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Riparian gallery inventory

INTERNAL ASSESSMENT

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Based on the mapping results of alder galleries within the study of the AQUATERRA team, we have assessed the ownership structure of these areas in order to evaluate the possibilities of applying the ecological restoration measures in degraded habitats throughout Dâmbovița Valley, as recommended in the technical part of the report. Besides FCC and its partners (Sănătate & Natură, Almimax Natura), the inventoried polygons along the Dâmbovița and Târgului Rivers and their tributaries, overlap with a number of private owners, forest owners associations (Obştea Negru Vodă, Obstea Câmpulung), State Forest Administration (RNP), and National Water Authority.

Out of the total 227.18 ha of studied riparian forests, an area of 58 ha is currently in the ownership of FCC and project partners, which translates into a total length of 21.7 km of watercourse.

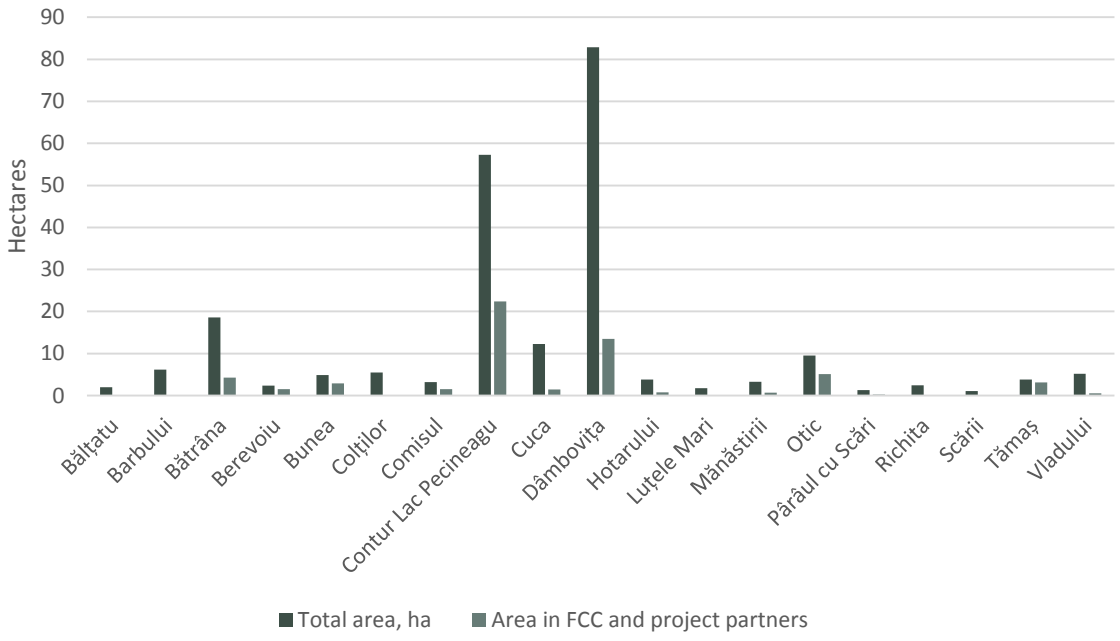

Fig. 1. Property distribution of FCC and project partners on riparian forests throughout the Dâmbovița and Târgului river basins.

The ownership situation is presented in the maps below.

