CURRICULUM VITAE

Personal informations:

First name: Marie Rolande

Last name: SOAZAFY

Date and place of birth: 27 march 1991 in Tanambao V Anatsiranana

Tel: +261 24 791 21

E-mail: rolandesoa@yahoo.fr / rolandesoa2013@gmail.com

Home adress: Lot N14 Ambatomitraka Antalaha

Professional adress: University center of SAVA region, Ambondrona, Antalaha

Obtained degrees:

2014-2015 : Higher and specialized degree in Integrated Management of Forests and Tropical Territories at ERAIFT School in Democratic Republic of Congo

2012-2014 : Master's degree in the valuation of plant biodiversity at University of Mahajanga

2009-2012 : Bachelor of Science in Life and Environment at University of Mahajanga

2008-2009 : Baccalaureate serie D at Anatalaha high school

Professional experiences:

2016 until now: Temporary teacher in the University Center of the SAVA Region

July 2017 - July 2020: research assistant and Phd candidate in the “Diversity turn in land use science” a research project in cooperation with the University of Gottingen

October 2017 - December 2017: consultant as agricultural technician of the NGO “Zanakambanivolo” in the project “emergency food assistance and support to the fast restoration of the livelihoods of vulnerable households victims of cyclone ENAWO”, within the district of antalaha.

2015-2017: Teacher of Science of life and earth at Saint Jean College Antalaha

2015-2017: Teacher of the computer science course at the Paramedical Institute of the SAVA region (IFPSAVA)

Informatic tools : Microsoft office (Word, Excel, Power point, outlook), beginners in R statistical software

Linguistic knowledge :

French: with international degrees DELF B2 and DALF C1

English: medium level, able to understand and to communicate

German: beginner level

I declare on my honor that the information concerning me mentioned above is accurate.

Signature

SOAZAFY Marie Rolande

Abstract

Vanilla is an orchid originally found in tropical rainforests, and its cultivation becomes a shade tolerant practice. It increases tree canopy cover and behaves like a sustainable livelihood mechanism to protect water, forests, and soil, to prevent slash-and-burn agriculture. The vanilla vine requires a tutor tree, for supporting it and shade trees. Thus, to grow vanilla, farmers need to either keep existing trees on their farm or plant new trees. So it could contribute to tree conservation in case if native trees or rare tree species is included in this plantation.

According to this vision, my research project for Phd candidate is established on the title: "Tree diversity within vanilla plantation landscape". This research is realized as part of the project "Diversity turn in land use science" in collaboration with University of Mahajanga, University of Goettingen and university center of SAVA region. The main objective is to demonstrate the proportion and the importance of tree diversity in vanilla plantation and in other land use types.

In this research, the model of tree diversity and tree abundance is planning in order to define if vanilla plantation could contribute to endemic tree conservation despite human pressure. The invasive and introduced tree species influence tree conservation in vanilla plantation for predicting the future of extending vanilla cultivation over a wide expanse of space.

Making a model of tree's capacity in carbon sequestration within vanilla plantation is also planned. A plantation could be a "Carbon well" depending on the management by farmers and on canopy cover gradient.

A Statement of Interest and Intent

The use of land changes over time as both natural and man-made environments are influenced by the pressures associated with the processes of development. In order to understand and explaining the causes and consequences of land use dynamics, modeling is required. Land-use change models help us to understand the complexities and interdependencies of the components that constitute spatial systems and can provide valuable insights into possible land-use configurations in the future (A. Veldkamp and P.H. Verburg, 2004).

Vanilla plantation changes environmental landscapes in SAVA region due to invasion of introduced tree species in its cultivation. In fact, vanilla cultivation required tutor tree for supporting it and shade tree for its development. In SAVA region, most tree used in vanilla cultivation are introduced species such as: *Gliricidia sepium*, *Jatropha curcas*, *Clausena excavata*, … like tutor. Besides the last survey on trees in vanilla plantation in SAVA region was on 1963 by Gilbert Bourriquet, and he found that most of people use introduced and naturalized species as tutor or shade trees in their vanilla field.

Then vanilla prices increase since 2015, increase also the development of vanilla economic value and cause in the near future the regression of native tree species. Because, people will have the intention to change their land into vanilla plantation and in the same time, cut existent tree for introduced tree species. So the model of the land use conversion from natural woody area to a vanilla plantation trough times seems to be very interesting for understanding the progression of native tree conservation. That's why, tree inventory was conducted with identification of their scientific name, their originality (native or introduced) and their conservation status according to IUCN criteria.

Moreover, most of those introduced species planted in vanilla plantation are invasive, and farmers start complaining that they have to do pruning and cutting trees for the plantation management many times in a year. So taking care of vanilla farm spends a lot of time and the yield is just once per year. In this case, the model of invasive tree species in vanilla cultivation will be helpful to known the trend of this invasive species on surrounding landscape and on economic effect.

The carbon sequestration by tree in vanilla plantation is planning to be estimated using the method of Chave *and al in 2012*. So modeling influence of tree progression in vanilla plantation on carbon stock is worthy regarding tree diversity index, abundance of introduced tree species, invasive, and native tree in SAVA region. So carbon sequestration by vanilla plantation may have an influence on political decision and farmer's choice for his plantation's management.

In all, modeling tree trend in vanilla plot may influence the decision of farmers for what tree can be planted, also for local authority to think about the carbon sequestration that trees in vanilla plantation can provide and for environmental organizations to consider that vanilla plantation may provide a survival condition for native tree or rare tree species. In the future, the sustainable development within vanilla farm could be reached by the possibility of native

tree species used as shade tree our tutor, by selling carbon from trees in the plantation as an economic value and by providing better life condition for the farmer.