



Investigation into habitat degradation in Făgăraș, Domogled, Maramureș and Frumoasa Natura 2000 sites

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Cover photo: Clear cuts in Pecineagu area, Făgăraș Mountains

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1. Summary of findings

Between August and October 2021 Agent Green investigators travelled to the four Romanian Natura 2000 sites that are the subject of an infringement procedure by the European Commission: Făgăraş Mountains, Maramures, Domogled and Frumoasa Natura 2000 sites. The team visited 14 different areas and inspected over 41 individual locations within these sites.

The investigators looked for recent evidence of habitat degradation such as logging, erosion, poorly cut logging roads, pollution of waterways and destruction of river beds.

Overall, it has been found that large-scale habitat degradation continues, mostly through the activity termed as “progressive” logging (where an area is cut over time with the ultimate impact being the same as large clear cuts), and clear-cuts. Also, recently cut logging roads and pollution of waterways has been noted as having significant impact in the degradation of the sites.

Investigators found that a large percentage of the forests being logged are old-growth forests. For example, in Domogled - Valea Cernei National Park which is also a Natura 2000 site, all the locations with logging activities that were visited consisted of forests aged 130 to 200 years with numerous large trees and presence of substantial amounts of dead wood.

In Făgăraş Mountains Natura 2000 site more than half of the areas visited were covered by old-growth forests between 130 and 200 years old (on average). These were also being commercially logged. Removal of some of the mature forest areas in Făgăraş Mountains (such as Pecineagu Lake, Topolog Valley, Vidraru Lake) was even allowed just a few metres away from sensitive areas such as rivers, dams and lakes, on steep slopes (of over 35%) with a high risk of erosion and landslides. Normally the forests in the vicinity of sensitive areas such as dams, rivers and lakes are strictly protected because loss of tree cover can create landslides and other structural problems.

Also, in Maramures and Frumoasa Natura 2000 sites, satellite imagery and SUMAL 2.0 data illustrates that clear cuts and progressive logging are being carried out at a high pace, resulting in an alarming spread of large-scale forest habitat degradation and fragmentation.

Since the European Commission’s infringement procedure was launched in February 2020, this monitoring report shows the Romanian Government has done very little to stop the ongoing degradation of the Natura 2000 sites. The threat to these protected natural forest ecosystems remains constant and widespread given that Romanian legislation still does not provide sufficient protection for the most valuable forest habitats and, in particular, does not require to carry out environmental impact assessments, which is required by EU law.

2. Introduction

2.1. Situation of primary and old-growth forests and Natura 2000 enforcement in Romania

Romania holds a large share of primary and old-growth forests¹ within the EU with an exceptionally high degree of naturalness, with potentially more than 500,000 hectares of primary and old-growth forest in Romania.² This represents around 8% of Romania's total forest cover and constitutes by far the largest clusters of primary and old-growth forest in any EU country within the temperate climate zone.

More than 300,000 hectares (63%) of the potential primary and old-growth forests identified in the *PRIMOFARO* inventory are located within Natura 2000 sites and are therefore protected by the Birds and Habitats Directives. Only some of them are designated as national parks under Romanian legislation (i.e. Făgăraș Mountains). However, contrary to the objectives of the EU environmental law, this natural heritage is vanishing. Intensive logging operations continue to destroy and degrade natural forests, in particular primary and old-growth forests.

Primary and old-growth forests are undoubtedly representing natural habitats. Activities such as logging (in particular clear-felling, "progressive" shelterwood cutting, "regeneration" felling in old stands), can therefore lead to a significant deterioration of the ecological integrity of valuable intact habitats and can cause damage of natural habitats and the populations of species of wild fauna and flora, such as old trees with gaps and hollows.

Romanian forest laws are currently not aligned to meet conservation objectives of Natura 2000 sites as required by EU environmental law. In particular, logging operations are approved without prior evaluation of the impacts on protected species and habitats as required under the Birds and Habitats Directive. Furthermore, there are no effective national measures to protect the most valuable forest habitats.³ The national laws still allow for the gradual or complete removal of entire forest cover even if these are primary or old-growth forests and disregarding the potential deterioration of certain protected habitats.

To support the enforcement of EU environmental law in Romanian forests, Agent Green, ClientEarth and EuroNatur submitted a complaint to the European Commission in 2019, providing EU institutions with clear evidence of logging activities that breached EU law. In particular, this concerned the lack of environmental assessments regarding Forest Management Plans as required under the SEA (Strategic

¹ Primary forests reflect virgin forests without any clear signs of human impacts while old-growth forests refer to relatively intact forests with a very high degree of naturalness that might have at some point been modified by human activity but exhibit forest structures and species similar to primary forests.

² Schickhofer M. & Schwarz U. (2019): Inventory of Potential Primary and Old-Growth Forest Areas in Romania (PRIMOFARO). Identifying the largest intact forests in the temperate zone of the European Union

³ The Birds and Habitats Directives require that Member States prevent the significant deterioration of the listed habitats and species. They also require Member States to undertake management measures to ensure a favourable conservation status of natural habitats and protected species. This describes a situation in which a habitat or species is thriving, are prospering (considering both its quality and range) and have good prospects to thrive in the future.

Environment Assessment) and Birds and Habitats Directives⁴, and the subsequent irreversible damage that logging activities had on a significant proportion of Europe's last wild forests. Further additional evidence⁵ has been submitted to the European Commission on the lack of access to environmental information related to Forest Management Plans as well as the continued deterioration of habitat types and habitats of species listed in the Birds and Habitats Directives.

Based on the submissions of evidence by Agent Green, ClientEarth and EuroNatur, the Commission decided to open an infringement procedure against Romanian authorities in February 2020⁶, with a reasoned opinion issued in July 2020⁷ stating that the Romanian authorities must 'amend immediately their laws and regulations in order to assess the environmental impacts of each forest management plan'.

As a reaction, the Romanian Government adopted three ministerial orders in an effort to solve the problem and align their national laws with EU environmental legislation. However, given that these orders were not adopted by the Romanian parliament, they were challenged in court by the forest industry. Two of these orders are now suspended, with upcoming hearings to further cancel/suspend the orders.

Therefore, logging permits continue to be issued in Natura 2000 sites without prior impact assessments. Furthermore, Forest Management Plans that run for a 10-year period have not been reviewed. In the meanwhile, business as usual continues for the forest industry and forests continue to be degraded.

Since July 2020, the European Commission has taken no further action with regards to the infringement procedure against Romania despite ongoing evidence of the problems. This monitoring report will further illustrate, using more recent evidence, the ongoing tragedy in Romania's EU protected forests and the level of degradation within those Natura 2000 sites.

3. Methodology

Prior to field investigations, various analyses took place which included the evaluation of satellite imagery and assessments and analysis of data from Sumal 2.0⁸ (the Romanian public database of logging permits). Focus was given to those sites which are the subject of the Romanian infringement case: Făgăraş Mountain, Maramures, Domogled and Frumoasa Natura 2000 sites. In total, the team visited 14 different areas and inspected over 41 individual locations within these areas.

Data analysis

Data analysis of satellite imagery and Sumal 2.0 data was carried out before visiting the sites. Investigators were looking for data of logging locations and, information that could be derived from forest management

⁴ The Habitats Directive requires that an appropriate assessment is carried out for all plans or projects which are likely to have a significant effect on protected habitats and species. This assessment identifies the consequences of planned activities for the site in view of the site's conservation objectives.

⁵ Agent Green, EuroNatur, ClientEarth. April 2020. Media Briefing paper - complaint to the European Commission re. illegal logging in Romanian forests.

⁶ INFR(2020)2033. Formal notice Art. 258 TFEU. Memo INF-20-202.

⁷ INFR(2020)2033. Reasoned opinion Art. 258 TFEU. Memo INF-20-1212.

⁸ Access to SUMAL 2.0 – Inspectorul Pădurii is public: <https://inspectorulpadurii.ro/#/>

plans (where these were available), and reviewing maps of potentially old-growth forests from different studies. The team specifically focused on identifying large scale logging such as clear cuts in (previously) intact habitats that had previously been considered to be in a favourable conservation status according to reporting by Romanian authorities under the Habitats Directive. Extra attention was given to potential large-scale logging in very old forest stands assumed to be primary and old-growth forests, as any large-scale logging in these forests, such as clear cuts or progressive logging, would undoubtedly degrade the conservation status of these habitats.

