

Deliverable D2.12.2

Package of nudging measures per nature area
(TZS, PNRSE, PNRMR)

Activity 2.12

Design of the package of measures « Nudging for
sustainable tourism development »

Document/Deliverable name	D2.12.2 : Package of nudging measures par nature area
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TOURISMUS ZENTRALE SAARLAND (TZS)

(pp.2-10)

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2. Context

As part of the Interreg NWE - MONA project, and more specifically the work of Pilot C - nudging, there are 9 deliverables to be provided linked to 4 activities specific to the Pilot.

This document is the deliverable *D2.12.2 - Package of nudging measures per nature area*, linked to activity *A2.12 - Design of the package of measures 'Nudging for sustainable tourism development'* and aims to present a selection of nudges chosen by each partner, to be implemented in their territory.

Each partner in Pilot C develops its own nudges based on its own specific issues.

This deliverable outlines the work that has been carried out by the TZS since the beginning of the Interreg NWE - MONA project and presents the nudges that are planned to be implemented in period 4 (spring 2025).

1. UNESCO Bliesgau Biosphere Reserve

1.1 Site description

The Bliesgau Biosphere Reserve is located in the south-eastern part of Saarland, on the border with France, and has been part of UNESCO's Man and the Biosphere programme since 2009. Covering an area of around 360 km², the Bliesgau offers an impressive variety of landscapes and habitats, making it one of the most ecologically valuable areas in Germany.

The Bliesgau is often referred to as the 'Tuscany of the Saarland' due to its rolling hills, extensive orchards, species-rich orchid meadows and extensive floodplains along the River Blies. The region is characterised by limestone soils that support an extraordinary diversity of plant life. Particularly noteworthy are the rare orchid species which occur in large numbers. Ancient beech forests cover the mountain ranges and provide a habitat for numerous animal species, including wildcats and black woodpeckers.

The biosphere reserve is home to an extraordinary diversity of species. In addition to orchids, rare bird species such as the woodlark, red kite and black stork live here. Many endangered insect species, including wild bees and butterflies, also benefit from the extensively managed meadows and orchards. The Blies floodplains are an important breeding and resting area for waterfowl.

The biosphere reserve is not only a natural area, but also a cultural landscape that has been shaped by man for centuries. The traditional use of orchards, extensive grazing and sustainable forestry all contribute to the preservation of biodiversity. Historic towns such as Blieskastel with its Baroque buildings and small villages with their typical farms bear witness to the rich cultural history of the region.

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As a UNESCO Biosphere Reserve, the Bliesgau stands for a harmonious interplay between man and nature. The focus is on the protection of natural habitats, the promotion of sustainable economic practices and environmental education. Local products such as Bliesgau apple juice and regional meat are sustainably produced and help to strengthen the regional economy.

The Bliesgau offers many opportunities for nature lovers and those seeking relaxation. A well-developed network of footpaths and cycle paths, including the Bliesgau Circular Trail and the Blies Valley Leisure Trail, invite you to explore the beauty of the region. Visitor centres and guided tours provide information on the unique flora, fauna and history of the area.

1.2 Baseline data for nudges

In May/June 2024, TZS conducted a visitor survey in the Bliesgau Biosphere Reserve, specifically in the pilot area Orchid area. The survey showed that the vast majority of visitors travelled to the Orchid Area by car (81%). Only 5% of the respondents indicated that they used public transport, either bus (3%) or train (2%). For those who chose private motorised transport, an additional follow-up question aimed to identify strategies that could motivate them to use more environmentally friendly means of transport. The frequency of public transport services appeared to be the main barrier, as 38% of visitors who had travelled by car, motorbike or caravan/camper indicated a potential willingness to change their mode of transport if closer/more regular public transport services were available. 34% also mentioned the possibility of a direct bus service from Saarbrücken to the Biosphere Reserve/Orchid Area. Price also seemed to be a factor influencing travel decisions, with 30% of visitors potentially willing to change their behaviour in return for a free/reduced ticket for public transport, while 5% of people saw potential in a combined ticket for public transport and entry to the biosphere reserve's attractions.

Driving and parking private cars in protected areas is a common practice that brings both benefits and challenges. On the one hand, private transport allows people to access remote natural areas, which is important for tourism and recreation. On the other hand, increased traffic in sensitive areas can lead to environmental impacts such as noise, exhaust fumes and negative impacts on wildlife. In addition, parked cars often create space problems and affect the natural landscape. Well-planned, environmentally friendly alternatives such as public transport or shared car parks, combined with walking and shuttle systems, make sense to protect nature and visitors alike.

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1.3 Nudge to be implemented in pilot area

Temporary shuttle bus

A temporary themed shuttle bus will transport visitors from the main collection points (tbc) to the orchid area in the Bliesgau Biosphere Reserve. The shuttle will be an electric bus that can carry up to 25 people. This shuttle bus has been purchased by the district of Saar-Pfalz and will be provided for the pilot action of the MONA project. The MONA project will cover the cost of charging the e-bus and the driver. Details of the days and times the shuttle will run and the exact pick-up points are currently being discussed with the mobility manager of the Saar-Pfalz district. If possible, the interior of the e-bus will be decorated and designed to inform people about nature and orchids on their way to the nature area. It will also contain information about visitor behaviour in nature areas and sustainability. It is also possible to include a guide for the trip to the orchid area, who can also provide information about behaviour in the nature area. This nudging measure aims to make the journey to the nature area part of the experience and to encourage people to use public transport instead of driving to the nature area. The shuttle will be in operation during the orchid season, which is expected to be from April to June.

1.4 Partners involved

For the implementation of the temporary shuttle bus, the TZS works together with its associated partner, the Bliesgau Biosphere Association and the Saar-Pfalz district.

The Saar-Pfalz district cooperates with a specialized company responsible for providing bus drivers for the minibus service. This collaboration ensures that the shuttle bus is operated safely and efficiently, meeting the mobility needs of both residents and visitors to the area.

2. **National Park Hunsrück-Hochwald**

2.1 Site description

The Hunsrück-Hochwald National Park is one of Germany's newest national parks and was officially opened on 1 March 2015. It is located in the German states of Rhineland-Palatinate and Saarland and covers an area of around 10,000 hectares. The park is characterised by impressive natural diversity and unique landscape features, making it a valuable protected area for flora, fauna and geological features.

The Hunsrück-Hochwald National Park is located in the south-western part of the Hunsrück, a low mountain range characterised by quartzite peaks, plateaus, deeply



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incised valleys and moors. One of the most prominent elevations is Erbeskopf, at 816 metres the highest point in Rhineland-Palatinate. The region is characterised by quartzite rocks, often jutting out of the landscape, and raised bogs, which are considered rare and sensitive habitats. These landscapes are relics of the earth's history and make the National Park particularly interesting from a geological point of view.

The National Park is famous for its ancient beech forests, which are part of Europe's 'biodiversity hotspots'. Here the forests are allowed to develop without human intervention, creating a primeval forest of tomorrow. In addition to the beech forests, there are also extensive coniferous forests, which will gradually be transformed into semi-natural mixed forests over the coming decades.

The wildcat, the national park's symbol animal, has one of the largest populations in Germany. The black stork, bats, red deer and many rare insect species also find a protected habitat in the Hunsrück Hochwald. The moors and wetlands provide a habitat for specialised plants such as the sheath cottongrass and rare amphibian species.

As a national park, the Hunsrück-Hochwald wants to give nature free rein. At least 75% of the area should develop without human intervention in the long term, in line with the principles of international national park categories. At the same time, the park promotes sustainable tourism, environmental education and research.

Special attention is given to adaptation to climate change. The development of semi-natural forests and the restoration of peatlands are important measures to store CO₂ and strengthen the resilience of ecosystems.

As well as being a natural area, the National Park is also rich in cultural and historical heritage. Remains of Celtic settlements, such as the Otzenhausen ring fort, and relics from Roman times bear witness to the region's long history of settlement. These historic sites offer visitors the opportunity to combine nature experiences with cultural discoveries.

The Hunsrück-Hochwald National Park is an attractive destination for nature lovers and those seeking relaxation. A well-signposted network of footpaths, such as the Saar-Hunsrück Climb, and numerous dream loops lead through the varied landscape. Themed trails, such as the Wild Path, provide information on the flora and fauna of the park.

Visitor centres in Hermeskeil and Nonnweiler offer interactive exhibitions and information about the National Park. Ranger-led tours help visitors discover the hidden treasures of the park and learn more about the importance of conservation.

2.2 Baseline data for nudges

After extensive discussions with a range of stakeholders from the National Park Authority, littering emerged as a major challenge within the protected area. The problem of litter left



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behind by visitors poses a risk not only to the natural beauty and ecological integrity of the park, but also to its wildlife. Animals can inadvertently ingest or become entangled in litter, with harmful or even fatal consequences. In addition, the presence of litter detracts from the experience of visitors who come to the park to enjoy its pristine and unspoilt nature.

