

BOLIVIAN LOWLANDS

The Bolivian lowlands comprise a diverse mosaic of tenure systems, land uses and actors. These range from indigenous people and local communities (IPLCs) to agribusiness and traditional cattle ranchers, along with smallholders increasingly engaged in commercial agriculture. The expansion of agriculture and cattle ranching in frontier areas, also promoted by government policies, is placing increasing pressures on forests.

Drivers of deforestation

Cattle ranching 	A large portion of deforestation has been driven by mid- to large-scale extensive cattle ranching in the deciduous forests of the Chiquitania region, often taking over public lands ^[3] .
Smallholder farming 	Expansion of smallholder farming producing commercial crops, linked to a governmental process of land allocation to smallholders or occupation of public forestlands and forest reserves stimulated by a legal and regulatory framework that is more supportive of small-scale deforestation ^[3, 4] .
Large-scale agriculture 	Large-scale agriculture for grain production (e.g. soy, sunflower, rice) has been a major driver of deforestation in the new frontier areas in northwestern and southern Santa Cruz ^[3, 5] . Part of this expansion is triggered by the expansion of Mennonite settlements in the new fronts.
Road expansion 	Public investments in transport corridors in northern La Paz, northeastern Santa Cruz and southern Beni, and transboundary highways have facilitated land occupation ^[6] .
Fires 	There is a long-lasting occurrence of fires in lowland Bolivia, yet fire outbreaks in 2019 were more severe, with more than a third (2Mha) affecting forestlands ^[7] . Fires, however, lead more to forest degradation and were associated with forest conversion.
Commercial logging 	Logging has persisted, particularly in the forest fringes in northern La Paz and Pando, leading to further degradation of primary forests ^[8] . Timber extraction has shrunk dramatically as a result of growing imports of cheaper wood products.

- Primary cause of forest loss and/or severe degradation
- Secondary cause of forest loss and/or severe degradation
- Less important cause of forest loss and/or severe degradation

Underlying causes

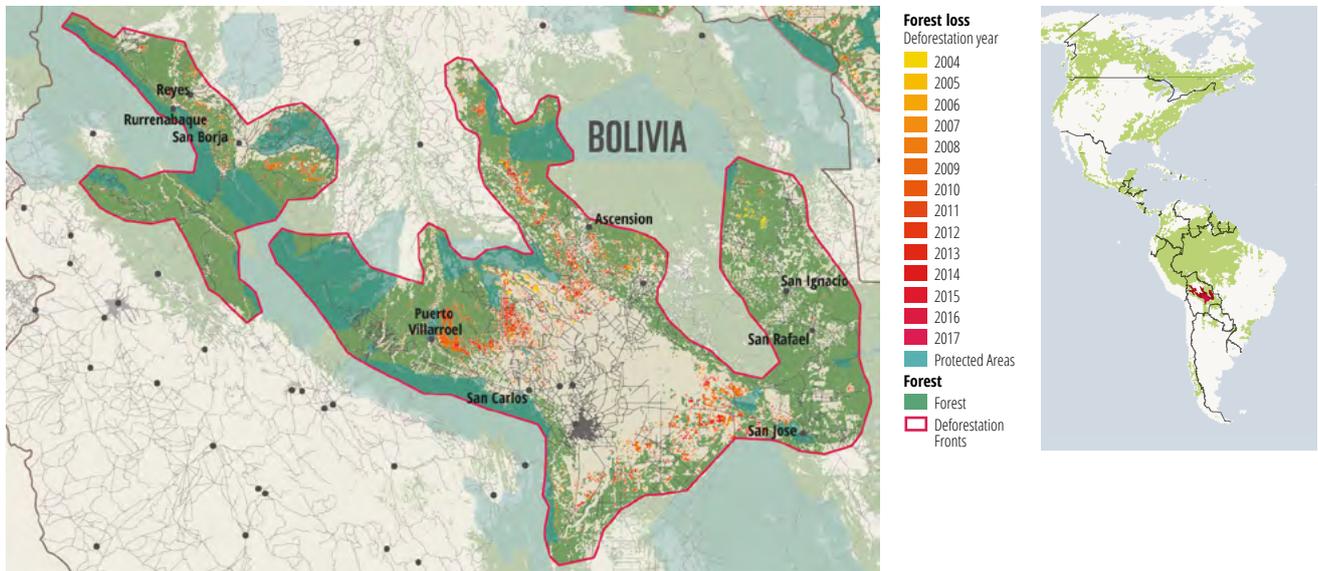
Primarily associated with “neo-extractivist” government policies^[9]. The national government has encouraged agricultural expansion for grain production and biofuels as a driver for economic growth, and the expansion of smallholders into non-occupied public forestlands^[10] due to migration from the western to the eastern part of the country. In addition, growing investments in infrastructure and road construction, due to growing fiscal earnings originating from gas exports as well as government borrowing, have also stimulated occupation of lowland forests. The government has approved several regulations prompting deforestation, such as Law 337 of Support to Food Production and Forest Restitution (2013), Law 741 authorizing forest clearing for smallholders up to 20ha (2015) and Law 1090 promoting production of biofuel (2019). These laws were complemented with other regulations relaxing environmental constraints on land use.

