

GONE WITH THE WIND

CHINA'S Balsa WOOD CONSUMPTION IS EXPOSING FLAWS IN PERU'S FOREST REGULATIONS AND ENFORCEMENT REGIME

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Balsa wood is incredibly strong for its light weight and is a key component in the blades of wind turbines used for renewable electricity generation, making it an important commodity in the drive for the world's energy transition away from fossil fuels.

In 2021, wind supplied approximately 6 percent of the world's electricity and globally installed wind power capacity expanded by 18 percent, mostly in China and the United States (US). To help meet Paris Agreement goals, analysts say wind power capacity needs to expand much faster. China, the world's largest wind turbine manufacturer has the fastest growing capacity and now imports 50 percent of the world's global balsa wood.¹ However its manufacturers are constrained by limitations in balsa supply.

Balsa wood is mainly produced in Latin America, particularly Ecuador and increasingly, Peru – typically in the secondary forest which originates from fallow agricultural areas on both indigenous community and smallholder farmer lands. To meet the skyrocketing demand for balsa wood, Ecuador increasingly supplements its domestically grown production, mixing it with balsa harvested in Peru and trucked across the border.

This report provides an overview of the booming balsa global supply chain, with a focus on exposing how the current regulatory and enforcement structures in Peru are rife with loopholes that can be exploited by illegal loggers and how these countries' enforcement authorities are unable to verify legality of the wood.

¹ Estimate based on Harmonized System (HS) Code 440722 – Wood, tropical; virola, imbuia and balsa, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or end-jointed, thicker than 6 millimeters (mm). Sourced from UN Comtrade.



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INTRODUCTION

Global demand for balsa

Global demand for balsa wood has skyrocketed over the last several years, driven by rising demand for renewable wind energy as the world attempts to transition away from fossil fuels. Soft and lightweight, balsa wood (*Ochroma pyramidale*), is one of the preferred core materials for wind turbine blades. Current estimated demand for balsa sawn wood is between 400,000 and 465,000 cubic meters (m³) per year.²

China now purchases 50 percent of the balsa sawnwood in international trade; it is the largest and fastest growing producer of wind energy and manufactures turbines for export (Panjiva 2022). In 2020 alone, China increased its wind capacity by nearly 60 percent (Ambrose 2021; OECD 2022). This rapid increase in wind power capacity is part of China's pathway to achieving carbon neutrality by 2060 (Guo 2021) and was initially supported by policy and fiscal incentives, including the National Renewable Energy Fund (Youzhou et al. 2021). China has since stopped offering the same breadth of subsidies for wind and solar development (Slav 2020; Yin and Yep 2021), but China's wind industry is now well established and continues to grow (Fitch Ratings 2021; Lin 2022).

Other key markets for balsa wood include the European Union (EU), which imports over 20 percent of the balsa sawnwood in international trade. The top five EU markets in 2020 included, Denmark, Poland, Netherlands, Germany, and Italy. Denmark imported about \$36 million of balsa wood in 2020 representing a 95 percent increase compared with 2019 (UN Comtrade 2020; ITTO 2020; ITTO 2021).³ In the Americas, Brazil is becoming a significant hub and accounts for 9.7 percent of the global imports. The US imports around 7.6 percent, and balsa is now the top tropical wood species imported by volume, accounting for 23 percent of all tropical wood imports in 2018 (ITTO 2017; FAO and UNECE 2019).

Production (or supply) of balsa

Balsa is a large, fast-growing pioneer species of lightwood tree native to the tropical Americas. It is a primary colonizer and dominates in previously disturbed areas, especially fallow agricultural fields, alluvial plains, and riparian areas. In these fallow areas, balsa and other fast-growing pioneers play a regenerative role in the cyclical rotation between forest and field after the primary forest has been destroyed (Sears et al. 2021b).⁴ Depending on the conditions, it can also be grown on industrial plantations with harvesting rotations of four to seven years (ITTO 2015).

The volumes of balsa now traded on international markets have risen rapidly, with over 90 percent exported from Ecuador. The Asociación Ecuatoriana de Industriales de la Madera (AIMA) reports that Ecuador exported \$ FOB 570 million in 2020, 50 percent more than in 2019 and 86.5 percent more than in 2012 (Alarcón 2021). Ecuador has reportedly 20,000 hectares (ha) of industrial balsa plantations located in Los Rios, Manabi, and Esmeraldas provinces, which are

² Known as topa or palo balsa in Peru, between 9 and 12 m³ of sawn balsa is required for the core of the blades in each wind turbine (Zhou 2020).

³ Estimate based on Harmonized System (HS) Code 440722 data sourced from UN Comtrade.

⁴ Secondary forest is successional forest that emerges as a natural recovery process in soils where the primary forest was removed by human activity or natural causes. See Box 1 for additional information on definitions.



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estimated to yield roughly 160,000 m³ of sawn wood. An additional 150,000 m³ of sawn balsa is sourced from private properties and indigenous community lands.⁵

However, in Ecuador, there have been reported concerns about the production and trade of balsa. For example, Cazar (2021) reports that Ecuador lacks the commercial and environmental regulation mechanisms to prevent negative social, ecological, and economic impacts from the country's balsa boom. The high demand has been linked to illegal logging in indigenous communities' territories in the Ecuadorian Amazon region (Tapia et al. 2021) with the issue also reportedly crossing borders into Peru.

To satisfy the skyrocketing global demand over the COVID-19 pandemic from 2020 to 2021, Ecuador supplemented its own domestic production using balsa harvested in Peru and trucked across land borders. According to SUNAT (see Box 3), in 2021, 100 percent of Peru's balsa destined for export went first to Ecuador, where it was mixed with locally harvested wood and then shipped globally (SUNAT 2022c; WRM 2021).

Peru's balsa industry is rapidly expanding within a flawed regulatory environment

Peru's balsa exports have skyrocketed from zero to over 40,000 m³ in the last two years (2020 – 2021), with limited information available on the source, overall supply chain, and structure of the industry. The Peruvian government has been caught off guard, particularly as the forest regulations are still unclear on secondary forest timber production (Sears et al. 2021a). While the government of Peru has focused efforts to date on improving traceability in the production and trade related to old-growth and high value primary and natural forests, authorities have reportedly failed to recognize agroforestry and other smallholder or indigenous forest management practices. This has created confusion for landholders and entrepreneurs seeking to harvest and sell fast-growing timber, such as balsa, that predominate in their fallow fields (Sears et al. 2018; 2021b). The balsa boom is exposing how a lack of clarity in the regulations and enforcement for species grown in forest plantations and secondary forests can be exploited by illegal loggers, especially in light of limited ability for enforcement authorities to verify or check that the wood is legal.

Box 1: Regulations controlling the Peruvian forest supply chain

Peru has historically been associated with high rates of illegal logging and trade, with the World Bank estimating in 2006 that around 80 percent of the timber exported from Peru is of illegal origin. More recent studies report a range of figures, suggesting that between 37 and 90 percent of timber trade is likely illegal (Apoyo Consultoria 2018; Urrunaga et al. 2018; PCM et al. 2021). Specific reported issues surround the lack of an effective and fully functioning traceability system for the timber supply chain: fraud and corruption associated with the documents verifying legality and weak enforcement hampered by the inability to track or verify timber back to the forest.

Continued on next page.

⁵ Production volume estimates were calculated using data published in Tomaselli (2019) and validated through interviews with country experts.



