

GRAN CHACO

The Gran Chaco has one of the highest rates of deforestation in the world, driven particularly by genetically modified soy production and large-scale cattle ranching. Most efforts to control the rate of loss have so far been unsuccessful, although deforestation rates are slowing in some areas.

Drivers of deforestation

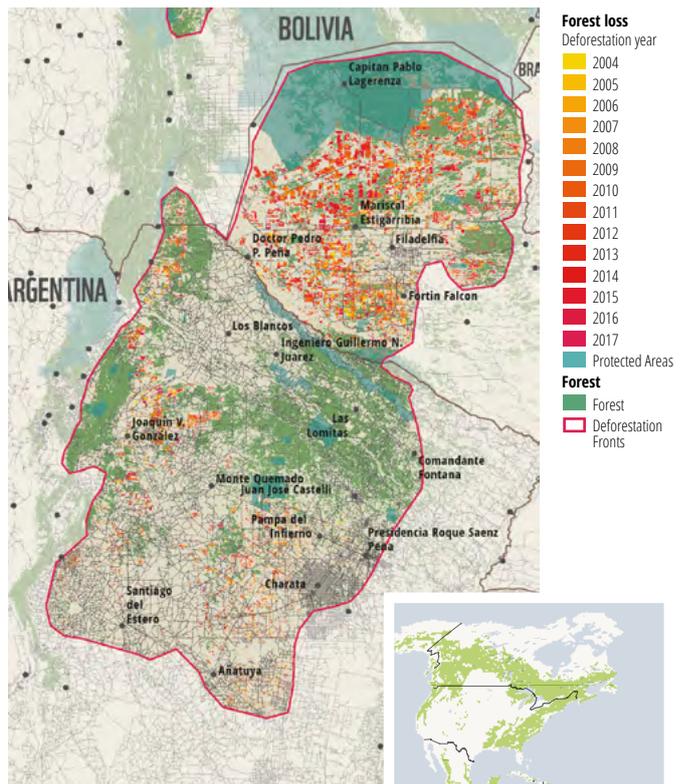
Large-scale agriculture 	Large- and medium-scale mechanized agriculture has been the most important driver of deforestation in the Chaco ^[4] , particularly for soybean in Argentina ^[5] , and a proportion of previously converted grazing lands are being switched to soy ^[6] . Traditional small farms have been replaced by larger fields ^[7] . These are considered future pressures in Paraguay.
Cattle ranching 	Clearance of forest to create cattle pasture is the primary driver of deforestation in parts of the Chaco, particularly in Paraguay ^[8, 9] , and remains important in Argentina, mainly under extensive systems ^[10] . The soy and cattle industries are increasingly closely interlinked in the region ^[11] , including through transnational investments ^[12, 13] .
Smallholder farming 	Indigenous people and traditional criollos farmers are being displaced by large scale agriculture and cattle ranching and are moving into remaining forests, potentially adding further deforestation pressure ^[14] . Much of the displacement took place through uneven competition in the land markets that works against local farmers and communities ^[15] .
Charcoal production 	Commercial charcoal production for export is significant, particularly in Paraguay ^[16] , although it is mainly from areas that are being cleared for other purposes. Charcoal-making by smallholders causes mainly degradation in Argentina.
Small-scale timber extraction 	Small-scale timber extraction for fuelwood is only a minor forest use and the number of users is declining, in part because deforestation means supplies are no longer available and different energy sources are being introduced ^[17] .

- 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

Agricultural demand is a major driver of deforestation, and it is also accompanied by land-use intensification^[18]. Regulation of deforestation in the region has been hampered by a number of factors, including the importance of the agricultural sector, relatively low carbon stocks compared with other forest areas and the prevalence of private land tenure^[19]. In addition, uneven land competition stimulated by government policies has led to the concentration of agricultural activities on a smaller number of large-scale farms in the Chaco, to the detriment of small-scale farmers who have tended to be marginalized^[15].

Countries, region	Argentina (60%), Paraguay (28%), Bolivia (11%) and Brazil
Forest type	Dry arid and semi-arid forest (78.8Mha), humid and flooded savannahs (29.0Mha)
Total area	46.3Mha
Forest area in 2018	14.5Mha (31.3% of total deforestation front area)
Forest loss 2004-2017	5.2Mha (26.1% of forest area in 2000)
Location of deforestation	Broad belt sweeping from the east
Total forest core area in 2018	5.5M ha (37.9% of forests in 2018)
Fragmented forests 2000-2018	0.8M ha (4.0% of forest area in 2000)
Accumulated burned area, 2002-2019	4.6Mha (23.1% of forest area in 2000)
Deforestation trend	Once the world's highest ^[1] , but has decreased since 2009 in Argentina ^[2] . For three years, Paraguay has had higher annual losses ^[3]
Future trends	Possibly decreasing under new regulations



Responses

Protected areas	The region is currently under-represented by protected areas with poor representation of terrestrial vertebrates; in 2009 protected areas covered 9% of the Chaco ^[20] and isolation of protected areas is a serious problem ^[21] .
Payment for ecosystem services	A payment for ecosystem services (PES) scheme in Argentina provides funding for farmers. WWF has promoted a PES scheme in Paraguay ^[22] .
Voluntary standards	The Roundtable on Responsible Soy (RTRS) operates in the countries of the Chaco and is promoting production without further conversion of natural ecosystems.
Land-use zoning	Zoning policies apply in the Argentine Chaco to balance agriculture and conservation under the 2007 Forest Law, yet the environmental outcomes remain unclear ^[23] .
Recognition of IPLCs	Granting indigenous land title in Argentina is still fairly limited. In Bolivia, 17 indigenous territories were formalized in favour of Guarani communities covering 1Mha, out of a total of 6.7Mha that were claimed ^[24] .
Land tenure security	Only a few small-scale farmers are involved in land tenure claims in the Argentinian Chaco; many do not have formal title and are in danger of being evicted. So far, land tenure processes have not substantially reduced forest loss ^[14] .
Forest laws	A national "Forest Law" was passed in Argentina in 2007. In Bolivia, several regulations have been passed in recent years favouring expansion of the agricultural frontier ^[25] .

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

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Outcomes

Existing protected areas are important, but currently insufficient and their isolation is a serious problem^[21]. PES schemes pay far less than could be earned through conversion to soy and are for a length of time of the farmer's choosing so that lands of high potential value tend to stay in the scheme for less time^[26]. Success is partly due to the strength of different sub-national governments^[27]. In spite of existing and new forest regulations, the pressures on indigenous people's land appear to have increased, with effects on deforestation^[28]. The extent to which the forest law in Argentina has been successful in conserving forest is disputed; some analysts claim that it has reduced deforestation^[29], while others highlight continued deforestation^[30] even within protected areas^[2], and say provincial governments are unable to enforce the law effectively.

Recommended future actions

- Urgently strengthen the protected area system, making it more representative, and conserve ecological corridors.
- Use consumer pressure to step up moratoria and use of certification for soy and beef, including pressure on companies deeply involved in the trade^[31].