstantial evidence suggests that both invertebrates and vertebrate rodents play a big role in seed predation in the Kihansi gorge forest (Fig 2a). However, the current evidence is only indicative, does not confirm what exactly the animal species are as we have not spotted any animal when eating the seeds. The photographs displayed here were only taken on the animals found in proximity (within few centimetres) to the experimental seeds indicating predation signs (Fig 2a). Subsequently predation trials will be conducted with some camera traps on to ascertain these seed predators. Further, a sample of coffee stems (n= 92) were tagged (Fig 3a) for subsequent examination of seed formation and predation during the species breeding cycle. The sampled coffee stems all had some fruits set (Fig 3b) and were enumerated to estimate the number of fruits per coffee stem and will be monitored each month until June, 2014 after fruit dispersal.

Photographs captured during the field work in the Kihansi gorge forest



Fig 1a: A researcher installing seed predation cage in the Kihansi gorge forest (photo by Person Kalenga)



[Fig 1b: One of the control experimental trials in the Kihansi gorge forest



Figure 2a: Some of the seeds on the Control sites showing evidence of predation in the study area (photos by Alfian Rija)



Fig 2b: Some of the animal species (From left, black ant, cricket, beetle and land crab found in proximity to the experimental seeds in Kihansi gorge forest. A land crab (left below) was highly associated with fruit removal and caching in rock crevices at Mhalala (photos by Alfian Rija)



Fig 3a: A researcher (with assistants) putting identification tag on a coffee stem for subsequent monitoring of seed formation and predispersal seed predation

Fig 3b: *C. kihansiensis* showing some fruits emerging from wilted flowers.

