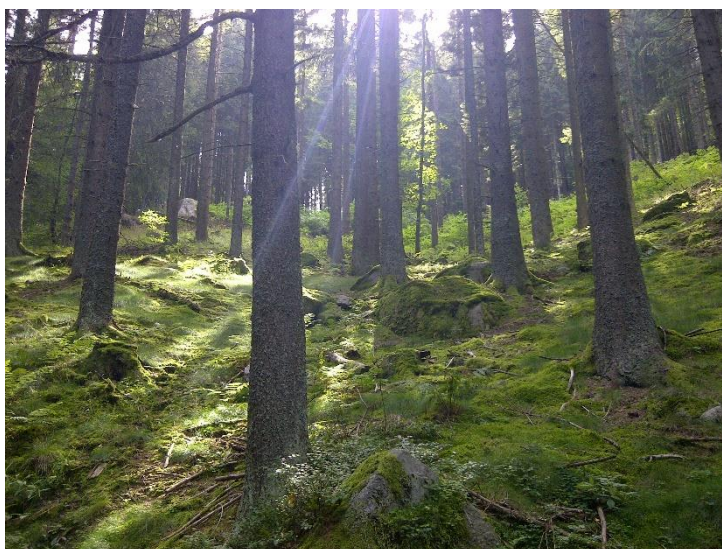


# SITUATIONAL ANALYSIS

## on nature-based Carbon Offsets



### *Catalogue of Good Practices & Mapping of Carbon sinks*

## **Auvergne-Rhône-Alpes (FRANCE)**

**2023**

This Situational Study has been prepared by the Auvergne-Rhône-Alpes Energy Environment Agency on behalf of Auvergne-Rhône-Alpes region in the framework of Interreg Europe programme project Nature-based Carbon Offsets (NACAO). The Nature-based Carbon Offsets (NACAO) project receives financial support from the European Union (Interreg Europe/ERDF). This publication reflects the author's views only and the Interreg Europe programme authorities are not liable for any use that may be made of the information contained therein.

## INDEX

1. Introduction .....	3
2. Regional context.....	4
3. Regulatory and Policy framework for Climate Change .....	6
4. Catalogue of Good Practices on nature-based Carbon Offsets .....	8
5. Mapping of Carbon sinks .....	12
6. Conclusions.....	21
7. Bibliographic references .....	22

## 1. Introduction

Climate change is one of the greatest challenges requiring urgent policy action. The climate crisis is dire. We pollute a lot. We have known that for a long time. What is new is that we are increasingly putting up resources: firstly, reducing emissions, individually and collectively; and, secondly, offsetting them by investing in clean projects.

The compensation of GHG emissions is, in general, a topic underdeveloped by the public administration and, when developed, very limited and traditional measures are entered into force.

In this sense, NACAO (Nature-based Carbon Offsets) project aims at being an accelerator for regional governments with competencies on climate change throughout Europe actively approaching the offsetting of carbon emissions, in this case by developing nature-based solutions and policies contributing to the offsetting of emissions through them.

During the project, regional governments with competencies on environment and climate change from the Northern, Southern, Eastern and Western of Europe will share green and blue carbon solutions and policies in force aiming at the preservation, restoration and improvement of natural sites acting as carbon sinks, such as forests, wetlands and other ecosystems, that compensate GHG emissions. Also, their experiences on carbon credits and emissions markets related to nature-based solutions.

The ultimate aim is for the partners to increase their knowledge and capacity to implement in their regions green and blue carbon initiatives and policies learned during the cooperation, regions thus contributing to the mitigation and adaptation to climate change.

The project brings together 6 partners from 6 countries (Spain, Italy, Poland, France, Finland and Germany) to improve their policy instruments addressed so that they develop the compensation of GHG emissions through the use of nature-based interventions.

### **Object and scope of Situational Studies**

The aim is gathering all the good practices and experiences (success and unsuccessful) developed in the field that will be shared as well as mapping the green and blue carbon sinks in the regions where the lessons learnt during the cooperation could be applied.

