

PAPER • OPEN ACCESS

State and prospects of forest protection from illegal logging in the Ural Federal District

To cite this article: N Pryadilina and I Zinovyeva 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **875** 012011

View the [article online](#) for updates and enhancements.

You may also like

- [Influence of logging on the effects of wildfire in Siberia](#)
E A Kukavskaya, L V Buryak, G A Ivanova et al.
- [Remote assessment of extracted volumes and greenhouse gases from tropical timber harvest](#)
Timothy R H Pearson, Blanca Bernal, Stephen C Hagen et al.
- [Measuring from Space the Efficiency of Local Forest Management: The Successful Case of the Indigenous Community of Cherán, Mexico](#)
FJ Osorno-Covarrubias, S Couturier and M Piceno Hernández

State and prospects of forest protection from illegal logging in the Ural Federal District

N Pryadilina^{1,*} and I Zinovyeva²

¹Department of Economics and Economic Security, *Ural State Forestry Engineering University*, 37 Siberian Tract, 620100, Yekaterinburg, Russian Federation

²Department of Economics and Finance, *Voronezh State University of Forestry and Technologies named after G.F. Morozov*, 8 Timiryazeva Street, 394087, Voronezh, Russian Federation

*E-mail: pryadilinank@m.usfeu.ru

Abstract. Illegal logging and trade in primary timber is a significant threat to the integrity of the forest system of the Ural region. It causes enormous damage to economy and society. The purpose of the work is to describe the state of the problem of illegal logging, identify the main factors causing widespread illegal logging and illegal timber turnover in the district, and make separate recommendations to suppress illegal activities of unscrupulous forest users. The analysis, comparison, and synthesis of the data were conducted on the basis of official Departmental reporting provided by the Forestry Department of the Ural Federal District. The issue of illegal logging is systemic and sustainable. Recognition of not only economic, but also the social and environmental significance of the problem, coordination of interdepartmental interaction, improvement of the system of state forest control and supervision, combating corruption schemes, creation of the institution of public environmental inspectors and their active work with the support of regional and federal authorities and the response of the timber industry enterprises can turn the situation.

1. Introduction

Illegal felling and trafficking in timber (especially of illegal or dubious origin) is one of the most crucial environmental, economic and social problems in Russia. Illegal logging leads to deforestation and forest degradation. The consequences of forest degradation and deforestation are numerous problems: the destruction of a renewable resource, without which the social development and economic growth of the regions are impossible, the disappearance of the traditional habitat of the local population, soil degradation and changes in the water balance of territories, disappearance of many species of plants and animals, the existence of which is connected with forests. Deforestation is one of the main drivers of climate change.

The problem of illegal logging in Russia is recognized by all participants in forestry relations. Currently, the Russian Federation does not have a technique and evaluating system for illegal logging. As a consequence, accurate accounting of the volume of illegal logging is still impossible. Forestry Agency says that, in 2019, about 15,000 facts of illegal logging were revealed; including the volume of illegal logging amounted to 1,200,000 m³. The independent evaluators announce that almost 20% (or about 43,000,000 m³) of Russian timber is illegally harvested. From 13,000,000,000 to



30,000,000,000 RUB are considered as the total economic damage to the budget of our country. According to various experts, illegal felling and its turnover are the reasons for this damage.

Before discussing the reasons and measures to combat illegal logging, it is necessary to clarify the term itself. Today, the forestry legislation of the Russian Federation does not define the concept of “illegal logging”.

In the narrow sense, illegal logging is a logging carried out without permits. According to a broad definition, illegal logging also includes violations related to forestry rules [1].

It cannot be said that this problem is only for our country. Large-scale illegal logging and the associated trade in forest products from illegal sources are recognized as pervasive drivers of deforestation and forest degradation in many developing countries. To address these challenges, the European Union (EU) adopted the Forest Law, Governance and Trade Action Plan (FLEGT) in 2003 with Voluntary Partnership Agreements (VPA) and the EU Timber Regulation (EUTR) as key components [2]. This European Union Action Plan for Forest Law Compliance, Governance and Trade (FLEGT) is an ambitious strategy to combat illegal logging and its negative consequences [3].

The example of Argentina presented in the study [4] is interesting for us, which shows how a coalition between international actors, such as the Inter-American Development Bank (IDB), and landowners with great power in the country, collected through forestry associations, managed to create a mechanism for checking the legitimacy wood or a study of a large group of scientists on the development of a remote control system for logging [5].