On foot investigation

When possible, the sites were accessed on foot. Photos were taken of each forest location visited. GPS tracks were recorded with individual observations of each site.

Drone footage

Most sites accessed on foot were also recorded with a drone. Drone footage was analysed for additional evidence of habitat degradation to complement data gathered on foot. For sites which were not accessible on foot, only drone footage was considered for the investigations.

4. Făgăraş Mountains Natura 2000 sites (SCI and SPA)

Făgăraş Mountains are of extraordinary ecological value as they are home to unique primary and old-growth forest ecosystems.⁹ They are estimated to contain several thousand hectares of primary and old-growth forests in partially inaccessible, pathless valleys.¹⁰

Unlike other protected areas in Romania, Făgăraş Mountains do not benefit from any additional nationally defined legal protection such as natural or national park. Designating this national protection is how Romania applies management measures. This means that this Natura 2000 site does not currently have a sufficient protection measures (i.e. large enough non-intervention protection zone) despite being an intact, mature forest ecosystem.¹¹

Due to the lack of effective protection measures, logging is allowed in almost all the Natura 2000 area, with some noticeable exceptions, i.e. small natural reserves (“rezervațiilor naturale”) and self-imposed non-intervention zones in private forests partly belonging to NGOs and included in the National Catalogue of Virgin and Cvasivirgin Forest.¹²

⁹ Linnell, J. D. C., Kaltenborn, B., Bredin, Y. & Gjershaug, J. O. (2016) Biodiversity assessment of the Fagaras Mountains, Romania - NINA Report 1236. 86 pp.

¹⁰ Ciutea, A., Using Sentinel 2 satellite images for old-growth forest identification in the Fagaras mountains.

¹¹ For example, 25,400 ha of forests and alpine meadows in the south eastern Carpathians owned by Foundation Conservation Carpathia are for restoration and full protection. For further information, please see <https://www.carpathia.org/conservation/>

¹² Romanian Ministry of Environment, Water and Forests (Ministerului Mediului, Aerului Și Pădurilor) (2021): <http://www.mmediu.ro/articol/editia-aprilie-2021-a-catalogului-padurilor-virgine-si-cvasivirgine-din-romania/4176> (link to catalogue)

Altogether, nine general areas with 21 individual locations in Făgăraș Mountains were analysed in detail. Most locations were accessed by foot, but some locations were accessed only by drone where access was blocked by barriers or which were too remote to reach.

Unfortunately, many of the impacted forests which were investigated showed features of primary or old-growth forest, with average ages of between 130 to 200 years old. This means that logging of most precious primary and old-growth forests in the Natura 2000 site continues. Furthermore, logging also occurred in sensitive areas in particular steep slopes where Romanian legislation does not allow logging roads to be built on slopes greater than 35 degrees.

The map below (Figure 1) shows the increase of logging permits between 2020 (yellow dots) and 2021 (orange dots). The overlay with polygons of the *PRIMOFARO* analyses (red polygons mapping potential primary / old-growth forests), shows that logging is also impacting forest habitats which due to their exceptional value, deserve strict protection.

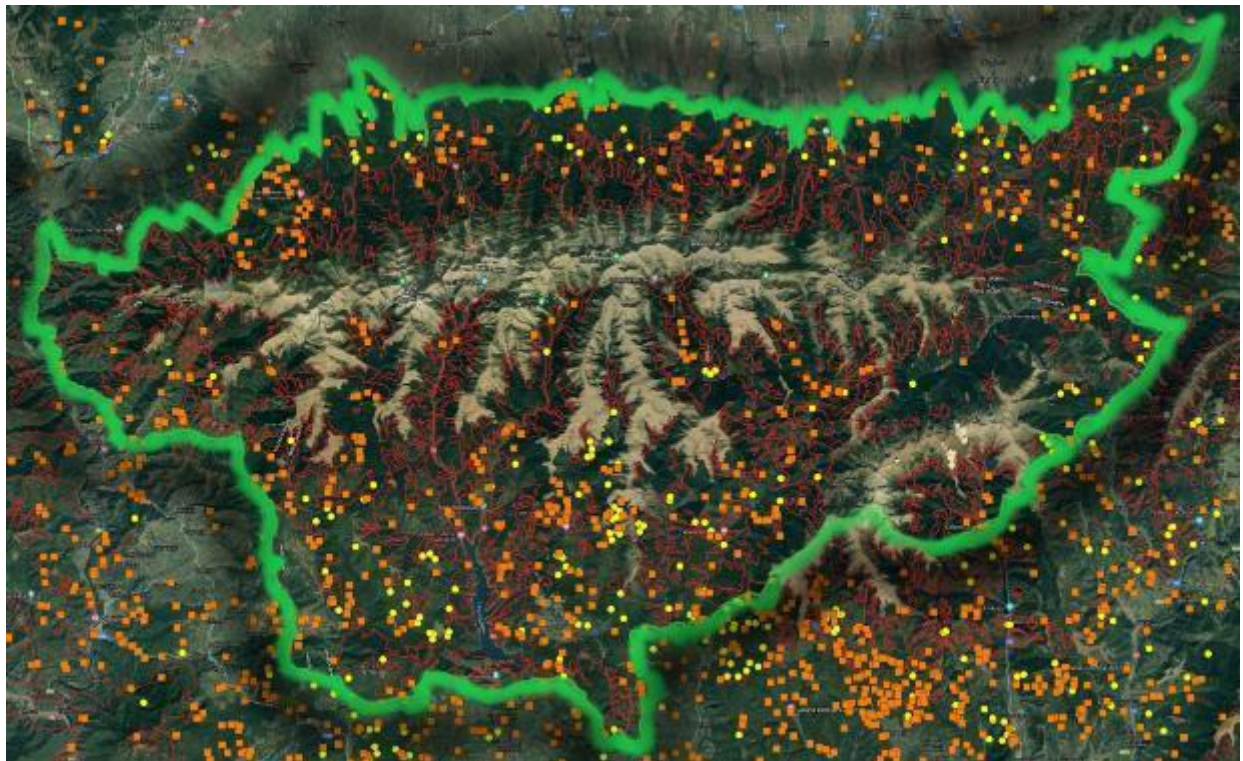


Figure 1: Increased logging permits in Făgăraș Mountains since the launch of the EU infringement procedure (2020). Orange = 2021 logging permits. Yellow = 2020 logging permits. Red polygons = potential primary / old-growth forests - PRIMOFARO (2019)

This map gives clear evidence that highly valuable natural forests in Făgăraș Mountains remain under immediate threat from logging. The logging is systemic where it continues in almost all the remote valleys where primary and old-growth forests are still present.

Lower Avrig Valley, Făgăraș Mountains



Figure 2: (left photo) Drone photo of recent logging; (right photo) logged area with some regeneration

Location	Lower Avrig Valley
Areas analysed	Location 1: progressive logging in old stands (Figure 1) Location 2: wood abandoned in water
Visited	September 2021
Primary forest/ old-growth forests	Very likely old-growth forests, stumps over one metre wide on the ground
Habitat degradation	Yes
Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	No

Additional notes: The investigators walked to location 1 which was of particular interest because the area still holds important remnants of old-growth forests. However, these forests are targeted by progressive (shelterwood cutting) logging and the old-growth forest is being replaced by empty land with almost no regeneration, resembling clear cuts.

Worryingly, in some of the most recent logging sites, investigators found all the mature beech trees had been removed and instead of beech, spruce was predominantly promoted for regeneration as the dominant species, despite the unsuitable environmental conditions for spruce (i.e. much lower altitude at 750 m and warm conditions).

On the main forest road, investigators detected several wooden ramps filled with logs that had green branches still attached. The dragging of trees with branches still attached is forbidden under Romanian law because it further damages the soil and surrounding vegetation during transport.

Additionally, the team found large volumes of wood abandoned in and around the local river (location 2), indicating that logs were dragged through water from the nearby logging site.