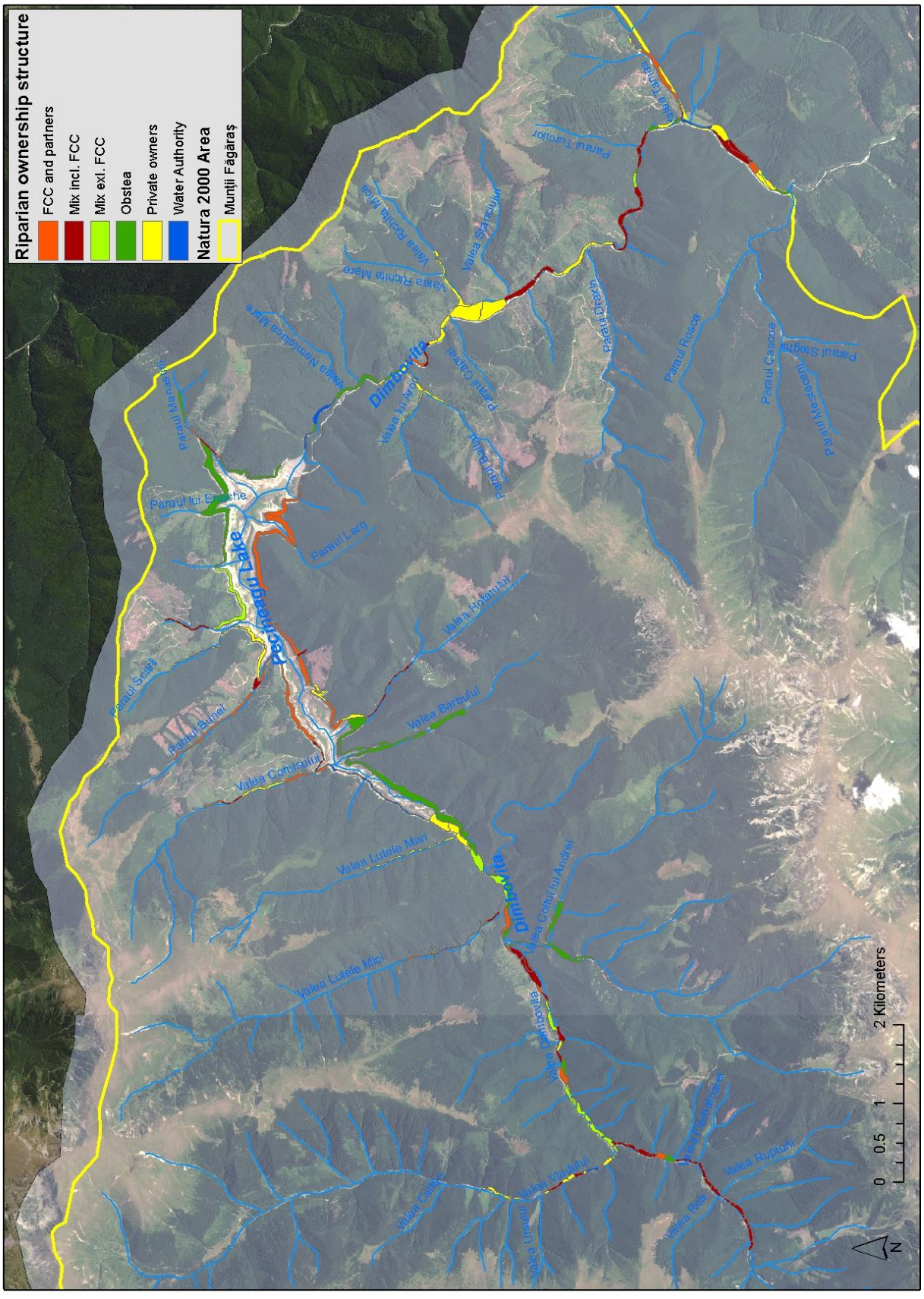

Fig. 2. Ownership structure of riparian habitat in the Dâmbovița basin.