Many recent studies are aimed at determining the factors that should be taken into account to involve the local population to control the illegal activities in the forests [6,7].

It was considered that decentralization of forest management in the Russian Federation, implemented by the Forest Code of 2006 [8], led to a shift in management decisions from the federal to the provincial level. This paper analyzes the severity of the issue and the main reasons for the above phenomenon on the example of one of eight areas of the Russian Federation. The Ural Federal District (hereinafter UFD) is used as an example of the analysis. Based on the results of the study, a number of measures have been proposed to help reduce the volume of illegal logging in the district in the coming years.

2. Methodology

The UFD includes six territories of the Russian Federation. These are four regions (Sverdlovsk, Kurgan, Tyumen, Chelyabinsk) and two autonomous districts (Yamalo-Nenets (YaNAD) and Khanty-Mansiysk-Yugra (KMY)).

The forest sector plays an important role in the economy and is essential for the socio-economic development of the Ural Federal District. The UFD income to the federal budget for the use of forests in 2019 amounted to 6,046,600 RUB, including the income of the UFD to the federal budget for timber harvesting – 1,605,600 RUB.

The UFD accounts for about 14% of the AAC in Russia, but most of it is inaccessible due to the insufficient development of the road network.

According to their intended purpose, forests are divided into protective (25.7%) and operational (74.3%) ones.

In the Ural Federal District (in terms of timber reserves) the first place is occupied by the KMY (40% of the Ural Federal District's timber reserves), followed by the Sverdlovsk Region (25.8%), the YaNAD (14.2%), the Tyumen Region (11.9%), the Chelyabinsk Region (5.3%) and the Kurgan region (2.8%).

In the forest-rich KMY and the Sverdlovsk region, pine is a predominant object of logging.

The allowable cut (permissible volume of timber) in the Khanty-Mansi District is 39,300,000 m³, the Sverdlovsk region – 23,900,000 m³, the Tyumen region – 16,000,000 m³, the Yamalo-Nenets District – 10,030,000 m³, Chelyabinsk region – 2,300,000 m³, Kurgan region – 1,800,000 m³. In general, in the UFD, the allowable cut is 93,600,000 m³. Nevertheless, the efficiency of its use is low: the share of logging from the allowable cut does not exceed 16% on average in the district.

Changes in the volume of timber harvested in the UFD from 2017 to 2019 are shown in table 1.

Table 1. Dynamics in the volumes of timber harvested in the UFD for the period of 2017-2019, thousand m³.

Entities of the UFD	Years			Relative deviation, 2019/2018 (%)	Relative deviation, 2019/2017 (%)
	2017	2018	2019		
Sverdlovsk region	6,972.6	8,158.4	6,399.3	78.4	91.7
Khanty-Mansiysk-Yugra	3,719.3	4,604.3	4,759.0	103.3	127.9
Tyumen region	1,580.2	1,580.9	1,351.8	85.5	85.5
Chelyabinsk region	1,167.4	1,314.2	1,180.8	89.8	101.1
Kurgan region	1,359.9	1,282.7	1,162.5	90.6	85.4
Yamalo-Nenets	669.7	208.4	91.1	43.7	13.6
Total in the UFD	1,5469.1	1,7148.9	14,944.4	87.1	96.6

*According to the UFD Forestry Agency

As it can be seen from table 1, the most enormous logging volumes were recorded in the UFD in 2018 – 17.148.900 m³. The decrease in logging volumes in the District in 2019 was 12.9%.

The most active logging is carried out in the Sverdlovsk Region and the KMY (42.8% and 31.8% of the total logging volume in the district in 2019).

Table 2. Information on illegal felling of forest plantations on the forest fund lands of the UFD in 2017-2019.

Regions of the UFD	Years								
	2017			2018			2019		
	Illegal felling			Illegal felling			Illegal felling		
	Number of cases	Volume, thousand m ³	Damage, million rubles	Number of cases	Volume, thousand m ³	Damage, million rubles	Number of cases	Volume, thousand m ³	Damage, million rubles
Sverdlovsk region	476	57.7	465.2	380	41.1	489.8	375	39.1	563.9
Tyumen region	304	6.8	46.7	281	20.6	186.0	251	9.8	128.6
Yamalo-Nenets	47	7.3	102.9	34	8.3	151.3	49	2.8	16.1
Kurgan region	163	4.0	55.3	195	6.3	137.4	178	4.3	67.8
Chelyabinsk region	420	9.5	73.4	309	3.6	60.5	221	3.2	47.1
Khanty-Mansiysk-Yugra	127	14.3	95.1	99	0.9	9.1	102	4.4	21.9
Total in the UFD	1,537	99.9	838.9	1298	80.9	1,034.4	1,176	63.6	845.7

*According to the UFD Forestry Agency

The allowable cut in the Sverdlovsk region is used most efficiently (by 26.6%). In the KMY, due to a large number of hard-to-reach places, the use of the allowable cut does not exceed 12%. Sverdlovsk

timber producers annually harvest from 6,300,000 to 8,100,000 m³ of timber and the Ugra ones – from 3,700,000 to 4,700,000 m³.