Countries, region	Bolivia, Amazon
Forest type	Tropical and deciduous forests
Total area	19.9Mha
Forest area in 2018	12.8Mha (64.2% of total deforestation front area)
Forest loss 2004-2017	1.5Mha (10.6% of forest area in 2000)
Location of deforestation	Mainly in northern and eastern Santa Cruz and Chiquitania region ^[1, 2]
Total forest core area in 2018	7.5Mha (59.0% of forests in 2018)
Fragmented forests 2000-2018	1.2M ha (8.3% of forest area in 2000)
Accumulated burned area, 2002-2019	3.2Mha (22.5% of forest area in 2000)
Deforestation trend	Increasing; deforestation decreased after a peak in 2010, but has resurged since 2016
Future trends	Deforestation to continue expanding

Responses

Protected areas	About 21Mha have been designated as protected areas, a significant proportion covering forestlands ^[11] , yet oil and gas exploration activities have been allowed in some protected areas ^[11] . Some expansion of protected areas has taken place in recent years at the departmental and municipal level.
Recognition of IPLCs	About 19Mha have been granted to IPLCs, 5Mha of which are inside protected areas ^[11] . These areas have different degrees of protection ^[12] .
Land-use zoning	All departments in the lowlands (i.e. Santa Cruz, Beni, Pando) have land-use zoning plans, yet there is a lack of economic incentives and enforcement to ensure compliance ^[3] . The departmental government in Beni has revised land-use plans removing constraints for agriculture expansion, and the forestry agency has relaxed some of the land-use regulations.
Voluntary standards	A large portion of forest concessions were certified under FSC ^[13] . No progress has been made in the adoption of sustainable practices on large-scale farms, with some few exceptions ^[14] .
Timber legality	The government has developed a national system of monitoring and verification of timber legality, but it has been accompanied by a discretionary policy of granting forest permits ^[15] . Lack of enforcement by government entities, corruption and traffic of permits are widespread.

- Deployment at wider scale
- Actively used and expanding
- Project-specific, experimental



Main outcomes

A system of protected areas accompanied by land-use plans at the departmental level and the recognition of tenure rights for indigenous people have helped contain the expansion of the agricultural frontier^[12, 16]. However, pressures from new smallholder settlements, road infrastructure and growing connection to markets continue to drive deforestation and forest degradation^[17]. Despite its conservationist rhetoric of “living in harmony with Mother Earth”, the government has stimulated quite aggressively agribusiness and biofuel production as well as the expansion of human settlements, while the lack of control of genetically modified crops has allowed grain production to expand into new areas^[10, 18]. This has been in part reflected in the fire outbreaks in the Chiquitania during the 2019 fire season^[7].

Recommended future actions

- Revise the process of forestland allocation in the lowlands, particularly in areas identified as public forestlands, and develop actions to contain encroachment into protected areas and forest reserves.
- Account for the environmental impacts of new investments in infrastructure development, including roads and hydroelectric dams.
- Intensify agricultural activities in already occupied lands and restore productivity, along with promoting habitat corridors in frontier areas.
- Provide compensation for local communities to protect their forests while building alternative livelihoods in areas that still maintain an important amount of primary forests.
- Reverse the erosion of the national system of protected areas and provide more financial and human resources.
- Support capacities of indigenous people to manage their territories.

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