Upper Avrig Valley, Făgăraș Mountains



Figure 3: (Top photo) progressive logging in spruce forests; (bottom photo) landslide with leftover wood

Location	Upper Avrig Valley
Areas analysed	Location 1: progressive logging in upper spruce forest Location 2: cable logging in old-growth beech forests Location 3: landslide
Visited	September 2021
Primary forest/ old-growth forests	Old-growth forest where some parcels are aged between 130 to 160 years old (parcels 93 to 96 for example)
Habitat degradation	Yes
Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35 % where no logging roads should be allowed here
<p>Additional notes:</p> <p>When the investigators visited the area, they found active logging around the landslide, both in the lower old-growth beech dominated forest (location 2) and in the upper spruce forest (location 1). Loggers were blocking the access roads so the area was filmed by drone from a safe distance.</p> <p>Regarding the landslide (location 3), it appears that most of the wood logged has not been collected, possibly because some of the wood has already been degraded by the weather. Only some of the big logs appear to have been extracted, the smaller logs without much commercial value were left on the ground.</p> <p>Leftover wood as a result of landslides and logging were abandoned in the local river. Large areas have been left almost void of trees where old-growth forests used to be. In location 2, for example, parcels 95 and 96 are aged between 130 to 160 years old (on average) in the forest management plans.</p> <p>Clear cuts are not allowed in mixed forests so these interventions are labelled as progressive logging but the result often looks the same as clear cuts.</p>	

Malinis Valley, Făgăraș Mountains



Figure 4: (left photo) location 1: final progressive logging. (right photo) Location 2: progressive logging stage 1 with the opening of patches inside formally intact forests.

Location	Malinis Valley
Areas analysed	Location 1: progressive logging Location 2: fresh logging, opening of patches in old-growth forests
Visited	September 2021
Primary forest/ old-growth forests	Very likely old-growth forests judging by the large canopy of individual trees
Habitat degradation	Yes
Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Unknown
Polluted waterways	Unknown

Steep slopes	Yes, frequently over 35% where no logging roads should be allowed here
<p>Additional notes:</p> <p>The investigators could not access the area by foot and only partially access it by drone. From the drone footage, recent logging at the top of steep slopes in old-growth forests could be seen, followed by replacement of natural forest with spruce plantations on the lower slopes (Location 1).</p> <p>In other nearby old-growth forests that looked intact, investigators could see the beginning of progressive logging stage 1 with the opening of patches inside these formally intact forests (location 2).</p>	

Pecineagu Lake, Făgăraș Mountains



Figure 5: (left photo) Recent clear cuts in location 2; (right photo) progressive logging in the vicinity of Pecineagu dam (Location 1)

Location	Pecineagu Lake
Areas analysed	Location 1: progressive logging next to Pecineagu dam Location 2: large scale clear cuts
Visited	September 2021

Primary forest/ old-growth forests	Very likely old-growth forests since location 1 has been included in the <i>PRIMOFARO</i> study
Habitat degradation	Yes
Clear cuts	Both extensive clear cuts and progressive logging
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35% where no logging roads should be allowed here
<p>Additional notes:</p> <p>The area was accessed on foot via eroded logging roads at the bottom of the lake, close to the Pecineagu dam. At different points, inside this progressive logging site, the slope was around 40-50 degrees where it is normally illegal to build roads (location 1).</p> <p>Investigators were shocked to see that progressive logging was allowed within a very short distance from Pecineagu dam (Fig. 5, right side)) on steep slopes (of over 35%) with a high risk of erosion and landslides. Normally sensitive areas such as lakes and dams are strictly protected because logging can create landslides, compromising the dams and potentially causing loss of human lives.</p> <p>While the experts did not have access to age data for these locations, it has been noted that the forests in location 1 have been identified in the <i>PRIMOFARO</i> study of 2019, indicating that they were very likely old-growth forests.</p> <p>At the top of the hill, a drastically logged landscape was found dominated by both recent and older clear cuts with very little regeneration (location 2).</p> <p>In total, over 100 hectares have been recently clear cut in the last 10 years and the habitat degradation extends beyond these clear cuts into neighbouring forests that are now exposed to wind damage and insect attacks.</p>	

Topolog Valley, Făgăraș Mountains



Figure 6: (Top left photo) logging via cable lines; (top right photo) progressive logging; (bottom 3 photos) potentially fake logging hammer marks with no visible number



Figure 7: Excavators working (potentially illegally and with no environmental permits) at enlarging logging roads close to Location 1

Location	Topolog Valley
Areas analysed	Location 1: progressive logging in old growth forests Location 2: cable clear cuts Location 3: damage to priority habitat 91E0* and illegal mineral extraction
Visited	September and October 2021

Primary forest/ old-growth forests	Old-growth in location 1 the forest currently being logged is 200 years old on average
Habitat degradation	Yes
Clear cuts	Progressive logging and clear cuts via cable line logging
Eroded logging roads	Yes, on lower Topolog valley
Polluted waterways	Yes, from wood leftovers
Steep slopes	Yes, frequently over 35% where no logging roads should be allowed here. Only in the upper part of the valley (location 2) investigators found cable lines instead of logging roads

Additional notes:

Location 1 was accessed on foot on a steep slope of over 40 degrees in an area where no roads should be built.

Investigators detected excavators at work enlarging roads to make room for progressive logging in old-growth forest stands, aged between 160 to 200 years old. Towards the end of the logging road large quantities of wood leftovers were found abandoned on the ground. It appears that only the best quality wood was removed while lower quality trees were left at the site.

This progressive logging was allowed a few tens of metres away from Topolog River on steep slopes (of over 35%) with a high risk of erosion and landslides. Normally sensitive areas such as rivers and lakes are strictly protected because logging here can create landslides and impact the flow of the river.

At least 20 examples of potentially fraudulent logging marks were detected (Fig. 6, bottom photos). The hammer mark applied to each tree should have a visible number in a specific paint type which was missing. The trees inspected did not show any visible numbers, indicating the use of an illegal hammer mark.

At Location 2, active logging was taking place so a drone was used to obtain aerial shots. Logging was taking place here with the use of cable lines. This logging method leaves behind large open areas in the forest, resembling clear cuts, that are now exposed to high winds and insect attacks.

The drone images also show recent logging inside old-growth forests on all of the hills around the location.

Investigators reported Location 3 to be priority habitat 91E0* comprised of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*. This habitat also showed signs of stress from lack of water that has been restricted by micro dams and underground water reservoirs. Furthermore, additional threats from mineral extraction and water reservoirs were detected - as shown in the drone photos compiled in Figure 9.



Figure 9: Various photos of recent and potentially illegal mineral extractions and water reservoir on Topolog Valley

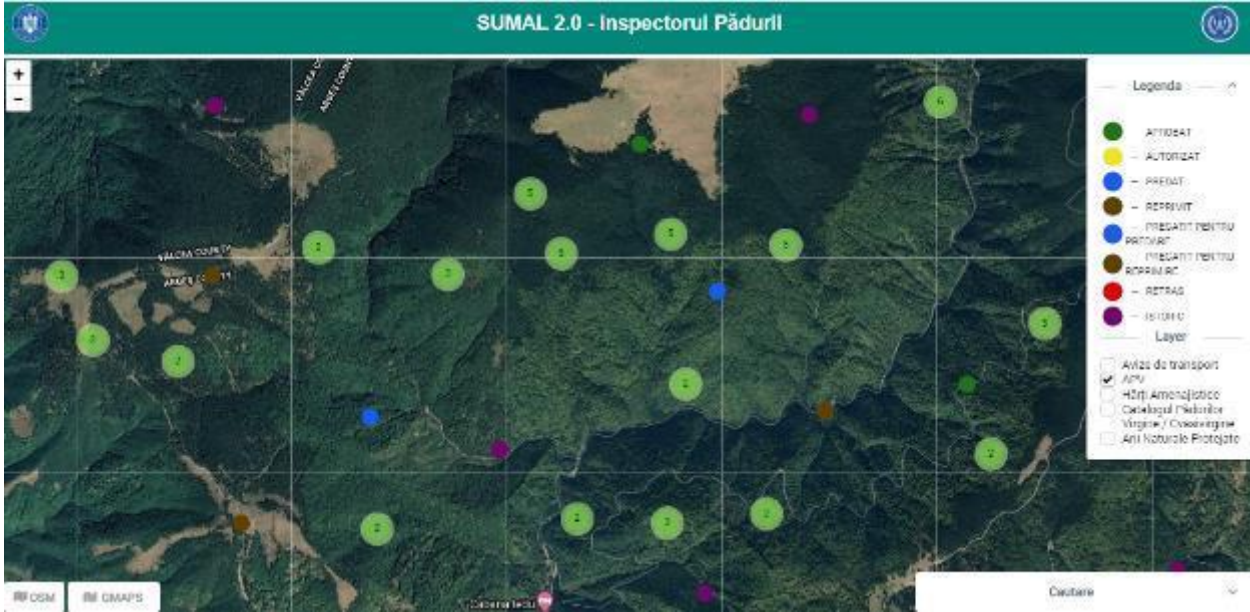


Figure 10: Screenshot from Sumal 2 app showing numerous logging permits issued on Topolog Valley between 2020 and 2021.

