CARPATHIA
European Wilderness Reserve

NATURA 2000

VIRGIN FOREST INVENTORY

IDENTIFICATION OF VIRGIN AND SEMI-VIRGIN FORESTS IN THE UPPER DAMBOVITA AND TARGULUI BASIN

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DANIEL UNGUREANU, MIHAI ZOTTA, ELENA SERBAN, IONUT CRETU, DANIEL BUCUR, BARBARA PROMBERGER

Deliverable for the LIFE+ project "Ecological restoration of forest and aquatic habitats in the Upper Dâmbovița Valley, Muntii Fagaras" (LIFE/NAT/RO/823)

INTRODUCTION

Due to the lack of a feasible remote sensing methodology to identify virgin forests on a big surface, we have decided to physically verify each surface within the LIFE project area, in order to identify and separate virgin and natural forests within the lots. This approach would not have been possible for a large area such as the entire Natura 2000 site Muntii Fagaras (~200,000 ha), and even though the project area is still a large surface (~20,000 ha), we managed to apply the physical inventory methodology on it, after a strict selection by age and the known existence of human activity from our current GIS database.

Prof. Gheorghe Tudoran from the Faculty of Silviculture and Forest Engineering of "Transilvania" University, Brasov, gave his input on the methods used and also participated in some of the field surveys.

The results of this survey determine what are natural and what are managed forests, and consequently allow an exact distribution – both in terms of surface and costs that can be appointed to actions B.1 and B.3.

SAMPLING METHODS

Due to the fact that the virgin forests should overlap with certain forest management plan parcels (in or outside the current FCC property), in order to be able to have them protected according to a management plan of our own, we structured our sampling by forest management units (U.A. – unitate amenajistica).

Working this way has simplified the sampling and decreased the number of sampling plots, because each of these forests management units, according to the management plan of the forest, is homogenous in structure, density, age, aspect, slope, site index, and forest type.

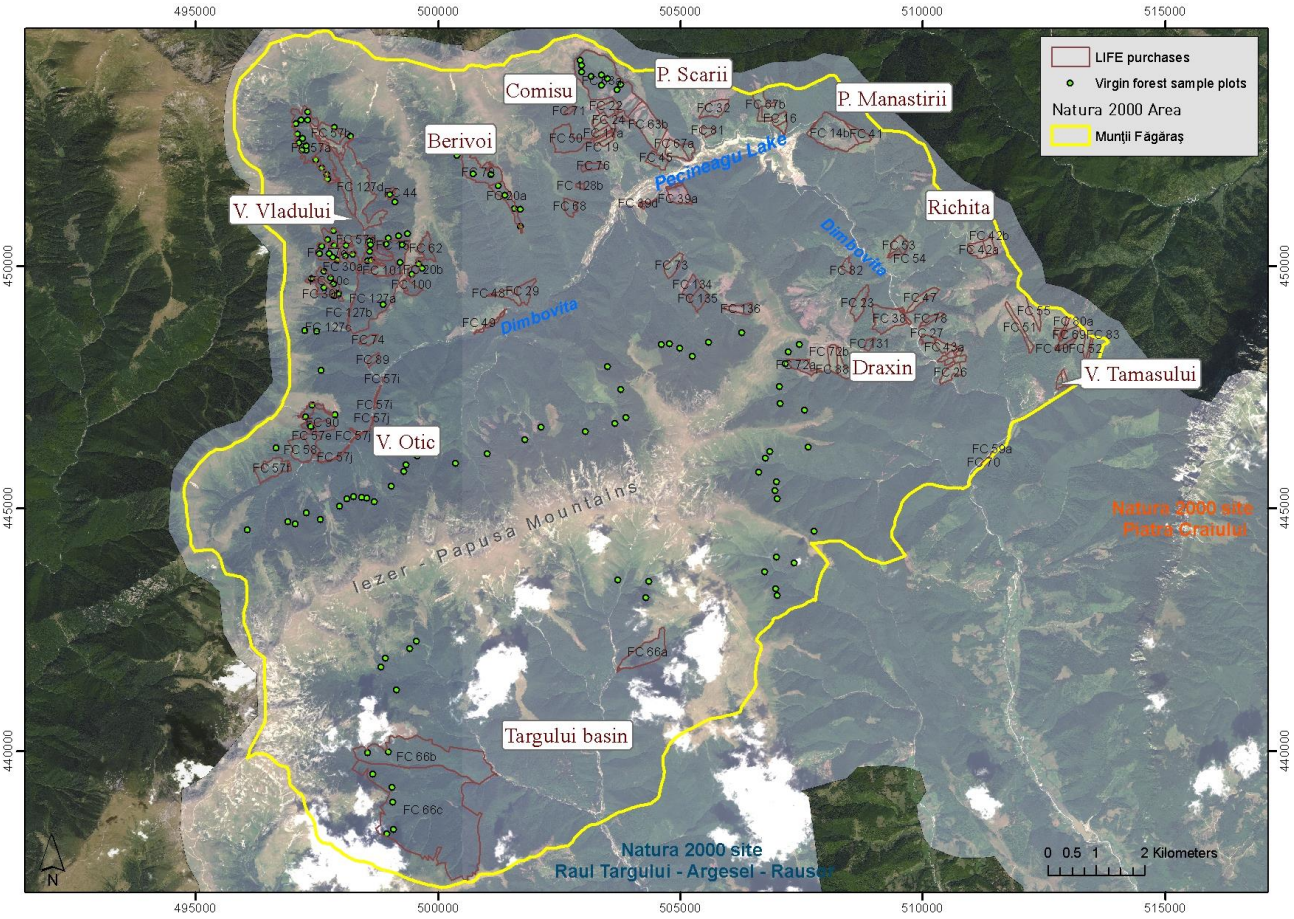
This being said the sampling plots were set by the following rule:

- One plot per U.A. as a general rule, but if the characteristics of the forest were changing within the same U.A., we did more sampling plots, trying to cover all these different situations.
- If the parcel was smaller than 1 ha, we still applied a plot in it.

After a pre-selection, in which some U.A.s could be excluded from containing natural forests from the start, we sampled throughout August 2014 a total of 67 circular plots and then in August/September 2015 a total of 74 circular plots, each with a radius of 12.62 m, such covering a sampling surface of 1,780 sqm. The location of the plots wasn't done by using a grid, instead, a specialised team walked through the entire parcel and applied *approximately* 1 plot per ha if we noticed a change in structure, density, or aspect, because

even if a forest parcel should be generally homogenous regarding the mentioned characteristics, there are still many small variations inside a potential virgin forest (e.g. small openings, very different tree ages/sizes, many dead standing or fallen trees, high moss cover etc.), the decisive factor though being the existence of human activity.

This way we tried to cover all the possible differences that would appear in such a forest. The virgin areas were delimitated with the help of a performant GPS.



SAMPLED DATA

The sampling was done using a standard form which included the following aspects:

01. Tree species, their cover percentage, max diameter, max height, average diameter
02. Shrub species and their cover percentage
03. Flora species and their cover percentage
04. Moss species and their cover percentage

05. Tree saplings by species and cover percentage, max diameter, max height, average diameter (we closely followed the existence of a life cycle in tree species – saplings, different age trees – dead trees, as this gives information about its stability)
06. Standing dead trees, with 4 stages of degradation:

    - Dead stem with branches still attached
    - Dead stem without most of the branches
    - Dead, broken stem
    - Dead, broken or highly affected by biotic factors (insects, fungi, wind), with advanced decay

07. Fallen dead trees, with 4 stages of degradation:

    - Trunk with branches still attached
    - Trunk with most of its branches of, or without any branches, in an early decay stage
    - Trunk in an advanced stage of decay, with fragmented parts
    - Trunk in its last stages of decay, very easy to break part of it, covered in moss or plants

08. Natural destabilizing factors (wildlife damage, pest insect population breakouts, fungi breakouts, wind fallen trees, snow broken trees, frostbitten trees)
09. Human activity (stumps resulted from harvesting activities done long ago, man debarked trees, bark needed for making pots for cheese, cut of branches, livestock grazing

10. The conservation status was finally assessed according to the existence of the factors mentioned above, and also considering whether the forest has a high chance of being influenced by humans in the future (e.g. close to shepherds houses, close to harvested stands etc.).

