

POLICY ADDITIONALITY: PROTECTED AREAS IN BOLIVIA



Photograph: Joshua Woroniecki, Unsplash

This part of the BIOADD project examines area-based conservation policy in Bolivia, a country that has experienced the highest deforestation rates in South America in recent years. We evaluate the impact of Protected Areas (PAs), the primary policy tool used to reduce deforestation, on forest cover, economic development, biodiversity, and carbon storage.

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Policy Additionality

Research and policy question

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Methodological approach

To address this, we combine a novel machine-learning approach (Random Survival Forest) with state-of-the-art econometric methods matching units based on their pre-treatment deforestation risk (see **Figure 1**).

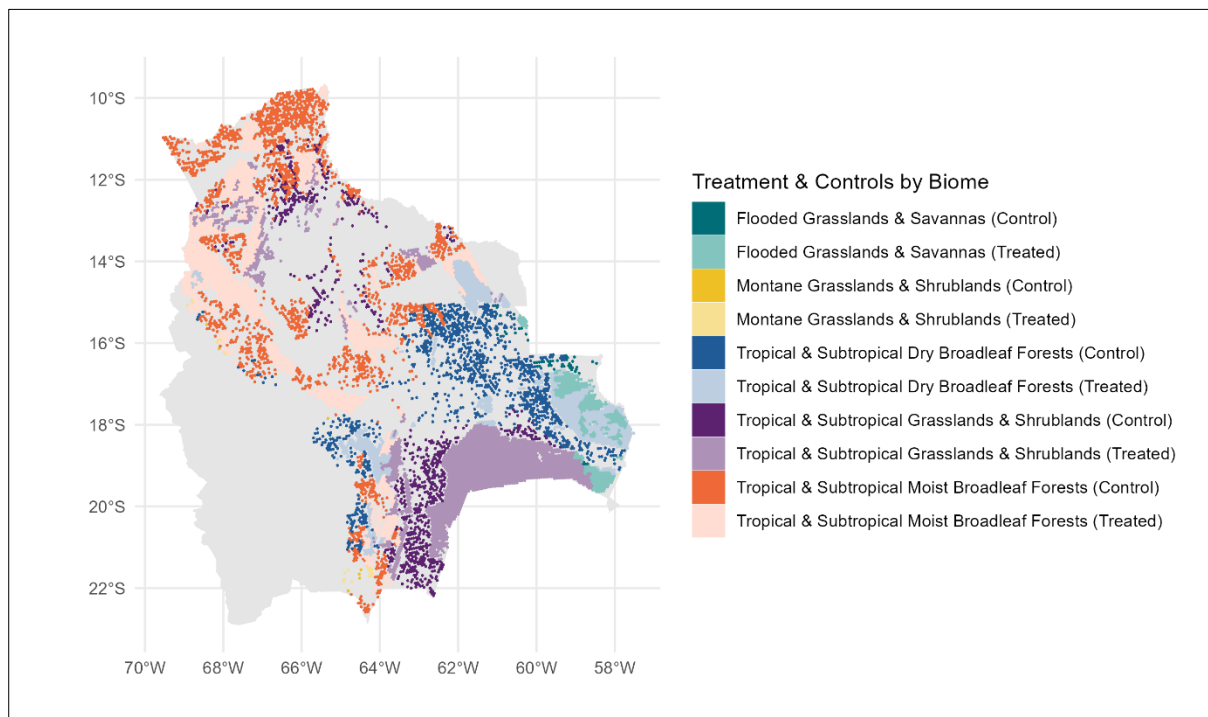


Figure 1: Matched units by biomes based on pre-treatment deforestation risk.

Findings

We find that, on average, PAs reduce annual deforestation rates by around 0.19 percentage points, which is substantial given that the national average rate over the study period is 0.28 percentage

points (see **Figure 2**). Conservation effectiveness, however, varies strongly by location. PAs in low deforestation risk areas provide no additional benefit compared to what would have happened without the intervention, whereas those in higher-risk areas deliver the greatest additionality. Over our study period (1991–2023), the established PAs have prevented about half a million hectares of forest loss in Bolivia. Furthermore, we find no evidence that the high additionality places impede economic development, nor that low deforestation risk areas may be selected in pursuit of biodiversity or carbon objectives. Finally, our analysis shows a marked increase in deforestation in the year a PA is established, indicating heightened exploitation pressure during designation.

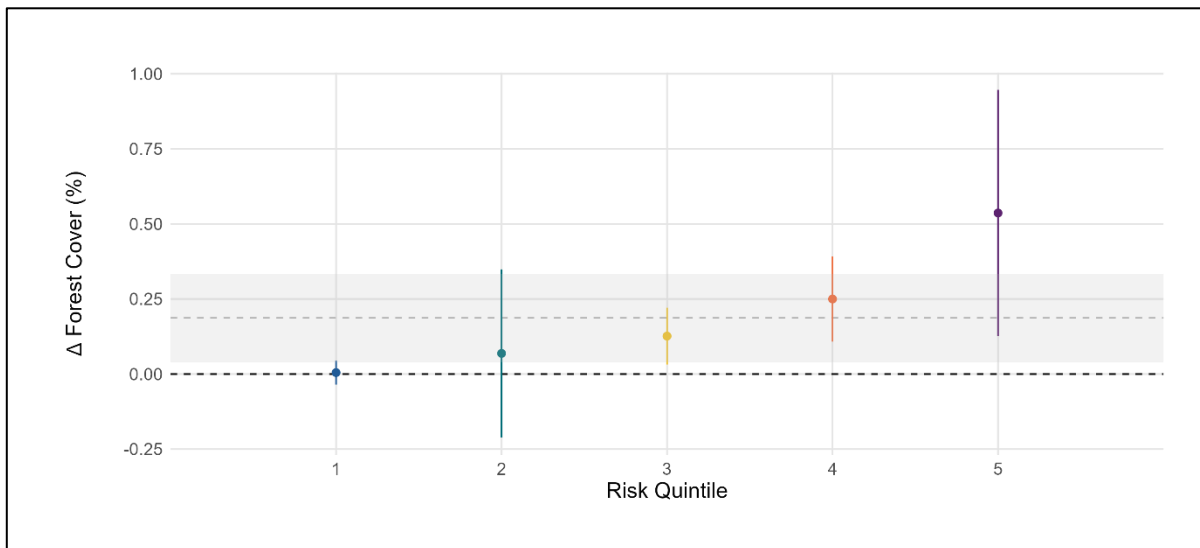


Figure 2: Additionality of protected areas by deforestation risk quintiles

Policy implications

Together our findings suggest that conservation policy would be strengthened by prioritising high deforestation risk areas and by increasing monitoring and enforcement in the establishment year to make progress toward reaching national and global biodiversity and climate targets.

Meier et al., (2026). Forest conservation policy, additionality, and socio-environmental implications. Mimeo, Exeter.

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