Annex 6 - Drivers and motivation for Private Land Conservation in the EU-case

A Behavioural Analysis of Practice-Based Evidence from European PLC Initiatives

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Abbreviations

LLM	Large Language Model
PLC	Private Land Conservation
COM-B model	Capability, Opportunity, Motivation – Behaviour model

1 Introduction

1.1 About MOSAIC

For many decades already, the scientific community warns about the detrimental impact of current land use practices on biodiversity, soil fertility, water reserves, climate change, to name a few, eroding the safe operating space for humanity on Earth (Richardson et al., 2023; Rockström et al., 2009). Yet, despite the piles of reports with irrefutable evidence, not much change can be seen on the ground. Facts, figures and scenarios of the future we are heading for appear not to be enough to convince land use decision makers to make more sustainable choices.

MOSAIC therefore wants to contribute to a better understanding of why this is the case, and, more importantly, contribute to the solutions. To that effect MOSAIC investigates the drivers behind land use choices. Are farmers, business managers, nature conservationists, policy makers and other land use decision makers aware of what is at stake? And what role can they play in finding a solution? What kind of land use do they favour and why? What motivates them to go for their choice? How can their decisions be aligned or reconciled with policy targets in the fields of climate change mitigation and adaptation, biodiversity and renewable energy? What tools and incentives can help to align these individual land use decisions on the ground with high-level policy targets and international agreements aimed at the conservation of our common home?

To investigate these questions, six Policy Labs, comprising a diverse array of decision makers in Belgium, Denmark, Hungary, Portugal, Switzerland, and a European Lab, are set up as pivotal platforms for MOSAIC's transdisciplinary research. Each one is linked to a specific case of land use decision making. These Policy Labs help the researchers investigate these questions and allow practitioners to co-create relevant knowledge, so the gained knowledge becomes truly actionable for them.

MOSAIC's modelers will build upon this knowledge about drivers and motivations to characterize expected future land use patterns – an indispensable tool in land use policy processes. Based on spatial, social and economic insights, potential displacement effects can be made visible, as well as evolutions jeopardizing European biodiversity, climate and renewable energy goals.

To enable this, the Policy Labs receive support from a digital learning environment in which MOSAIC bridges the siloes of researchers' and practitioners' worlds. During the project, this environment allows for knowledge transfer, learning, evaluation and collaboration between researchers and practitioners, both within the cases and in cross-case settings. After the project, this learning environment will live on to give answers to the research questions outlined above, questions about the practical implementation of these learnings; and will it function as a source of inspiration for those wanting to render land use more sustainable in other places as well.

This way, MOSAIC will showcase in six cases how policy, science and society can work hand-in-hand on concrete solutions to accelerate the transition towards more sustainable land use.

1.2 About this report

This report presents one of the first systematic, cross-European analyses of the behavioural determinants shaping voluntary Private Land Conservation (PLC). As Europe experiments with new conservation instruments such as easements, stewardship agreements, habitat markets and compensatory schemes, policy development has outpaced behavioural understanding of voluntary actions for land conservation. Little is known about how landowners perceive, navigate, and respond to these emerging tools. This report addresses that gap by synthesising a uniquely broad body of grey literature produced by pioneering PLC initiatives and analysing it through the structured lens of the COM-B behavioural framework (Capability, Opportunity, Motivation – Behaviour) (Michie et al., 2011).

The study advances three core objectives. First, it aims to map the behavioural landscape of PLC in Europe by identifying the drivers and barriers that consistently shape landowner participation. Second, it seeks to organise this highly diverse practice-based evidence into a clear analytical structure, using COM-B as a deductive coding framework. Third, it explores how AI-assisted qualitative analysis can enhance reproducibility, comparability, and transparency in large-scale behavioural evidence synthesis. Together, these objectives position the report as both a methodological innovation and a substantive contribution to emerging PLC scholarship.

At the heart of the report is an extensive coding process applied to thousands of pages of project reports, evaluations, testimonies and practitioner documentation. These sources, although not published in scientific journals, constitute the most immediate repository of empirical knowledge available: they capture real-world interactions with PLC instruments, including the frictions, misunderstandings, risks, and opportunities encountered by landowners and intermediaries. By treating these documents as legitimate behavioural evidence and analysing them systematically, the study reveals patterns that are often invisible in more formal academic literature.