CRITERIA

In the wake of the recognition of the importance of virgin forests as well as of the exerted pressure by NGOs and the general public, Romania has defined criteria and indicators for virgin and semi-virgin forests, published in the Ministerial Order Nr.3397 from 10.09.2012:

VIRGIN FORESTS	SEMI-VIRGIN FORESTS
DEFINITION	
A virgin forest is a forest, which was formed and developed exclusively under the action of the natural factors and where the dynamic natural processes take place without any direct or indirect anthropogenic influence.	A semi-virgin forest is a forest, which has been virgin in the past, but, in the mean-time, noticeable anthropogenic modifications have occurred, which haven't though produced any significant modifications on its structure and the occurrence of natural processes.
CRITERION 1: INDICATORS OF NATURALNESS	
1.1. Composition and natural distribution of the species 1.2. Complex structures present, stratified vertically (many different age categories) and showing a diverse mosaic horizontally (very different diameters, densities, dead wood, species etc.), the specific texture with all the tree development stages (saplings, youth, mature, old, decomposing) is present. 1.3. High biodiversity, high age and size diversity of trees, some of them being close to their physiological life	1.1. Composition and natural distribution of the species 1.2. Complex structures present, stratified vertically (many different age categories) and showing a diverse mosaic horizontally (very different diameters, densities, dead wood, species etc.), the specific texture with all the tree development stages (saplings, youth, mature, old, decomposing) is present. Here some of the development stages can be missing. 1.3. High biodiversity, high age and size diversity of trees, some of them

VIRGIN FORESTS	SEMI-VIRGIN FORESTS
expectancy. Frequent un-even aged stands.	exceeding 150 years. Frequent un-even aged stands.
1.4. No forestry present or any other anthropogenic activity, including livestock grazing. No stumps. 1.5. Frequent dead wood present, standing or fallen on the ground, in different decomposition stages. 1.6. The canopy closure is natural, according to the site index, varying with development stage. In low productivity site conditions, canopy closure is low (e.g. spruce stands on rocky sites, spruce stands with *Polytrichum* etc.). 1.7. No soil degradation (except natural soil erosion). 1.8. No roads or constructions in the forest, except the necessary infrastructure for scientific research and some tourist trails, as well as management planning limits. 1.9. Low accessibility or restricted access.	1.4. No forestry during the last 30 years. Only 5 stumps per hectare allowed, with diameters of over 15 cm, in different degradation stages. 1.5. Frequent dead wood present, standing or fallen on the ground, in different decomposition stages. 1.6. The canopy closure is natural or close to natural (diminished by maximum 0.2), according to the site index, varying with development stage. In low productivity site conditions, canopy closure is low (e.g. spruce stands on rocky sites, spruce stands with *Polytrichum* etc.). 1.7. No man caused soil erosion. Old abandoned harvesting roads allowed, if they are covered in litter, grass, saplings, trees etc. 1.8. No roads or constructions in the forest or the existence of roads which haven't been used for at least 30 years, except the necessary infrastructure for scientific research and some tourist trails, as well as management planning limits.
CRITERION 2: AREAS SIZES AND LIMITS	
2.1. Size of the virgin forests (all the management plan parcels) should be at least 20 ha (without fragments that do	2.1. Size of the virgin forests (all the management plan parcels) should be at least 30 ha (without fragments that do

VIRGIN FORESTS	SEMI-VIRGIN FORESTS
not correspond with the selection criteria), except for rare and of high ecological value ecosystems (e.g. *Pinus cembra* ecosystems, ecosystems from the Danube delta, etc.) for which the minimum area will be 10 ha. The rare ecosystems will be surrounded by buffer zones.	not correspond with the selection criteria), except rare ecosystems and of high ecological value (e.g. *Pinus cembra* ecosystems, ecosystems from the Danube delta, etc.) for which the minimum area will be 10 ha. The rare ecosystems will be surrounded by buffer zones.
2.2. Continuous distribution of the forest (compact) to assure self-regulation and the perpetuation of the ecosystem.	2.2. Continuous distribution of the forest (compact) to assure self-regulation and the perpetuation of the ecosystem.
2.3. Natural limits (ridges, valleys, streams, forest limit etc.), so that the stability of the selected forest against external disturbance factors is assured. It's not necessary that these limits overlap with the management plan parcel limits.	2.3. Natural limits (ridges, valleys, streams, forest limit etc.), so that the stability of the selected forest against external disturbance factors is assured. It's not necessary that these limits overlap with the management plan parcel limits. The semi-virgin forest can be delimited also by artificial limits like: permanent roads, high voltage electricity lines or other utilities, management plan parcel limits, railways etc.
2.4. Areas which do not fully comply the selection criteria can also be included, but only if the part which does not comply is no more than 10-15 % of the total selected area.	2.4. Areas which do not fully comply the naturalness criterion can also be included, but only if the part which does not comply is no more than 15 % of the total selected area.
2.5. Frequently, fragmented terrain configuration (mainly because of naturally fallen trees which caused soil movement).	2.5. Frequently, fragmented terrain configuration (mainly because of naturally fallen trees which caused soil movement).