Recognising the need for innovative solutions to this problem, the Keltenpark National Park Gate was selected as a pilot area for the implementation of a nudge. The decision to choose this location was based on a number of strategic factors. The Keltenpark gate is a popular entry point to the park, frequented by a wide range of tourists, hikers and other outdoor enthusiasts. Its high footfall makes it an ideal location to test the effectiveness of any intervention aimed at influencing visitor behaviour.

Implementing the nudge in the Keltenpark pilot area will also provide insights into its potential scalability across other locations within the national park. If successful, the lessons learned from this pilot project can inform broader strategies to combat littering throughout the park.

2.3 Nudge to be implemented in pilot area

Bin collection station

A bin collection station that is made out of wood from the National Park and contains a hut for the waste bin, smaller buckets and grabbers. The station also has an information board with details of how long litter stays in the forest and the importance of taking action to keep the forest litter-free. The aim of this nudging measure is to combat the problem of littering in nature areas. Visitors are encouraged to take a bucket and grabber and collect litter as they walk through the nature area. When they return after their visit, they can put all the litter in the waste bin at the station.

The waste bin is emptied once a week or as needed by the caretaker of the National Park Gate. The caretaker will also check the condition of the station and whether any buckets or grabbers are missing and need to be replaced. Rangers will help assess whether littering is being reduced in the national park.

Bin collection stations have proved successful in the Bliesgau Biosphere Reserve, where three stations have been installed after the first showed considerable success (see picture below of a bin collection station in St. Ingbert, Saarland). The initiative has been particularly successful with families, as it gives children a fun way to explore nature and pick up litter.



Microsoft Designer was used to create an example of a bin collection station in the national park was created. It will be made of wood from the national park and built by national park staff. It will look different in reality as the bin will be fully covered inside the wooden hut and an information board will be placed at the hut to inform about the problems of littering in nature areas.



The information board pictured below will be used to inform and educate visitors about littering. It was created in 2019 by the Saarland Ministry for the Environment and Consumer Protection in cooperation with SaarForst Landesbetrieb.

The information board shows how long it takes a forest to combat different types of litter (e.g. chewing gum, orange peel, plastic bag, PET bottle, glass, etc.).



2.4 Partners involved

For the implementation of the bin collection station, the TZS works together with its associated partner, the National Park Authority and the management of the national park gate. Bins and grabbers with the Interreg logo will be produced externally.

3. Communication and Marketing of the Nudges

Starting in January 2025, the TZS will collaborate with Realizing Progress, a consultancy specializing in tourism, place, and regional development. This partnership aims to leverage Realizing Progress's expertise to enhance the effectiveness of a behavioral intervention (nudge) by tailoring communication and marketing strategies to the unique needs of each nature area involved in the initiative.

Communication strategy development

Realizing Progress will take the lead in developing a comprehensive communication strategy to ensure that the nudge effectively reaches its target audiences. The approach will be tailored to the specific characteristics and visitor demographics of each natural area:

- Bliesgau Biosphere Reserve : For the Bliesgau Biosphere Reserve, the strategy will focus on traditional media channels that match the preferences of the area's visitors and stakeholders. This includes holding press conferences to engage local and regional media and using daily newspapers to disseminate information widely. The emphasis on these channels reflects the strong community links within the

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reserve and the need to engage with a wider, perhaps less digitally connected, audience.

- National Park Hunsrück-Hochwald : For the Hunsrück-Hochwald National Park, the strategy will include an additional focus on social media platforms, recognising their effectiveness in reaching younger, tech-savvy visitors who frequently engage with digital content. Platforms such as Instagram, Facebook and Twitter will be used to promote the Nudge through visually appealing posts, videos and interactive content.

Marketing strategy development

In addition to communication efforts, Realizing Progress will develop an innovative marketing strategy to encourage active participation in the Nudge. This strategy will combine creative incentives and engagement tactics to inspire visitors to adopt the desired behaviours.

E.g. Incentives for early adopters: To generate immediate interest and excitement, promotional offers will be introduced such as

- The first 20 visitors to participate in the nudge (e.g. use the shuttle bus instead of a private car) will receive a free ride.
- Visitors who use the newly installed litter collection station will be rewarded with a National Park pin, creating a sense of exclusivity and recognition for environmentally friendly actions.

♦ The communication and marketing strategies will work in tandem to create a unified approach that informs, motivates, and rewards visitors. Realizing Progress will ensure that messaging across all channels—traditional media, social media, and on-site promotions—remains consistent and aligned with the overarching goals of the Nudge initiative.

Parc Naturel Régional Scarpe-Escaut (PNRSE)

(pp.11-24)

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1. Context

It is required to provide 9 deliverables for 4 activities within the framework of this Interreg NWE MONA. This document aims to present deliverable D2.12.2, which is part of activity 2.12, "Package of nudge measures by natural areas." Each Park presents a selection of promising nudges tailored to their natural area within the region.

Additionally, the deliverable includes detailed descriptions of the proposed implementation projects, comprehensive steps, resources, participants, and the responsibilities of each stakeholder. The Scarpe-Escaut Regional Natural Park presents the example of Marchiennes, specifically the locality known as Croix ou Pile.

2. Description of the site « Forêt de Marchiennes : la Croix ou pile »

The Marchiennes Forest, located in the heart of the Scarpe-Escaut Regional Natural Park, spans approximately 830 hectares and encompasses several municipalities, including Marchiennes, Tilloy-lez-Marchiennes, Sars-et-Rosières, and Warlaing. It is managed by the ONF (National Forestry Office), which is associated with the MONA program.

This vast wooded area, renowned for its biodiversity and rich natural heritage, is a prime location for relaxation and outdoor activities.

Within this lush setting, the restaurant "La Croix ou Pile" is a must-visit. It offers high-quality traditional cuisine, allowing visitors to enjoy a convivial moment amidst nature.

The Marchiennes Forest provides a variety of activities, including hiking on marked trails, mountain biking routes, and equestrian paths. It also attracts wildlife and plant enthusiasts, especially during mushroom-picking season. This natural space is cherished for its tranquility while serving as a hub of leisure and discovery for a diverse audience.

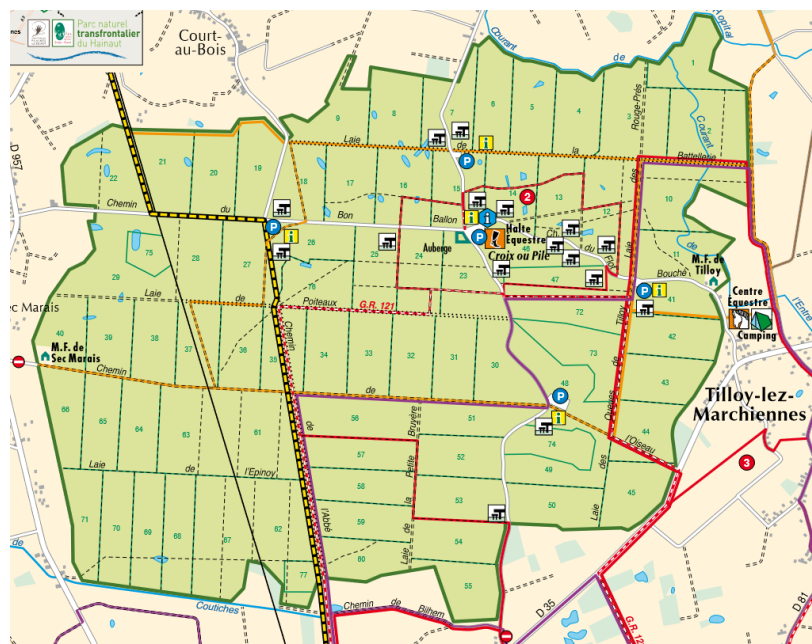
The Marchiennes Forest, dotted with numerous ponds, is a rich and fragile ecosystem. Designated as a Natura 2000 area, it benefits from special protection due to its exceptional biodiversity. This classification aims to preserve natural habitats and rare species, particularly through its wetlands, which host specific fauna and flora. These ponds provide essential habitats for amphibians and aquatic insects, thereby contributing to the site's ecological balance. The forest is thus a prime destination for nature enthusiasts and conservation advocates.



3.