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Box 1: Regulations controlling the Peruvian forest supply chain (*Continued*)

With high levels of illegal logging, Peruvian timber suppliers have struggled to demonstrate that their timber can meet the legal standards required by export markets, such as the US, Europe, and Australia. Between 2008 and 2013, the US and the EU instituted new timber trade regulations prohibiting the import of illegally sourced timber, and the 2009 US-Peru free trade agreement mandated institutional and regulatory amendments. At the end of 2019, the Government of China amended its Forest Law to require traceability and legal sourcing for all domestic wood products (Forest Trends 2021). To date, it is still unclear whether these amendments would also apply to imported timber products.

The Peruvian Forest and Wildlife Service (SERFOR) has made some efforts to address concerns about how Peruvian suppliers can effectively demonstrate legality, announcing a commitment to improve traceability for the whole forest sector in 2019 through three sets of “resoluciones ejecutivas” (executive resolutions) to improve tracking and controls (SERFOR 2019c). As such, SERFOR was expected to implement a digital timber tracking and traceability system in 2020 to help address issues with illegal logging and laundering of illegal timber into supply chains, which would make it possible to trace a timber shipment back to point of harvest (Forest Trends 2020). In March 2021, the government approved a protocol to facilitate additional checks on timber being transported through checkpoints along roads out of the Amazon to key ports and border crossings before export (SERFOR 2021d). However, progress implementing the commitments in Peru has been slow.

FINDINGS

This report outlines Forest Trends’ analysis of the booming balsa global supply chain and Peru’s regulatory environment and enforcement structures.

1

Peru’s balsa production and exports have exponentially increased since the start of the COVID-19 pandemic in 2020.

SERFOR’s annual balsa production statistics records (“Anuario Forestal y de Fauna Silvestre”) are erratic, with reports for 2015-16 and 2019-20, but nothing reported in 2017 and 2018. An assessment of transport permit bills funded by the United States Agency for International Development (USAID) found a balsa log production of roughly 307.5 m³ in 2017 (USAID Pro-Bosques 2019). A recent statistic compendium released by SERFOR (2021b) has retroactively amended these figures, with SERFOR reporting an annual mean balsa production of 3,870 m³ for logs and 2,392 m³ for sawnwood.⁶

Between 2019 and 2020, the official volume of balsa logs harvested in Peru increased 1,220 percent to 9,263 m³, while the volume of sawnwood increased over 3,400 percent to 6,490 m³. Peru’s exports of balsa sawnwood (Harmonized System (HS) code 4407) rose from 0 in 2019 to 9,419 m³ in 2020 and to 31,005 m³ in 2021 (SUNAT, 2022c).

⁶ SERFOR’s statistical records from 2010 to 2014 report a mean of 550 m³ of balsa logs harvested and 267 m³ of balsa sawnwood milled. However, SERFOR’s rectified records report a mean of 2,716 m³ and 918 m³, respectively for the period.



TABLE 1 Reported annual production and exports figures for balsa (volume, m³)

Balsa product	2015	2016	2017	2018	2019	2020	2021 ⁷
Logs (production)	2,666	4,537	3,551	3,867	702	9,263	2,508
Sawnwood (production)	1,285	828	0	0	185	6,490	7,956
Sawnwood (exported)	0	0	0	0	0	9,419	31,005

Source: SERFOR 2021b; 2022f; SUNAT 2022c. Compiled by Forest Trends 2022.

As Table 1 indicates, the difference in volumes between reported log production, sawnwood production, and exported sawnwood is extreme. These data suggest significant levels of unreported harvesting and processing. SUNAT officially records higher volumes of exported balsa sawnwood than can be manufactured from the volume of logs harvested. Even if milling of the 2021 harvested balsa logs (2,508 m³) had taken place at an optimistic rate of 50 percent, only 1,254 m³ of balsa sawnwood could have been produced. The volume exported (31,005 m³) therefore suggests that significantly higher volumes of balsa logs have been harvested than recorded in official statistics. The yield rate for most balsa logs is reportedly 30 percent (quality issues mean that about 70 percent of the balsa log is discarded in the milling process). This means that approximately 103,035 m³ of balsa logs would have been required to account for the volume exported in 2021.

It is not possible for the officially reported balsa log and sawnwood production recorded or accumulated over the previous years to account for the volume exported, and it is clear that SERFOR's data has significant gaps with log harvesting and sawnwood production (likely even higher between 2020 and 2021). The discrepancy in data could be a failure of state agents to capture information about the harvest and processing, but could also result from unreported and/or illegal harvesting of balsa trees. However, it is also likely that the unaccounted balsa logs are sourced from unregistered forest areas, particularly in Peru's secondary forests.

2

Balsa is native to Peru and mainly grows in secondary forests.

Balsa is not generally recognized as a commercially valuable species by the Peruvian timber industry operating in natural forest concessions. Thus, balsa is rarely listed in the commercial inventories of forest management plans for Peru's primary forests (See Box 2 for definitions). A 2020 forest inventory over eight forest concessions did not find any significant population of balsa (*Ochroma pyramidale*) in Loreto's primary forests (GERFOR Loreto 2020). Instead, balsa mainly grows in secondary forests in clearings or small forest plots of fallow land where natural forest has been disturbed.

⁷ Data on the 2021 annual balsa production was sourced from SERFOR which is reporting as of December 2, 2021.



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Box 2: Forest Types According to Peruvian Regulation

Primary forest: Initial natural-evolved forest vegetation characterized by the abundance of mature tree species from the upper dominant canopy.

Remnant forest: Isolated primary forest caused by fragmentation from logging and occupation of previous forest landscapes.

Secondary forest: Successional forest that emerges as a natural recovery process in soils where the primary forest was removed by human activity or natural causes.

Agroforestry systems: Human-transformed ecosystems located on forest landscapes with the aim of developing a sustainable production system that mixes trees, agricultural crops, and/or livestock in the same plot.

Forest plantations: Human-installed forest ecosystems that include one or more timber species, native or exotic, with the aim of logging timber.

3

Entrepreneurs register balsa plots following “plantations” guidelines due to confusion surrounding the status of fallow fields or secondary forests.

Peru's Forest Plantation and Agroforestry Regulation and guidelines of 2015 (SERFORa; b) encourage operators to register “plantations” or “A man-made installed forest ecosystem that includes one or more timber species for timber logging.”⁸ Although timber production in fallow forest was reportedly considered in early prototypes of the plantation registry, this option was excluded at the national level in the final 2015 regulation (Sears et al. 2018). However, the SERFOR 2015 guidelines for forest plantations and agroforestry systems do not cover secondary forests, which has created confusion among smallholders and forest owners with trees growing on this fallow land as to whether their balsa should be registered as a “plantation.”⁹

In 2016, SERFOR was asked by the Regional Government of Ucayali to provide guidance on this issue as local landowners and entrepreneurs were seeking to register trees from their secondary forest or fallow land as “plantations.” SERFOR responded in a letter suggesting that any attempts to register secondary forest timber should follow the “plantations” guidelines (SERFOR 2016b). No other process or information has been provided, which has led to a number of entrepreneurs and landowners registering “secondary forests” following the “plantations” guidelines.

Peru does not have a well-established industrial plantation estate, and regulations and guidelines have reportedly been an attempt to encourage private plantation investment. Indeed, as of May 2022, SERFOR's information system reports 82,450 ha of productive timber plantations, with just over half (56 percent or 46,379 ha) registered in the Amazon regions where balsa would grow (SERFOR 2022e).

⁸The information platform is available at <https://sniffs.serfor.gob.pe/estadistica/es/tableros/registros-nacionales/plantaciones>.

⁹According to the forest law, private properties must submit a management plan to harvest the secondary forest; however, under the current gap, private properties registering secondary forests as “plantations” are exempt from doing so.