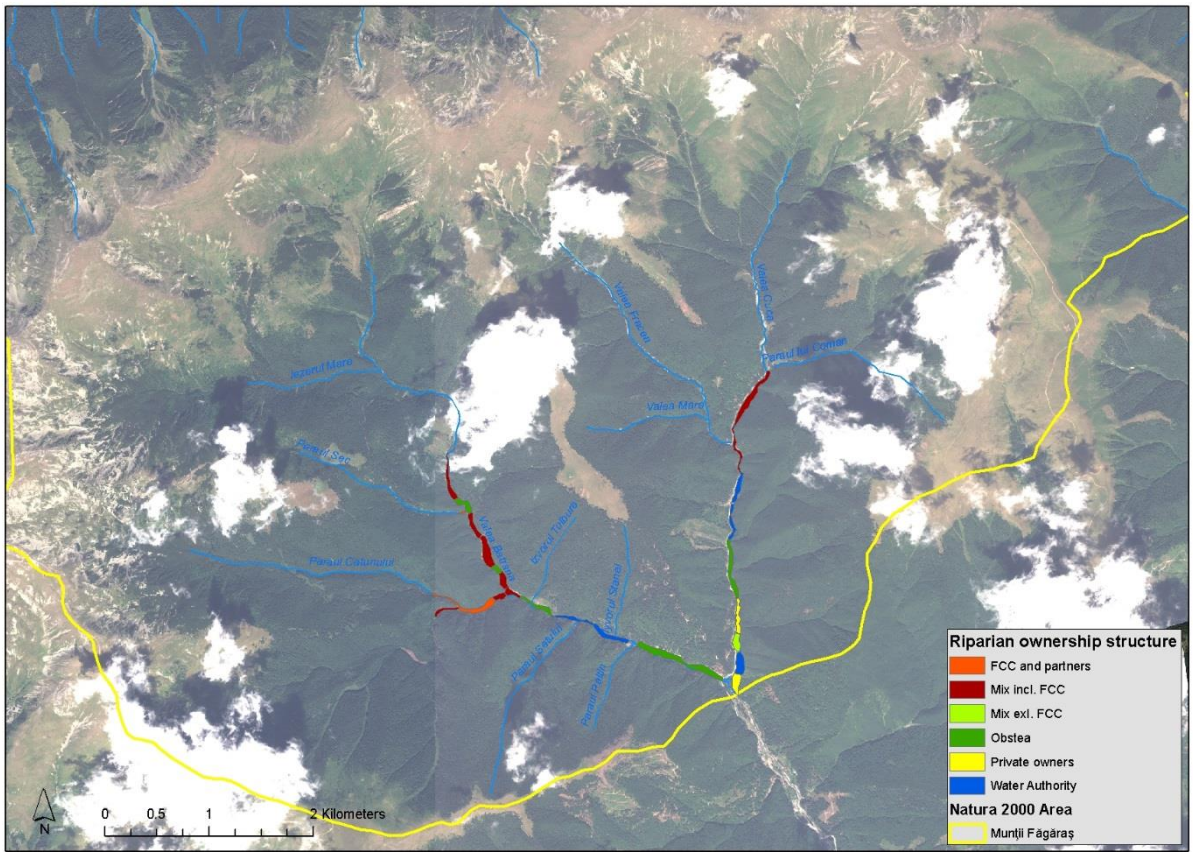

Fig. 3. Ownership structure of riparian habitat in the upper Târgului River basin.

According to the map of intervention urgency presented in the AQUATERRA report, the properties in the ownership of FCC and its project partners, will be subject to following restoration measures:

- Urgency 1 (red), 35.6 ha, where conservation and reconstruction measures have the highest priority and the fundamental tree species have the lowest percentage in the composition (>20%). Required work: conversion of mature spruce stands, soil mobilisation, planting natural species in the habitat (grey alder, willows, birch, shrubs if needed).
- Urgency 2 (orange), 13.4 ha, where conservation and reconstruction measures have a high priority and the fundamental tree species have a low percentage in the composition (21-40%). Required work: conversion of mature spruce stands, soil mobilisation, planting natural species in the habitat (grey alder, willows, birch, shrubs if needed).
- Urgency 3 (yellow), 4.9 ha, where conservation and reconstruction measures have a medium priority and the fundamental tree species have a medium percentage in the composition (41-60%). Required work: conversion of mature spruce stands, soil mobilisation, planting natural species in the habitat (grey alder, willows, birch, shrubs if needed).
- Urgency 4 (green), 3.7 ha, where measures are less mandatory at the moment, since the occurrence of spruce is mostly due to naturally installed saplings, which possibly will be taken over by grey alder forests in a few years anyway.
- Urgency 5 (blue), 0.4 ha, are habitats where no intervention is needed, but the current conservation status needs to be maintained. These areas also act as reference habitats for the restoration work done in other parts.