For our purposes, we had the strongest focus on the naturalness criteria, as we consider also forests smaller than 20 ha as extremely important for our overall goals. All remaining pockets of pristine forests, also small ones, will serve as a source of biodiversity for the repopulation of many species into so far managed forests and such will accelerate re-wilding of the area. Therefore we used forest structure, dead wood and age as well as human activity as the main criteria separating between 3 categories of natural forests:

1. *VIRGIN FOREST*

   No human activity at all noticed, natural forest structure, dead wood on the ground in different degradation stages, older than 100 years.

2. *SEMI-VIRGIN FOREST*

   Old signs of human activity (>30 years, e.g. much degraded stumps), natural forest structure, dead wood on the ground, older than 100 years.

3. *NATURAL FOREST*

   Natural forest structure, but signs of recent human activity (last 5-30 years; stumps, grazing), no or barely any dead wood on the ground, age over 40 years.

CONCLUSIONS

IDENTIFICATION OF VIRGIN AND SEMI-VIRGIN FORESTS WITHIN PURCHASED FOREST LOTS

The field verification of the purchased forest lots that potentially hold virgin forests, revealed a total surface of 294 ha of natural forests. This number includes both, virgin (274 ha) and semi-virgin forests (20 ha), as well as a small amount of pristine dwarf pine habitat (5 ha). For the further calculations we have put dwarf mountain pine, virgin and semi-virgin forests into the same category as they have the same ecological value and will be treated the same way (full protection stipulated in the management plan).

The identified virgin forests are characterised by following attributes:

- The composition of tree species is heavily dominated by spruce, with a small proportion of 5 to 15 % of rowan (*Sorbus aucuparia*). In some parcels in Valea Vladului also Arolla pine trees (*Pinus cembra*) occur, a very rare species for the Romanian Carpathians. In the lower part of some virgin forest properties also beech and some sycamore trees exist at a ratio of 10 to 20 %.
- Therefore two main categories of forests can be found, the typical 9410 habitat (Acidophilous Picea forests) around 1,700 meters altitude and in some parts, closer to the alpine areas, a stripe of Spruce - Swiss pine forests, which have some elements of the 9420 habitat type (Larch and Swiss pine forests), but are not fulfilling all the specific conditions of this habitat.
- The tree diameter has a range between 28 and 58 centimetres, but cannot be considered as a certain indicator for the age of the trees, since at high altitudes the trees are growing slowly. Hence, we identified trees with 150-170 years of age and diameters below 50 cm.
- Most of the virgin forests have an uneven age structure
- The amount of standing dead trees of all degradation categories in most virgin forests ranged between 10 and 80 m^3 per hectare, while fallen dead trees averaged around 46 m^3 per hectare.
- Following plants species can be found (not all together), depending on altitude, light in the forest, and expositions: *Dechamsia flexuosa*, *Hieracium transylvanicum*, *Oxalis acetosella*, *Luzula sylvatica*, *V. myrtillus*, *A. filix-femina*, and mosses such as *Polytrichum commune*, *Hylocomium splendens*, *Pleurozium schreberi*, and *Sphagnum sp.* .

During the virgin forest inventory we also identified some natural spruce forests on a total of 65 hectares, which have a natural forest structure, but some recent anthropic impact (stumps, grazing) can be seen.

Following forest lots purchased within this LIFE project contain a varying amount of virgin and semi-virgin forests:

Internal nr.	Final contract nr.	Pre-contract nr.	Date	ha Contract	ha Clear felled	ha Managed forest	ha Virgin forest	Characteristics	UA	Habitat type
FC 15	1567, 1568		2012-10-23	*35.1800*	-	0.6800	34.5000	virgin forest	88A, 89A, 89B, 89C, 90A, 90C, 90D, 90F	9410
FC 20a/b	1302		2012-11-05	*21.9763*	-	9.8701	12.1062	3.7 ha semi-virgin, 9.87 ha natural spruce forest	111B, 110B, 98K	9410
FC 30a/b/c	1874		2012-12-14	*31.6758*	-		31.6758		78A, 79A 76C	9410 9410
FC 44	433		2013-03-26	*2.8600*	-	-	2.8600		87B	9410
FC 57 a/b/c/d/e /f/i/j	625	1456	2014-05-23	*172.7783*	-	110.2888	62.4895	virgin forests contain some dwarf pine habitat	82A,82F, 82G, 82H 83B, 83C, 83D, 83E, 83F	95% 9410, 5 % 4070
FC 63a	1884		2013-12-16	*93.4800*	14.42	56.6783	22.3851	91 % virgin forest, 9 % semi-virgin	75A, 75C, 76A, 76D	9410
FC 66a/b/c	197		2014-02-12	*541.6000*	0.592	450.7044	90.3039	84 % virgin forest, 16 % semi-virgin	40B, 36C, 38C, 39C, 43C	9410, 1.8 % 4070
FC 79	1463		2014-09-30	*35.4747*			35.4747	100% virgin	109B	9410
FC 100	772		2015-06-18	*8.1040*		6.0240	2.0800	25% virgin forest, 75% spruce monoculture	98I, 98J	9410
Total							*293.8752*			

IDENTIFICATION OF VIRGIN AND SEMI-VIRGIN FORESTS IN THE PROPERTY OF OTHER LANDOWNERS

The inventory conducted outside the CARPATHIA properties resulted in a total area of 608 ha of virgin and semi-virgin forests, representing approximately 30 % of the potential forests identified in the preselection process, using the same methodology as for the properties of FCC. Out of the 608 ha, 334 ha were identified as virgin forests and 274 ha as semi-virgin forests. There is still a possibility that some of these 334 ha of virgin forests were crossed by livestock or hikers at some point during the past 30-50 years, without leaving any traces.

The characteristics of these forests are the following:

- As mentioned, all the forests identified are at the tree line, thus spruce as a species dominates the composition, but along with it Rowan (*Sorbus aucuparia*) showed a presence of 2 to 40 % in most parcels we checked, as well as Swiss pine (*Pinus cembra*), which had a very low presence of about 1-2 % but only in some places in Valea Vladului and Valea Barbului.
- Typical for the tree line, the only habitat identified is 9410 (Acidophilous Picea forests), with an altitude of these forest patches between 1,650 and 1,850 m.
- Diameters of mature trees stay between 28-64 cm, which is normal for a habitat with harsh weather conditions and superficial soil. Their age reaches 170-190 years old.
- The average volume of standing dead trees in different degradation stages is about 24 m^3 per hectare, while the average fallen dead wood in different degradation stages is about 38 m^3 per hectare.
- The most common herb species identified are: *Vaccinium myrtillus*, *Dechamsia flexuosa*, *Oxalis acetosella* with less frequent *Hieracium transsylvanicum* and *Luzula luzuloides*. The most frequent moss species are: *Hylocomium splendens*, *Pleurozium schreberi*, *Sphagnum sp* and *Polytrichum commune*, while quite rare *Huperzia selago*.

In this process we have also identified the ownership of the forest parcels containing virgin and semi-virgin forests. About 462 ha are located within the property of four local Landowners Associations: Obstea "Negru Voda", Obstea Mosnenilor Muntelui Cascoe si a Gruiului de Mijloc, Obstea Mosnenilor Rucãreni si Dâmbovicioreni (FCC already owns 30 % of its shares), and Obstea Mosnenilor Slaniceni. Besides these larger owners, the remaining 146 ha of virgin and semi-virgin forests are owned by different private owners and thus are possible to purchase in the near future.