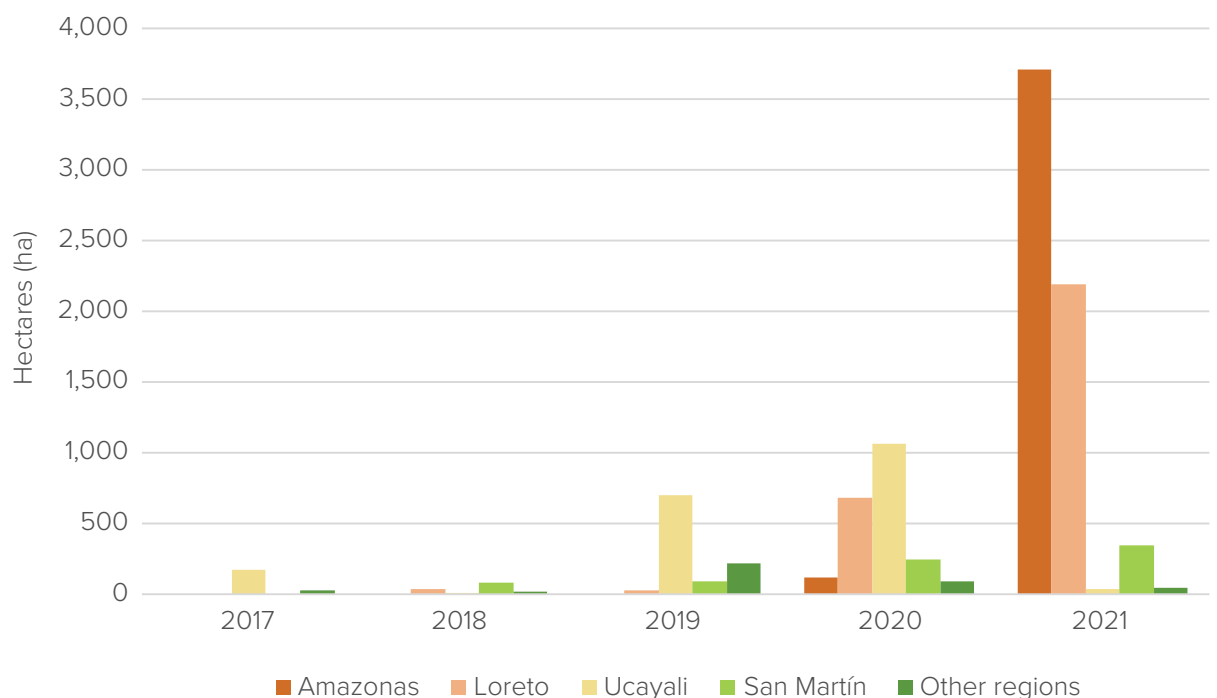


4 Data are not available on how much balsa is grown in Peru.

The only data openly available on the volume or area of balsa in production come from the plantation registration process, which requires operators to provide information on the planted area, with some limited information on the species growing. Thus, competent authorities and timber buyers can access SERFOR's records of forest plantations through the information platform. Although it is not possible to check the type of forest (e.g., plantation, agroforestry system, secondary forest) or the timber species (e.g., balsa), it is possible to verify the license code, the license holder, the location, and the total area (SERFOR 2022e). However, SERFOR's data and records department holds a more detailed database, but regional offices have not updated the data, which limits accuracy and differs from the data that are openly available on SERFOR's website (SERFOR 2022c). As of March 2022, 58 percent (48,125 ha) of registered plantations include balsa as one of the planted species in their plots (SERFOR, 2022a).

From the information provided in cases where a plantation has been registered, including the species, balsa has been registered as growing in plantations in Amazonas, Loreto, Ucayali, and San Martín. Together, these regions account for 96 percent of the registered area producing plantation balsa in Peru. An additional 4 percent of the area growing balsa is reported in six other regions (Figure 1). The dramatic recent increase in the reported extension of balsa is likely due to the increase in operators registering secondary forests as plantations, which is driven by the high market demand, rather than the investment in new industrial plantations.

FIGURE 1 Hectares of Balsa Registered on Plantations by Region per Year (ha), 2017 - 2021



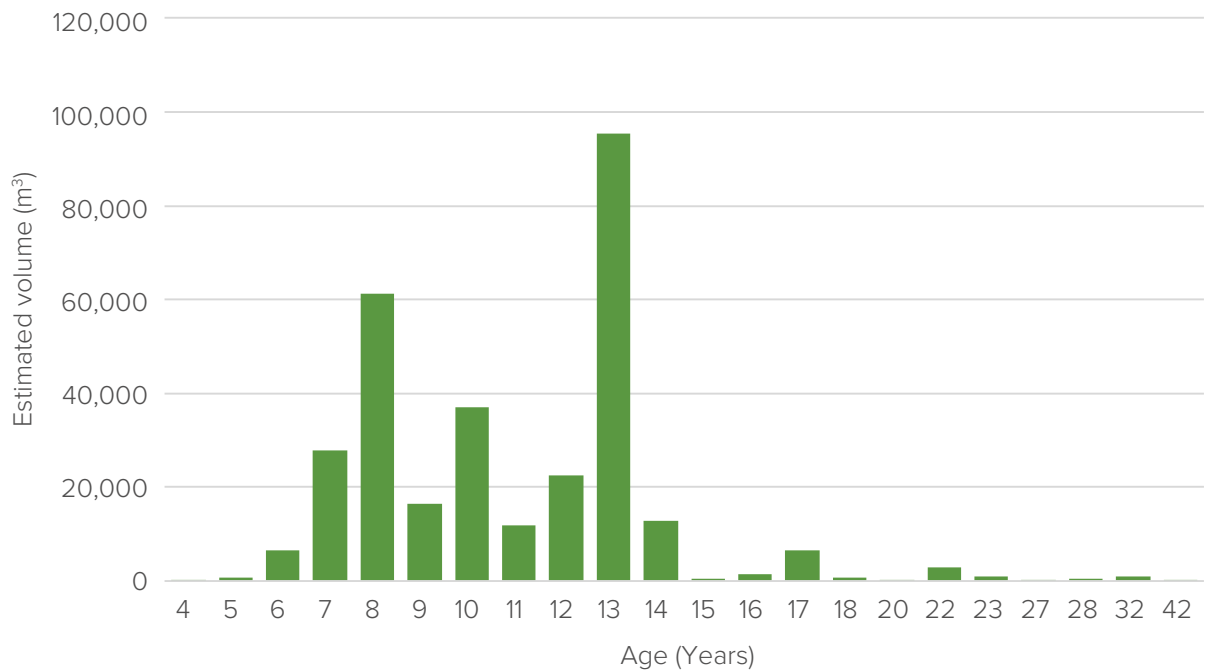
Source: SERFOR 2022a. Compiled by Forest Trends.



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Of the registered balsa “plantations,” over 90 percent of the balsa trees have declared an estimated age of between four and thirteen years old. Balsa can reportedly be harvested after four to seven years (ITTO 2015), which means that the majority of balsa in these registered plantations is suitable for harvesting (Figure 2).

FIGURE 2 Age distribution of the estimated balsa volume growing in registered “plantations” in Peru (m³)



Source: SERFOR 2022a. Compiled by Forest Trends.

5

Plantation operators are not required to submit much evidence of supply chain legality to authorities, limiting forest agencies’ abilities to check compliance with Peru’s forest regulations.