Lower Barsa Valley, Făgăraș Mountains



Figure 11: Recent logging on Lower Barsa Valley

Location	Lower Barsa Valley
Areas analysed	Clear cuts and progressive logging on steep slopes
Visited	July and August 2021
Primary forest/ old-growth forests	Potentially old-growth, in mixed forests, towards the top
Habitat degradation	Yes
Clear cuts	Progressive logging and clear cuts
Eroded logging roads	Yes
Polluted waterways	Yes, from wood leftovers
Steep slopes	Yes, frequently over 35%. No logging roads should be allowed here

Additional notes:

This area was inspected on the way to the Upper Barsa Valley. On foot investigation showed that new logging roads were found in mixed spruce and beech forests. From drone footage, the logging roads appeared to cut towards the spruce dominated areas at the top of the valley.

The upper parts of this location, at altitudes of around 1400 m, were impacted by both recent clear cuts, older clear cuts and also by progressive logging. The previously logged clear cuts showed very poor signs of regeneration.

The forests in the immediate vicinity of some of these clear cuts were visibly impacted by the loss of forest cover, with patches of dead or dying trees noticeable in the drone photos.

Upper Barsa Valley, Făgăraș Mountains



Figure 12: (Left photo) fully loaded truck leaving Barsa Valley; (right photo) recent clear cuts on Upper Barsa Valley

Location	Upper Barsa Valley
Areas analysed	Large clear cuts
Visited	July, August and September 2021

Primary forest/ old-growth forests	Unknown, spruce dominated forests
Habitat degradation	Yes
Clear cuts	Large areas affected by recent clear cuts, over 100 ha
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35 % no logging roads should be allowed here
<p>Additional notes:</p> <p>This location was visited on several occasions because it is one of the areas worst affected by clear cuts in Făgăraș mountains.</p> <p>On the last visit on 09.09.2021 a large log was filmed being dragged through water from an active logging area. The local river (Barsa) was entirely blocked by leftover wood deposited in the water resulting in substantial water pollution.</p> <p>Drone photos and video showed large areas impacted by both recent and older clear cuts, resulting in a severely fragmented forest habitat. There is very poor and only partial natural regeneration of the forest.</p> <p>Video footage shows two tractors dragging logs at the top of a mountain on a steep slope where normally building logging roads is prohibited (on slopes greater than 35 degrees).</p>	

Valsan valley, Făgăraș Mountains



Figure 13: Hundreds of hectares affected by wind fells and subsequent intensive and large-scale wood extraction/logging operations resulting in massive habitat degradation

Location	Valsan Valley
Areas analysed	Location 1: massive wind fell Location 2: progressive logging Location 3: suspected progressive logging labelled as accidental wind falls
Visited	October 2021
Primary forest/ old-growth forests	Very likely old-growth forests in some areas according to information in forest management plans
Habitat degradation	Yes, on a massive scale

Clear cuts	Clear cuts and progressive logging
Eroded logging roads	Unknown
Polluted waterways	Unknown
Steep slopes	No

Additional notes:

The first thing that was easily noticeable when accessing the site via Location 1 was the sheer size of the wind damage followed by wood extraction, with almost no natural regeneration. Tragically, almost the entire forest habitat has been lost in this valley. New forest roads could have been the cause of the windfall as these roads would have made the area more prone to wind damage by opening corridors in the forest.

In terms of habitat restoration, it is very clear that an extensive active restoration and afforestation effort is required in this valley. The sheer size of the area impacted (200+ ha) makes it impossible for natural regeneration to take place and already species of grasses are replacing forest species.

It is however unclear if the current owners are willing to pay for the restoration. There is a probability that the land will be sold to local NGOs, and therefore the responsibility for planting is transferred to the new potential owners. It is worth noting that Romanian law obliges owners to replant or to naturally regenerate the whole area within 2 years.

Active logging in the small patches of the forests that have survived the initial windfall (location 2) were witnessed. After such a calamity, these small pockets of forests are critical natural seed reservoirs to aid in the restoration effort - logging them completely undermines this opportunity and further denudes the valley of natural forests.

Additionally, filming took place at another location (no 3) that was only partially impacted by wind damage at the edges of the forest with logging continuing towards the top (Fig. 14). It is unclear if the logging site was first affected by wind or not, however in some of the footage it is clear that the majority of the trees in the top part of the area have been logged and not brought down by wind. This area was labelled as entirely damaged by wind in the logging permits but the findings in this investigation suggest that this is in fact a masked clear cut using the nearby wind damage as an excuse.

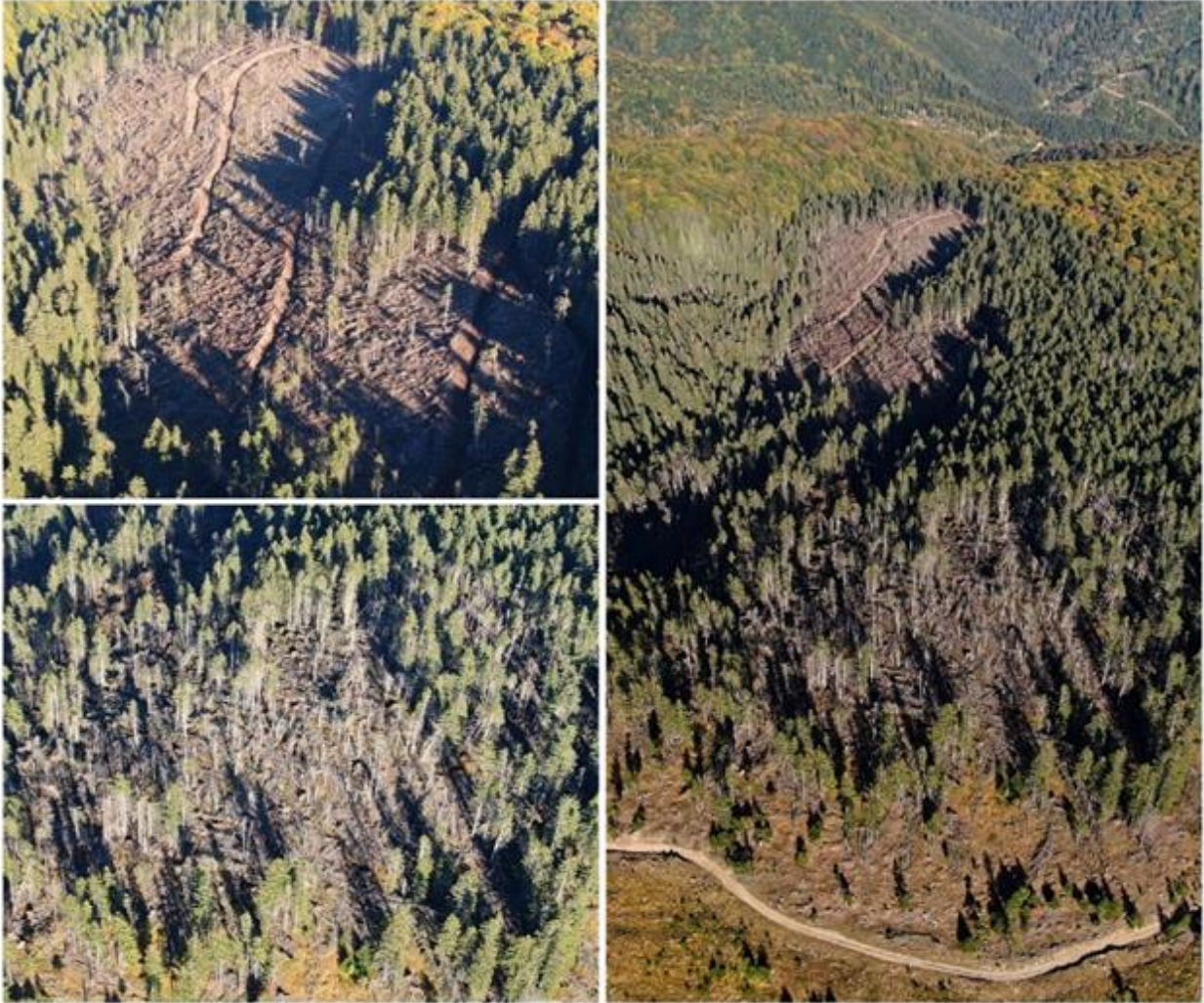


Figure 14: Location 3: This area was only partially affected by windfall at the edges of the forest with logging continuing towards the top.