3. The issues surrounding the site : observations

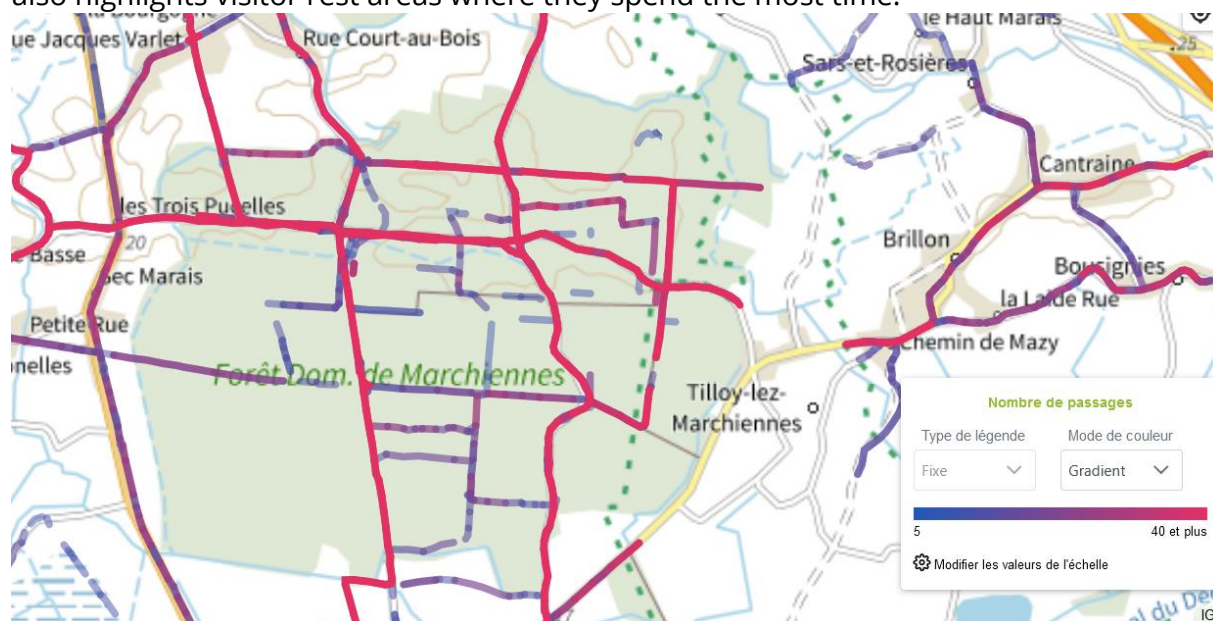
The forest is divided into four sectors, with four main pathways, sometimes shared with cyclists and sometimes reserved exclusively for them, in addition to a greenway. In each sector, the ONF has set up parking areas with information panels.



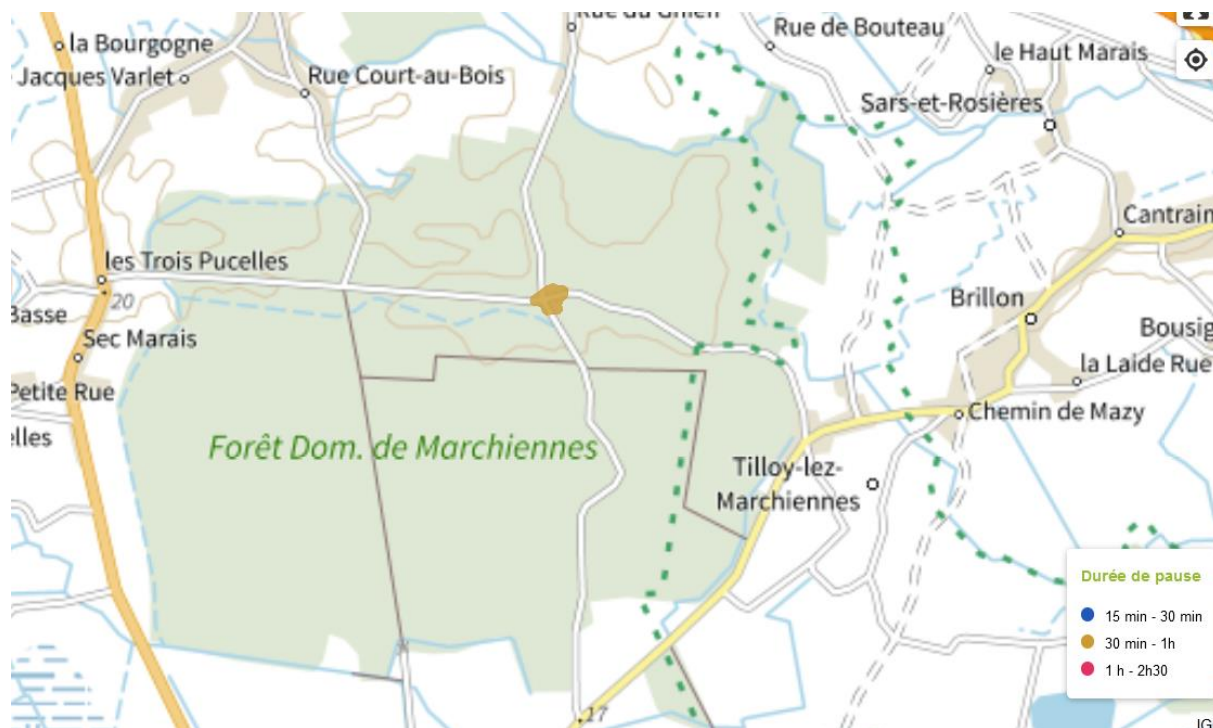
Tourist map of the Forest of Marchiennes

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The "Outdoorvision" tool helps target tourist flows based on outdoor sports activities. It also highlights visitor rest areas where they spend the most time.



Extract of Outdoorvision and flows in the forest of Marchiennes



Extract of Outdoorvision and rest area in the forest of Marchiennes

In the heart of the forest, the restaurant "La Croix ou Pile" has experienced a significant increase in its clientele over the past few years.

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This restaurant has now become a must-visit in the Park area, thanks to the quality of the products offered, the conviviality of the site, and the facilities within the establishment (multiple terraces, gourmet chalet, children's playground).

It is easy to observe that customers tend to drive for convenience and park as close to the restaurant as possible. A central parking is available; however, as the roads leading to the restaurant are very narrow with wide shoulders and ditches, customers often park as soon as they can, without going further, because it is difficult to turn around.

The compacting of the surroundings contributes to the restriction of habitats for both wildlife and plants. The noise volume generated by the increase in visitors can harm both diurnal and nocturnal species.

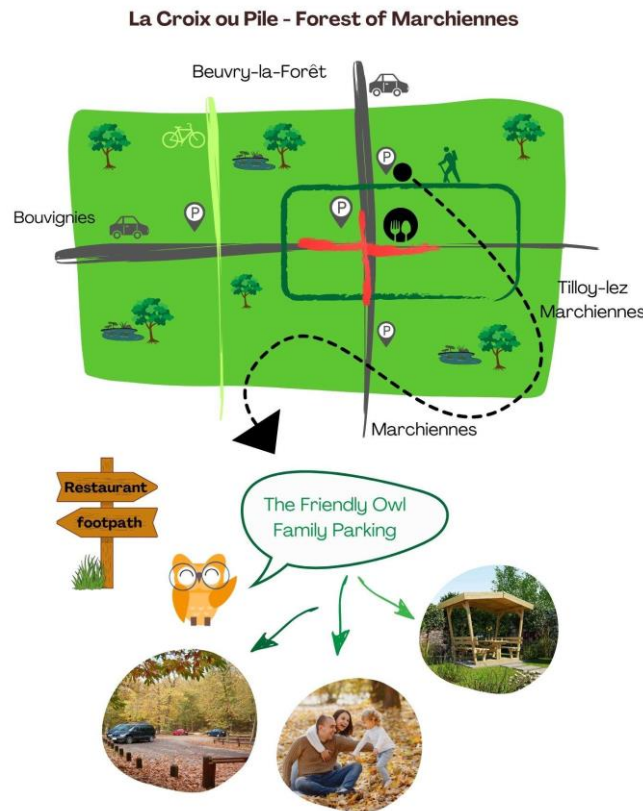
Moreover, the central parking lot is also used by hikers and mountain bikers. However, these informal parking areas are very dangerous for road users. On the other hand, customers and all users do not stop before the designated parking areas identified by the ONF, which often remain empty.

It is crucial to encourage more virtuous behavior by urging visitors to park properly, in the designated spaces, without causing harm to biodiversity.



4. The issues surrounding the site : prospects for change

The goal is to alleviate congestion in the heart of the forest, specifically at the location known as Croix ou Pile, and to better define the parking areas for customers, hikers with families, and mountain bikers. The space between the forest roads and ditches near the restaurant must be obstructed in order to guide visitors to the appropriate parking areas. Additionally, the naming of the parking lots should be revisited with a persona-based approach, incorporating identifying elements. The presence of a piezometer could be highlighted, and awareness could be raised in favor of the biodiversity of the state-owned forest.



5. The associated partners & stakeholders

The National Forestry Office, manager of the Marchiennes Forest, is the main partner in the implementation of this nudge. The restaurant owner is also a key participant. The local municipalities and intercommunalities are involved in the process, particularly through their tourist offices, which will promote the developments.

6. Proposals of nudges

Several issues have been identified that need to be addressed :

5. No longer parking in the intersection area
6. Redirecting vehicles without passengers feeling inconvenienced
7. Ensuring a high-quality welcome at the parking areas on the outskirts

According to the methodology used, after consultation with stakeholders and a participatory workshop, several cognitive biases have been identified : habit, confirmation, and anchoring. The levers to activate are salience, affect, and responsibility.