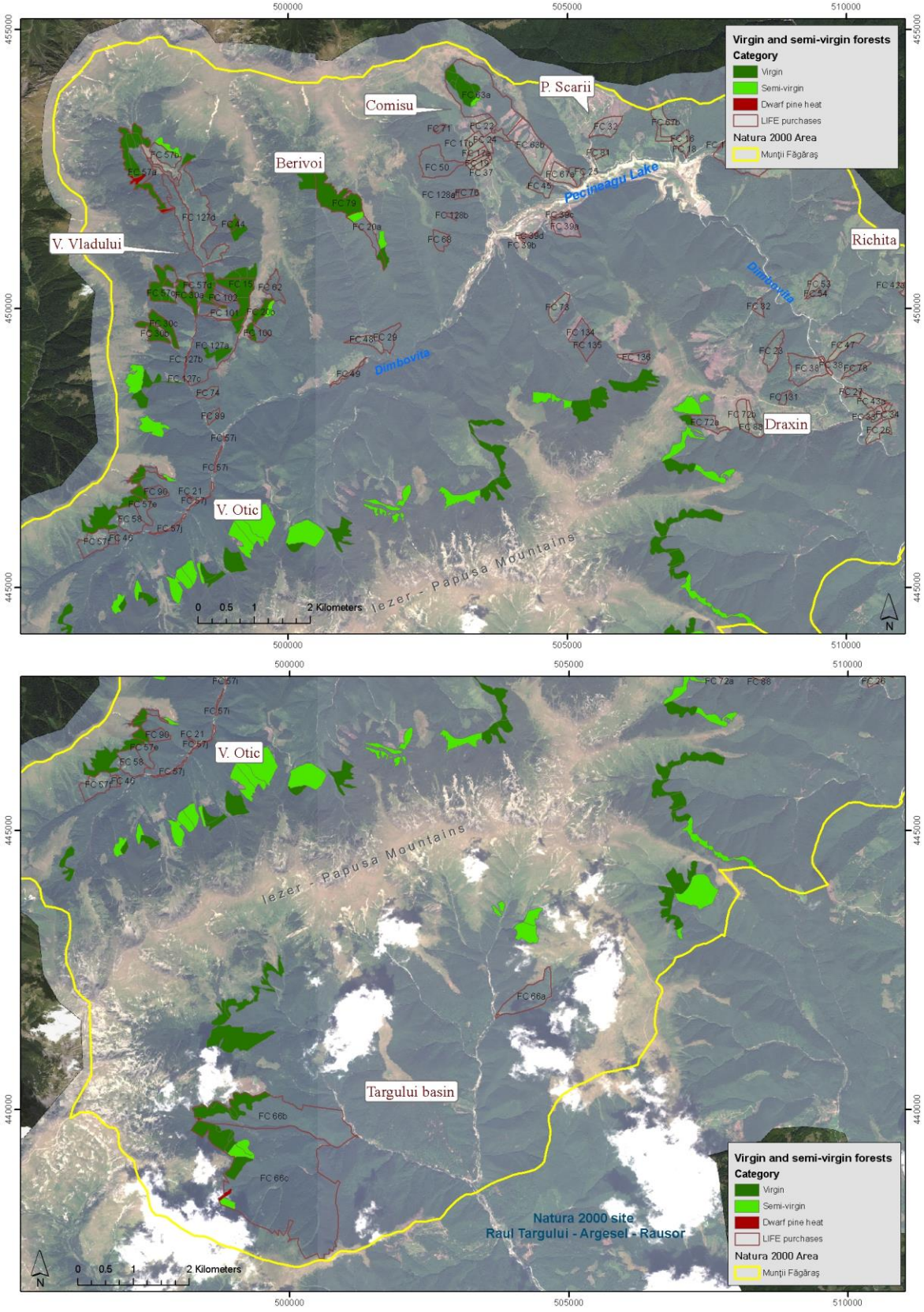
Also during this inventory we identified natural spruce forests in a good conservation state on over 1,000 hectares, with only little recent anthropic impact (stumps, grazing, hiking trails).

Following ownership structure was identified during the inventory of virgin and semi-virgin forests:

Owner	ha Virgin forest	ha semi-virgin	UA	Habitat type
Obstea "Negru Voda" – Landowners Association	114.4	163.34	15B, 21B, 21D, 21E, 22B, 23C, 25B, 28B, 29E, 34B, 35A, 35B, 49A, 50A, 50B, 50D, 50E, 51A, 52C, 53A, 53C, 54A, 54C, 55C, 55F, 56B, 56E, 57F, 58B, 59A, 59C, 60F, 61A, 61B, 61D, 63C	9410
Obstea Mosnenilor Muntelui Cascoe si a Gruiului de Mijloc - Landowners Association	36.79	8.39	9B, 10D, 89B, 89C, 89D, 89E, 89F, 89G, 88B	9410
Obstea Mosnenilor Rucăreni si Dâmbovicioreni - Landowners Association	41.01	44.5	79B, 81B, 82B, 83B, 85B, 89B, 90B, 91B, 91A, 92A, 93B, 87B, 87C, 86B,	9410
Obstea Mosnenilor Slaniceni – landowners association	53.21		47B, 48B	9410
Fam. Negolici – private landowner	21.45	3.51	56B, 118B	9410
Most. Negoescu – private landowner	12.69	4.94	108B, 84D, 84B	9410
Most. Constantinescu – private landowner	5.01		87F	9410
Fam. Bajan – private landowner	3.19	22.51	12C, 12D, 12E, 11B	9410
Fam. Lachanas – private landowner	10.08		89B, 89C	9410
Fa. Dutescu – private landowner		12.2	74G, 74F, 75G	9410
Most. Ortansa – private landowner	24.74		67B	9410
Unidentified private landowner		14.36	72B, 72C, 71C	9410
Already purchased by FCC	11.3		91C, 92B	9410
Total	**333.87**	**273.75**		

