# Analyzing future scenarios of land-use change in Southern Amazonia

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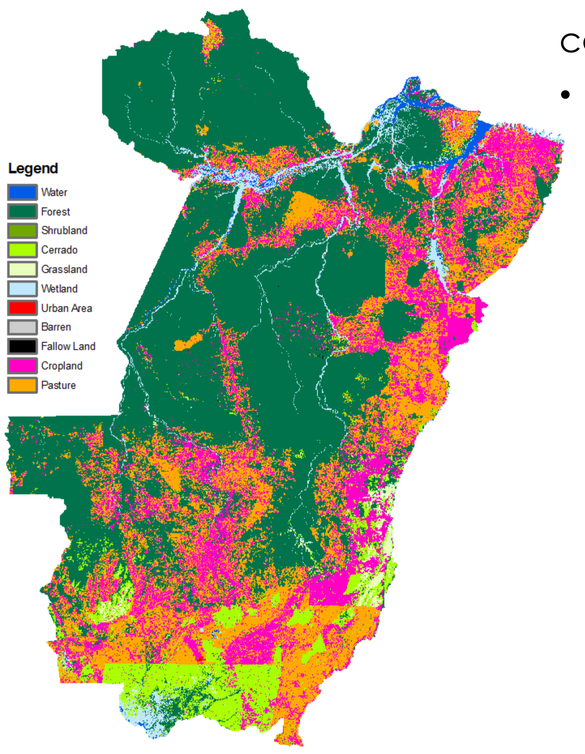
## Methods & Materials

Land suitability and land-use change were analyzed with the spatially explicit **LandSHIFT** model. The model is fully described in Schaldach et al. (2011) and has been tested in different case studies for Brazil (Lapola et al., 2011; Lapola et al., 2010). It is based on the concept of land-use systems (Turner et al., 2007) and couples components that represent the respective anthropogenic and environmental sub-systems. In our case study land-use change is simulated on a raster with the spatial resolution of 900m x 900m that covers the territories of the federal states of Mato Grosso and Para. Cell-level information include the state variables "dominant land-use type" and "human population density" as well as a set of parameters that describe its landscape characteristics, road infrastructure and zoning regulations.

## Results

Trend 2030



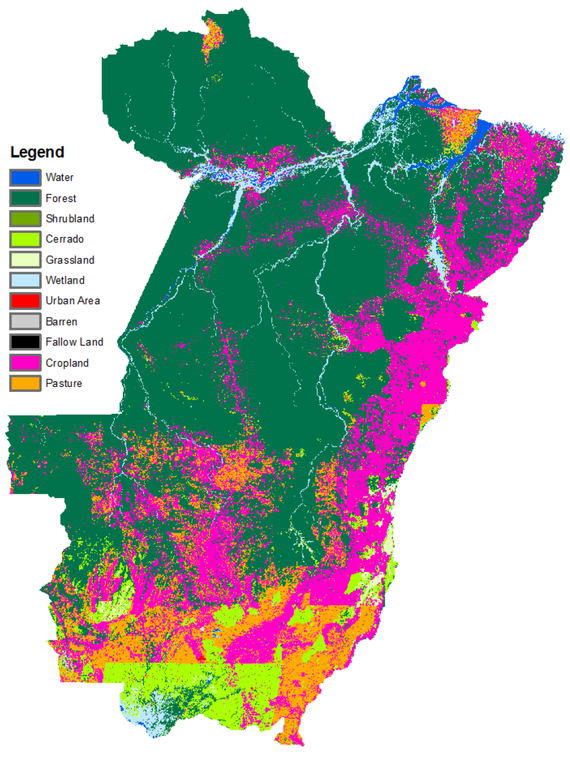

central assumptions:

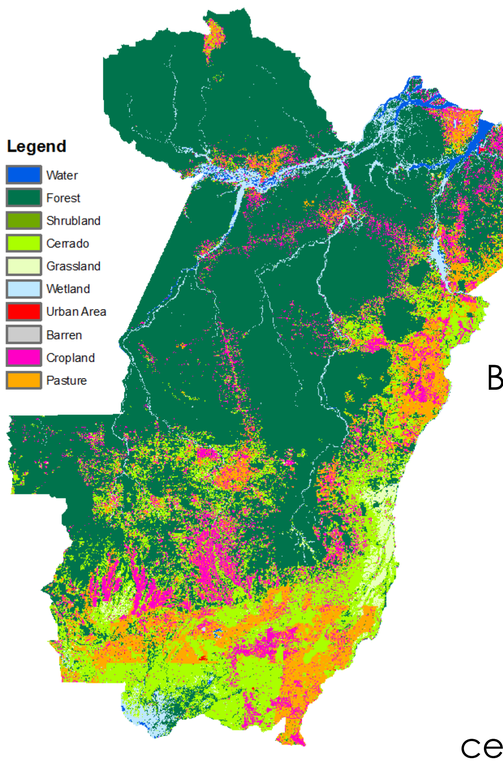
- trend extrapolation of current population growth, livestock numbers, and agricultural production

Sustainable Development 2030

central assumptions:

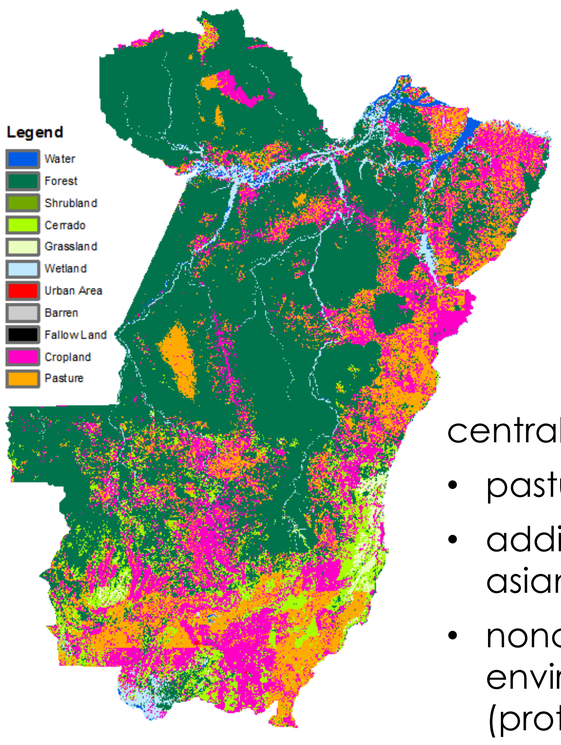
- global change of dietary habits
- additional yield development (crops)
- population growth stabilizing
- conversion of forest cells not possible




Basemap 2000

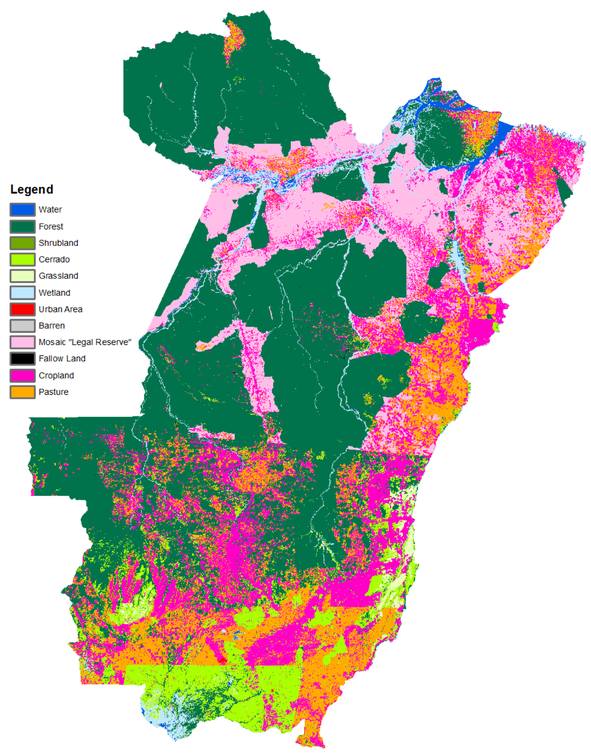
Illegal Intensification 2030




central assumptions:

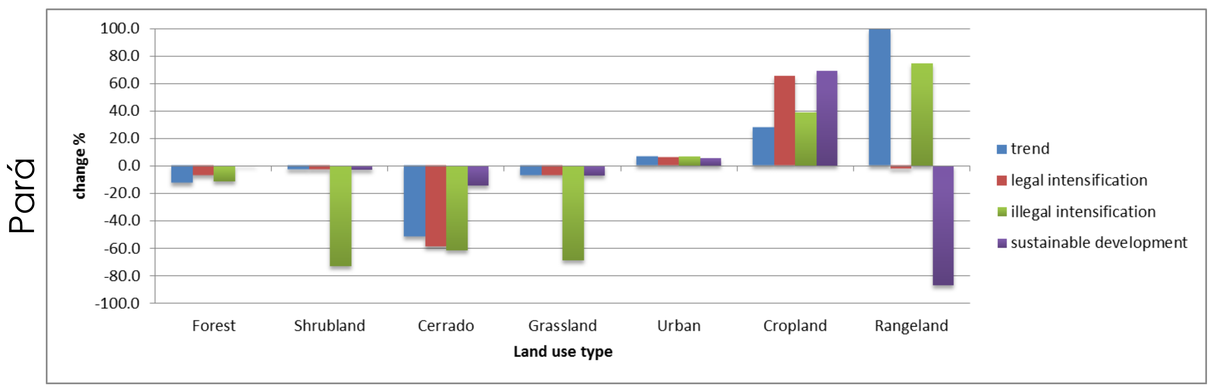
- pasture intensification
- additional demand from asian countries
- noncompliance with environemtal regulation (protected areas)

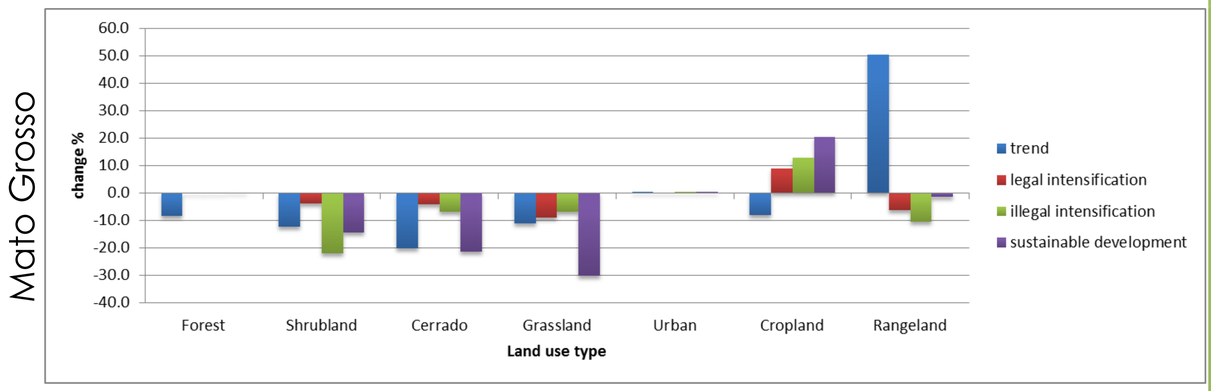
Legal Intensification 2030




central assumptions:

- pasture intensification
- additional demand from asian countries
- compliance with environemtal regulation (protected areas)
- compliance with „new" Brazilian forest code

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