The Peruvian Forest Law (2011) and its Regulations (2015) focus on *natural primary forests and forests plantations (including agroforestry systems)*, creating confusion for operators growing and selling secondary forests species such as balsa. This regulatory framework sets out the requirements for operators to log in Peru’s forest categories (i) timber and non-timber forest concessions, (ii) indigenous communities, (iii) private properties, (iv) local forests, and (v) use contracts. They also establish requirements on operators to demonstrate that timber has been legally harvested, transported, and exported.

To demonstrate legal harvesting in natural forests, landowners or loggers must submit a Forest Management Plan to a regional forest office (see Box 3) requesting a harvesting license, using an independent consultant (or “forest regent”) certified by SERFOR to develop the plan. Low intensity harvesting operations are exempted from this requirement and only need to submit a *declaración de manejo* or declaration of low intensity management.¹⁰

¹⁰ In March 2021, SERFOR issued guidelines for evaluating high- and low-intensity operations, but only for forest concessions and private lands (excluding all others forest categories).



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Box 3: Key Peruvian Forest Governance Authorities

MIDAGRI: Ministerio de Desarrollo Agrario y Riego (MIDAGRI), or The Peruvian Ministry of Agrarian Development and Irrigation oversees management of Peruvian forests and wildlife.¹¹

SERFOR: Servicio Nacional Forestal y de Fauna Silvestre (SERFOR), or the Peruvian Forest and Wildlife Service. SERFOR is the technical and regulatory body within the Ministry of Agrarian Development and Irrigation (MIDAGRI) responsible for implementing the Peruvian Forest and Wildlife Law.

Regional offices: Responsibility for enforcing the Forest Law falls to specialist forest offices within regional governments, especially in the Amazonian regions (e.g., Loreto or Amazonas). Some other regions are still under SERFOR's control. These regional forest offices are also in charge of developing natural resource surveillance and control systems (including managing timber checkpoints along the roads), deploying field inspections, and granting forest rights and management plan licenses.

OSINFOR: Organismo de Supervisión de los Recursos Forestales y de Fauna Silvestre (OSINFOR), or the Oversight Forest and Wildlife Body. A separate and independent body assigned to the Council of Ministries with a mandate to report to Peruvian Congress, OSINFOR oversees the Forest Law by performing audits over the natural forest to ensure legal compliance.

SUNAT: Superintendencia Nacional de Aduanas y Administración Tributaria (SUNAT), or the National Taxation and Customs Administration Office. Within the Ministry of Economy (MEF), it is responsible for the tax administration, including the management of the custom offices.

An approved harvest license allows the operator to log the authorized volume or species in natural forest. The operator is then required to continuously update their “balance sheets” of harvested timber as they move logs to yards. To move logs from the yard to a primary processing sawmill, the operator must apply for a transport permit bill which accompanies all timber in transit out of the forest. Two documents are required for both forestry and sawmill industries: 1) a log and wood transport permit bill (“guías de transporte forestal”) for SERFOR and the regional forest office and 2) a sender waybill (“guías de remisión”) for the tax authority (SUNAT). Secondary processing industries only need to have a sender waybill. Checkpoints run by regional forest offices are expected to inspect the load being transported and the transport permit bill as well. Documentation can be verified through checking the forest and sawmill operations records (e.g., the aforementioned balance sheet).

After the harvesting season is over, Peru's Organismo de Supervisión de los Recursos Forestales y de Fauna Silvestre (OSINFOR) also conducts randomized forest audits, inspecting roughly 50 percent of the harvesting plots each year.¹² OSINFOR's audits focus on the forest management

¹¹ Formerly called Ministerio de Agricultura y Riego (MINAGRI) until November 2020.

¹² OSINFOR can also conduct pre-harvesting audits and harvesting operations supervisions.



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activities and check if the authorized volume of species has actually been logged from the site. OSINFOR publishes its findings in either a green or red risk report. Red (“risky”) reports indicate that the harvesting operations failed to comply with forest regulations and the operator is either sanctioned or suspended. To date, OSINFOR’s audit reports are the only publicly available data allowing buyers to verify that the product has been legally harvested from natural forests in Peru.

Currently there are no registered balsa plantations in (i) timber forest concessions, (iv) local forests, and (v) use contracts for agroforestry systems. Instead, balsa plantations have been registered on (ii) indigenous community land (64 percent or 6,386 ha) and (iii) private properties (37 percent or 3,779 ha). In both cases, for registration purposes, the landowners of plantations in these forest categories are only required to submit a template with basic information on area of the plot, species, and timber volumes. Neither forest management plans nor harvesting permits are required, only a transport permit bill. Timber balances are also not required, and they are exempt from OSINFOR’s post-harvest audits.

“Plantation” harvested timber must be accompanied by a transport permit to be transported. This means that the only opportunity for forest competent authorities to inspect or “control” plantation timber is through (a) checks on loads and accompanying transport permit bills presented to agents at timber checkpoints and (b) export documents submitted to SUNAT.

However, it can be very challenging for enforcement officials to identify potential illegality given that additional corroborating information such as balance sheets and information in a forest management plan are not available, especially when fraudulent or falsified documents are readily available. For example, while a forest checkpoint agent would be able to see the timber’s origin in the transport permit bill, the agent cannot verify the information. Therefore, the ability for agents to detect potential illegal logging and trade associated with plantation and secondary forest species, like balsa, rests on the actions taken to try and corroborate information provided in transport permit bills.

6

Peru’s balsa trade is dominated by eight companies who are responsible for 80 percent of the exports. Most are new to the wood products industry and several have been cited for non-compliance in their overall operations, raising concerns over their ability to verify legal harvest and trade.

In 2020 and 2021, around forty operators were involved in the balsa trade, although exports are dominated by just eight companies which together account for 80 percent of the trade (SUNAT 2022c). Most of the companies exporting balsa are newly registered or only started operating in the timber sector in the last three years (Table 2). This contrasts with the broader timber sector in Peru, where most commercial timber companies have been operating for much longer periods.

According to SUNAT’s database on Peru’s exports, Jalsuri Green SAC, based in San Martín, is the leading Peruvian exporter of balsa accounting for 30 percent of all balsa exported in 2020 and 2021 (by volume). The company was founded in 2016, reportedly to offer consultancy services and capacity-building support in a different industry. From 2017 to 2020, the National Program of Innovation for Fishing and Aquaculture (PNIPA) within the Ministry of Production (PRODUCE) awarded Jalsuri Green SAC \$227,612 to manage ten fisheries and aquaculture projects (PNIPA 2022). However, in 2021, the company reportedly switched focus to forestry and sawmilling.



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Four of the top ten companies exporting balsa in 2020 and 2021 (Table 3) have been fined or were subject to seizures in the past. Three companies (Gibago Peru SAC, MCM Wood Factory SAC, and Comercio Internacional Amazonico EIRL) had loads of balsa seized in 2020 and 2021. One (Santos Tito Chicoma Giron) was reportedly fined in 2020 for exporting squid to Ecuador without the required documents to verify legal sourcing (Ministerio de la Producción 2020) and now is reported as a “missing taxpayer” by the tax authority.