The distribution of virgin, semi-virgin, and dwarf mountain pine forests within the purchased forest lots and outside of the CARPATHIA properties in the Dambovita and Targului basins is visualised in the maps below.

The standard form for the field evaluation is presented in Annex 1.


Virgin and semi-virgin forests
Category
Virgin
Semi-virgin
Dwarf pine heat
LIFE purchases
Natura 2000 Area
Munţii Făgăraş
Comisu
P. Scarii
Berivoi
V. Vladului
Richita
Draxin
V. Otic
Pecineagu Lake
Dimbovita
Iezer - Papusa Mountains
Targului basin
Natura 2000 site
Raul Targului - Argesel - Rausor
0 0.5 1 2 Kilometers
N
500000
505000
510000
455000
450000
445000
440000

Annex 1

Data observării .....

FORMULAR DE EVALUARE A STARII PADURILOR VIRGINE
(rarişti de molid +/– zîmbru şi molidişuri presubalpine)

O.S. .....

U.P.....

U.A.....

Numărul sondajului ..... **Coordonate: N** .....

E .....

Formă de relief ..... **Exp.** ..... **Alt.** .....

Tip de habitat: R4201 R4202 R4203

Structura arboretului:

- **In raport cu vârsta arborilor**: echienă relativ echienă relativ plurienă plurienă

- **Gradul de acoperire**, %

A. Arbori	B. Arbuşti	C. Plante indicatoare	D. Muşchi

- **Compoziţie**, %

A. Arbori

Specii	%	nr.	d_{max}, cm	h_{max}, cm	d_{med}, cm
Picea abies, molid (MO)					
Pinus cembra, zîmbru (PIC)					
Abies alba, brad (BR)					
Pinus sylvestris, pin silvestru (PI)					
Pinus nigra, pin negru (PIN)					
Fagus sylvatica, fag (FA)					
Acer pseudoplatanus, paltin (PAM)					
Sorbus aucuparia (scoruş de munte (SR)					
Betula pendula, mesteacăn (ME)					
Salix caprea, salcie căprească (SAC)					

- **Abundenţa speciilor arbustive, subarbustive şi ierboase**, %

B. Arbuşti

Specii	Indici de abundenţă, %					
	≤ 5	6 – 15	16 – 25	26 – 50	51 – 75	76 – 100
Pinus mugo, jneapăn (Q)						
Juniperus communis ssp. nana, ienupăr (Y)						
Sambucus racemosa, soc roşu (S)						
Alnus viridis, anin verde (B)						

C. Subarbuşti şi plante ierboase

Specii	Indici de abundenţă, %							
	≤ 5			6 – 15	16 – 25	26 – 50	51 – 75	76 – 100
	1 ex. ici colo	2 – 50	> 50					

Vaccinum myrtillus								
Vaccinum vitis-idaea								
Dechamsia flexuosa								
Hieracium transsylvanicum								
Oxalis acetosella								
Luzula sylvatica								

B. Muşchi

Specii	Indici de abundenţă, %					
	≤ 5	6 – 15	16 – 25	26 – 50	51 – 75	76 – 100
Polytrichum commune						
Hylocomium splendens						
Pleurozium schreberi						
Sphagnum sp.						

- **Regenerarea arboretului**, %*)

Specii	%	nr.	d_{max}, cm	h_{max}, cm	d_{med}, cm
Picea abies, molid (MO)					
Pinus cembra, zîmbru (PIC)					
Sorbus aucuparia (scoruş de munte (SR)					
Salix caprea, salcie căprească (SAC)					

*) se înregistrează puieţii cu înălţimi sub 0,6 m la răşinoase şi sub 1 m la foioase

- **Lemn mort**
  - ***Pe picior***

Caracteristici	Număr de arbori	Diametru (dm), cm	Înălţime (hm), m
fus / trunchi uscat, cu ramuri de diferite ordine			
doar fus / trunchi uscat, fără ramuri			
fus / trunchi uscat, rupt			
fus / trunchi uscat, rupt, degradat, vătămat de factori abiotici şi/sau biotici			