Annually, part of the logging in each region, included in the UFD, happens in an illegal way. Information on illegal felling of forest plantations on the forest fund lands of the Ural Federal District for the period from 2017 to 2019 is shown in table 2. As it can be seen from table 2 in 2019, 1,176 cases of illegal felling of forest plantations with a volume of 63,600 m³ were registered in the UFD (the volume of illegal felling committed by undiscovered violators amounted to 53,500 m³, or 84.1% of the total volume of illegal felling in the district). Damage, caused to the Russian Federation from illegally harvested timber in the Urals Federal District was 845,700,000 RUB (which is 52.6% of the amount of income to the federal budget for timber harvesting from the UFD).

3. Results and discussion

The dynamics of changes in illegal logging of forest plantations on the forest fund lands of the territories of the Ural Federal District in 2017-2019 is shown in table 3.

Table 3. The dynamics of changes in illegal logging of forest plantations on the forest fund lands of the subjects of the UFD in 2017-2019.

Regions of the UFD	Share of illegal felling in 2019, %			Changes in 2019/2018 on illegal logging, %			Changes in 2019/2017 on illegal logging, %		
	Number of cases	Volume	Damage	Number of cases	Volume	Damage	Number of cases	Volume	Damage
Sverdlovsk region	31.9	61.5	66.7	98.7	95.1	115.1	78.7	67.7	121.2
Tyumen region	21.3	15.4	15.2	89.3	47.5	69.1	82.5	144.1	273.3
Yamalo-Nenets	4.2	4.4	1.9	144.1	33.7	10.6	104.2	38.3	15.6
Kurgan region	15.1	6.8	8.0	91.2	68.2	49.3	109.2	107.5	122.6
Chelyabinsk region	18.8	5.0	5.6	71.5	88.8	77.8	52.6	33.6	64.1
Khanty-Mansiysk-Yugra	8.7	6.9	2.6	103.0	488.8	240.6	80.3	30.7	23.0
Total in the UFD	100	100	100	90.6	78.6	81.7	76.5	63.6	100.8

Tables 2 and 3 enable us to conclude that a decrease in the activity of illegal lumberjacks was seen in all the parts of the Ural Federal District in 2019 except Yugra.

In general, the volume of illegal logging in the district has been decreasing for the second year in a row: so if in 2017, according to official data, 99,900 m³ of timber was illegally harvested in the district, it was 80,900 m³ in 2018 and then in 2019 it was already 63,600 m³.

Analyzing the data in the tables 2 and 3 it is easy to see that the Sverdlovsk region has been holding the lead among the regions of the Urals Federal District for several years in illegal logging. In 2019, 66.7% of damage from illegal logging in the Urals Federal District, or 563,900,000 RUB, accounted for it (for comparison: in the neighboring Yugra, where the forest area is larger than in the Middle Urals, the damage from the actions of illegal loggers for this period amounted to only 21,900,000 RUB or 2.6% of the total damage from illegal logging in the Ural Federal District).

The Federal Forestry Agency compiled a rating of problem regions in 2019, where forests are illegally cut down. In it, the Sverdlovsk Region took the sixth place among the entities of the Russian Federation after the Irkutsk Region, Krasnoyarsk and Trans-Baikal Territories, Republic of Buryatia and Arkhangelsk region.

Representatives of small forestry enterprises of the Sverdlovsk region declare that small forest business was once successfully “killed” by new federal laws, which ordered to abandon short-term use of forest resources and switch to long-term lease of forests. This turned out to be overwhelming for small businesses and pushed previously law-abiding small entrepreneurs to re-profile into illegal loggers.

The bulk of entrepreneurs working in small forestry business are not eager to invest their money in improving technologies and in the revival of the forest fund. It is profitable for them to open sawmills in small villages and, at the expense of cheap labor, make a profit on the production with low added value. Some entrepreneurs involve the same illegal loggers in their businesses, who supply them with cheap raw materials for processing.

