Global extent of uncontested lands and their conservation potential

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Globally the area of agricultural land is shrinking due to environmental degradation, market change forces or socio-political reasons. Restoration of degraded lands no longer used for agriculture may present a major conservation opportunity. Although expensive, restoring these areas should involve minimal social or political opposition and offer new economic opportunities and help mitigate climate change. Despite the benefits, how to reliably and accurately identify these lands over broad areas, along with their extent and potential role in biodiversity conservation, is an important question that remains to be solved. This project aims to build a novel framework, using remote sensing 'big data' techniques (e.g. Google Earth Engine) with large-scale, long time series and high resolution satellite data, as well as social and economic metrics, to automatically map uncontested lands worldwide and then assess their conservation potential. The results from this project will present the stock of uncontested lands, the costs and benefits of their restoration, which will support key government policy decisions that balance conservation goals with needs for food, energy and biodiversity. Our evaluation of the ecology and economics of restoring these lands can also guide investment decisions by conservation NGOs (e.g. The Nature Conservancy) and multilateral lenders like the World Bank.