The **habit bias** involves repeating past behaviors, even if they are no longer appropriate. It is based on cognitive economy, as it is easier to repeat familiar patterns than to create new ones. Habits are reinforced through repetition and become automatic over time. This bias appears in situations such as always taking the same route or ordering the same dish. It can lead to stagnation, inefficiency, and resistance to change. Stress, fatigue, or lack of information can further strengthen its influence. To reduce it, routines should be regularly questioned, and new methods should be tried to help break the automaticity. It is also possible to seek external feedback, which can reveal outdated behaviors. While habits simplify our lives, they need to be revisited to avoid hindering our progress.

The **confirmation bias** involves favoring information that supports existing beliefs and ignoring information that contradicts them. It is based on the need for psychological comfort and internal coherence. This bias leads people to seek data that validates their opinions and to downplay counterarguments. It can be seen in situations such as only reading sources that share our viewpoint or interpreting facts in a biased manner. It can lead to faulty decisions, a limited perspective, and polarization of opinions. Strong emotions and a lack of critical thinking reinforce this bias. To reduce it, one must actively seek opposing viewpoints. Objectively evaluating facts helps counter this tendency, as does seeking contradictory opinions that can broaden one's analysis. While this bias simplifies the perception of the world, it limits understanding and decision-making.

The **anchoring bias** involves relying too heavily on the first piece of information received (the anchor) when making decisions. It is based on the tendency to use this data as a reference point, even if it is arbitrary or incorrect. This bias influences judgments by making people less sensitive to new information. It can lead to biased decisions, poor evaluation of options, and a fixation on irrelevant data. Lack of time or an ambiguous context amplifies its effect.

To reduce it, one must question the relevance of the initial information, compare multiple sources or references that help adjust the judgment. Avoiding quick decisions helps limit the influence of the anchor. Finally, considering all available data promotes a more

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objective analysis. While this bias simplifies choices, it can distort judgments and reduce the quality of decisions.

The levers of salience, affect, and responsibility can play a crucial role in regulating cognitive biases of habit, anchoring, and confirmation. By amplifying awareness and engaging emotions as well as responsibility, these levers help counterbalance these automatic biases.

The lever of salience

Salience, by highlighting striking or unexpected information, can break the automatic functioning of habits. For example, an eye-catching visual or a striking event can draw attention to a more effective or necessary alternative, such as changing an ineffective routine. In the case of anchoring, emphasizing relevant contextual data can reduce the disproportionate influence of the initial information. To counter the confirmation bias, making opposing perspectives or underappreciated facts visible can encourage greater consideration of them.

The lever of affect

Affect, by engaging emotions, can motivate a reexamination of biased behaviors. For habits, the emotion associated with a positive new experience can encourage change. Regarding anchoring, a strong emotional stimulus (such as a touching personal story) can help put the initial anchor into perspective. In confirmation bias, an emotional connection to divergent perspectives (such as empathy for an opposing viewpoint) can pave the way for a more balanced analysis.

The lever of responsibility

Responsibility, by reinforcing personal involvement, encourages more conscious choices. For habits, feeling responsible for the consequences of routines motivates their reevaluation. In the case of anchoring, the responsibility to make a fair decision encourages considering multiple references. Finally, for confirmation bias, taking responsibility for seeking the truth drives exploration of contradictory sources.

These levers, by fostering attention, emotion, and reflection, allow individuals to surpass automatic cognitive processes and make more thoughtful decisions. To encourage visitors to avoid parking dangerously close to the restaurant, despite the empty parking areas nearby, effective nudges will be implemented using the levers of salience, affect, and responsibility.

Salience will be activated by creating visually appealing and clear markings and signs on the more distant parking lots, such as colorful drawings and playful messages. To enhance affect, a pleasant pathway between the parking areas and the restaurant

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could be redesigned, with more frequent maintenance and interactive elements (such as humorous signs or QR codes leading to local anecdotes or children's games). This will make the walking experience more enjoyable and emotionally engage the users.

Finally, the responsibility lever will be integrated with subtle reminders about the risks to pedestrians and children near dangerous parking areas, reinforcing the idea that parking properly is a responsible and valued choice. Additionally, the experiment will involve placing fake fines on vehicle windshields. By combining these approaches, visitors will be encouraged to change their behavior without feeling coerced, while improving safety and the overall experience.

Here are the detailed sheets of some nudges that were created in consultation with the partners, received the highest rating, and will be proposed for experimentation by the expert in 2025 :

Marchiennes – Crossroads – 2 A

Discourage illegal parking / Encourage parking in designated areas.

X spaces at Y KM, just for you!

Aim of the nudge : Encourage parking in designated parking areas

Expected behavior : The driver heads to the parking lot of their choice to park their vehicle.

Key concepts :

- Mark parking spaces with lines on the ground (framing).
- Measure the distance from the site of "La Croix ou Pile."
- Provide this information to visitors looking for parking (framing) with high visibility.

Strength :

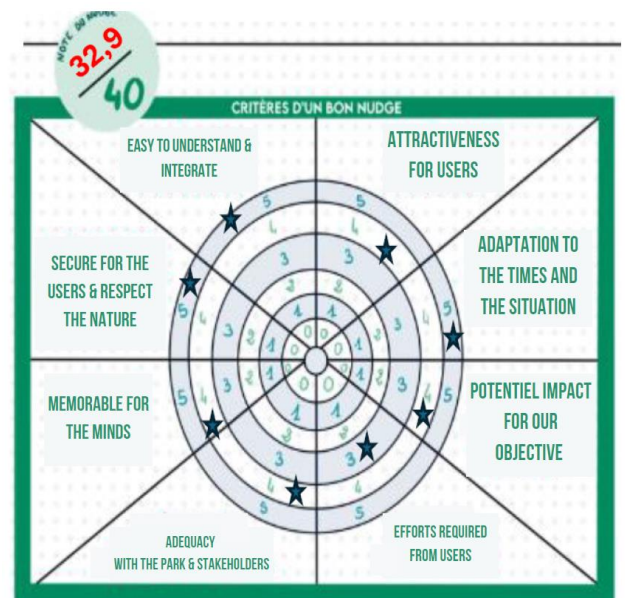
- Simplicity
- Clarity

Be mindful of : the ground surface (dirt). . the need for visual emphasis (colors, etc.).

Marchiennes – Crossroads – 2 B *Discourage illegal parking / Encourage parking in designated areas.*

Warning : Ferocious wild boar approaching / falling rocks !

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Aim of the nudge : Encourage parking in designated parking areas

Expected behavior : The driver gives up the idea of illegal parking and heads to the parking lot of their choice to park their vehicle.

Key concepts :

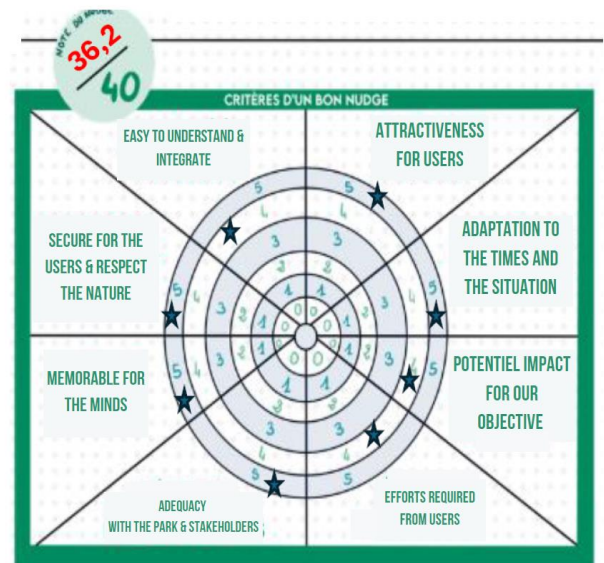
- Visually impact visitors through strong emotional cues (danger).
- Use humor to deliberately exaggerate the actual risk to convey the message.
- Clearly indicate the nearest parking area.

Strength :

- Clarity
- Strong visual impact
- Emotions / Humor

Be mindful of

- immediate comprehension.



Marchiennes - Crossroads - 2 C Discourage illegal parking / Encourage parking in designated areas.