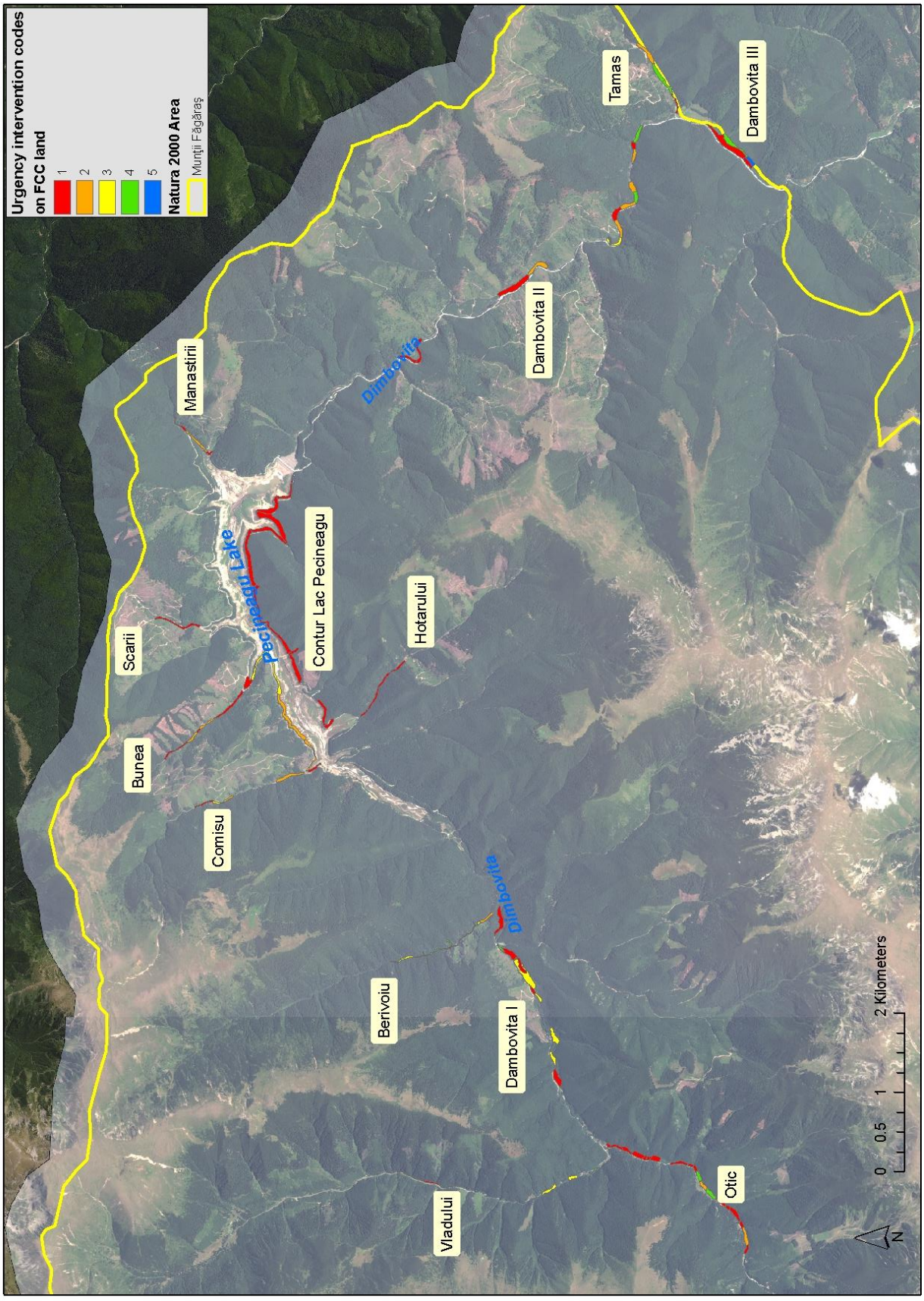

Fig. 4. Urgency of intervention on land completely or partially owned by FCC and project partners in the Dâmbovița basin.