## 2. Regional context

The climate neutrality targets for 2030 and 2050 set by the regional government are prescriptive for the territories belonging to the Auvergne-Rhone-Alpes region and summed up in a document called “SRADDET”. The targets are related to air pollution, climate change mitigation and adaptation, energy consumption, renewable energy production and waste. Taking the greenhouse gas emissions targets, they set a reduction of 30% by 2030 and of 75% by 2050 compared to 2015. As the notion of carbon offsets refers to actions eligible for carbon credits, it includes actions which increase carbon storage and actions which reduce greenhouse gas emissions, thus contributing to the regional targets.

### *Policy instruments*

The policy instrument first identified for the NACAO project is the ERDF fund. The 2.2.4.1 line “To develop nature-based solutions” of the ERDF was first identified as the relevant policy instrument for NACAO project. However, as the ERDF fund is based on the 2021-2027 period, the rules specifying the use of the fund cannot be changed before the following period starting in 2028. The expected impact of NACAO project on this fund can therefore be to give an overview of the ongoing funding period and a general advice on the future period.

Another policy instrument can be improved through NACAO project: the decarbonation study. Following a political decision of the president of the Auvergne-Rhône-Alpes Region, a decarbonation study is being written by the regional administration to reach net zero in Auvergne-Rhône-Alpes before 2050. This study started in 2023 and focuses on the different fields responsible of greenhouse gasses emissions: transportation, buildings, forest and agriculture, industry, waste treatment, energy. Its final version – due in 2024 – should include targets related to carbon storage linked to the field “agriculture and forest”. *Nota bene: as this document depends on a political decision, it is likely to change until its vote in early 2024.* NACAO project is expected to provide feedback to the regional administration from both the other European regions and the local stakeholders about decarbonation experiences. This should help the decarbonation study for both writing and follow-up phases.

### *Competences and experience in the issue addressed*

Auvergne-Rhône-Alpes Energy Environment Agency has no experience in nature-based carbon offsets yet. Through the projects it has carried over the last years – particularly with the regional observatory of climate, air quality and energy, the ClimaSTORY® tool or contributions to the Life Artisan project -, it has now gained experience in climate adaptation data and tools and nature-based solutions. The stakeholders from NACAO project have however already put in place different initiatives related to carbon offsets: call for proposals related to agriculture and carbon (carbon diagnosis, labelled carbon projects, new initiatives...), wetland restoration while taking into account biodiversity, new forestry approaches... The project represents a huge opportunity for the agency to gain experience in nature-based carbon offsets thanks to the local and European partners and to complete its general comprehension around carbon issues.

### *Process of interactions and cooperation between Public Authority and Stakeholders*

For now, the local stakeholders of NACAO project are of three types: organizations, public institutions, and local territories. Depending on the organization, the public authority can be either a member of the board, a funder or have no link with the organization. Agreements exist between the regional administration and the public institutions on various environmental fields but not necessarily related to carbon offsets. Local territories have a link with the regional policies as the goals of the territory have to be aligned with the regional ones.

The interactions and cooperation processes are slightly different between the stakeholders and AURA-EE as the regional sustainability agency is a private non-profit organisation representing more than 70 members, including regional and local public authorities, energy producers, distributors and retailers, NGOs in the field of sustainable energy and environment protection, professionals' organisations in the social housing, energy and service sectors, financial bodies, etc. Some of the stakeholders of NACAO project are members of the agency while others are partners of the agency on various projects or even new partners for the project. They were all individually met to investigate all the possible cooperations related to carbon offsets benefiting to the local stakeholder and the regional agency.