Fake fine for illegal parking

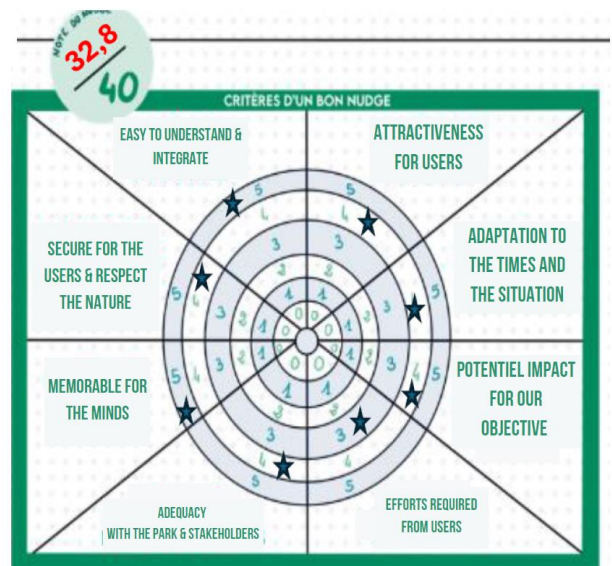
Aim of the nudge : Encourage parking in designated parking areas

On cars parked illegally.

Expected behavior : The driver becomes aware of the impact of illegal parking and, next time, will head to the parking lot of their choice.

Key concept :

- Visually impact visitors through strong emotional cues.



- The fake fine is placed on the windshield by a park/forest agent, then retrieved and read by the driver.
- Indicate the nearest parking option.

Strength :

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- Clarity
- Visual impact
- Emotions (emotional rollercoaster)

Be mindful of : Measure environmental impact / Daily work required

Marchiennes – Crossroads – 2 D *Naming parking lots with catering references*

Aim of the nudge : Encourage parking in designated parking areas

Expected behavior : The driver becomes aware of the opportunity to park in designated areas as part of their visit to the restaurant.

Key concept :

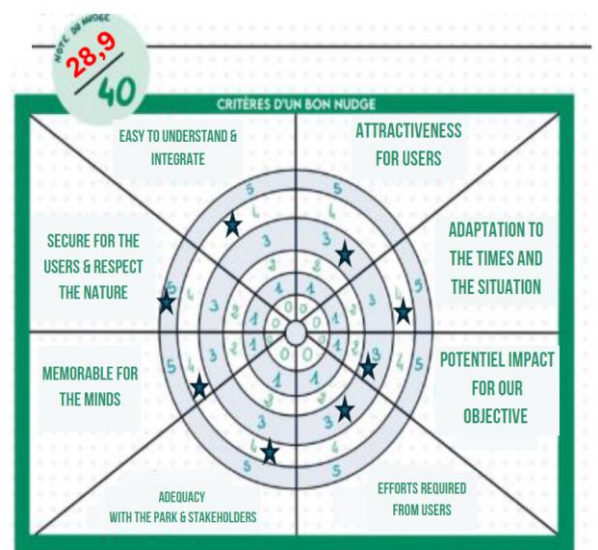
- Depending on the distance to the restaurant, the unit of measurement will be adjusted (e.g., "Direct Main Course" if very close, "Main Course/Dessert" if moderately far, "Starter/Main Course/Dessert" if farther away).
- Create an emotional connection with the visitor.

Strength :

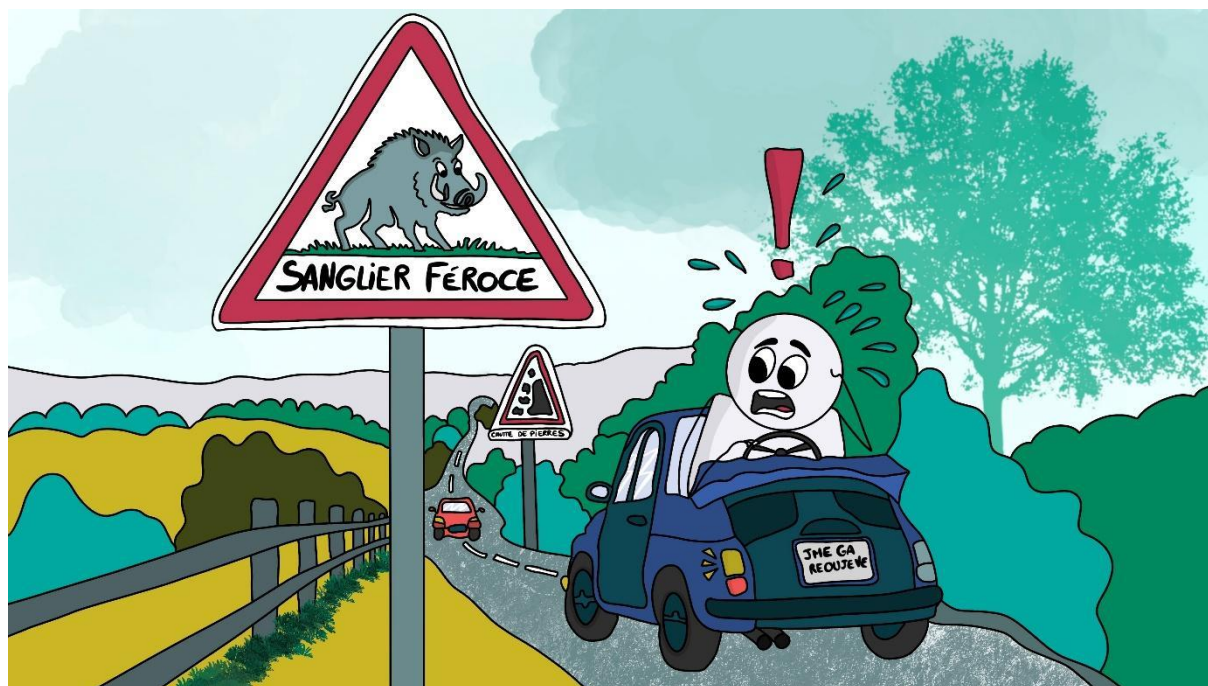
- Clarity
- Visual impact
- Emotions (emotional rollercoaster)

Be mindful of

- Measure environmental impact
- Daily work required



Here an example of a graphic facilitation of a nudge (2-B) :



And the technical description to prototype it :

Themes	Detailed description
Location	An intervention via the 'Petite Croix' road, see illustration, on the dirt shoulder, approximately 10 meters upstream of the intersection.
Format	<p>Triangular shape inspired by the road code. Recommended colors: Green background, red border. White font inside the triangle and black font inside the rectangle.</p> <p>Equilateral triangle: 1,500 mm per side recommended. Rectangle dimensions below the sign: 900 mm x 1,500 mm.</p> <p>Intervention height: 2.30 m to 2.50 m to limit the risks of handling and human damage.</p>
Text	<p>Humorous tone. Inside the triangle, an iconic depiction of a wild boar charging at a vehicle + text: 'Warning, Fierce Wild Boar.' In the rectangle: 'Here, the wild boars have taken it upon themselves to defend biodiversity and are waging war on vehicles parked on the shoulders. But don't worry, there's a large parking lot located X meters from here.'</p> <p>Fun and accessible font (ex : Halo Handletter)</p>
Material	Aluminum sheet sign (usually between 1.5 mm and 3 mm thick) with retro-reflective film (for night visibility) + anti-graffiti treatment. Wooden frame.
Installation method	Fixed to the ground with earth screws or 'heavy' helical stakes, a method that provides both a solid anchor and resistance to most vandalism attempts, while also allowing for easy removal at the end of the experiment.

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Additional points to mention	<p>Sign available in multiple humorous versions (e.g., squirrel throwing hazelnuts, etc.), potentially enhanced by the fake parking tickets (for example, it could be the wild boar or the hero of the sign who issues the fake tickets).</p> <p>If the risk of being charged by a wild boar is considered possible in these forests... it's possible to surprise by replacing it with a rhinoceros / See the example of the shark in the mountains.</p>
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Visualization :



7. Implementation of the nudges in 2025

The project to implement nudges aims to modify the behavior of visitors while improving their experience, as well as ensuring the protection of biodiversity. The nudges have been designed in consultation with experts and partners involved. This approach, focused on balanced flow management, requires rigorous and collaborative planning.

The design of the nudges will be carried out in collaboration with behavioral experts. These stakeholders play a key role in identifying specific needs and creating suitable visual tools. It will be essential to take into account the recommendations made to ensure effective design that meets the expectations of both visitors and forest managers.

The communication department of the park will be essential for the development and dissemination of messages associated with the nudges. This work includes the validation of visuals and content creation. The role of this service will also be to ensure consistency between the tools deployed and the park's overall communication strategy.

To implement the nudges on the ground, it will be necessary to engage suppliers capable of designing and producing the required devices. These suppliers will need to meet a detailed specifications document that includes technical, aesthetic, and environmental aspects. Communication with these service providers will help guarantee the quality of the solutions put in place.

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Starting in April, an intern will join the team to work on the creation of tourist maps adapted to flow management needs. These maps will be designed taking into account the locations of the nudges and the objectives for sustainable management of forest spaces. The maps will be essential tools for promoting tourism and the sustainable management of natural spaces, as well as for raising awareness of biodiversity and the impact of humans on it.

The implementation of the nudges on the ground will be carried out in partnership with local actors, including local authorities and forest managers. This phase includes the installation of devices, monitoring their deployment, and integrating them into the forest landscape. In parallel, a communication strategy will be deployed to inform users about the presence and objectives of the nudges, emphasizing their contribution to responsible and shared forest management.

