


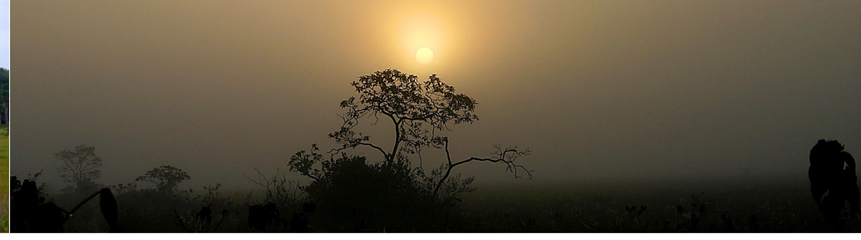

FRENCH GUIANA'S SAVANNAS: ENHANCE ECOLOGICAL KNOWLEDGE FOR CONSERVATION AND MANAGEMENT

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Abstract

The preservation of French Guiana's savannas, about which there is still very little knowledge but which are one of the most threatened habitats of the département, has become an increasingly important issue in the last years. In 2011/2012, GEPOG (Group for the Study and Protection of Birds in French Guiana) carried out botanical, ornithological and soil studies on 90 sample points located in the savannas of the central coast. The objective was to answer following questions: 1) Are the grasslands homogeneous or are they composed of distinct plant communities? 2) Can soil characteristics explain plant community patterns? 3) Can plant community patterns explain bird assemblages? 4) Are there indicators of human impacts on the savannas? The results show that: 1) The central coast savannas are composed of a mosaic assemblage of numerous distinct habitats; 2) Soil composition does not explain plant community patterns, except for white sand soils; 3) There are no bird indicator species of specific habitats; 4) There are no bird indicator species of human impacts, however a list of 13 indicator plant species has been identified.

Introduction: Savannas are…

… interesting

- >15% département's vegetation diversity
- long common history with human activities and traditions


1. Savanna anthropization seen from above

… threatened

- located as patches (biggest savanna = 20km²),
- located along the coast → most urbanized area (90% of population)

- rare: 0.3% of the département's surface (about 260km²),
- nearly unstudied

Materials and Methods

90 sample points along the central coast savannas

- **Botany**
  - List of species for every identified habitat in 100m radius
  - Mapping
  - Classification and Correspondence Analysis



2. Botanical data collection


4. Ornithological data

- **Ornithology**
  - Presence/Absence of bird species for 3 point count surveys
  - Site Occupancy analysis

- **Pedology**
  - Composition of all the horizons until 1m20
  - Classification : Principal Component Analysis + Hierarchical Clustering
  - Analysis of the link with habitats using Khi²


3. Pedological data collection



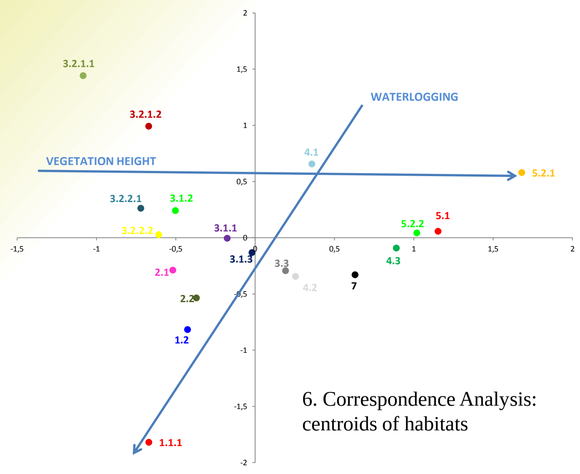
5. Fire traces and shrubs

- Presence/Absence of fire, pasture, trails, plowing
- Distance to the next road, to the forest
- Number of shrubs
- Modelling with PAST software