The interviews were conducted with the stakeholders of carbon offsetting with the guideline of the obstacles they encountered. Several stakeholders mentioned the lack of fundings for the projects they were carrying, even though the projects benefited from a quality label. This lack of funding can be explained on one hand by the rivalry between local and international carbon credits and on the other hand by the lack of information around climate change, carbon offsets and nature-based solutions. This is of course a non-exhaustive list of reasons – but this was mentioned several times by the interviewees. Also, the lack of knowledge of the local ecosystem makes it hard to understand and complex to start a new project. For instance, a local administration did not know which role to play and how to meet project leaders and companies.

### 3. Regulatory and Policy framework for Climate Change

Regarding climate and energy, the French government must follow the European prescriptions – the several laws presented in this part are always compatible with the EU laws established before.

At a national level, several laws were enacted to consider the climate and energetical situations. The Energy transition law for green growth<sup>i</sup> in August 2015 laid the foundations of targets set to 2030 and/or 2050 related to energy consumption, renewable energy production, greenhouse gasses emissions, waste production or energy-efficient renovation of buildings. This law had a major influence on the national and local governance of ecological transition as it announced the establishment at a national level of the Multiannual energy planning<sup>ii</sup> (PPE, *Programmation pluriannuelle de l'énergie*) and the National low carbon strategy (SNBC, *Stratégie nationale bas carbone*), and reinforced the role of regional administrations regarding energy efficiency at a regional level.

The PPE sets the course for the coming 10 years on every source of energy and is renewed every 5 years. Energy consumption – and specifically fossil fuel energy consumption –, renewable energy production and nuclear energy are part of the targets set by the PPE.

The SNBC<sup>iii</sup> sets the course for the coming 10 years on climate strategy with a long-term goal – net zero in 2050 – and shorter term goals with 5 years carbon budgets. The budgets are set for the different fields emitting greenhouse gasses: transportation, agriculture, industry, buildings, energy production, wastes, land use.

Both PPE and SNBC must be considered by local administration when they set regional planning such as the Regional plan for planning, sustainable development and territorial equality (SRADDET, *Schéma régional d'aménagement, de développement durable et d'égalité des territoires*) or the local climate-air-energy planning (PCAET, *Plan climat-air-énergie territorial*). In Auvergne-Rhône-Alpes, the SRADDET established the following goals regarding climate change<sup>iv</sup> (all the targets being detailed for each field):

- A reduction in greenhouse gas emissions of 30% in 2030 compared to 2015 levels.
- A reduction in greenhouse gas emissions of 75% in 2050 compared to 1990 levels.

The PCAET are the roadmaps – they are mandatory for the local territories over 20,000 inhabitants. They have to follow the regional prescriptions about climate, air quality and energy targets and establish concrete actions.

In 2017, the “Climate planning”<sup>v</sup> was launched to reach the goals set by the Paris Agreement and introduces the will of the French government to reach net zero by 2050. It is a roadmap for the government – one of its achievements is the climate-energy law of November 2019 enshrining the net zero target by 2050 in the law.

In 2021, the Climate and Resilience Law<sup>vi</sup> enacted several proposals from the Citizen's climate convention. Those proposals were very concrete actions and not linked to a general planning of climate – one of the proposals however regulates the use of the word “net zero” in ads.

In parallel to general planning of climate and energy scenarios, work was made regarding carbon offsets.<sup>vii</sup> The Institute for Climate Economics (I4CE) gathers different stakeholders around climate, forest and wood since 2012 in a club. After some meetings, the National centre of forest property (CNPF) and other partners noted that on the one hand, some companies were interested in local projects of carbon storage and on the other hand some foresters were in territories where they could not benefit from any local or regional fund. Also, standards had already emerged at the international scale, but there was a need for a standard to be local and to prove the environmental robustness of the projects.

This is why, benefiting from a European fund with the Massif Central public interest group (GIP), the CNPF and I4CE joined forces to create a common standard for voluntary carbon compensation between 2015 and 2017: the Label Bas Carbone, which was then taken over by the French Ministry of Environment. A national decree in 2018<sup>viii</sup> officially launched the Label.

