

Direct Seeding of Tropical Forest Trees on Abandoned Farms in Indigenous Territory of the Ecuadorian Amazon

Erica Van Etten¹

¹ School of Natural Resources & the Environment, University of Florida, Gainesville, FL, USA

Regenerating tropical forests often contain a fraction of their former biodiversity, due in part to a lack of seed dispersal of large-seeded species. Direct seeding may be an efficient method of enriching naturally regenerating forests with native species useful to both humans and wildlife.

The purpose of this research was to quantify seed removal rates, germination, and initial survivorship of buried and surface sown seeds of four large-seeded tropical forest trees. The species tested were *Inga densiflora*, *Caryodendron orinocense*, *Gustavia macroensis* and *Eugenia c.f. egensis*, which are considered incipient pre-colombian domesticates and consumed by the Shuar of southeastern Ecuador. A full factorial design of buried/unburied and caged/uncaged treatments was established in 4 parcels of 5 – 25 year old secondary forest. Seed removal, germination and mortality were monitored bi-weekly for 10 weeks.

Seed removal averaged less than 1%, and seed burial did not significantly affect removal rates for any species. Germination rates ranged from 100% (*Inga* and *Gustavia*, surface sown) to 53% (*Eugenia*, buried), with an average of 85.9% across species and treatments. Seed burial reduced germination for *Eugenia* ($p = 0.0043$), *Gustavia* ($p = 0.0117$) and *Inga* ($p = 0.0048$) but not for *Caryodendron* ($p = 0.7480$). Average post-germination mortality was 5.3% (range 0 – 15.2%), with 72.3% of all germinated seeds surviving as seedlings at 10 weeks.

Results of this research suggest direct seeding of these large-seeded species is a viable method of establishing tree seedlings within secondary forest. Surface seeding is recommended over buried seed, and seed predation is minimal.

Keywords: Direct Seeding, Enrichment Forestry, Shuar, Ecuador

Contact information: Erica Van Etten, School of Natural Resources & the Environment, University of Florida, Gainesville, FL 32611, USA; Phone: 607-279-6402; Email: ericavanetten@gmail.com