TABLE 2 Top 10 Peruvian Balsa Exporters, 2020 – 2021

N°	Date	Origin	Destination
1	Jalsuri Green SAC	San Martín	Established as a consultant company for the fish and aquaculture sector.
2	A&H Consultores Empresariales SAC	San Martín	CEO provided services as an OSINFOR auditor and also runs a contractor company.
3	Santos Tito Chicoma Giron	Piura	Fined for seafood trafficking and classified by SUNAT as a “missing taxpayer.”
4	Trópico Soluciones SAC	Loreto	Established in 2020. CEO linked to aquaculture projects.
5	Gibago Peru SAC	Ucayali	Established in 2019. Linked to Gibago LTDA in Ecuador. Load seized in 2021 (See #3 in Table 4).
6	Jhony Saboya Saboya	San Martín	Established in 2020, but not operating until 2021.
7	Darwin Francisco Elias Cruz	Tumbes	Established and closed in 2021.
8	MCM Wood Factory SAC	Ucayali	Established in 2021 as a general trader. Ecuadorian CEO linked to Ecuadorian timber company Lightwood SA. Load seized in 2021 (See #6 in Table 4).
9	Exportaciones Sambac Narvaez SAC	Cajamarca	Established in 2020 as a food and drinks trader. Ecuadorian CEO.
10	Exportaciones Sambac Narvaez SAC	Loreto	Load seized in 2020 (See #1 in Table 4). Chinese CEO with Peruvian citizenship.

Source: SUNAT 2022a,b. Compiled by Forest Trends.

TABLE 3 Balsa loads seized by the Peruvian customs authority SUNAT, 2020 – 2021

N°	Date	Customs	Exporter	Volume (m³)
1	22/08/2020	Callao	Comercio Internacional Amazonico EIRL	106.867
2	24/11/2020	Tumbes	Carlos Cruz	59.202
3	23/03/2021	Callao	Gibago Peru SAC	(369 pieces)
4	22/07/2021	Tumbes	Glenda Ladines	25.000
5	18/08/2021	Callao	Topa Peruana EIRL	56.279
6	21/11/2021	Tumbes	MCM Wood Factory SAC	55.599

Source: SUNAT-Tumbes 2021; SUNAT 2022b. Compiled by Forest Trends.



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7

Peruvian authorities are registering offences tied to the trade in balsa in 2020 and 2021, mainly related to missing or fraudulent documents or trafficking without any documents.

In 2016, Peru's government agreed with the US to implement measures that included "amending export documentation requirements to improve traceability of all timber flows." However, Peruvian competent authorities disagreed on a standard method, and the draft proposal was finally blocked by the private sector and SERFOR (Urrunaga et al. 2018). Meanwhile, Peruvian customs officers continue to struggle in verifying the legality of timber.

The emergence of Peru's balsa industry is a relatively recent phenomenon, and reports released by the Peruvian government indicate that authorities have registered offences tied to the balsa trade in 2020 and 2021 (Table 4). This information indicates offences related to a failure of operators to demonstrate where the balsa was harvested, a prerequisite for obtaining a transport permit bill. Other offences have related to missing or fraudulent documents and illegal trafficking (without any documents). The cases reported in Table 4 therefore suggest that entrepreneurs are overstating volumes of balsa in transport permit documents or mis-declaring the origin of the balsa. This increases the risk that the timber might have been illegal logged or laundered into a supply chain.

One case highlights how SUNAT agents determined that a balsa shipment about to be exported included potentially false information despite the presence of a transport permit. In 2020, Xun Xie Lie, CEO of Comercio Internacional Amazonico EIRL, registered a balsa plantation as the legal representative for the El Peruanito community in Trompeteros (SERFOR). The plantation was recorded at 13 ha, producing an estimated yield of about 6,281 m³ (~483 m³/ha). On 21st July 2021, according to the transport permit bill, 1,184 balsa logs (207,557 m³) were transported by river from the community to the city of Yurimaguas. Three different timber checkpoints inspected the load on route and stamped the transport permit bill (GERFOR Loreto – Maynas 2021).

Two weeks later, the regional office in Alto Amazonas checked the load to verify the milling yield. The regional office issued a report recording a volume of 56,279 m³ of sawn balsa, which meant that the yield rate was less than 30 percent (GERFOR GERFOR Loreto - Alto Amazonas 2021a). This sawn balsa passed at least five more checkpoints as it was transported 1,500 kilometers (km) to reach El Callao harbor in Lima (GERFOR Loreto - Alto Amazonas 2021b).

Once in the port, Topa Peruana EIRL, a trading company also run by Xun Xie Lie, submitted all required permits to allow the balsa to be exported. As SUNAT was inspecting the shipment and accompanying documents, however, agents noticed some red flags in the information provided in the transport permit bill. By crosschecking information with the Peruvian Navy, SUNAT discovered that the initial transport of the balsa from the forest was on an unregistered ship, which increases the risk that the balsa was logged elsewhere and not in the place where the transport permit document claimed (#5 in Table 3 and #2 in Table 4).

In July 2021, an exporter presented a packing list of about 25 m³ of balsa sawn wood with a transport permit bill for logs being previously transported from Loreto to Tumbes. The permit indicated that there were 530 logs (a volume of 53 m³). The exporter did not provide a transport permit bill for the sawn timber and the load was subsequently seized by SUNAT in Tumbes (SUNAT-Tumbes 2021). Concerns surrounded the low volume of balsa logs being transported, which raised a red flag to SUNAT that by not submitting the transport permit bill for the sawn wood, the exporter was trying to mix and hide some products from unknown sources without the required permits (Table 3 #4).



TABLE 4 Cases of illegal balsa reported by the Peruvian competent authorities, 2020 – 2021

N°	Date	Origin	Destination	Volume (m ³)	Offence	Competent Authority
1	17/08/2020	Huanuco	China	173.196	No transport permit bill	SUNAT
2	22/08/2020	Loreto	China	56.259	Fraudulent documents	FEMA
3	24/11/2020	San Martín	(no data)	16.509	No transport permit bill	FEMA
4	24/11/2020	(no data)	Ecuador	58.962	Trafficking	SUNAT
5	26/11/2020	(no data)	Ecuador	103.000	Missing or mistaken documents	SUNAT
6	28/11/2020	(no data)	Ecuador	~80.000	No transport permit bill	FEMA
7	20/01/2021	San Martín	(no data)	66.037	Missing or mistaken documents	FEMA
8	20/11/2021	Tumbes	Ecuador	73.382	Trafficking	FEMA
9	18/02/2022	Ucayali	(no data)	(1000 pieces)	Missing or mistaken documents	FEMA
10	25/02/2022	Amazonas	(no data)	62.180	Missing or mistaken documents	FEMA

Source: FEMA and SUNAT social media.

8 Illegal balsa logging on indigenous community lands have been reported.

The independent government of the Wampis Nation, an indigenous community located in Amazonas and Loreto regions, started reporting illegal balsa logging activities on community lands in 2020. The Wampis reported that illegal loggers were crossing the border from Ecuador and trafficking the illegally logged balsa from their community land back over the border by boat without documents.

The Wampis were taking direct action and blocking transport along the rivers but were increasingly threatened by the illegal loggers (El Economista 2020). Concerns about escalating murder rates for local indigenous peoples and environmental defenders in the country led the La Defensoría del Pueblo or Peruvian ombudsman to report the case to the Public Prosecutor for further investigation (Defensoría del Pueblo 2020).

The Wampis had been managing balsa in their fallow forests but had not taken steps to register this balsa plot as a “plantation.” The Wampis reported that there had been a lack of clarity surrounding whether they needed to do so. However, in November 2020, the Wampis community decided to halt all balsa harvesting and initiate registration of a “plantation” to formalize their future harvesting and trade in balsa. One month later in December 2020, twenty Ecuadorian illegal balsa traffickers were arrested by the Wampis with support from the local police (ARA Amazonas 2020). In 2021, six Wampis communities started the process of registering their balsa trees, though only one community plantation is currently listed in SERFOR’s records.