With this standard, the accreditation of carbon is only possible through methodologies: a project must respect the related methodology to be labelled. In each field, anyone could suggest and elaborate methodologies to give the future framework of the projects. To be approved, the developer of a methodology must check the scope of the methodology and the possible interaction with already existing methodologies, fill an application form which is then approved by the Label committee and submitted to the citizens and the expert committee.

Another interesting regulation is about the national and regional parks. There are 11 national parks in France<sup>ix</sup> – including two in Auvergne-Rhône-Alpes. They are considered as exceptional territories and reserves of biodiversity. Each national park has its own set of rules. The regional natural park<sup>x</sup> is a territory classified “of particular interest, because of the quality of its natural and cultural heritage, for human relaxation and tourism, and it is important to protect it”. Experimentations around the relationship between population and nature are sometimes carried out in these parks.

## 4. Catalogue of Good Practices on nature-based Carbon Offsets

The good practices are highlighted in the table below. This document is not exhaustive as we tried to meet the different people behind the good practices: national stakeholders, local stakeholders in other French regions, NGOs... Most of the good practices are linked to carbon – and especially with the French accreditation system, the Low Carbon Label (Label Bas Carbone). For now, there is a lack of identified projects as we have not acquired a lot of experience yet at the regional agency. However, our efforts will be on that specific topic during the following weeks.

ID	Title of the Good Practice	Type of Good Practice	Brief description of the Good Practice	Source of Carbon Offsets	Promoting institution level	Level of Application	Geographic scope	Status	Link
1	Afforestation	Technical	Planting trees on grasslands or old fields - expected carbon sequestration in wood and soil	Green carbon	National	Local	Saint-Aubin-le-Monial (03)	On-going (in progress)	<a href="#">link</a>
2	Reforestation - Restoring degraded forest stands	Technical	Converting degraded forest stands (due to storms, fires, massive dieback, high mortality, health attacks...) to sustainable forest land	Green carbon	National	Local	Courzieu (69)	On-going (in progress)	<a href="#">link</a>
3	Balivage - Conversion of coppice into high forest	Technical	Favouritism of certain trees by thinning - cutting down surrounding trees to give others more space and light	Green carbon	National	Local	Dournazac (87)	On-going (in progress)	<a href="#">Link</a>



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4	Planting orchards	Technical	Planting fruit trees, reducing agricultural inputs and presence of permanent grass cover - expected carbon sequestration in wood and soils	Green carbon - Agriculture	National	Local	Châteauneuf-du-Pape (84)	On-going (in progress)	<a href="#">Link</a>
5	CarbonAgri	Technical	Modifying cattle feed (CH4), changing manure management (CH4), reducing fertiliser and energy consumption, development of agroecology	Agriculture	National	Local	Auvergne Rhône-Alpes	On-going (in progress)	<a href="#">Link</a>
6	Arable crops	Technical	Reducing chemical fertilisers, introducing intermediate crops, techniques for enhancing the value of inputs	Green carbon - Agriculture	National	Local	Monferran Saves (32)	On-going (in progress)	<a href="#">Link</a>
7	Planting hedges	Technical	Planting and managing hedges around agricultural holdings - expected carbon sequestration in wood and soils	Green carbon	National	Regional	PNR Isère (38)	On-going (in progress)	<a href="#">Link 1</a> <a href="#">Link 2</a>
8	Sobac Intrants	Technical	Reducing the use of purchased chemical intrants : fertilizers, pesticides and calcium supplements - favouring organic inputs and biological control	Agriculture	National	Local	Etourvy (10)	On-going (in progress)	<a href="#">Link</a>
9	Ecométhane	Technical	Changing cattle feed : addition of food with lipids to reduce methane synthesis	Agriculture	National	National	France	On-going (in progress)	<a href="#">Link</a>

