A new interpretation of the lowland savanna ecosystem in Belize from SPOT imagery

DARWIN INITIATIVE

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Why Savannas?

Lowland savannas are rich in **biodiversity**, provide **habitats** for many endangered species and are a significant **carbon store**. However, Belizean savannas are **under threat** from agriculture, shrimp farming and urbanisation.

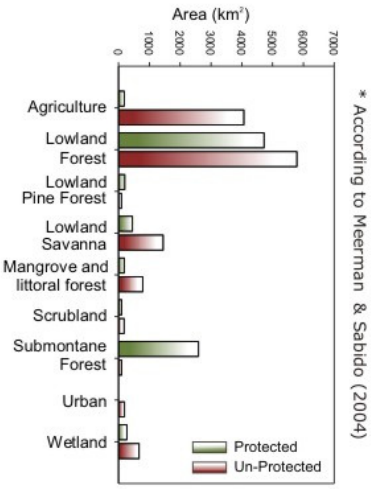
Purpose

To produce new, more current **nationwide** mapping of the lowland savannas to support **conservation** and **management**.

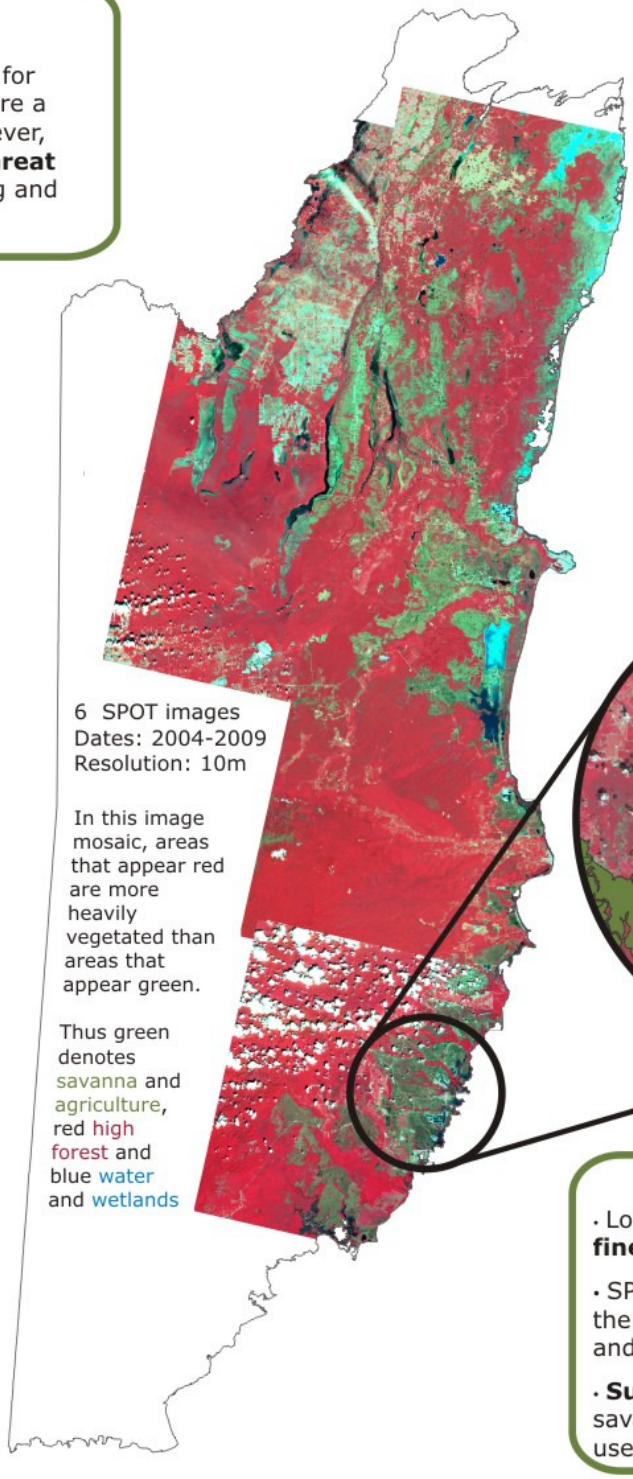
Objectives

- Accurately identify the **extent** and **composition** of the lowland savanna ecosystem
- Identify priority areas for field assessment

Gap analysis of ecosystems* vs protected areas



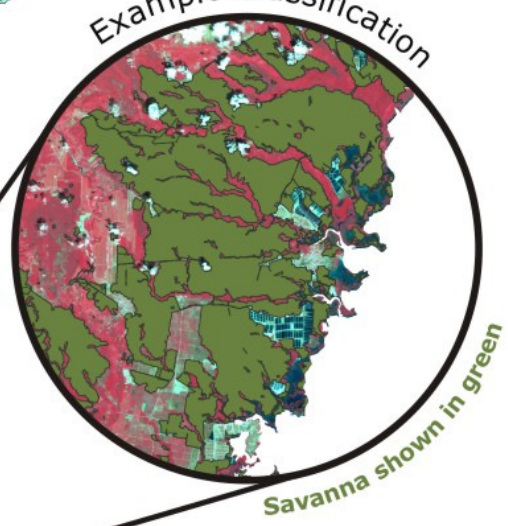
This gap analysis shows that the lowland savannas of Belize are poorly protected in comparison to high forest.



6 SPOT images
Dates: 2004-2009
Resolution: 10m

In this image mosaic, areas that appear red are more heavily vegetated than areas that appear green.

Thus green denotes savanna and agriculture, red high forest and blue water and wetlands



Analysis

- Segmentation identifies areas of similarity in each image.
- Savanna classified using a hierarchical,rule-based approach based upon reflectance and image texture.

Findings

- Lowland savanna is classified at a **finer scale** than previously possible.
- SPOT imagery provides insight into the internal **composition**, **structure** and **condition** of the ecosystem.
- **Substantial areas** of unprotected savanna revealed to be **lost** to other uses in the last decade.