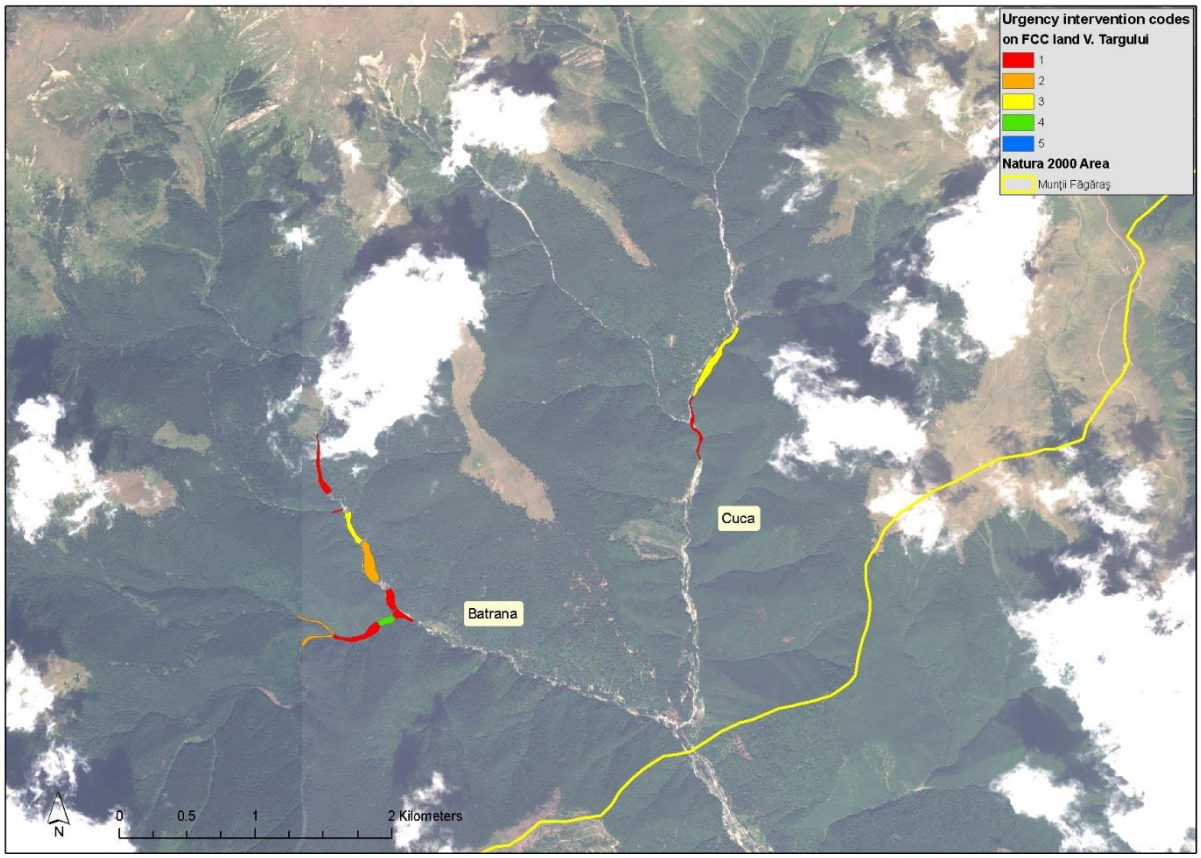

Fig. 5. Urgency of intervention on land completely or partially owned by FCC and project partners in the Târgului River basin.

FCC has tried to ensure that all the ecological restoration measures - recommended according to the Riparian Habitats Assessment Report on the upper course of Dâmboviţa River - are in compliance with the Romanian forestry regulations (Romanian Forest Code and technical norms), thus creating an official management plan, which assures the conservation status on 23.17 ha, translated as the "M" code according to the Romanian Forest Code and its technical norms, and production status on 0.88 ha, translated as the "A" code according to the Romanian Forest Code and its technical norms.

"M" code (conservation status) means no common forestry activities will take place there, except for the minimum measures to ensure the continuity of the naturally occurring, typical forest type.

"A" code (production status) means common forestry should be applied according to the Forest Code, but the FCC management plan recommends only the necessary interventions in order to restore the natural forest type in that area, by applying forestry in spruce monocultures, extracting spruce trees as much as possible, and replanting the naturally occurring species.

The management plan does not cover yet the entire 58 ha of riparian forests in the property of FCC and project partners, but we are working on extending the current management plan as soon as possible.