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Ecuador is a hub for Peruvian balsa exported to international markets, particularly China. Most Peruvian balsa is entering Ecuador through Tumbes' border crossing.

By querying SUNAT's database (2022c), Forest Trends found that balsa has become one of the top five wood species exported from Peru since 2020 and the second highest species exported as sawnwood based on volume (Table 5).

TABLE 5 Top ten sawnwood species exported by Peru in 2020 and 2021 (m³)

Sawnwood species exported	2020 (m ³)	2021 (m ³)	Total (m ³)
Estoraque (<i>Myroxylon balsamum</i>)	51,028	291	51,319
Balsa (<i>Ochroma pyramidale</i>)	9,419	31,005	40,424
Jequitiba (<i>Cariniana decandra</i>)	13,089	186	13,275
Virola (<i>Virola</i> spp.)	4,621	47	4,668
Cumaru (<i>Dipteryx</i> spp.)	2,074	-	2,074
Amburana (<i>Amburana cearensis</i>)	969	53	1,022
Jatoba (<i>Hymenaea</i> spp.)	745	45	790
Congona (<i>Brosimum alicastrum</i>)	527	38	565
Garapa (<i>Apuleia leiocarpa</i>)	481	-	481
Tornillo (<i>Cedrelinga catenaeformis</i>)	412	-	412

Source: SUNAT 2022c. Compiled by Forest Trends.

More than three quarters (83 percent) of the Peruvian balsa sawnwood was exported to Ecuador, while 17 percent was shipped directly to China in 2020. From 2020 to 2021, balsa exports tripled to 31,005 m³, with 100 percent destined for Ecuador. Almost all the balsa exported to Ecuador crossed the border in trucks (SUNAT 2022c; WRM 2021).

The average price of balsa sawnwood exports to China is \$722 per m³ FOB but has been subject to price volatility. The average price of the balsa exports to Ecuador is one-tenth of that at roughly \$73 FOB per m³, and prices reportedly remain stable.

As harvesting and exports of Peruvian sawnwood balsa have swiftly increased, the Tumbes border crossing has emerged as the primary route for balsa destined for traders in Ecuador. Tumbes' customs data highlights negligible sawnwood balsa exports in the period between 2016 and 2019 before skyrocketing in 2020 and 2021, registering 7,006 m³ in 2020 and 31,005 m³ in 2021 (Figure 3) (SUNAT 2022c).



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Box 4: Ecuador's forest sector and management regime

Ecuador's dominance in global balsa production and trade reflects changes in the production system in the 1980s when Ecuador shifted to short-term contracts rather than large scale forest concessions to produce timber. Most balsa logging takes place on private/industrial plantations with some in private farms and indigenous community lands. Informal and illegal operations, often facilitated by middlemen, are reportedly a problem (Oliver 2013).

The Ministry of Environment (MAATE) and the Ministry of Agriculture (MAGAP) are the organizations responsible for managing the forest sector and ensuring compliance with laws and regulations. While MAATE oversees natural forest, MAGAP is responsible for all plantation forest. At the local level, Decentralized Autonomous Governments support by following up and inspecting management plans.

All logging and harvesting in either natural forests or plantations require permits. While Ecuador does not have an independent oversight body, like Peru's Organismo de Supervisión de los Recursos Forestales (OSINFOR), independent forest rangers ("regente forestal") are expected to check forest management plans, forest inventories, and conduct audits of the logging area and report back to MAATE. These audits and subsequent reports allow MAATE to allocate harvesting volumes for various species in an area, and after harvesting, issue transport permits. For plantation forest, MAGAP officials conduct the field audits themselves before any harvesting operations take place. From the audit, MAGAP then issues a harvesting permit with the authorized logging volumes based on the inventory and the previous field audits (MAE 2010; MAGAP 2014). A transport permit is then issued.

To export timber, operators must request an export permit by submitting the required documents including an industry license record and evidence to prove "legal origin," such as a transport permit/document (for logs and sawnwood), invoices or bill of landings. A Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) permit or certificate is also required where applicable. Export of roundwood for commercial purposes is banned. Checks on imports are based on export licenses (from the country of origin), "legal origin" certificates, and phytosanitary measurements (MAATE 2021a). There are no clarifications or guidelines on what constitutes "a legal origin certificate."

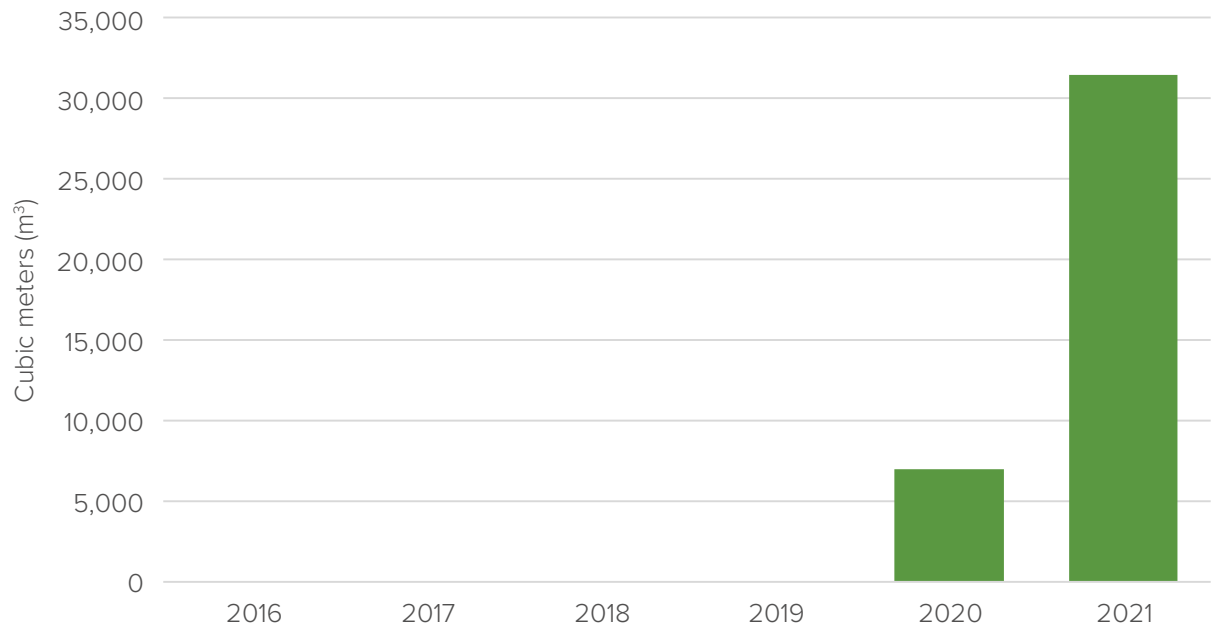
While a web-based system exists in Ecuador, which allows forest users to submit the required information, the system is not publicly available and it is not possible to crosscheck and verify documents and statistics, which decreases transparency and blocks third-party monitoring. Reports indicate concerns that audits are sometimes being conducted by the same institution that provides the licenses/permits. Across the Amazon Basin, there are reports of corruption and fraud that allow companies to falsify the forest management plan to overstate the number of trees in an area or fraudulently obtain transport permits from corrupt officials (InSight Crime 2021).

In August 2021, MAATE passed a new regulation for "harvesting pioneer species from the genera *Heliocarpus* and *Ochroma* (balsa) located in the secondary forest" (MAATE 2021b). This regulation is intended to establish the guidelines for managing harvesting and transport of these species. However, to date, the system has remained largely paper-based and subject to the same corruption and fraud risks.