Vidraru lake, Făgăraș Mountains



Figure 15: (Top left photo) highly eroded logging roads; (top right and bottom left photos) recent progressive logging; (bottom right photo) brown bear begging for food from tourists on Transfagarasan road.

Location	Vidraru Valley
Areas analysed	Location 1: badly eroded logging roads, top left photo. Location 2: clear cut, top right and bottom left photo Location 3: progressive logging in old growth forest Location 4: progressive logging
Visited	September 2021
Primary forest/ old-growth forests	Old-growth forests - the forest in Location 1 (parcel 32b) is 165 years old The forest in Location 2 (parcel 42b) is 165 years old The forest in Location 3 (parcel 50a) is 175 years old The age of forest in Location 4 is unknown

Habitat degradation	Yes
Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Unknown
Steep slopes	Yes, in places over 35 degrees

Additional notes:

The Vidraru area was accessed via Location 1 which was a large, abandoned logging road that has eroded to over 2-3 m deep in places (as shown in top left photo of Figure 15). It is one of many abandoned logging roads in the area that proves what damaging consequences logging can have on steep slopes.

Investigators left the logging roads and walked through some beautiful old-growth forests that were largely intact with many trees over 150 years old, presence of dead wood and no signs of logging activity. These types of forests in the vicinity of Vidraru Lake were strictly protected between around 1950 until 1990 to keep the soil in place and prevent landslides from impacting on the lake. However, in the last 30 years, these formally protected areas have come under intense pressure from logging.

At Location 2 (top right and bottom left photos of Figure 15) a large clear cut was found in what used to be old-growth forests, with more eroded logging roads and little natural regeneration. In many places, a lot of wood leftovers were covering the soil, preventing natural regeneration.

At Location 3 progressive logging was filmed in what used to be old-growth forests. This parcel was impacted by logging and was marked in Sumal 2.0 at 165 years old.

Screenshots from Sumal 2.0 shows the size of trees being logged in different areas around Vidraru Lake (Figure 16).

At Location 4, a drone was employed due to workers active in the area - drone footage shows more progressive logging and wood deposits by the side of the road.

It is worth mentioning that Vidraru area is infamous in Romania as a place where people can drive and feed wild bears by the side of the road. Several juvenile bears were encountered (bottom right photo of Figure 15) that were waiting for tourists to feed them. There seems to be a complete failure of local authorities to discourage these actions from tourists.

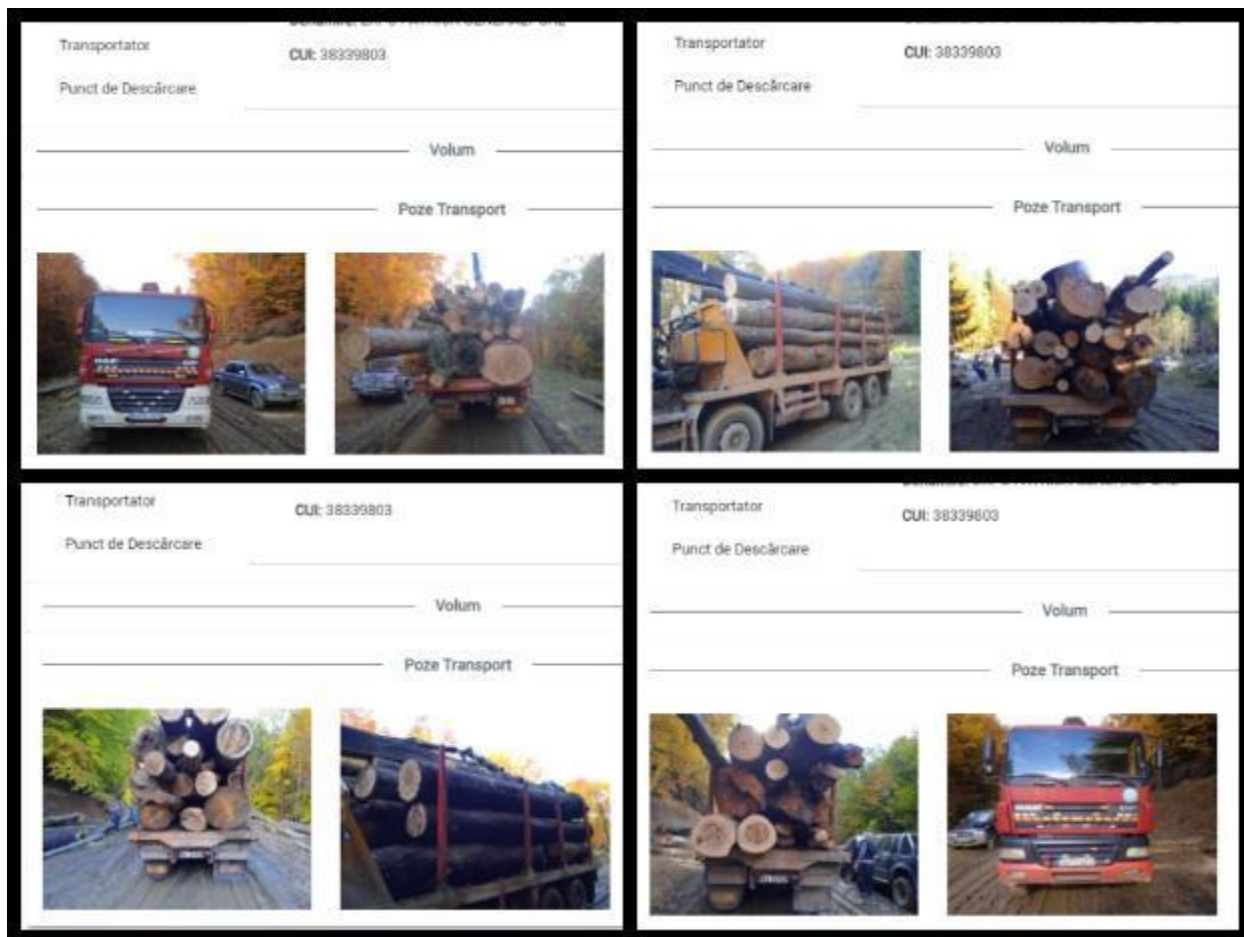


Figure 16: Screenshots of wood transports from old-growth forests around Vidraru from Sumal 2.0

5. Domogled Natura 2000 sites and National Park

Three valleys (Olanu, Craiova and Topenia) were visited and nine individual forest locations inside Domogled Natura 2000 sites were inspected (SCI and SPA). Unlike Făgăraș Mountains, part of Domogled partially benefits from also being a National Park under Romanian legislation, which means that with a “national park status” parts of the Natura 2000 can be strictly protected with non-intervention measures. Additionally, 30% of the national park’s surface (app. 20,000 hectares) are included in the UNESCO area that has been designated to protect “Ancient and Primeval Beech Forests of Europe”. Unfortunately, only this area is actually benefiting from non-intervention measures.

Commercial logging is occurring in the whole Natura 2000 site even though the forests outside the UNESCO area have the same age and structure as those found within the UNESCO area. It is therefore unclear as to why non-intervention measures are restricted only to the UNESCO area.

Furthermore, the current logging taking place inside these Natura 2000 sites continues to be allowed without being the subject of environmental impact assessment.

Olanu and Craiova Valley, Domogled

Location	Olanu and Craiovei Valley
Areas analysed	Location 1: older progressive logging in Olanu Valley Location 2: progressive logging on Craiovei Valley Location 3: UNESCO area on Craiovei Valley Location 4: progressive logging on Olanu Valley Location 5: progressive logging on Olanu Valley Location 6: suspected wind falls on Olanu Valley, virgin forests
Visited	September 2021
Primary forest/ old-growth forests	Old-growth forests aging on average 150 to 200 years old, former primary forests
Habitat degradation	Yes
Clear cuts	No. Progressive logging
Eroded logging roads	Yes
Polluted waterways	Unknown
Steep slopes	Yes, frequently over 35 degrees
<p>Additional notes:</p> <p>Due to road barriers, Craiova Valley had to be accessed by the adjacent Olanu Valley. From Olanu Valley, some logging locations were accessed by foot and most other locations by drone.</p> <p>The one location that was inaccessible by foot or drone was the remote UNESCO non-intervention zone, where investigators have seen loss of vegetation in satellite images (Location 3). However, local activists believe to be extremely unlikely that any logging is being allowed inside the UNESCO site because there being no logging roads. Based on this, it is assumed that the loss of vegetation occurring there has been caused by windfalls.</p> <p>Location 1 was visited and confirmed to be an area dominated by older large progressive logging sites now resembling clear cuts. Some of these old logging areas have completely failed to regenerate and grasses have replaced what used to be primary forests. The remaining forest on the edge of these empty areas has been exposed to high winds and is now affected by windfalls. Some of the parcels adjacent to the clear cut are now protected as primary forests, over 150 years old (parcels 17, 18, 21 and 23).</p>	

Investigators climbed to the bottom of Craiova Valley where Location 2 is photographed (Fig. top left photo). This area was also heavily affected by recent logging. According to the forest management plans, these forests were old-growth forests, around 10 years ago, on average between 150 and 200 years. Parcels that are currently being logged are 200 years old (parcel 160B), 190 years old (parcels 156C and 163A), 160 years old (parcel 165G) and 150 years old (parcel 162A).

