

Project *brief*

Thünen Institute of International Forestry and Forest Economics

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Prospecting future deforestation hotspots in the Ecuadorian Amazonas region under alternative scenarios of governance enforcement

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- Four land use change scenarios were simulated in 2017–2030 for Loreto Canton, Ecuador, differing in the level of governance enforcement.
- Frequency of future deforestation hotspots indicate a spatial goal conflict between forest conservation and agricultural expansion policies.
- Future land use conflicts can be avoided by harmonizing sectoral policy needs while safe-guarding environmental integrity.

Objectives of study

- 1.) simulate scenarios of future land cover and land use change (LCLCC) during 2017-2030 by comparing low (*continue business-as-usual LULCC trend 1990-2016, with no spatial restrictions*) with high (*promote reforestation and agroforestry systems on pastureland, and LULCC restriction in National Park and Socio Bosque*) government enforcement using a dynamic and spatially-explicit modelling approach;
- 2.) identify future deforestation areas at landscape level.

Characteristics of future deforestation hotspots

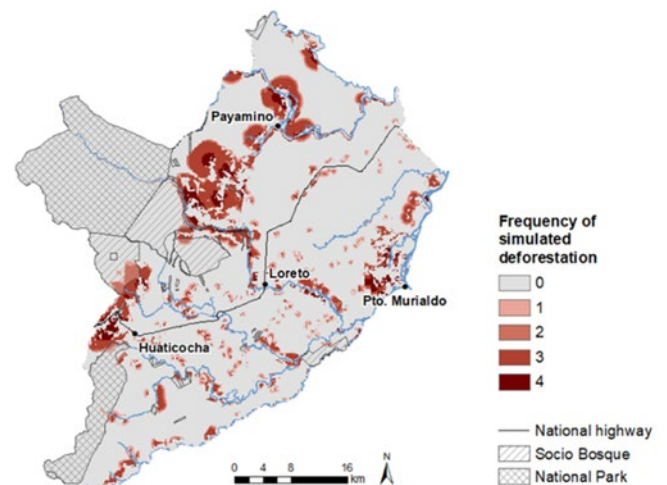
Forest cover change ranged from +2 % to -19 % in 2036. Size of deforested patches depend on demand for agricultural area. Frequency of deforestation areas was highest within 4.6 km distance to agricultural frontier, 5.4 km to rivers, and locations with higher mean population density than non-deforested areas (Figure 1). Boundary areas of national park and Socio Bosque prone to agricultural expansion in scenario low governance enforcement.

Implications for policy design

Simulated high frequency of deforestation hotspots at fringes of National Park and Socio Bosque areas and in close proximity to Payamino and Huaticocha towns (Figure 1) indicate a spatial goal conflict between forest conservation and

agricultural expansion policies. Such land use conflicts can be avoided by a landscape policy that harmonizes sector needs (agriculture, forest conservation, SFM) while safe-guarding environmental integrity. Expansion of agricultural areas could be avoided if crop productivity per ha increases.

Figure 1: Frequency of future deforestation hotspots in 2036 as aggregate of four simulated scenarios



Source: Rummel (2018).

Further Information

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