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FIGURE 3 Sawnwood balsa exports recorded at Tumbes customs (m³), 2016 – 2021



Source: SUNAT 2022c. Compiled by Forest Trends 2022.

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The emergence of new balsa supply routes exposes the critical role of timber checkpoints. Yet only two checkpoints are operational along the northern coast.

For timber transported by truck, timber control checkpoints along the roads out of the forest play a critical role in checking compliance with Peru's forest sector regulations. This is particularly important in the context of "plantation" and secondary forest species, like balsa, where the timber checkpoints provide one of the only opportunities to inspect loads and accompanying transport permit bills prior to the balsa being traded on the domestic and international market.

In early 2017, the Peruvian Government passed a decree to foster legally sourced forest and wildlife products. This decree established that SERFOR would propose criteria to set strategic and compulsory timber checkpoints along roads from the forest to the cities, including ports and border crossings (Government of Peru 2017). The concept of timber checkpoints was to provide additional governance and enforcement oversight, allowing enforcement officials to check timber shipments and documents to ensure legal compliance and reduce fraud/laundering risk within the timber sector.

In mid-2017, SERFOR approved an order that set up a more formal role for managing transport permit bills in Peru, requiring that the transport permit bills are registered at checkpoints to improve timber tracking nationally. The order applies throughout Peru and essentially makes checks mandatory at checkpoints, with regional offices required to validate or authenticate that these checks are taking place (SERFOR 2017).

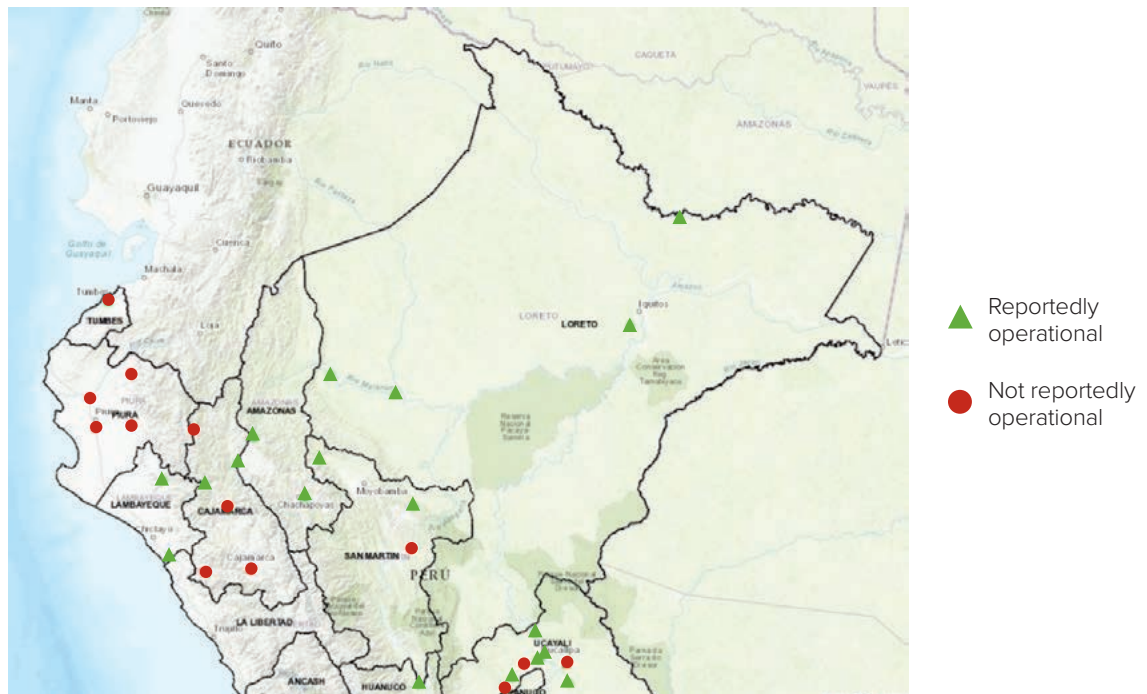


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However, implementation was slow and by the end of 2017 the Peruvian Comptroller office report to SERFOR included concerns that the location of timber checkpoints had not been decided. MIDAGRI had reportedly not approved the criteria to establish the timber checkpoints almost a year after the initial decree (Contraloría General de la República 2017).

According to SERFOR (2022b), to date, 23 timber checkpoints have been set up in the regions of Loreto, San Martín, Amazonas, Cajamarca, Lambayeque, Piura, and Tumbes, in northern Peru (Figure 4). As of April 2022, 13 were found to be operational while ten were not currently operational.

FIGURE 4 Timber checkpoints in northern Peru



Source: SERFOR 2022b. Compiled by Forest Trends.

Notably, the new balsa supply route through Piura and Tumbes regions to the border with Ecuador currently lacks operational timber checkpoints – the closest is 417 km away and only partially operational since May 2021. This is the only active checkpoint out of four in the Piura region. Piura's forest department does not have any records of balsa timber inspections for trucks on route to Tumbes and the Ecuador border (ATFFS Piura 2021). There is just one non-operational timber checkpoint in the Tumbes region (DRAT 2022); SUNAT is recording data from the customs checkpoint 90 km away in the city of Carpitás. In 2021, the Carpitás customs checkpoint reportedly inspected less than 2,500 m³ of balsa timber (SUNAT-Tumbes 2022).



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Enforcement agents lack clear guidelines on how to verify the legality of balsa exported into Ecuador.

Timber checkpoints are challenging and resource intensive to manage, and to date in Peru, there appears to be a lack of capacity and resourcing directed to timber checkpoints. In March 2021, SERFOR approved guidelines to “standardize the control actions” applied by the forest officers at the timber checkpoints, which applied to all regional offices and the drivers transporting timber products (SERFOR 2021d). The guidelines laid out requirements that timber truck drivers must stop at the timber checkpoints and facilitate inspection by providing the required documents (e.g., transport permit bills, product information, and the driver’s license).

The forest officer is then expected to inspect the documents and the timber in the truck. The guidelines propose that inspection officers should cross-check and verify information in the transport permit bills using a digital application. However, as of July 2021, only 12 of 1,420 valid forest management plans and 15 sawmills had been incorporated into the digital system (SERFOR 2021c). In addition to its limited adoption, the digital system does not include any plantation or secondary forest information, which severely limits forest agents’ abilities to cross check information provided at timber checkpoints. This is compounded by the fact that operators of many “plantations” where balsa is grown and harvested are not required to submit such information to local authorities for approval. In the absence of forest management plans, harvesting permits, timber balance reports, and OSINFOR post-harvest audits, it is nearly impossible to track balsa supply chains and cross check information in transport permit bills.

In cases where it is not possible for forest inspection officers to verify the legality of the timber shipment through the digital system (as in the case of balsa or other plantation or secondary forest timber), the protocol suggests that “open databases” offered by SERFOR, OSINFOR, and SUNAT can be used. However, guidelines on these “open databases” are missing and there remains a lack of clarity on where this information can be accessed or how it can be used to verify the information presented by the driver at the checkpoint.

Many timber checkpoints also reportedly suffer from poor electricity connections, power outages, and a lack of digital or modern tools to help identify timber species. This means that inspections of load and document checks are subject to the discretion and knowledge of forest officers, who reportedly only tend to check if the driver has the documents and if there is a mistake between the declared information (usually handwritten) and the physical examination of the load.

For example, Forest Trends cross checked SERFOR’s information platform website and database (Refer to #4 in the Findings) against the information recorded between 2018 and 2021 at the Corcona checkpoint (ATFFS Lima 2021) and found that one plantation license has already surpassed the estimated balsa harvesting volume, while another license does not relate to any of SERFOR’s plantation records, making it impossible to verify if the license exists.