This ambitious project, based on a participatory and innovative approach, represents a major opportunity to enhance the Marchiennes forest while preserving its natural balance.

Parc Naturel Régional de la Montagne de Reims (PNRMR)

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1. Context

As part of the Interreg NWE - MONA project, and more specifically the work of **Pilot C - nudging**, there are 9 deliverables to be provided linked to 4 activities specific to the Pilot.

This document is the deliverable *D2.12.2 - Package of nudging measures per nature area*, linked to activity *A2.12 - Design of the package of measures 'Nudging for sustainable tourism development'* and aims to present a selection of nudges chosen by each partner, to be deployed in its territory.

Each partner in Pilot C develops its own nudges based on its own specific issues.

This deliverable outlines the work that has been carried out within the PNRMR since the beginning of the Interreg NWE - MONA project and presents the nudges selected for the prototyping phase which will be carried out during the first semester of 2025, before the nudges are manufactured and deployed on some specific sites.

2. Reminder of the process initiated

In the beginning of 2024, PNRMR launched a public tender to seek the support of an agency specialized in designing nudges. **Planète NUDGE** was chosen to lead the Nudge Lab working group, which brought together PNRMR and local partners.

On the basis of a diagnosis carried out by PNRMR and its partners, 8 working themes were identified, corresponding to the impacting behaviours for which nudges could be developed.

At the end of the ideation phase, 39 potential nudges were imagined, covering the following 8 themes:

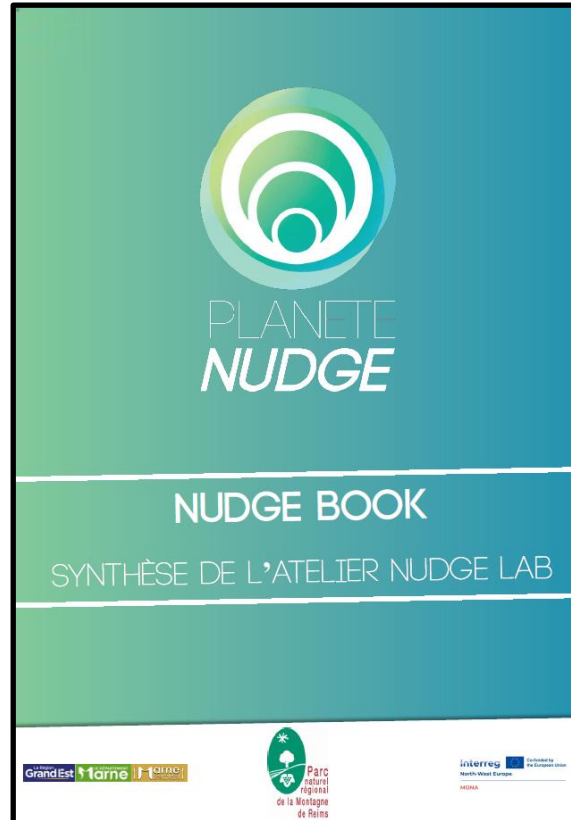
1. Littering issues in nature areas
2. Crossing ruts
3. Off-trail
4. Wild fauna disturbance
5. Safety and fire risk
6. Sustainable mobility
7. Users conflicts
8. Specific tools for sports events

All the solutions were compiled in one document, the *Nudge Book*, submitted by Planète NUDGE to the PNRMR in August 2024.

On the basis of these 39 potential solutions, PNRMR selected 8 of them to work on during the forthcoming prototyping phase, the second stage of the process. This selection was

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made after an internal analysis of the potential of the various ideas presented in the Nudge Book, the prioritisation of themes and the ability of each tool to be deployed effectively in the Park.



These 8 tools cover 4 of the 8 themes listed above:

1. Littering issues
2. Crossing ruts
3. Off-trail
4. Wild fauna disturbance

For this second working phase, PNRMR launched a new public tender which will result in 2025 in the recruitment of an agency capable of supporting the PNRMR in a second phase. The aim of this second phase is to prototype the nudges on the basis of the sketches from the *Nudge Book* and to produce precise technical drawings so that the nudges can then be manufactured and deployed on sites from summer of 2025.

3. Presentation of nudges to be prototyped

1. 3.1 Foreword

All the nudges presented below will be prototyped so that PNRMR has precise models and technical drawings that will enable these tools to be manufactured. However, to date, the number of pieces manufactured for each nudge has not yet been defined. The budget will be allocated once the prototyping has been completed and PNRMR has a clearer view of the potential cost of each tool and the number of pieces wanted.

For each of the nudges presented below, an exhaustive list of the cognitive biases and the action levers identified is proposed. These biases and levers are:

Cognitive biases

Effort aversion: the tendency to devalue the benefits and costs of an effort to the point of not making it, however small it may be.

Impact blindness: not taking into account the impact of our actions on the environment.

Normalisation effect: perceiving negative behaviour as acceptable by repeating it or seeing it repeated.

Minimisation biases: minimising the seriousness of a problem because of its small size.

Diffusion of responsibility effect: feeling less responsible for one's actions when someone else is following or when one is surrounded by other people.

Availability of tools/information effect: the availability or absence of a tool/information influences our perception.

Distraction effect: defines the state of a person showing inattentive or forgetful behaviour.

Processing difficulty: information that takes longer to read and requires more thought (and is more difficult to process) is easier to remember.

Information overload biases: an excessive amount of information makes it difficult to process or make decisions.

Action levers

Framing effect: we react to a choice in different ways depending on how it is presented.

Highlighting and simplification of information: the emergence of a form from a background, the placing of one piece of information/identity in relation to other pieces of information/entities.

Image superiority effect: images are easier for the brain to process than words.

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Self-relationship effect: tendency to have a better memory for information that relates to oneself, as opposed to material that has less emotional relevance.

Distinctiveness effect: tendency to remember foreign elements better than common elements.

Subjective validation: consists of validating information because someone is able to find it meaningful and significant for themselves.

Focusing effect: giving more importance to certain aspects and not enough to others.

Reward: offering a positive stimulus with the aim of reproducing or increasing the frequency of a behaviour.

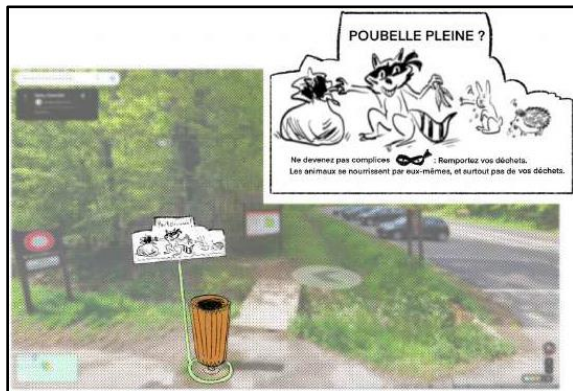
Emotional reasoning biases: making decisions based on emotions rather than facts or evidence.

Efficient processing: the tendency to prefer things that are easy to understand or use.

Impact measurement lever: assessing the effects or changes generated by a behaviour on a given population, environment or situation.

2. 3.2 Nudges chosen from the Nudge Book

1. 3.2.1 Compl'eine



Theme : littering issues.

This nudge is designed to be deployed in parking areas at forest entrances, where litter bins are made available for visitors.

In order to encourage visitors not to fill up an already full bin and to encourage them to take their rubbish back home, this type of device could be deployed permanently.

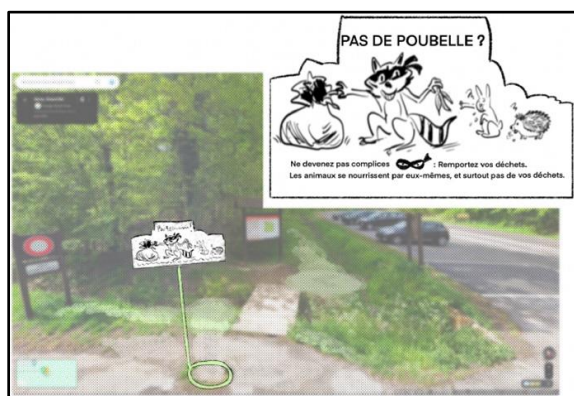
To alert visitors to the negative effects of littering, the use of raccoons has been considered as an interesting option. Even if it is an invasive exotic species, this animal is very popular and seems friendly to visitors, but it feeds itself on the rubbish left by visitors.

Translation : Full bin ? Don't become a raccoon's accomplice. Bring your litter back home.

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Cognitive biases	Action levers
Effort aversion	Highlighting and simplification of information
Impact blindness	Emotional reasoning biases
Normalisation effect	Impact measurement lever

2. 3.2.2 Circul'aire



Theme : littering issues.

This nudge is a variation on the previous one, designed for parkings where there are no bins.

