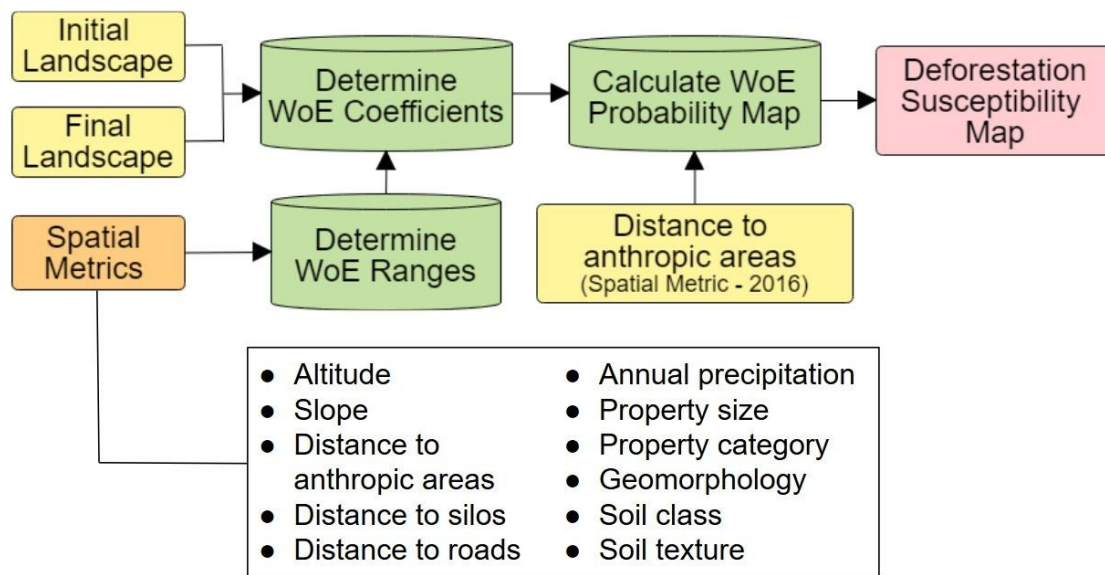# Spatial Contextual Metrics
(Deforestation Susceptibility Surface)

As a subsidy to the qualification and spatial contextualization of the polygons detected as of 2016, two areas of susceptibility to deforestation were created: deforestation lower and higher than 0.5 km², named as large and small deforestations, respectively. These surfaces were developed from synthesis and verification of the influence of 11 variables (i.e., distance from anthropic areas; distance from highways; distance from silos and warehouses; land title category; property size; soil texture and type; geomorphology, annual average rainfall accumulated between 2000-2015; slope; altitude) in deforestation that occurred between the years 2010 and 2015 (Figure 1).
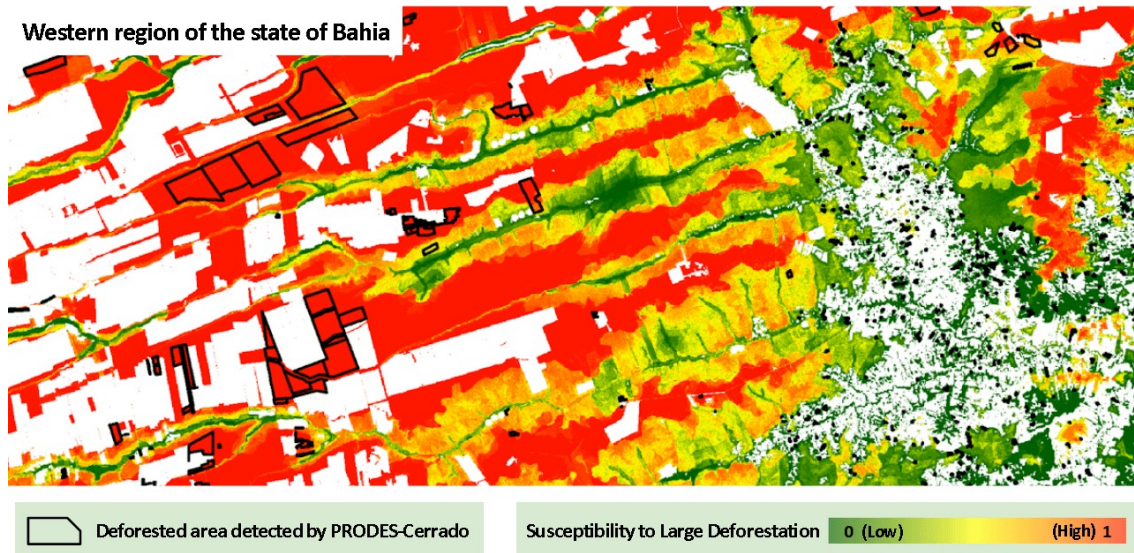

Figure 1. Methodological procedures for creating Deforestation Susceptibility Surfaces.