Those FCC riparian forests that have a valid management plan, are dispersed throughout the entire property as homogenous polygons, included in the report of the Riparian Habitat Assessment on the upper course of Dâmboviţa River and their details are presented below:

- Berevoiu: polygons 7 (code "M"), and 8, 10 (code "A"), summing up to an area of 0.56 ha covered by the management plan;
- Comisul: polygon 5 (code "M"), with an area of 0.49 covered by the management plan;
- Contour of Pecineagu lake: polygons 7, 8, 9, 25, 26, 27, 28, 29, 30, 31, summing up to an area of 18.32 ha, where the management plan assigns code "M" in all the polygons on this valley;
- Dâmboviţa: polygons 10, 78 (code "M"), completely covered by the management plan, totalling 1.09 ha;
- Tămaş: polygons 3, 4, 5, 6, 7 (all code "M") summing up to an area of 3.15 ha covered by the management plan;
- Bunea: polygon 4, with an area of 0.43 ha, where the management plan assigns code "A".

In table nr. 1, we present area and percentage of the total area for each restoration measure that needs to be taken in order to improve the conservation state of the studied riparian habitats.

Table nr. 1. Distribution of restoration actions over the study area

Action	Percentage of the total area, %	Area, ha
Protection of area occupied by naturally occurring species	21	12.2
Extraction of non-naturally occurring species from the habitats (spruce)	35	20.3
Manual soil mobilisation on the areas occupied by non-naturally occurring species	35	20.3
Mechanised soil mobilisation on opened areas/pastures within the riparian habitats (compacted soil with dense grass layer)	16	8.3
Planting of naturally occurring species (grey alder, willows, birch, ash, beech etc, on 30% of the total studied area, where spruce is extracted, as well as in openings)	15.5	9
Sowing naturally occurring species seeds (grey alder, willows, birch, ash, beech etc, on 70% of the total studied area, where spruce is extracted, as well as in openings)	34.5	20
Naturally occurring spruce	12	7
Area where planting is not physically possible (stony fields)	8	5

The budget table below shows the calculation of costs for materials and personnel needed to effectively restore the natural state of the studied riparian habitats.

Table nr. 2. Budget for ecological restoration.

Activity	Specifications	Cost (RON)
1.Organisation of working site	Transport, equipment, materials, setting camping place, materials temporary taken from storage place and personnel organising, a trailer needed to transport materials, placing ecological toilets, containers to collect waste. Equipment: gloves, buckets for seeds and saplings transport over the fields, soil mobilisation tools, planting tools, sowing tools,, tractor needed for soil mobilisation in opened areas, electricity generator – 50 kW.	0
2.Necesary seedlings/saplings	Will extract them from near the working site, saplings from natural regeneration and seeds from trees	0
3.Protection/information on plantations	Info boards	5000
4.Other materials/Consumables	Diesel fuel (10 l/ha x 8.3 ha in total = 83 l x 6.2 avg. price/l)	520
	Engine oil (0.05 l / 1 l of diesel x 83 l diesel = 4 l of engine oil)	200
Materials costs +VAT		*5,720*
5. Personnel for seeds collecting and saplings extraction	5 days x 2 employees of FCC = 10 days x 180 RON (taxes included)	1,800
6.Personel for planting saplings	30% x 28.6 ha (area which needs vegetation restoration) = 9 ha 3 days x 5 employees daily workers = 15 days x 100 RON 3 days x 1 employees of FCC = 3 days x 180 RON (taxes included)	2,040
7.Personel for sowing seeds	70% x 28.6 ha (area which needs vegetation restoration) = 20 ha 17 days x 13 employees daily workers = 221 days x 100 RON 17 days x 2 employees of FCC = 34 days x 180 RON (taxes included)	28,220
Planting gross costs		*32,060*
Partial gross cost+ VAT, other taxes (employees and materials)		*37,780*
8. Materials transportation	10% of total costs of construction materials	572
9. Unforeseen expenses	10% of the partial gross budget	3,778
10. Administration and accountancy expenses	5 % of the partial gross budget	1,889
Total		***44,019***