In this version, the aim is to clearly draw visitors' attention to the fact that if there are no bins, they are asked to take their rubbish back home. When looking for bins, the visitor's eye will probably be attracted by

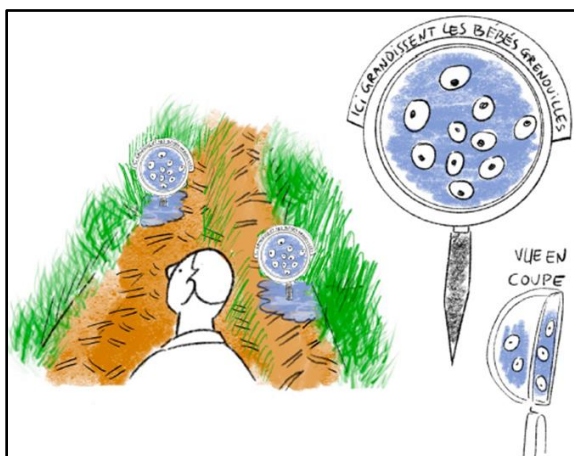
these signs, making the message more visible.

Translation : No bin ? Don't become a raccoon's accomplice. Bring your litter back home.

Cognitive biases	Action levers
Effort aversion	Highlighting and simplification of information
Impact blindness	Emotional reasoning biases
Normalisation effect	Impact measurement lever

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3. 3.2.3 Foc'œufs



Theme : crossing ruts.

The aim of this nudge is to draw visitors' attention to something that is not easily visible. Many species of amphibian live and breed in the ruts on the paths between April and September in the Park. If these ruts are crossed by pedestrians, cyclists or motor vehicles, the impact on these protected species can be very serious. It is therefore important to make visitors aware of the fragility of these environments and the need to avoid them.

Translation : Baby frogs grow up here.

Cognitive biases	Action levers
Minimisation biases	Framing effect
Impact blindness	Highlighting and simplification of information
Diffusion of responsibility effect	Image superiority effect

4. 3.2.4 Warning hors-sentier



Theme : off-trail.

This type of nudge relies on the surprise created by the warning of a danger that does not actually exist if visitors go off the official paths. On the reverse, a message explaining the real danger caused by this type of behaviour raises visitors' awareness of the impact of off-trail activities.

It is designed to stand in contrast to traditional signs prohibiting access.

Translation : Danger, cobra ! Neither cobra here, nor danger for you. The real danger is that you are trampling on living species.

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Cognitive biases	Action levers
Minimisation biases	Self-relationship effect
Impact blindness	Distinctiveness effect
Diffusion of responsibility effect	Subjective validation
Normalisation effect	

5. 3.2.5 Warning bruit

Theme : wild-fauna disturbance.



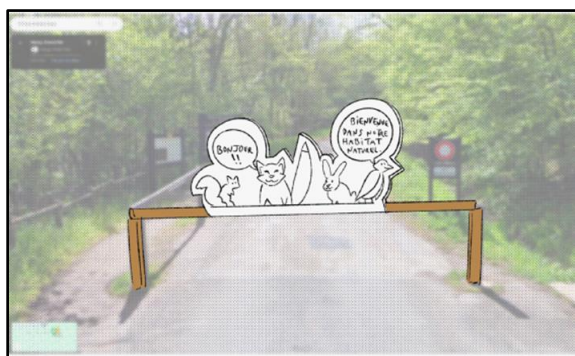
In the same spirit as the previous nudge, this type of sign is used to alert visitors to noise pollution and the disturbance it causes to wildlife.

On the reverse, an awareness-raising message alerts visitors to the consequences of excessively noisy behaviour in natural areas.

Translation : Silence, lion approaching ! Neither lion here, nor danger for you. The real danger is that you are threatening wild animals.

Cognitive biases	Action levers
Minimisation biases	Self-relationship effect
Impact blindness	Distinctiveness effect
Normalisation effect	Subjective validation

6. 3.2.6 Biodivers'entrée



Theme : wild-fauna disturbance.

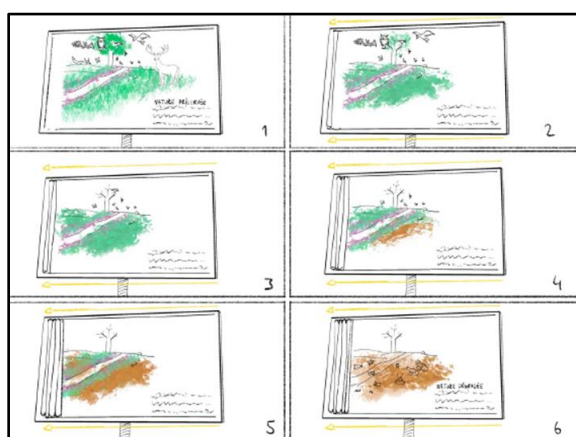
This nudge is designed to be permanently installed on barriers at the entrance to forest roads. Its purpose is to provide a tangible sign of entry into the natural habitat of wild fauna as walkers / visitors enter the forest.

Translation : Hello ! Welcome to our natural

environment !

Cognitive biases	Action levers
Availability of of tools/information effect	Framing effect
Impact blindness	Focusing effect
Distraction effect	Distinctiveness effect

7. 3.2.7 Res'store



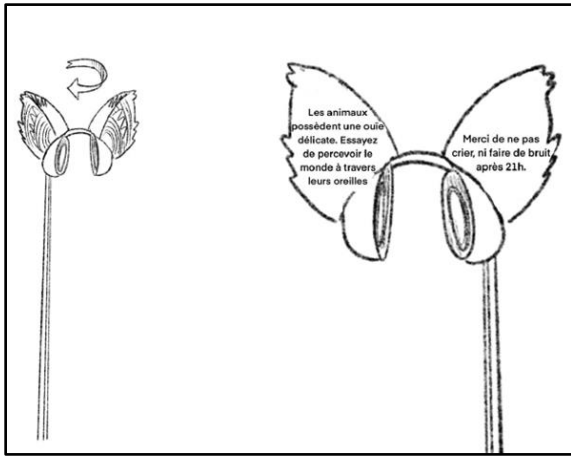
Theme : all themes.

Res'store is a nudge designed to provide a concrete visualisation of the impacts on a landscape. As a playful object that can be manipulated by visitors, it is designed to allow successive layers to be added to a landscape, as the consequences of impacting behaviour add up.

Cognitive biases	Action levers
Availability of of tools/information effect	Efficient processing
Processing difficulty	Image superiority effect
Information overload biases	Impact measurement lever

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8. 3.2.8 Bich'ondes



Theme : wild-fauna disturbance.

This nudge is a low-tech headset in the shape of deer ears. It aims to make visitors aware of the impact of excessive noise and the disturbance it causes to wildlife.

The aim is to encourage visitors to enjoy the peace and quiet of the area. It is completed by a message which is supposed to raise visitors awareness on this specific issue.

Translation : Animals have delicate hearing. Try to perceive the world through their ears. Please do not shout or make excessive noise in the forest.

Cognitive biases	Action levers
Impact blindness	Reward
Minimisation biases	Emotional reasoning biases
Normalisation effect	Focusing effect

3.

4. 3.3 Other nudges to be prototyped

In addition to these 8 nudges, PNRMR is planning to prototype and manufacture complementary tools as presented below.

1. 3.3.1 "Sensitive area" flag



Themes : crossing ruts / specific tools for sports events.

This nudge will be made for sport events organizers in the Park. One of the recommendations that PNRMR regularly makes to them is to bypass ruts in which various species of amphibians live and breed, including the yellow-bellied toad, between April and September.

However, it has been noted that these bypasses are rarely put in place, due to a lack of material resources from the organizers.



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Several flags like this one will be produced and made available to organisers, along with an effective fastening system to mark out a rut for the duration of the event and prevent it from being crossed by participants.

2. 3.3.2 "Shared path" markings

Theme : users conflicts.

In several places in the region, official marked trails for mountain bikers may use the same paths as hiking trails, which could lead to space sharing issues between the two disciplines. In order to encourage mountain bikers and walkers to take care when using these shared paths, markings warning them that the path is shared between cyclists and pedestrians will be prototyped and produced.

The purpose of this signage is to encourage the various users to be courteous, cautious and respectful to each others.

It has been designed as a nudge to address the issue of "users conflicts", for which no concrete solution was found in the *Nudge Book*.

3. 3.3.3 "Take your waste with you" leaflets

Theme : littering issues.

In addition to the **Compl'eine** and **Circul'aire** tools described above, the Park will be prototyping leaflets to be attached to the various picnic tables set up for visitors. These leaflets will carry a message encouraging visitors to take their rubbish away with them.