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10	Protecting Posidonia grasslands	Technical	Protecting natural areas where Posidonia aquatic grasslands grow - these aquatic grasslands are 7 times more effective at sequestering carbon than forests	Blue carbon	National	Regional	Parc National des Calanques, Marseille (13)	On-going (in progress)	<a href="#">Link</a>
11	Hydraulic restauration of wetlands and degraded peat bogs	Technical	Hydraulic restoration of unfonctional wetlands and peat bogs - which release carbon dioxide	Blue carbon	National	Local	Chindrieux (69)	On-going (in progress)	<a href="#">Link 1</a> <a href="#">Link 2</a>
12	Free evolution of old forests	Technical	Protecting primary forests and let them grow freely	Green carbon	National	National	France	On-going (in progress)	<a href="#">Link</a>
13	Preserving open grasslands	Technical	Preserving permanent grasslands, no ploughing or reseeded - expected carbon sequestration in soils	Green carbon	National	National	France	On-going (in progress)	<a href="#">Link</a>
14	Potential mitigation/adaptation benefits	Technical	Planting mix of tree species, adapted to climate change	Green Carbon	Regional	Regional	Auvergne Rhône-Alpes	On-going (in progress)	<a href="#">Link</a>
15	Low Carbon Label / Label Bas Carbone	Regulatory framework	A 2018 decree launched the possibility for projects to be labelled: they can receive fundings from companies/ territories/ citizens and provide carbon credits.	Other (not limited to nature-based carbon offsets)	National	National	France	Successfull	<a href="#">Link</a>

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16	Carbon Cooperative La Rochelle	Promotion & Participation	A local cooperative created to educate local companies and citizens around climate change and to promote local projects of carbon offsets.	Other (not limited to nature-based carbon offsets)	Local	Local	La Rochelle (17), France	Successfull	<a href="#">Link</a>
17	Agri-environmental and ecological measure (MAEC)	Financial	A regional funding for farmers made up for a carbon diagnosis and a tailor-made support to reach a reduction of carbon emissions.	Green carbon	Regional	Regional	Auvergne Rhône-Alpes	On-going (in progress)	
18	Website Info Compensation Carbone	Promotion & Participation	The website gives a lot of information about carbon offsets: why this is important, who is concerned, how to proceed, the stakeholders involved... This is a general overview on the subject that will give confidence to people to engage and start involving in carbon offsets.	Other (not limited to nature-based carbon offsets)	National	National	France	Successfull	<a href="#">Link</a>
19	Carbon Connect Fair	Promotion & Participation	The company Terraterre reunites organisations, citizens, farmers and companies on a big fair related to carbon offsets. It is a way to discuss around methodologies related to farming and to encourage companies to give fundings.	Green carbon	Regional	Regional	Auvergne Rhône-Alpes	Successfull	<a href="#">Link</a>

## 5. Mapping of Carbon sinks

Existing carbon sinks were mapped in the table below. A focus was made on the national and regional natural parks and reserves of more than 100 hectares. The existing regulations enabled an exhaustive mapping of those parks. To estimate the number of tons captured by the parks, the ALDO tool – developed by the French National Environment and Energy Agency (ADEME) – was used. However this calculation tool is only statistically valid over large geographical areas – the data can therefore mask heterogeneous local situations. Also, the borders of the different parks and reserves do not necessarily correspond to administrative boundaries given by the tool. Those two main reasons explain a big uncertainty on the figures presented on the table which implies that they should not be considered as the exact number. A few reserves and parks cover the same areas several times over, so it is not possible to add up the carbon sequestration between the different lines of the table.

Data was collected around potential carbon sinks that could be restored: forests that were severely damaged (fire, insect) in Auvergne-Rhône-Alpes.

To be improved, this mapping could include more diversity in the data collected. For now, forests and parks were at the core of our research – however wetlands, biodiversity reserves, farmlands also host carbon sinks and a big potential on that subject. As for the catalogue of good practices, the intention of the regional agency is to keep looking for good practices and potential carbon sinks on areas where we have less experience for now.