Across this material, three key insights emerge. First, economic viability functions as the decisive threshold for PLC participation. The analysis consistently shows that when structural economic conditions (risk, return, and transaction costs) cannot be overcome, behavioural intentions fail to translate into action. Opportunity, understood as the external conditions enabling action, therefore dominates the behavioural equation. Second, social trust acts as the principal relational mechanism shaping participation. Trusted intermediaries, peer networks, and local legitimacy appear more influential than formal incentives or information-based interventions. Third, intrinsic motivations rooted in identity, stewardship, pride and legacy are widespread among landowners and conservation organisations. Rather than needing to be created, these motivations require enabling conditions to become behavioural drivers.

While confirming well-established findings from broader land-use behaviour research, particularly the centrality of economic constraints, the report also highlights less documented determinants, including the behavioural weight of autonomy, trust, and social cohesion in voluntary conservation. These insights refine our understanding of PLC as a distinct behavioural

field: highly relational, strongly context-dependent, and shaped as much by social legitimacy as by financial design.

Methodologically, the report demonstrates that COM-B offers a transparent, accessible framework for structuring diverse behavioural evidence. It facilitates the separation of what landowners can do (Capability), are allowed or enabled to do (Opportunity), and want to do (Motivation). At the same time, the study recognises COM-B's limitations: its simplicity risks masking broader institutional, legal and market structures that strongly influence land-use decisions. For this reason, COM-B is presented not as a stand-alone model but as a complementary lens that can strengthen broader socio-economic and ecological approaches.

The report also reflects critically on the use of AI in large-scale qualitative analysis. While AI enabled the processing of a far larger, more multilingual dataset than would have been feasible manually, it also introduced challenges related to precision, contextual ambiguity, and potential omissions. These limitations were addressed through triangulation and consistency checks, culminating in the creation of a transparent PLC-database that underpins the findings presented.

Although not a policy evaluation, the report offers several actionable insights for PLC policy and practice. These include the need to de-risk participation, professionalise intermediaries, combine financial and social incentives, and strengthen local legitimacy through bottom-up governance models. The findings also provide behavioural parameters for integration into MOSAIC land-use modelling, enabling more realistic scenario development.

Overall, this report establishes a behavioural evidence base for voluntary PLC in Europe and demonstrates how structured behavioural frameworks and AI-assisted analysis can enrich both research and policy design in an emerging conservation landscape.

2 Making a case of Private Land Conservation in the EU

2.1 Private Land Conservation

Across Europe, achieving the ambitious goals of the EU Biodiversity Strategy for 2030 requires conservation efforts that extend well beyond areas under public protection. While statutory conservation and state-led initiatives to protect and develop nature areas, e.g. national parks, nature reserves, and Natura 2000 sites, remains the cornerstone of biodiversity policy, they alone cannot address the ecological gaps that persist across the wider landscape. A significant proportion of Europe's most biologically rich land is privately owned, meaning that the protection of species, habitats, and ecological connectivity depends heavily on the stewardship of private landholders. Private Land Conservation (PLC) therefore represents a vital complement to statutory conservation frameworks: it mobilizes voluntary actions by landowners, organizations, and communities to protect, restore, and sustainably manage biodiversity on private property. These initiatives, ranging from conservation easements and stewardship agreements to privately protected areas, enhance ecological coherence and resilience by bridging fragmented habitats and fostering collaboration between public and private actors.

Engaging private landowners through supportive policies and incentives enables conservation to operate at the landscape scale required to meet Europe's environmental objectives.

2.2 European scale

The European scale of this report adds both significance and complexity. Unlike regional or national case studies that focus on single governance contexts, this analysis spans a continent characterized by diverse land-use systems, ownership structures, policy frameworks, and cultural attitudes toward land stewardship. These regional differences shape the opportunities to address the biodiversity challenges via the private land conservation strategies, from economic incentives and legal recognition to emotional attachment and cultural heritage. While such variation complicates the identification of universal patterns, it also offers a unique opportunity to capture the richness of (drivers for) PLC practices across Europe. Despite these contextual challenges, this report aims to provide a comprehensive overview of the underlying behavioural drivers and motivations that influence conservation engagement among European landowners. Their drivers and motivations are analysed through the Behaviour Change Wheel (BCW) framework to understand how capability, opportunity, and motivation influence conservation behaviour.