Very old trees, typical of primary forests, with over 1 m in diameter can be found in the Craiova Valley (Fig. 19 shows recent screenshots from Sumal 2.0)

In Olanu Valley, drone footage found evidence of recent and older progressive logging in Location 4. Until a few years ago, according to the forest management plans, these were also old-growth forests, on average between 130 and 200 years old similarly to that of the nearby UNESCO valley.

At a different location in Olanu Valley, more progressive logging was filmed (both recent and old) in what was, according to forest management plans, old-growth forests less than 5 years ago (Location 5). However, these are private forests and investigators do not have access to private forest management plans to confirm the exact ages of the forests.

The drone filmed above Location 6 which was suspected of being logged, however it appears that this area was impacted by windfalls and not logging. Location 6 is included in Romanian government's National Catalogue of Virgin Forests and therefore no logging is allowed here.

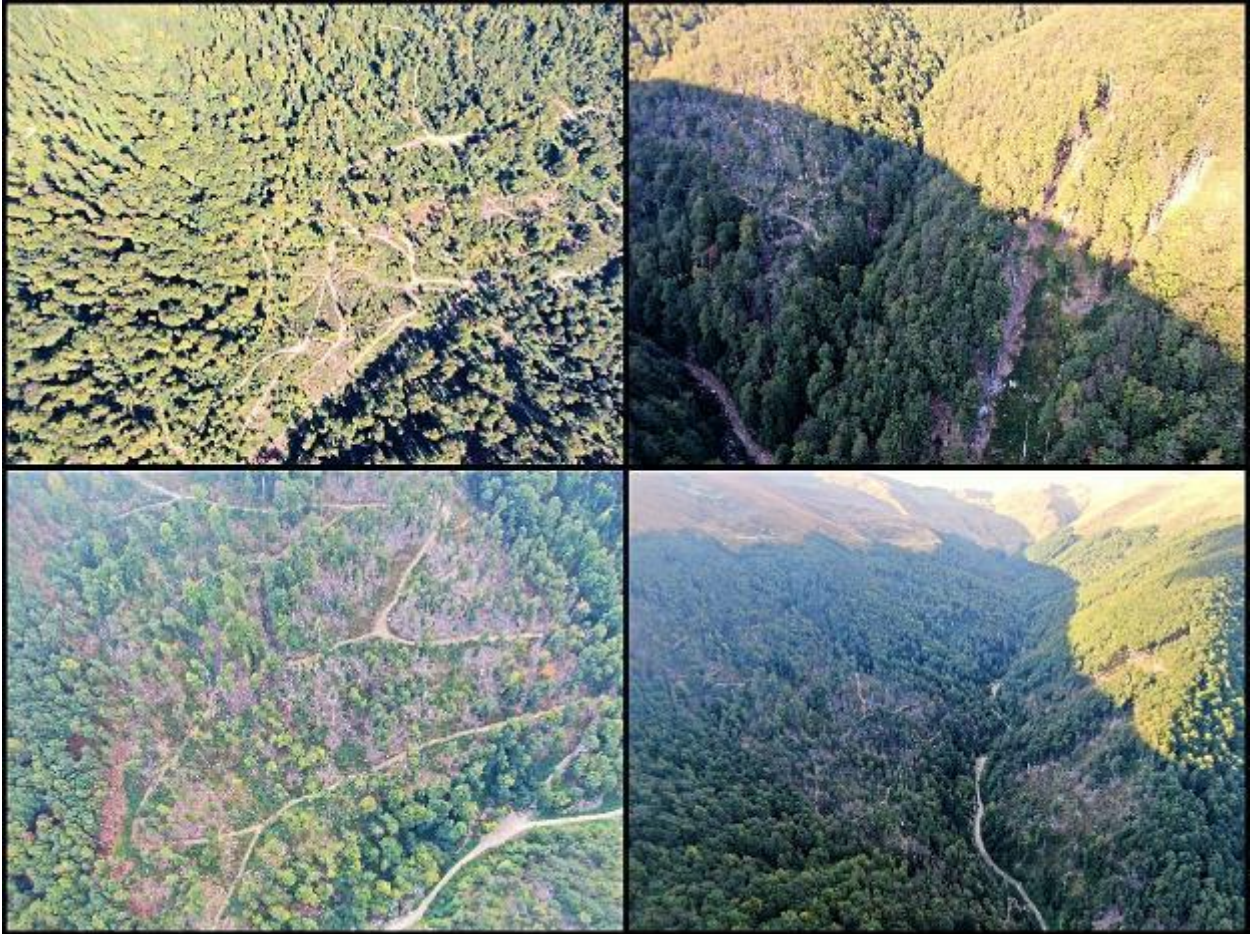


Figure 17: (Top left photo) Progressive logging in Location 2 (Craiova Valley); The other 3 photos are from Location 5 in Olanu Valley



Figure 18: Photos of older clear cuts in old-growth forest that have only partially regenerated (Location 1, Olanu Valley)