ID	Type of Area	Surface (ha)	Location	Type of project (and contribution of non-forested land use to carbon storage)	Source of Carbon	Main characteristics of the Carbon sinks	Status	Approximative kttons of CO <sub>2</sub> per year captured (or emitted) by the sink	Approximative tons of CO <sub>2</sub> captured per year and per ha
<b>Natural parks and reserves</b>									
<b>Regional natural parks</b>									
PNR du Vercors	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	206208	45.037200, 5.534918	Forests	Green Carbon	Mountains	In exploitation	940,9	4,6
PNR des Bauges	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	89800	45.716430, 6.138385	Forests	Green Carbon	Mountains	In exploitation	580,4	6,5
PNR de l'Aubrac	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	220400	44.643560, 2.975820	Forests + Grasslands (35%)	Green Carbon	Mountains	In exploitation	440	2,0
PNR des Baronnies provençales	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	181800	44.264308, 5.489238	Forests	Green Carbon	Mountains	In exploitation	872,6	4,8

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PNR de la Chartreuse	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	76700	45.406819, 5.809557	Forests	Green Carbon	Mountains	In exploitation	613,8	8,0
PNR du Haut-Jura	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	178000	46.385517, 5.920393	Forests	Green Carbon	Mountains	In exploitation	228,2	1,3
PNR du Livradois-Forez	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	311035	45.587641, 3.664426	Forests	Green Carbon	Mountains	In exploitation	261,4	0,8
PNR des Monts d'Ardèche	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	228000	44.622381, 4.241291	Forests + Grasslands (20%)	Green Carbon	Mountains	In exploitation	987,9	4,3
PNR du Pilat	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	70000	45.397708, 4.608472	Forests	Green Carbon	Mountains	In exploitation	x	x
PNR des Volcans d'Auvergne	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	450630	45.637468, 2.893942	Forests + Grasslands (36%)	Green Carbon	Mountains	In exploitation	1060,3	2,4

**National natural parks**

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PN de la Vanoise	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	53000	45.335998, 6.913733	Forests + Grasslands (46%)	Green Carbon	Mountains	In exploitation	173,6	3,3
PN des Ecrins	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	160600	44.842193, 6.263921	Forests + Grasslands (29%)	Green Carbon	Mountains	In exploitation	288,4	1,8
<b>National natural parks</b>									
RNN des Aiguilles Rouges	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	3276	45° 58' 45" N , 6° 52' 13" E	Forests + Grasslands (28%)	Green Carbon	Mountains	Without exploitation	29,3	8,9
RNN de Baillevez	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	495	45° 27' 52" N , 7° 1' 36" E	Grasslands (76%)	Green Carbon	Mountains	Without exploitation	2,4	4,8
RNN de Carlavayron	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	599	45° 55' 45" N , 6° 48' 22" E	Forests	Green Carbon	Mountains	Without exploitation	15,3	25,5
RNN de Chastreix-Sancy	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1894	45° 30' 48" N , 2° 47' 21" E	Forests + Grasslands (49%)	Green Carbon	Mountains	Without exploitation	45,7	24,1

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RNN de Contamines Montjoie	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	5500	45° 46' 51" N , 6° 44' 45" E	Forests + Grasslands (36%)	Green Carbon	Mountains	Without exploitation	11,1	2,0
RNN des Gorges de l'Ardèche	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1950	45° 46' 51" N , 6° 44' 45" E	Forests	Green Carbon	Mountains	Without exploitation	29,2	15,0
RNN de la Grande Sassièrre	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	2230	45° 29' 7" N , 7° 0' 12" E	Grasslands (59%)	Green Carbon	Mountains	Without exploitation	4,7	2,1
RNN de Haut-Rhône français	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1707	45° 41' 40" N , 5° 33' 23" E	Forests + Crops (20%)	Green Carbon	Wetlands forests	Without exploitation	27,9	16,3
RNN de la Haute Chaîne du Jura	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	10909	46° 17' 51" N , 5° 59' 4" E	Forests	Green Carbon	Mountains	Without exploitation	37,3	3,4
RNN de Passy	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1717	45° 58' 39" N , 6° 48' 4" E	Forests + Grasslands (22%)	Green Carbon	Mountains	Without exploitation	15,5	9,0
RNN de la Vallée de Chaudfour	Areas of special environmental richness of paramount importance to be preserved (e.g.,	820	45° 31' 59" N , 2° 50' 57" E	Forests + Grasslands (48%)	Green Carbon	Mountains	Without exploitation	8,7	10,6