For this process, we adopted the Weights of Evidence method, implemented in the software Dinamica EGO (SOARES-FILHO et al., 2009). The result shows a surface with numerical values between 0 and 1, which indicate the susceptibility/probability of a certain area in the Cerrado to be deforested. These values were defined based on the metrics' responses to large deforestation, associated with land with high agricultural suitability, and small, associated with land with low agricultural suitability. After executing the model, the generated surfaces were crossed with the PRODES and DETER-Cerrado polygons
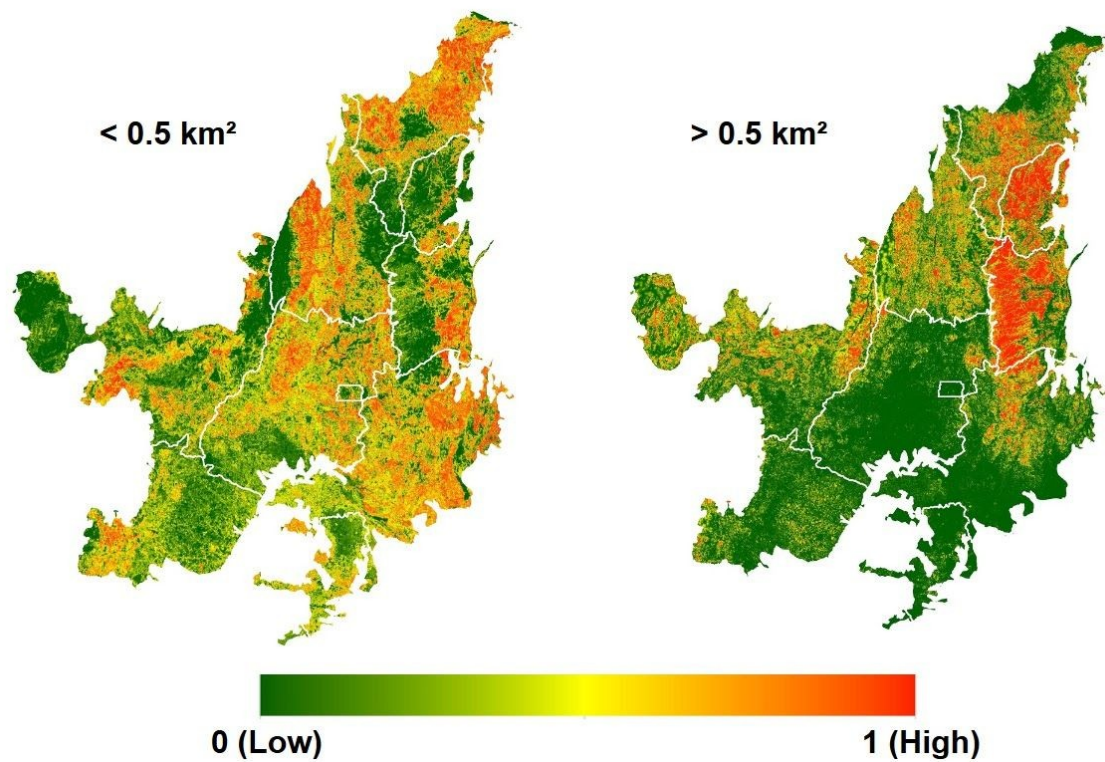
for 2016, 2017, and 2018. Figure 2 shows the surface of susceptibility to large deforestation in the Western Bahia region.

Figure 2. Distribution of areas detected by PRODES-Cerrado, in 2016, with the susceptibility values present on the generated surface.

Several polygons with large areas are found in the region with high susceptibility to large deforestation, while small deforested areas are located in an area less susceptible to extensive deforestation. With this, it is possible to observe the model's good adherence in relation to the PRODES-Cerrado data.

Figure 3. Deforestation Susceptibility surfaces higher and lower than 0.5 km² for the Cerrado biome.