

Ecosystem Evaluation

DOMAIN: Land cover/Land use

Content

As under climate change conditions the frequency and severity of weather extremes (e.g. droughts and floods) is increasing, the concern arises over the integrated, efficient, equitable and sustainable management of resources and the preservation of natural and semi natural habitats. This EO based service provides an approach to determine spatially explicit synergies and trade-offs between climate-relevant ecosystem services provided e.g. by agriculture and watershed management. The product differentiates between areas where the ecosystem services have a greater benefit and areas where they have less impact, respectively. Based on this, the importance of provided ecosystem service is assessed in a spatially explicit context and management decisions are supported that reduce flood risk and soil erosion while sustaining and/or increasing agricultural productivity and supporting biodiversity and natural and semi natural habitat quality.

Relevance

Ecosystems can be highly sensitive to changes in climate and their services play a central role in climate change adaptation and disaster risk reduction. The spatial assessment and mapping of habitat quality is of key importance for the identification of investment needs and conservation priorities and spatial planning in general.

This service is relevant for e.g.

- Identification of investment needs and conservation priorities
- Ecosystem management planning
- Effective ecosystem-based adaptation, management, and valuation

Input data and methods

Relevant input data for this service will strongly depend on the use of optical EO data (Sentinel-2) and where necessary VHR images. Additional data used will be topographic maps at a scale of 1: 50 000 or larger, road networks, river network data, Digital Elevation Model (DEM) - 20m spatial resolution or better, delineation of areas of interest (watershed boundaries), ancillary data for interpretation and validation and information on soil characteristics (fertility, type, etc.). The methodology for production is an automated EO image classification based on spectral information as well as a variety of indices (e.g. NDVI) used to subsequently threshold, define and identify land cover classes. This automated land cover classification is followed by visual refinement.

Product examples

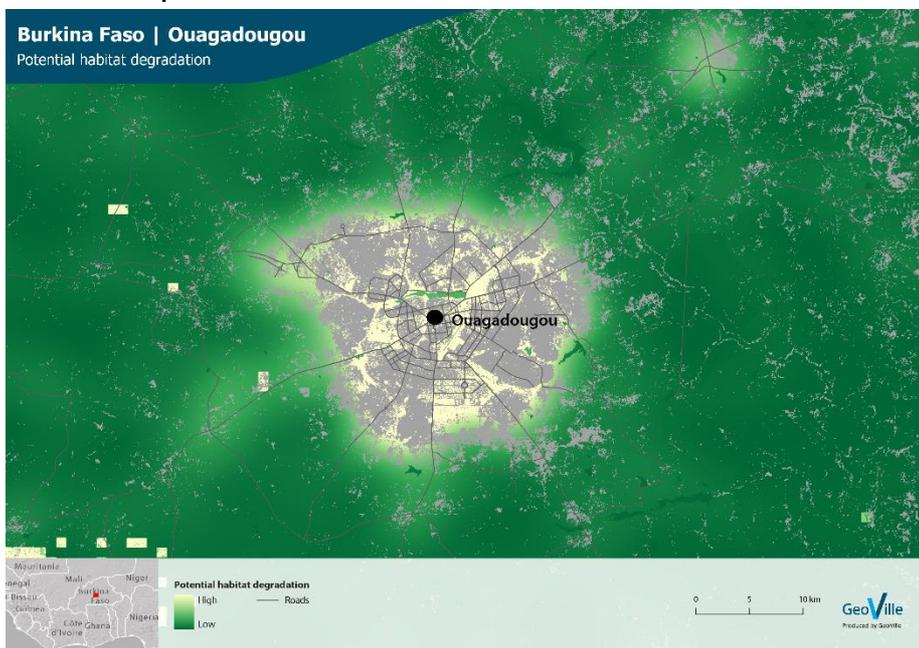


Fig. 1: Potential habitat degradation, Burkina Faso.

Technical specifications

SPATIAL COVERAGE

100's of km²

DATUM / PROJECTION

User defined

FORMAT

Data: GeoTiff

Analysis: XLSX or PDF

SPATIAL RESOLUTION

5m – 30m

TEMPORAL COVERAGE

1980's - now

TEMPORAL RESOLUTION

Monthly - Seasonal

THEMATIC ACCURACY

>85% overall accuracy

POSSIBLE OUTPUTS

- Potential habitat degradation maps
- Habitat quality assessment maps
- Suitability for utilisation maps

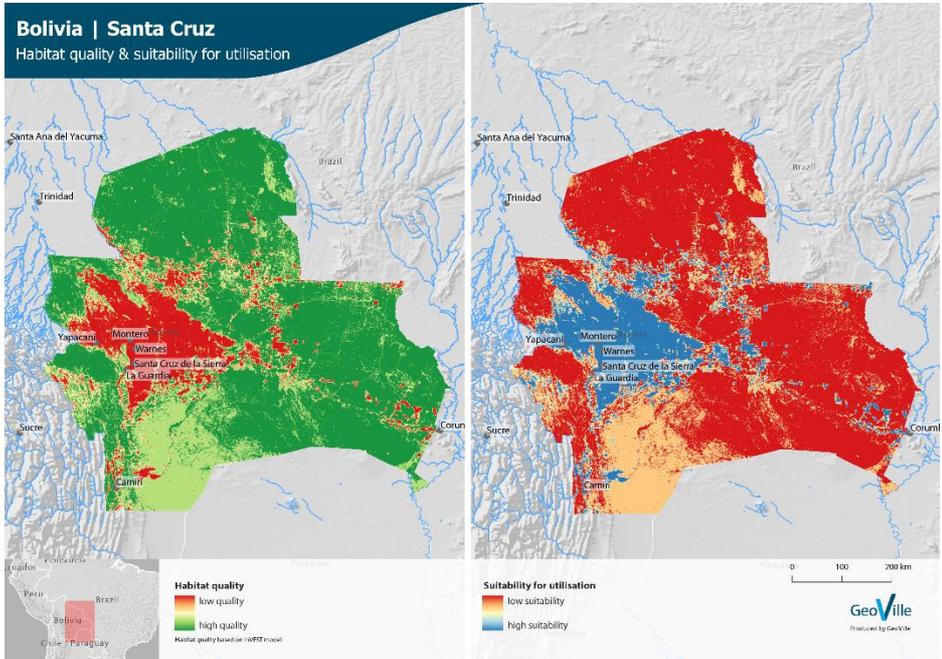


Figure 2: Habitat quality assessment and suitability for utilisation, Bolivia.