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	natural parks, national parks, protected natural areas, etc.)								
RNN du Vallon de Bérard	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	540	45° 59' 53" N , 6° 52' 21" E	Forests + Grasslands (35%)	Green Carbon	Mountains	Without exploitation	6,1	11,3
RNN des Hauts de Chartreuse	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	4420	45° 23' 29" N , 5° 54' 0" E	Forests	Green Carbon	Mountains	Without exploitation	54,2	12,3
RNN des hauts de Villaroger	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1062	45° 33' 38" N , 6° 51' 36" E	Forests	Green Carbon	Mountains - Glaciers	Without exploitation	7,1	6,7
RNN des Hauts Plateaux du Vercors	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	17030	44° 51' 13" N , 5° 29' 53" E	Forests	Green Carbon	Mountains	Without exploitation	116,5	6,8
RNN de l'Île de la Platière	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	483	45° 20' 57" N , 4° 45' 53" E	Forests	Green and Blue Carbon	Wetlands forests - Marshes	Without exploitation	3,7	7,7
RNN Marais de Lavours	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	473	45° 50' 4" N , 5° 45' 17" E	Forests	Green and Blue Carbon	Wetlands forests - Marshes	Without exploitation	7,8	16,5

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RNN du Plan de Tuéda	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1113	45° 20' 39" N , 6° 36' 33" E	Forests + Grasslands (30%)	Green Carbon	Mountains	Without exploitation	15,6	14,0
RNN des Ramières du Val de Drôme	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	346	44° 44' 40" N , 4° 55' 42" E	Forests + Crops (40%)	Green and Blue Carbon	Marshes	Without exploitation	9,1	26,3
RNN des Sagnes de La Godivelle	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	144	45° 23' 4" N , 2° 55' 22" E	Grasslands (75%)	Green and Blue Carbon	Marshes	Without exploitation	0,9	6,3
RNN de Sixt-Passy	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	9445	46° 3' 5" N , 6° 49' 9" E	Forests	Green Carbon	Mountains	Without exploitation	29,5	3,1
RNN de Tignes-Champagny	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1321	45° 27' 57" N , 6° 52' 56" E	Grasslands (56%)	Green Carbon	Mountains	Without exploitation	12,3	9,3
RNN du Val d'Allier	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	1450	45° 59' 53" N , 6° 52' 21" E	Grasslands (22%) + Crops (31%) + Forests	Green Carbon	Wetlands forests	Without exploitation	14,8	10,2

Regional natural parks

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RNR Tourbière des Saisies - Beaufortain - Val d'Arly	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	293	45° 46' 24" N , 6° 31' 12" E	Forests	Green and Blue Carbon	Peat bog - Marshes	Without exploitation	2,9	9,9
RNR Tourbières du Jolan et de la Gazelle	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	156	45° 12' 6" N , 2° 50' 48" E	Forests	Green and Blue Carbon	Peat bog	Without exploitation	1,7	10,9
RNR du Val de Loire Bourbonnais	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	308	46° 40' 3" N , 3° 40' 40" E	Grasslands (35%) + Crops (29%) + Forests	Green Carbon	Wetlands forests	Without exploitation	0,9	2,9
RNR des Jasseries de Colleigne	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	285	45° 38' 43" N , 3° 50' 1" E	Forests + Grasslands (30%)	Green Carbon	Grasslands	Without exploitation	3	10,5
RNR des Isles du Drac	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	805	45° 5' 52" N , 5° 42' 35" E	Forests	Green Carbon	Wetlands forests	Without exploitation	30,4	37,8
RNR des Gorges de la Loire	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	355	45° 26' 30" N , 4° 15' 38" E	Forests + Grasslands (21%)	Green Carbon	Mountains	Without exploitation	0,9	2,5