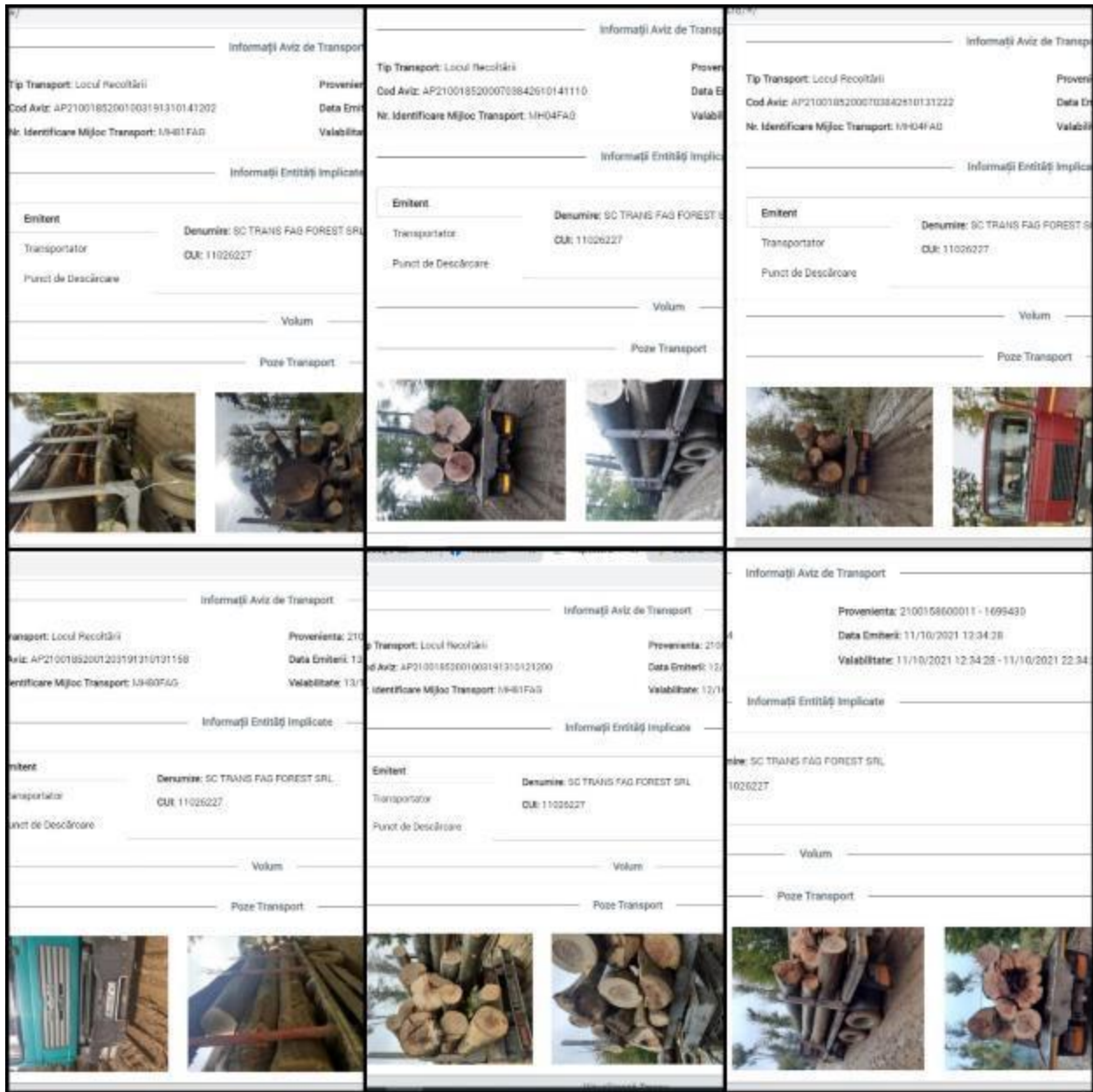


Figure 19: Recent screenshots from Sumal 2.0 (October 2021) of old trees typical of primary forests, some over 1 m in diameter, logged in Craiova and Olanu valleys.

Topenia valley, Domogled



Figure 20: (Top photos) progressive logging resembling clear cuts in Location 2; (bottom left photo) badly eroded logging road in Location 1; (bottom right photo) progressive logging in Location 2

Location	Topenia Valley
Areas analysed	Location 1: badly eroded logging roads Location 2: progressive logging resembling clear cut in old-growth forests Location 3: progressive logging in old-growth forest
Visited	September 2021
Primary forest/ old-growth forests	Old-growth forests aging around 140 to 170 years old, some parcels were formerly primary forests
Habitat degradation	Yes

Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35 % no logging roads should be allowed here
<p>Additional notes:</p> <p>This area was accessed by foot via eroded logging roads, often more than 1 metre deep (Location 1), that led to recent progressive logging which resemble clear cuts (Location 2).</p> <p>The clear cut/progressive logging in Location 2 seemed very badly managed (Fig. 20, top photos), with logging roads on steep slopes and wood leftover covering most of the soils and thus preventing regeneration. Similar to other locations, this looked like a very rushed operation where only the best quality commercial logs were removed with the lower quality firewood left abandoned on the ground.</p> <p>These logged forested areas had, for example (just outside location 2), 170 years old trees on average (parcel 85) and was included in the Pin Matra Study¹³ in 2005 as a potential primary forest. The parcel walked through by investigators (Figure 20, parcel 91A) was 140 years old.</p> <p>Location 3 was accessed via the drone - confirmed through the forest management plans as formally old-growth forests at the top limit of the forest habitat, below the alpine meadows. Parcels 96, 97 and 98 are between 140 to 170 years old. Investigators were shocked to find progressive logging in these former primary forests that also have a vital protection role against landslides and high winds.</p> <p>Logging has also occurred in places less than 100 m away from the alpine meadows, the line that protects the forests against avalanches, wind damages, etc. This has not only impacted trees but also many species of animals that are using these remote edge forests as wildlife corridors.</p>	

¹³ Virgin Forests in Romania – Inventory and strategy for sustainable management and protection of virgin forests in Romania
http://www.mmediu.ro/app/webroot/uploads/files/2015-12-22_Virgin_forest_Romania_Summary.PDF



Figure 21: Progressive logging in former virgin upper forests that have a vital protection role against landslides and high winds (Location 3).

6. Maramures Natura 2000 sites (SCI, SPA)

Two general areas were accessed in Maramureş and six individual forest locations were investigated. While Maramureş is also a Natural Park and benefits from having non-intervention zones, large areas of forest are still being commercially logged, especially through clear cuts and large-scale progressive logging.

Data on the age of the forests were not available for the locations visited in Maramures, therefore it is difficult to determine if the forests being logged are old-growth forests. Nevertheless, progressive logging is being carried out at a high pace in both areas that were investigated, resulting in large scale habitat degradation and fragmentation.

There was no difference between commercial logging inside the national park and logging outside the park. Progressive logging which often involves the complete removal of all the mature trees over a relatively short period of time (15-30 years) looked exactly the same both inside and outside the Park and logging inside Natura 2000 sites is allowed without being the subject of environmental assessments.

Lower Vaser Valley, Maramureş Mountains



Figure 22: Progressive logging resembling clear cuts in Location 2

Location	Viseul de Sus, Lower Vaser Valley
Areas analysed	Location 1: badly eroded logging roads Location 2: progressive logging resembling clear cut Location 3: older progressive logging
Visited	August 2021
Primary forest/ old-growth forests	Very likely according to field visit
Habitat degradation	Yes

Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Unknown
Steep slopes	Yes, some slopes are over 35 degrees and no logging roads should be allowed there
<p>Additional notes:</p> <p>This area was accessed by foot via eroded logging roads, often more than 1 metre deep (Location 1) leading up to recent progressive logging resembling clear cuts (Location 2).</p> <p>The progressive logging in Location 2 looked like a combination of older and recent logging, with logging roads on steep slopes, going all the way to the top of the mountain. Similar to other locations, this looked like a rushed operation where only the best quality commercial logs were removed while the lower quality logs were left abandoned on the ground.</p> <p>Some of the tree stumps found in Location 2 were over 1 metre in diameter (Fig. 23, top right photo) indicating elements typical of old-growth forests.</p> <p>Location 3 was accessed with a drone, where again a combination of older and recent logging was noticeable, but with overall less recent logging than in Location 2.</p>	



Figure 23: (Top left and bottom right photos) badly eroded logging roads in Location 1; (top right photo) tree stump in Location 2; (bottom left photo) wood depot close to Location 1

Upper Vaser Valley, Maramureş Mountains



Figure 24: (Top left and bottom right photos) wood depot in Location 3; (top right photo) progressive logging in Location 2; (bottom left photo) train full of logs in Location 1

Location	Viseul de sus, location 2: Upper Vaser Valley
Areas analysed	Location 1: stationary train full of logs Location 2: progressive logging resembling clear cut Location 3: wood depo close to Viseul de Sus
Visited	August 2021
Primary forest/ old-growth forests	Unknown
Habitat degradation	Yes

Clear cuts	Progressive logging resembling clear cuts
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35 degrees no logging roads should be allowed here
<p>Additional notes:</p> <p>This area was accessed by taking a touristic steam train to the last station available to tourists from where the drone was launched.</p> <p>The train tracks were blocked by a train with over 20 waggons full of logs (Location 1). Investigators realised that the same tracks that are used for tourists for a small part of the valley are also used to access the whole valley and to bring wood out by train.</p> <p>On the train journey investigators also noticed several logging roads going through the Vaser River. Indeed, in the absence of normal roads, the river seems to be used as access to bring wood to various locations to be loaded onto the train. On a previous visit here the year before, investigators filmed a tractor pulling large logs through the middle of Vaser River for several kilometres until it reached a wood depot beside the river.</p> <p>Photos were taken of some of the larger log yards (Fig. 24, top left and bottom right photos, location 3).</p> <p>The clear cut/progressive logging in Location 2 looked rushed (Fig. 24, top right), with logging roads on steep slopes and low natural regeneration. At the bottom of the slope there are some signs of windfalls.</p>	

7. Frumoasa Natura 2000 sites (SCI and SPA)

In Frumoasa Natura 2000 sites only one large area in Candrel Mountains was visited and five individual locations were investigated and assessed.

Similarly to Făgăraş mountains, Frumoasa is only designated as an SCI and SPA and does not have any additional national designation with the exceptions of small areas protected by national legislation (“rezervațiilor naturale”). It does not have any large non-intervention zones and instead the majority of the forest is available for commercial logging, especially clear cuts.

From all the sites visited, Frumoasa was the one worse affected by recent clear cuts, allowed under Romanian legislation in spruce dominated forests.

During the visit, age data was not available for the locations visited in Frumoasa. Therefore it is difficult to determine how many of the forests being logged were old-growth forests. Nevertheless,

clear cuts are being carried out at a high pace, resulting in large scale habitat degradation and fragmentation, without allowing enough time between logging cycles for the forest to naturally regenerate.

