

# Universität **Hohenheim**

Biodiversity and Land Rehabilitation in the Tropics and Subtropics

## Diversity Assessment of the Tropical Legume Genus Stylosanthes: A Research Project in Venezuela

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#### Introduction

- · Stylosanthes is probably the most important tropical nongrain legume genus (e.g. for purposes such as forage, soil cover, soil improvement).
- Some species have a particular importance for low-input agro-ecosystems in tropical and subtropical America, Australia, Africa, Southeast Asia, India and China,
- · Venezuela can be considered, after Brazil and Mexico, as the third center of diversification of Stylosanthes.
- A group of well-researched species, i.e. S. humilis, S. guianensis, S. hamata, S. scabra, S. capitata, and S. macrocephala has been the subject of agronomic research that led to the release of a number of commercial cultivars. Nevertheless, diversity of the genus is far from being understood.

### **Objectives**

- To assess the diversity of the genus Stylosanthes in Venezuela using both morphological and molecular analyses.
- To collect seed and nodule samples of Stylosanthes species occurring in Venezuela, assess local knowledge about the species, and identify particularly promising species or ecotypes, e.g. for soil conservation, grassland improvement and forage.



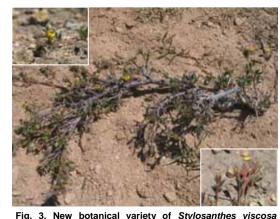
Fig. 1. New species Stylosanthes venezolensis ined. (in its natural shady habitat, Distrito Capital)



Fig. 2. New species Stylosanthes falconensis ined. (at Sierra de San Luis, State of Falcón)

#### **Partial Results**

- A comprehensive biogeographical database of Venezuelan Stylosanthes species was assembled, containing approximately 1,500 entries.
- An inventory and taxonomic determinations of all Venezuelan Stylosanthes species, germplasm accessions and herbarium specimens were accomplished, including two as yet not described new species, i.e. Stylosanthes venezolensis and S. falconensis (Figures 1 and 2), and one new botanical variety of Stylosanthes viscosa (Figure 3) from high altitudes (above 2,500 m asl).
- S. quianensis and S. scabra are the most diverse Stylosanthes species in Venezuela; they deserve further treatment at the infraspecific level.
- Most of the Venezuelan Stylosanthes species are well adapted to dry environments: perennials have tap roots (Figure 2) and thus can reach deep soil layers, whereas annual species produce particularly large quantities of seed.
- Germplasm collection gaps were identified using the biogeographical database. Information will be used for planning further collection trips.



(vicinity of El Paramito, State of Mérida)