  - ***La sol***

Caracteristici	Număr de arbori	Diam. la ½ din L, $dm_{1/2 L}$, cm	Lungime, (Lm), m
fus / trunchi, cu ramuri de diferite ordine			
trunchi, cu sau fără ramuri, cu început de degradare			
trunchi, degradat, de culoare brună, ce se fragmentează uşor (putred, cu structură poliedrică)			
trunchi descompus, acoperit cu muşchi şi alte plante ierboase şi/sau cu puieţi			

- **Factori perturbatori**

Denumire	Vânat	Animale domestice	Insecte xilofage	Ciuperci xilofage	Vânt	Zăpadă	Ger	Ciolpăniri, răniri, rezinaj	Exploatare, cioate
Intensitate*)									

*) se înregistrază numărul arborilor vătămaţ şi numărul cioatelor

- **Stare de conservare ……..**

Operator .....

Câteva precizări în legatură cu completarea fişei:

- Tipul de habitat se încercuieşte;
- Structura arboretului în raport cu vârsta arborilor se încercuieşte. Intrucât arboretele nu au structură regulată, nu mai este cazul să se înregistreze şi clasele poziţionale. Dacă există şi astfel de arborete atunci se poate introduce indicatorul următor:

▪ Dispunerea arborilor în plan vertical (clase poziţionale), %: I – III ……..

IV – V ……...

Dar molidişurile de limită au structură relativ plurienă. Arborii fructifică mai rar iar seminţişul se poate instala pe măsură ce apar spaţii libere în urma căderii arborilor datorită acţiunii vântului, zăpezii sau pentru că au ajuns la limita logevităţii sau din alte cuaze. Structura arboretelor depinde de fazele de dezvoltare prin care trec. Arboretul pe care l-am văzut pe teren se afla în fazele de tinereţe – maturitate, doar un procent din arbori se apropiau de faza de degradare în care urmează să cadă datorită vârstei înaintate. Datorită condiţiilor vitrege, arborii nu ajung la vârste foarte mari. Deja către 120 ani poate să apară putergai. La altotudini mai mici, sub 1700 m, rezistă până la vârste mult mai mari, cu cât altitudinea se reduce. Era pe versantul stâng un molidiş care cobora până aproape de pârâu care cred că are o structură mai bună.

Lemnul mort existent la sol închide ciclul de dezvoltare al pădurii virgine. In arboretul studiat erau puţine exemplare căzute. Sondajul P3 era mai interesant. Cred. că valoarea pădurii sporeşte cu cantitiatea de lemn mort căzut la sol şi aflat în diferite stadii de descompunere, mai ales când este acoperit cu plante ierboase şi muşchi şi regenerare, bineînţeles, în condiţiile în care factorul antropic nu a fost prezent. De aceea, sondajele ar trebui să evidenţieze caracteristicile acesteia. Deci nu este nevoie de un anumit număr de sondaje la hectar pentru a caracteriza pădurea ci trebuie parcursă şi identificate zonele cu valoare ridicată. Dacă nu există influenţe antropice, poate şi amenajmentul să surprindă bine caracteristicile pădurii;

- La estimarea gradului de acoperire realizat de arbori se ia în considerare şi seminţişul. El va fi însă evidenţiat şi separat la un alt punct din fişă.;
- La compoziţie sunt trecute speciile care se pot întâlni în astfel de ecosisteme, dar se pot lsa spaţiile libere in fişă şi se scriu doar cele existente. Dacă o specie are o proporţie mai mică de 10%, se înregistrează ca număr de arbori. De exemplu, se poate înregistra 100% la MO şi se pot trece 2 scorusi la număr de arbori. La fel se procedează şi la seminţiş;
- La plante ierboase, când procentul este mic, se poate înregistra şi numărul de exemplare, orientativ;
- La lemnul mort, se înregistrează diametrul mediu şi înăltimea medie pentru fiecare caterie de arbori morţi, pentru a se putea determina, la birou, volumul;
- Starea de conservare trebuie apreciată în raport cu structura tipului de habitat, de aceea, cred că acesta trebuie să fie precizat.

Pentru vârstă, se pot extrage probe doar de la arborii cei mai groşi. Se pot extrage şi de la cei cu diametr mai mici, cu cât sunt mai aproape de limita pădurii.