Poverty and destitution in the forest villages of the Sverdlovsk region, inability to find legal ways to earn money for their families, the lack of funds for resettlement to a more prosperous place push the local people to various offenses, including illegal logging.

Recently, some measures have been taken to reduce illegal timber trade, providing control over the implementation of felling, the origin of timber and its turnover. To implement Federal Law No. 415-FZ [9], the country introduced into practice the Unified State Automated Information System for Accounting for Wood and Transactions with It (“Forest” EGAIS).

We assume that the annual reduction in the number of cases of illegal logging of forest stands and their volume in the UFD as a whole, which we observe, analyzing the data in tables 2, 3, were due to the introduction of this system and remote monitoring of forest use with aerial photography of problem areas.

So, for example, in the leader of the anti-rating of the Sverdlovsk region, space satellite imagery, which the Federal Forestry Agency took in 2019, covered the territories of nine problem forestries of the Sverdlovsk region – Bilimbaevsky, Ivdelsky, Kushvinsky, Nizhne-Tagilsky, Novo-Lyalinsky, Rezhevsky, Sverdlovsky and Shalinsky forestries.

Nevertheless, the problem of illegal logging remains relevant and the amount of annual damage from them in the district, unfortunately, does not decrease.

Illegal deforestation is not only the export, often for a pittance, of valuable wood species outside the district. It is also irremediable damage to the environment, and it is also associated not with the accompanying criminal actions to hide the traces of deforestation. For example, one of the most common ways to cover tracks is a forest fire. The main advantage of illegally harvested timber is its cheapness.

A wide variety of actors are involved in illegal logging: timber companies, tenants, residents (many of whom are unemployed).

We assume that forestry workers, for example, in the Sverdlovsk region, with an official salary of 19,200 RUB per month (data from the Forestry Department of the Ural Federal District for 2019), for a certain bribe from illegal loggers, can also turn a blind eye to such outrages.

The involvement of a large number of people in illegal deforestation is a consequence of the negative social and economic situation in the regions, low wages of the workers and, most importantly, a high level of unemployment.

The worthlessness of forest protection, its insufficient number in the forests, and the lack of equipment do not enable to effectively combat massive illegal logging. It is especially noticeable in an environment where poverty and unfair restrictions contribute to their massive spread.

According to the Department of Forestry of the Ural Federal District in the Ural Federal District, from 2017 to 2019, the actual number of state forest inspectors decreased by 14.8%: 2017 – 1,378 people; 2018 – 1,431 people; 2019 – 1,173 people.

However, there is also a positive moment – for the first time in the last few years, 67 units of forest patrol equipment were purchased in the district in 2019 for the amount of 47,100,000 RUB.

To identify intruders, images of the territory from space are taken. However, the fight is mainly carried out pointwise: law enforcement agencies react to a specific report of violations received from citizens, conduct a verification raid, and punish violators.

Under Russian law, administrative liability for illegal logging or damage to forest plantations is provided for in the form of an administrative fine. It is from 3,000 to 4,000 RUB for citizens, from 20,000 to 40,000 RUB for officials and from 200,000 to 300,000 RUB for legal entities. Environmentalists and social activists annually raise the issue of toughening administrative and criminal liability for illegal logging.

Illegal felling has a very negative impact on the environment in the district, and this problem is broader than just a decrease in the volume of wood. Deforestation inevitably implies a great number of environmental problems: suffer from flora and fauna, soil erosion, and other unintended consequences. Moreover, according to researchers, the COVID-19 pandemic also has the socio-economic consequences of forest degradation. In the situation with illegal logging, the problem of forest littering is urgent. In addition, illegal black loggers do not care about reforestation at all [10].

4. Conclusion

The forest sector is of great importance for the Ural Federal District economy, being an essential source of income for the country's budget system. The district has significant forest resources and has great potential that can and should be used. Illegal felling of forest plantations is a serious problem for the forestry sector of the District, while in most cases forest poaching remains undetected. The anti-rating on illegal logging in the UFD and the whole country is headed by the Sverdlovsk region.

The problem of forest poaching includes not only economic, but also environmental and social components, and attracts more and more attention of the public, the media, as well as administrative bodies of the regional and federal levels.