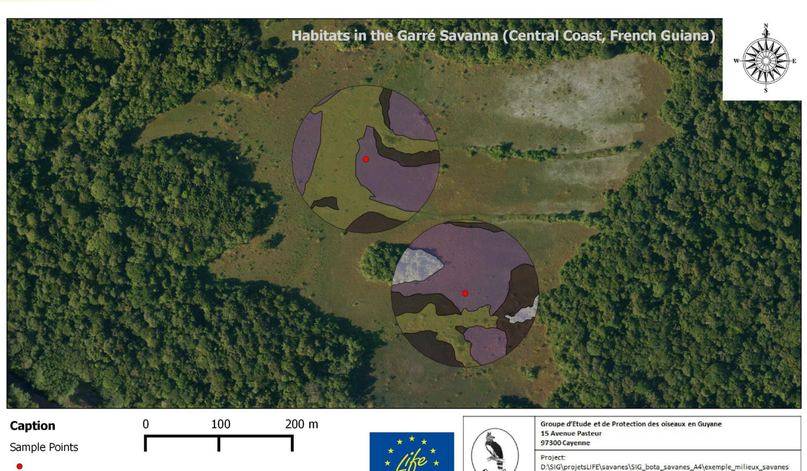
- **Plus…**

Habitat Results

- Sampled savannas are composed of **21 habitats** which can be categorized in a 4-level-typology.
- **Up to 6 habitats** can be found in a 100m radius.
- Soil composition does generally **not explain** the habitat types (p-value = 0,07), except for white sand soils (p-value = $2{,}0.10^{-4}$), but waterlogging does.



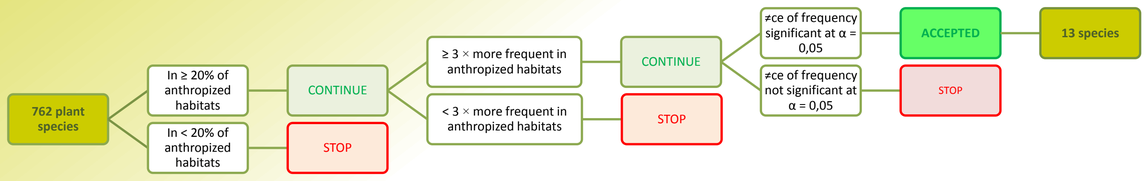
6. Correspondence Analysis: centroids of habitats



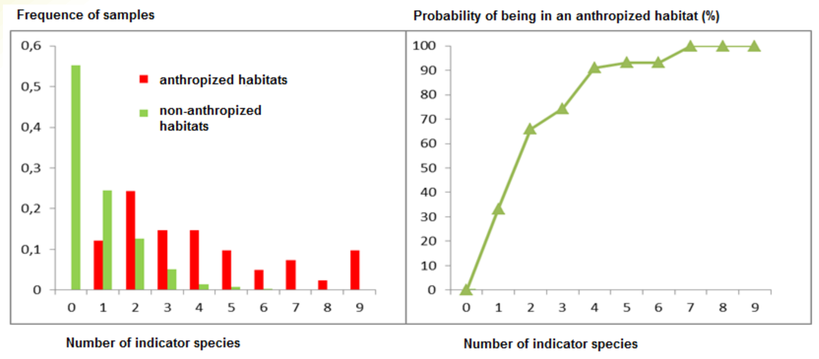
7. Mapping of habitats

Indicator Results

- Birds **are not a pertinent group as indicators** for savanna habitats or anthropization in French Guiana.
- **Plants can be used as indicators** for anthropization.

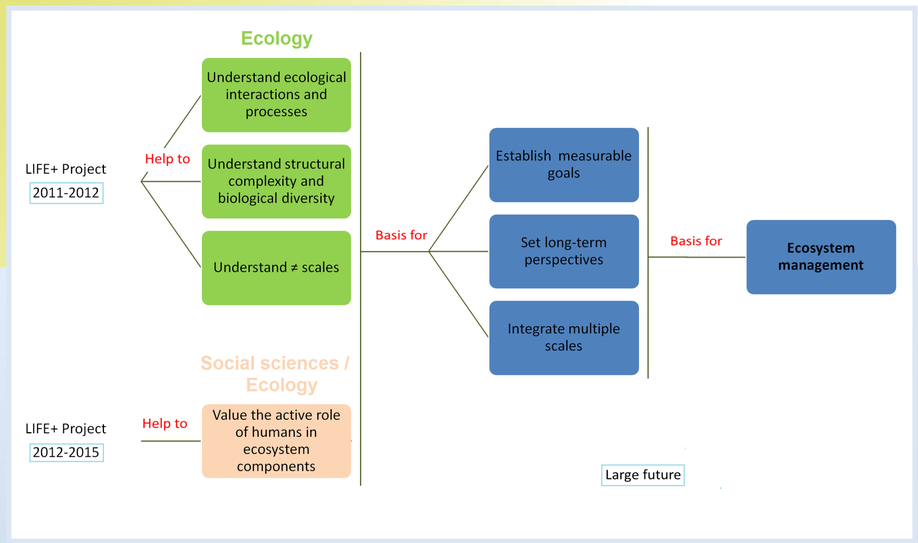


8. Decisional framework for the final species set elaboration



9. Value of indicator species

Discussion/Conclusions




9. Trou-Poissons savanna landscape




Project web page: www.lifecapdom.org
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Acknowledgments

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