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CONCLUSIONS AND RECOMMENDATIONS

Peru's balsa boom in 2020 and 2021 has created a new industry where entrepreneurs – many new to the forest sector – are registering balsa plots from secondary forests located in indigenous communities and private properties as “plantations.” This balsa trade is exposing how the current regulatory environment and enforcement powers for species grown in forest plantations and secondary forests create confusion and loopholes that can be exploited by illegal loggers. This, combined with low resources, capacity, and information infrastructure, means that enforcement authorities have limited ability to verify that the wood is legal.

Forest Trends identified three specific policy and enforcement themes exposed by Peru's new balsa trade and several opportunities to close existing loopholes to minimize the risks of illegal logging and document fraud.

1. Strengthen and clarify policy and regulatory controls for secondary forests.

The predominance of old-growth forests in Peru and the value of the commercial timber sector for species growing in primary, natural forests means that, to date, regulatory and enforcement measures have not focused on secondary forests (Sears et al. 2021).

There is a lack of information about the plantation sector, which not only hinders Peruvian forest management and enforcement authority decision making, but also inhibits the country's ability to attract plantation investors (Guariguata et al. 2017). The recent balsa boom, primarily destined for export, has exposed some key questions that require the Peruvian government to provide additional clarity around, specifically whether balsa plots growing on fallow private smallholder farms or on indigenous community land need to be registered as plantations. There also needs to be formal guidance on the distinction between the secondary forests originating after natural or anthropogenic disturbances (i.e., fallow farm areas).

In September 2021, SERFOR published a technical report to guide and support management of balsa trees, but this has not been paired with regulatory measures to bring the requirements more in line with other commercial timber species grown in natural forests. SERFOR is currently drafting guidelines for “management declarations,” which forest owners must submit to request a harvesting license to log in secondary forests (SERFOR 2022d). The draft does not indicate whether all species, like balsa, occurring on secondary forest must be registered as a forest “plantation.”¹³ The draft does set a cap for management plot size of 100 ha, with a harvest volume cap of 6.5 m³/ha. Based on the data released for registered plantations, some balsa plantations growing in secondary forest already surpass these proposed caps. SERFOR's draft guidelines suggest that on-site verifications will be required prior to harvesting approval and logging on secondary forest will be subject to post-harvest audits by OSINFOR.

SERFOR should finalize and share the draft guidelines for secondary forests and clarify the types of management and production that are acceptable (i.e., natural supported regeneration, planted forest), while also explaining forest owner rights and responsibilities under the system. These guidelines must also clearly define when species, like balsa, growing in secondary forest should be registered as a forest “plantation” or agroforestry system versus a “low intensity” operation to close a potential loophole in the system.

¹³ This affects other timber species occurring in secondary forests such as Bolaina (*Guazuma crinita*) and Capirona (*Calycophyllum spruceanum*).



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Over the years, OSINFOR has proved to be a reliable institution. Its on-site audits are accurate, and the reported information can be accessed and confirmed remotely. Timber traders are already using OSINFOR's data as evidence of legal harvest. However, SERFOR's guidelines, including a requirement for OSINFOR to conduct post-harvest audits on secondary forests, are challenging to implement, as fallow forests are widely scattered throughout the Peruvian Amazon.

Instead, as suggested in Sears et al. (2018), it is critical that SERFOR make efforts to fully understand how smallholders and other forest owners are managing timber on their landholdings. This will be particularly important for agricultural systems in Peru to identify the extent to which their operations could be streamlined and formalized as a pathway to harvesting and selling legal forest and agricultural products.

2. Increase availability of tools and staff training at timber checkpoints.

The emergence of a new balsa supply route by truck through the northern regions of Peru and over the border in Tumbes into Ecuador has revealed the importance of operational and effectively resourced timber checkpoints, particularly close to all land and water (river and sea) ports.

While Peruvian competent authorities can conduct random forest audits, "plantation" timber is only currently checked or "controlled" by agents at the timber checkpoints along roads out of the forest or by SUNAT agents at the port prior to export. This puts pressure on the timber checkpoints to provide oversight over a sawnwood species whose export has skyrocketed to Peru's second highest in 2021. As operators of existing "plantations" are currently not required to submit forest management plans to regional offices for approval, do not need a harvest permit to fell trees, are not required to report their timber balances, and are exempt from OSINFOR's post-harvest audit, document checks at timber checkpoints remain the main opportunity to verify timber legality.

However, given that cargo may be accompanied by falsified or fraudulently obtained transport permit bills, it can be challenging for enforcement officials to identify potential illegality in the absence of additional corroborating information, such as balance sheets and forest management plans. For example, while an agent at a forest checkpoint would be able to see where the timber is coming from in the transport permit bill, there are limited ways for that agent to cross check that information to verify it is correct. Digitization of supply chain tracking tools remains limited, despite SERFOR's 2019 commitments, and many key traceability documents, like the transport permit bill, are still handwritten, increasing both the margin of error and risk of fraud in the system. The ability for agents to detect potential illegal logging and trade associated with plantation and secondary forest species, like balsa, rests on the inconsistent actions taken to try and corroborate information provided in transport permit bills.

On-site verifications and timber control at checkpoints reportedly remains poor. This is due to budgetary resourcing constraints and inconsistent standards that depend on the knowledge and discretion of the enforcement officer conducting the checks. The following support from the Peruvian government could strengthen timber checkpoint operations:

- Increase funding for checkpoint operation;
- Distribute essential functions among several competent authorities in the forest and agricultural sectors (as has been done in the case of pre-harvesting verifications of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) species);
- Provide open source data and tools, trainings, and reliable phone and internet access so officials can conduct thorough cross checks.



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3. Increase traceability for all timber products sourced from both primary and secondary forests in Peru.

In 2014, SERFOR announced its intent to improve tracking and controls for all forest products in the forest supply chain for implementation in 2019, with the goal of tracing timber shipments back to point of harvest. As such, SERFOR was expected to implement a digital timber tracking and traceability system from 2020 to help address issues with illegal logging, fraud, and the laundering of illegal timber into supply chains. However, progress in implementing this system has been reportedly slow and, as of 2021, only 12 of the 1,420 valid forest management plans and 15 sawmills had been incorporated into the new digital timber tracking and traceability system (Forest Trends 2020; SERFOR 2021c).

With continued reports of illegal logging, Peruvian timber suppliers have struggled to demonstrate that their timber can meet the legal standards required by large and important export markets, such as the US, EU, and Australia. Between 2008 and 2013, the US and the EU instituted new international timber trade regulations prohibiting the import of illegally sourced timber, and the 2009 US-Peru free trade agreement mandated institutional and regulatory amendments. At the end of 2019, the Government of China amended its Forest Law to require traceability and legal sourcing for all domestic wood products. To date, it is still unclear whether these amendments would also apply to imported timber products.

Inconsistent regulatory measures and poor supply chain traceability/verification options make it challenging for producers and buyers to supply and purchase verified legal balsa (or other plantation species) from Peru to international markets that are increasingly requiring demonstrations of legal harvest and trade.

We recommend that SERFOR consider additional options and incentives to encourage wider regulatory uptake and coverage within the system. The system should cover both primary and secondary forest operations so that enforcement officials can verify transport documents. We recommend a phased approach to increase the coverage of SERFOR's digital timber tracking tool, including offering incentives to provide information. Operators who have previously been sanctioned (fined or had product seized) should also be required to pay their fines and adopt the system if they wish to continue operating.



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