NACAO

RNR Etangs de Mépieu	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	162	45° 44' 34" N , 5° 26' 22" E	Forests	Green and Blue Carbon	Lake	Without exploitation	3,7	22,8
<b>Potential or degraded carbon sinks</b>									
PNR des Monts d'Ardèche	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	x	44.817726, 4.418789	Forests	Green Carbon	15 ha of burned forests which could be replanted	In exploitation	x	x
PNR du Haut-Jura	Areas of special environmental richness of paramount importance to be preserved (e.g., natural parks, national parks, protected natural areas, etc.)	x	46.229649, 5.850025	Forests	Green Carbon	Forest affected by an insect pest: the bark beetle	In exploitation	x	x

## 6. Conclusions

The situational study presented here gives a general frame of the regional context of nature-based carbon offsets.

NACAO project is based on two main policy instruments – the ERDF fund and the regional decarbonation study – and will help the regional agency complete its combined experience on nature-based solutions and carbon offsets. A first meeting of the stakeholders of carbon offsets helped having a better understanding of the situation and of the obstacles they encountered – the lack of understanding of the overall ecosystem and network of activities, the lack of funding of the projects. The roles of the different stakeholders were sometimes not clear for the stakeholders themselves and this is part of our work with the NACAO project to explore this network.

Regarding law, the situational study highlights that the local regulation sometimes comes from two sides: the general frame of European and national laws giving a general scenario or targets to reach, and the local territories that give a territorial approach with its own specificities and will. One of the most important laws regarding carbon offsets is the national decree creating the Low Carbon Label.

At last, the two catalogues attached to the study underline our way in the NACAO project: our first approach is through carbon and sometimes biodiversity (national parks & reserves for instance) but we need to look for more detailed information on that second field – and mostly the interactions between carbon and biodiversity. The good practices presented are therefore very much linked to carbon compensation – many of them are related to the Low Carbon Label for instance. The carbon sinks identified are the regional and natural parks. The knowledge of the good practices and carbon sinks will for sure be improved through the life of the project NACAO.

## 7. Bibliographic references

The bibliographic references of the good practices are already identified in the table. Please find below the other bibliographic references used in the report.

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i French Ministry of Ecological transition, « Loi de transition énergétique pour la croissance verte ». Online, available on: <https://www.ecologie.gouv.fr/loi-transition-energetique-croissance-verte>

ii French Ministry of Ecological transition, “Public consultations on climate and energy”. Online, available on: <https://www.vie-publique.fr/questions-reponses/272880-ppe-snbc-questions-sur-la-consultation-pour-lenergie-et-le-climat>

iii French Ministry of Ecological transition, “Stratégie nationale bas carbone”. Online, available on: <https://www.ecologie.gouv.fr/strategie-nationale-bas-carbone-snbc>

iv SRADDET Auvergne-Rhône-Alpes, <https://sraddet.auvergnerhonealpes.fr/>

v French Ministry of Ecological transition, “Lancement du plan climat”. Online, available on: <https://www.ecologie.gouv.fr/lancement-du-plan-climat>

vi French Ministry of Ecological transition, Climate and Resilience Law. Online, available on: <https://www.ecologie.gouv.fr/loi-climat-resilience>

vii The information was collected in an interview of a forester working at the CNPF and in charge of carbon methodologies in May 2023.

viii Légifrance, Décret n° 2018-1043 du 28 novembre 2018 créant un label « Bas-Carbone ». Online, available on: <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000037657959>

ix National Parks, <https://www.parc nationaux.fr/fr>

x DREAL Bretagne, Regional Natural Parks. Online, available on: <https://www.bretagne.developpement-durable.gouv.fr/parc-naturel-regional-pnr-a3245.html>