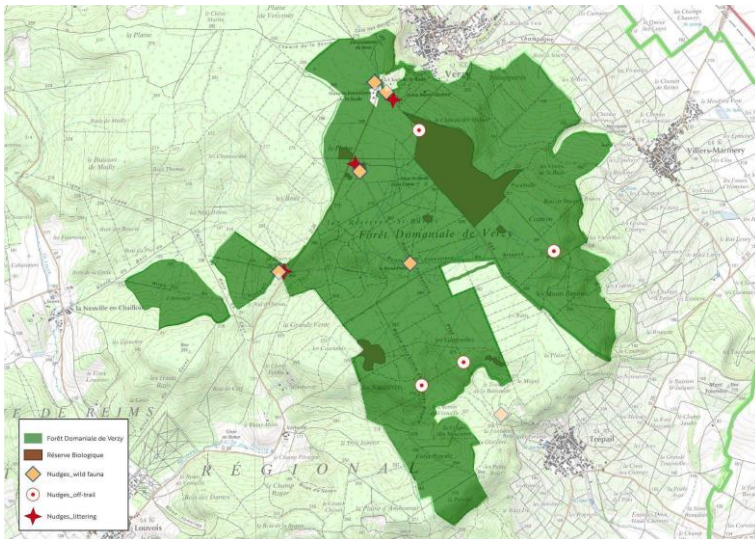
4. Proposed deployment sites

Following the prototyping of these various tools, a number of nudges will be produced and deployed on sites during an initial phase to assess their effectiveness.

With its partners, including the National Forest Office, PNRMR has identified 4 main sites for deployment, addressing the following issues:

- Sites frequented by visitors or outdoor enthusiasts
- Impacts on the natural environment caused by inappropriate behaviour
- Nudges prototyped in response to these impacts

5. 4.1 Forêt Domaniale de Verzy



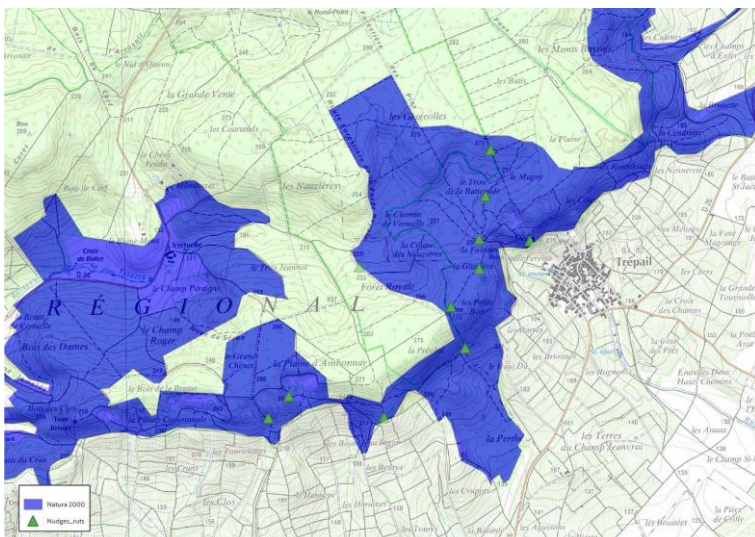
The Forêt Domaniale de Verzy, covering an area of 3,486 hectares, is the most visited natural site in the Park, with an estimated 250,000 to 300,000 visitors a year. Several car parks have been set up at the entrance to the forest, allowing visitors to stroll along the many signposted paths and itineraries. There is also a Biological Reserve (Faux de Verzy), which is subject to specific protection measures.

Among the behaviours that have had an impact on this site are littering (there are no litter bins available for visitors), off-trail practice (particularly in the Faux de Verzy Biological Reserve) by pedestrians and cyclists, crossing ruts and disturbing wildlife.

The final locations will be validated during the prototyping phase, in the first half of 2025.

Figure 1: “Forêt Domaniale de Verzy” and sites being considered for the deployment of nudges

6. 4.2 Natura 2000 site (Trépail)



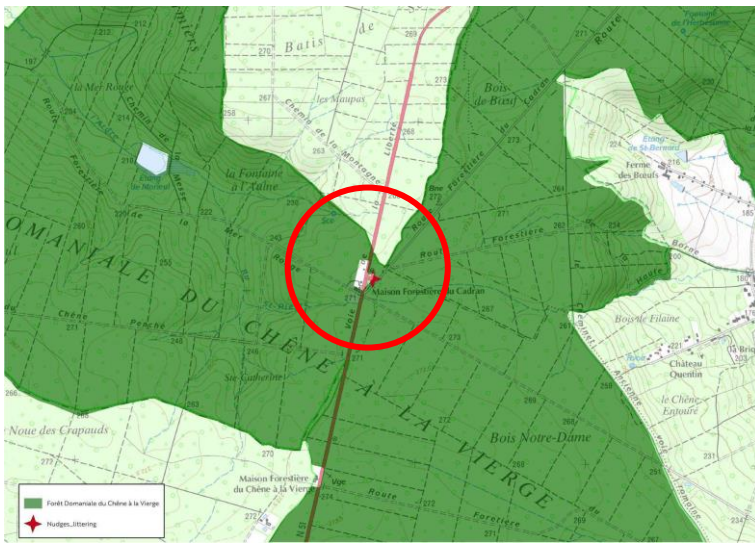
To the south of the Forêt Domaniale de Verzy, one of the two Natura 2000 sites of the Park is also being considered for the deployment of nudges, particularly around the municipality of Trépail.

The main issue in this area is the presence of numerous ruts and amphibian species that are sensitive to crossing. Hiking and mountain biking routes are permanently signposted and

several sporting events are organised in the area every year.

Figure 2 : Natura 2000 site (Trépail) and example of potential places for nudges deployment

7. 4.3 Aire du Cadran



The “Aire du Cadran” is one of the largest and busiest car parks in the Park. Located on a busy road linking the towns of Reims and Epernay, it provides direct access to the Forêt Domaniale du Chêne à la Vierge, the largest one in the Park.

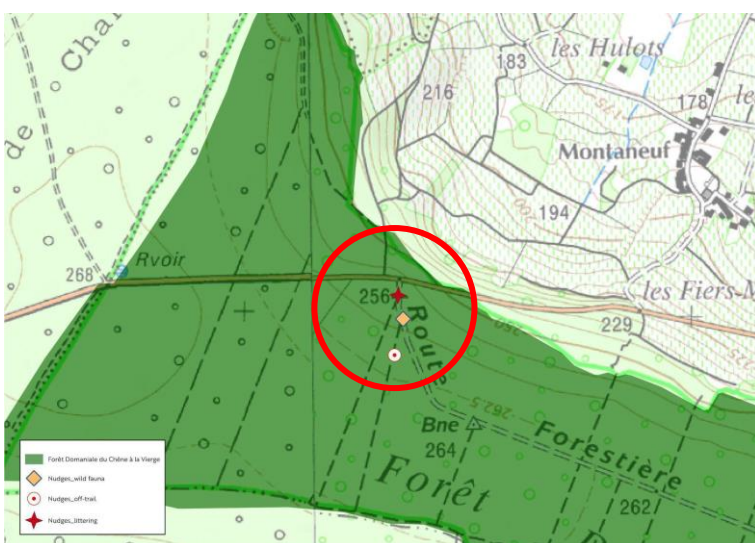
There are many picnic tables and litter bins to welcome visitors.

All types of visitors stop here: tourists stopping off for a picnic, walkers going for a hike in the forest, mountain bikers or trail runners, etc.

Because of the number of visitors and the frequency with which litters are collected by the municipalities, the bins are regularly full and overflowing, which has a twofold impact: on the one hand, it pollutes the natural environment through the dispersal of rubbish, and on the other, it has an impact on the wildlife that comes to feed in the bins.

Figure 3 : Aire du Cadran, located on the road RD951 between Reims and Epernay

8. 4.4 Aire de la Noëlle / Forêt Domaniale du Chêne à la Vierge



Within the Forêt Domaniale du Chêne à la Vierge, another area is targeted for the deployment of nudges: the “Aire de la Noëlle”. In this area, two official mountain bike trails are signposted, many runners come for training and hiking trails are developed by the National Forest Office and the Park, especially for families. So this area is used by a wide variety of people, and various impacts can be observed, such

as littering issues, disturbance of wildlife and hiking off the marked trails.

Figure 4 : Aire de la Noëlle, within the “Forêt Domaniale du Chêne à la Vierge”.

5. Partners involved

For this project of prototyping and deploying nudges, PNRMR is working closely with the National Forest Office, which manages the Verzy and Chêne à la Vierge state forests. The Marne department’s road service - managing the “Aire du cadran” area - and the “Grand Est” region environment service (DREAL) are also involved to ensure that the nudges comply with the various constraints that may be imposed at the time of their precise design, given the different regulations in force. These constraints could be justified by the decision of deploying nudges on classified sites, protected areas, or to ensure that the nudges deployed will not be assimilated to advertising, which is prohibited in French Natural Regional Parks.

At a later stage, when a wider deployment of nudges is envisaged throughout the region, the various local authorities of Tourist Offices will be involved to support the installation of such tools.



Direction régionale
de l'environnement,
de l'aménagement
et du logement