Candrel Mountains, Frumoasa



Figure 25: Deep tractor roads, oil pollution and clear cuts on steep slopes in Location 1.

Location	Frumoasa Natura 2000 site, Candrel Mountains
Areas analysed	<p>Location 1: recent clear cuts</p> <p>Location 2: trees marked for logging</p> <p>Location 3: more recent clear cuts</p> <p>Location 4: extensive network of logging roads</p> <p>Location 5: recent and older clear cuts</p>

Visited	September 2021
Primary forest/ old-growth forests	Unknown
Habitat degradation	Yes
Clear cuts	Clear cuts in spruce dominated forests
Eroded logging roads	Yes
Polluted waterways	Yes
Steep slopes	Yes, frequently over 35 degrees no logging roads should be allowed here
<p>Additional notes:</p> <p>Investigators tried accessing this area by car but were stopped by a forester and told that access was not allowed. Therefore, investigators spent a lot of time either walking or filming with the drone.</p> <p>Location 1 was accessed from the bottom of recent clear cuts on slopes greater than 40 degrees. These types of slopes will make regeneration of the forests difficult and the area prone to erosion.</p> <p>The logging roads that were used to access the area were in places over 3 metres deep and already showing clear signs of erosion. Additionally, long lines of oil spillages were documented on these recently cut logging roads.</p> <p>In between the clear cuts, narrow bands of trees were found also marked for logging (Location 2). They are expected to be logged in the next few months before the areas already clear cut will regenerate resulting in further habitat degradation.</p> <p>Towards the top of the slope another recent clear cut was reached in Location 3. This type of logging high up in the mountains exposes the remaining surrounding forests to wind damage and insect attacks.</p> <p>Drone footage revealed an extensive network of logging roads not only in Location 4, but throughout the visited area. Location 5 was also another site impacted by both recent and older clear cuts.</p>	



Figure 26: Various recent and older clear cuts in Candrel Mountains, Frumoasa Natura 2000 site



Figure 27: Clear cuts on steep slopes and trees marked for logging in Location 2.

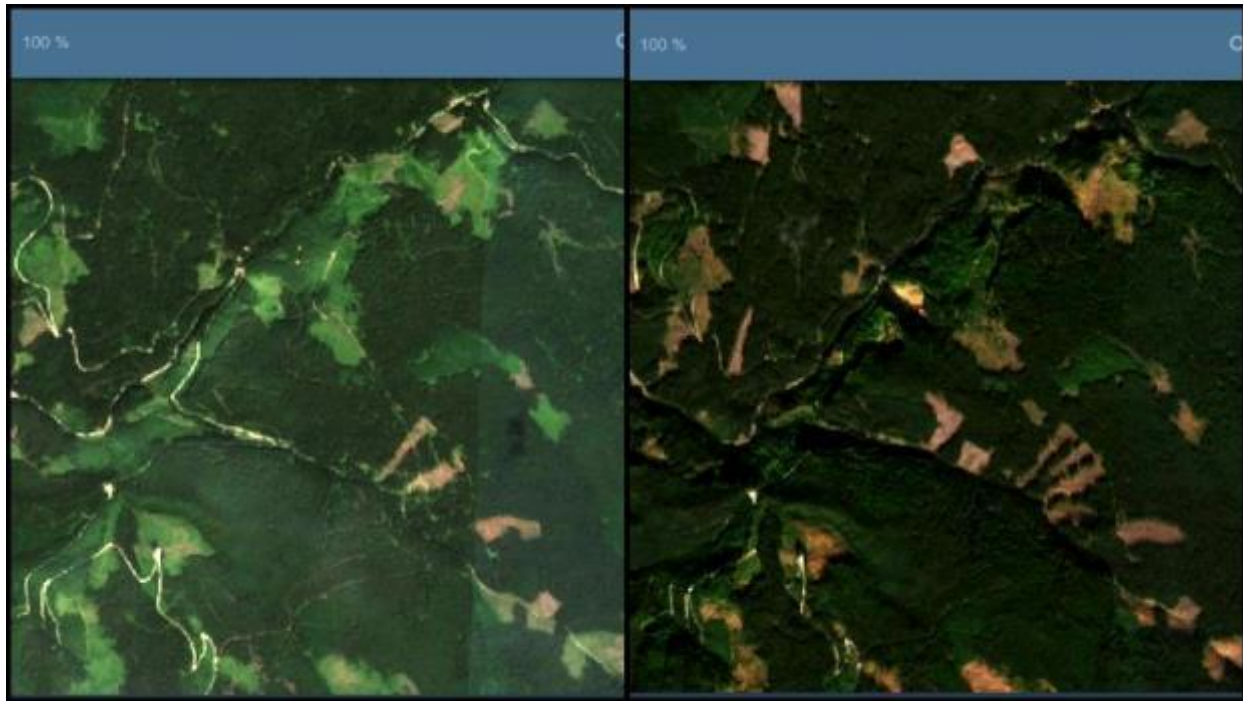


Figure 28: Habitat degradation from large scale clear cuts done in the last year and a half; (left photo) Sentinel satellite photo from August 2020; (right photo) sentinel satellite photo from October 2021

8. Conclusion

The field visits in the period from June 2021 to October 2021 revealed that logging continues in all the sites that have been included in the European Commission’s infringement procedure. In particular, since the start of the EU infringement proceedings in 2020, logging in Romania has not declined. In many areas, it has accelerated. For example, for Făgăraş Mountain, based on a comparison of logging permits from 2020 and 2021 (see Figure 1), it can be concluded that logging is occurring with an even greater speed. The investigation also proves that logging is taking place in primary and old-growth forests, with some of the trees being aged between 150-200 years (e.g. Olanu and Craiova Valley, Domogled). The field visits clearly illustrate that logging activities are having a multitude of direct and indirect negative effects on the integrity of those Natura 2000 sites.

Additionally, in many cases, logging sites were found in steep terrain. For example, at Pecineagu Lake, (Făgăraş Mountains), the slope was around 40-50 degrees and it would be illegal to build roads according to Romanian law. Furthermore, logging is also being allowed in areas with a high risk of erosion and landslides. For example, areas close to dams, such as in Pecineagu dam, are strictly protected given that logging can have severe consequences to human lives if the dam is compromised by landslides.

The ongoing destruction of precious primary and old-growth forests in Romania is deeply worrying. Romanian authorities must amend national legislation to reflect requirements of European Union law and perform the comprehensive review of all Forest Management Plans that affect Natura 2000 sites. Full compliance with European Union law needs to be ensured and ongoing destructive logging operations

affecting protected and well conserved forest ecosystems and species, in particular in Natura 2000 sites, need to be halted.

Furthermore, the recent Romanian ministerial orders that were adopted and challenged in court are actually secondary administrative acts to the Forest Code that can be challenged in court by any interested individual or legal person. Given that the rules require regulating forest activities, the regulatory competence should in theory fall with the Parliament. A law passed through the Parliament cannot be challenged in court. Given that the European Commission's infringement procedure was launched in February 2020, the Romanian Government had all the necessary time to act accordingly and adopt the law through Parliament.

Primary and old-growth forests also represent less than 3% of the total forests in Europe¹⁴, and therefore the amount and speed of logging in Romania of these forests is extremely alarming. That is why there is an urgent need for Romania to take all reasonable efforts to ensure protection of its primary and old-growth forests. Where areas have now lost their ecological integrity, these areas should be restored through natural regeneration where possible and afforested where needed.

This means that without prior impact assessments, logging permits should not continue to be issued in Natura 2000 areas. Romania also needs to review its 10-year forest management plans to align them with the conservation objectives of the sites.

It can be concluded that the measures taken so far by the Romanian authorities are not sufficient and are not implementing substantial on the ground changes that will ensure Romania is no longer in breach of EU law. It is therefore recommended that the European Commission take urgent action to stop any further logging in Romanian primary and old growth forests, ensuring that EU legislation is enforced.

Therefore, it is imperative that the case is referred to the EU's Court of Justice.

¹⁴ Barredo, J., Brailescu, C., Teller, A., Sabatini, F.M., Mauri, A. and Janouskova, K., Mapping and assessment of primary and old-growth forests in Europe, EUR 30661 EN, Publications Office of the European Union, Luxembourg, 2021, ISBN 978-92-76-34229-8, doi:10.2760/13239, JRC124671.