Having analyzed the main reasons and measures taken to combat illegal logging and illegal trade in timber, a number of measures can be identified that will help reduce illegal logging in the coming years. In particular, the following should be done:

- fight against the social disadvantage of the inhabitants of forest villages and settlements, and the rural population as a whole (unemployment, poverty);
- increasing the efficiency of the work of the state forest service, increasing its number in the problematic Sverdlovsk region, improving the technical equipment;
- improving the “Forest” EGAIS system;
- increasing the control structures' interaction;
- motivating timber merchants to actively organize certification of their products (indication of the source of origin of raw materials will cause intolerance to the wood of illegal loggers);
- developing the institution of public environmental inspectors;
- forming a district expert group to revise the most important forestry regulations to identify obvious errors, provisions contributing to the development of corruption, by submitting proposals for discussion to the Federal Forestry Agency;
- claiming high responsibility (both criminal and administrative) for illegal timber trafficking.

“Forest” EGAIS system needs improvement. Currently, it is just a kind of transaction base. It is important that it was possible to trace the fate of each log – where it came from, how it was processed, where it was sold, etc. If this cannot be done, then the record was harvested illegally. All this is a massive work for the further digitalization of the forest sector.

The majority of measures mentioned above can be used to reduce the impact of illegal logging in forest sectors in other locations around the world. Their implementation increases control over forest plantations and the economic efficiency of the legal operation of forest sectors.

It is essential to create jobs, develop infrastructure, and improve the local population's living standards.

It is important to develop the institution of public environmental inspectors. Each municipal entity of the district must have at least one such inspector, and in large cities, for example, Yekaterinburg or Nizhny Tagil, there may be more of them. This civic institution is registered in the national project "Ecology," and it should be actively developed in cooperation with local authorities and law enforcement agencies. This environmental "army" could effectively monitor compliance with environmental legislation on the ground and promptly respond to violations in this area.

A draft law has been prepared (at the Ministry of Nature and Environmental Protection of the Russian Federation) on the separation of forest supervision and forest protection, on the centralization of forest supervision functions – namely, their complete transfer to the federal level. The adoption of this law, in our opinion, should also help to strengthen the fight against illegal logging.

References

- [1] Pryadilina N, Lobovikov M, Gedulyanova N and Skvortsov E 2019 The information system for timber accounting and associated transactions as a tool to improve performance of the forest sector of the Russian Federation. *Digitalisation and Circular Economy: Forestry and Forestry Based Industry Implications* **11** 327
- [2] Acheampong E and Maryudi A 2020 Avoiding legality: Timber producers' strategies and motivations under FLEGT in Ghana and Indonesia. *For. Policy Econ.* **111** 102047 doi: 10.1016/j.forpol.2019.102047
- [3] Cerutti P, Goetghebuer T, Leszczynska N, Dermawan A, Newber J, Tabi Ekebil P and Tsanga R 2021. Voluntary partnership agreements: Assessing impacts for better policy decisions. *For. Policy Econ.* **124** 102386 doi: 10.1016/j.forpol.2020.102386
- [4] Serra C and Burns S 2020 Research trend: Bringing the private to the public: Private actors in timber legality systems. *For. Policy Econ.* **111** 102044 doi: 10.1016/j.forpol.2019.102044
- [5] Brancalion P, Almeida D, Vidal E, Molin P, Sontag V, Souza S and Schulze M 2018 Fake legal logging in the Brazilian Amazon. *Sci. Adv.* **4**(8) 1192 doi: 10.1126/sciadv.aat1192
- [6] Soe K and Yeo-Chang Y 2019 Perceptions of forest-dependent communities toward participation in forest conservation: A case study in Bago Yoma, South-Central Myanmar. *For. Policy Econ.* **100** 129 doi: 10.1016/j.forpol.2018.11.009
- [7] Gençay G and Mercimek A 2019 Public consciousness and influence of law on forest crimes: Insights from Kastamonu, Turkey. *For. Policy Econ.* **106** 101978 doi: 10.1016/j.forpol.2019.101978
- [8] Federal Law No.200 (04 December 2006) *Forest Code of the Russian Federation*, available at http://www.consultant.ru/document/cons_doc_LAW_64299/
- [9] Federal Law No. 415 (28 December 2013) *On Amendments to the Forest Code of the Russian Federation and the Code of the Russian Federation on Administrative Offenses*, available at <https://docplan.ru/Data2/0/4294814/4294814342.htm>
- [10] Golar G, Malik A, Muis H, Herman A, Nurudin N and Lukman L 2020 The social-economic impact of COVID-19 pandemic: implications for potential forest degradation. *Heliyon* **6**(10) 05354 doi: 10.1016/j.heliyon.2020.e05354