

Study on dispersal and germination in link with the restored ecosystem dynamics

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New Caledonia has the delicate mission to conciliate its exceptional biodiversity (74.7% of endemic plant species) and the rapid development of human activities. One of the most important threats is the habitat fragmentation especially due to mining activities or fire. Since 40 years, revegetation has been developed to reduce such an impact but ecological restoration concept appeared more recently, about fifteen years ago. Nowadays, New Caledonian's research programs dealing with ecological restoration tend to take into account ecosystem services and their restoration. In this context, a program is now engaged to evaluate the natural capacity of recolonization on planted zones after mining activities in the south of New Caledonia on the Goro plateau. Two approaches were developed. First, we evaluated the plant recruitment (density and diversity) on the plantation to estimate both if its coming from the planted individuals or from the surrounded environment and also the success of recolonization after about 15 years. Secondly, these results were related to the floristic composition of the four natural surrounded vegetation. Also, a large synthesis on what is already known regarding seed ecology has been carried out into plants species occurring on these vegetations. A database was constructed containing values on their life-traits (41 such as the reproductive type, the adult height, the type of fruit, the size and weight of seeds, the dispersion type, the germination and dormancy types). An analysis of all these data will be presented. It allowed us to evaluate the success after 15 years but also the reason of non-success in relation with biotic (dispersion, species choice...) and abiotic factors (soil, sun exposure, dominant wind, topography...). We finally propose practical management plan for future plantation. Finally, our data will be also used to propose a strategy for the establishment of ecological continuum on this zone.