2.3 Land user groups

This research draws on a dataset of reports and deliverables produced by a group of Private Land Conservation (PLC) front runners in the European Union. The group comprises both individual landowners who entered PLC schemes and the non-governmental organisations (NGOs) and public authorities involved in the design, facilitation, or implementation of these initiatives. In many cases, the pioneering PLC projects in the dataset target large landowners whose properties consist of heterogeneous estates, often combining arable land, grassland, wetlands, forests, and/or other semi-natural habitats. As a result, it is frequently impossible to attribute these land users to a single land-use category (e.g., “farmer”, “forester”, “hunter”). Importantly, this is not merely a classification difficulty but reflects a defining feature of PLC: it often seeks to challenge siloed approaches to rural governance that treat land use as a set of distinct, sectoral groups (e.g., separating forestry from agriculture). Therefore, this analysis does not draft divisions of land users groups since any attempt to impose singular categories would risk misrepresenting the land managers’ actual practices and the integrative rationale of PLC.

A second limitation concerns the level at which the data is reported. Except for illustrative examples and case study descriptions, most of the available material is oriented toward the collective or cross-case level, where conclusions are drawn beyond the level of the individual landowner. Consequently, this research is constrained in its ability to generate robust individual-level conclusions, such as comparing outcomes or motivations across distinct types of land users. In short, within this dataset, systematic differentiation between individual land users is not possible, and any claims at that level would exceed what the evidence can support.

It is also critical to note that the land users included in this dataset represent only a subset of European land users. The sample is shaped by two major forms of selection:

1. Front-runner bias: The dataset focuses on pioneering PLC initiatives rather than typical or average land management contexts.
2. Ownership and scale bias: Compared to the broader population of land users in Europe, the dataset over-represents actors who own their land (as opposed to tenants or those operating under short-term/annual contracts) and tends toward larger landholdings, rather than small-scale farms and forests.

2.4 Policy goal

As clarified in Section 1.1, the underlying policy objective of the European MOSAIC Policy Lab is to supplement existing conservation strategies, such as statutory conservation and state-led initiatives for the protection and development of nature areas, with policies that facilitate voluntary conservation efforts by private landowners, commonly referred to as private land conservation (PLC). PLC functions as an umbrella concept encompassing a wide range of innovative policy instruments that regulate, facilitate, or financially support conservation efforts by private actors. These instruments include, but are not limited to, conservation easements, privately protected areas, and conservation stewardship schemes.

The ambition and prioritisation of specific **PLC instruments are inherently context-dependent**, as they must align with local levels of support, existing policy frameworks, and broader cultural and institutional traditions within EU Member States. Consequently, PLC does not represent a single, uniform policy model, but rather a flexible policy approach that adapts to diverse socio-geographical contexts.

2.5 Research Questions

To guide systematic examination of the factors shaping private land conservation (PLC) in Europe, the following research questions were formulated.

Main Research Question:

- What behavioural determinants shape landowners' willingness and ability to engage in voluntary Private Land Conservation (PLC) across Europe, as revealed through the practice-based evidence generated by pioneering PLC initiatives?

Substantive behavioural questions (COM-B components) (Michie et al., 2011)**:**

- Sub-RQ1 — *Opportunity* (structural conditions). What external and structural conditions enable or constrain landowners' participation in voluntary PLC, and how do these conditions shape the feasibility of conservation behaviour?
- Sub-RQ2 — *Motivation* (intrinsic and extrinsic drivers). What intrinsic and extrinsic motivations influence landowners' willingness to engage in PLC, and under what conditions do these motivations translate into action?
- Sub-RQ3 — *Capability* (skills, knowledge, competences). How do landowners' skills, knowledge, and perceived competences affect their capacity to participate in PLC, particularly in relation to structural constraints?
- Sub-RQ4 — *Interactions* across COM-B. How do Opportunity, Motivation, and Capability interact to determine whether landowner intentions lead to actual PLC behaviours?
- Sub-RQ5 — *Policy and Actionability*. How can insights on behavioural determinants, structural constraints, and motivational drivers be translated into actionable strategies and policy recommendations to enhance participation in voluntary Private Land Conservation in Europe?

Methodological questions:

- Sub-RQ6 — *COM-B as a deductive coding framework*. How can the behavioural determinants reported in PLC-focused EU initiatives be systematically mapped using the COM-B framework to organise diverse practice-based evidence?
- Sub-RQ7 — *AI-assisted qualitative analysis*. How can AI-assisted coding support the identification of recurring behavioural themes, cross-cutting challenges, and potential leverage points for strengthening PLC in Europe?

3 Methodology

This study draws on a structured review of grey literature produced by recent EU-funded initiatives on private land conservation (PLC). The aim was to identify the key determinants influencing landowner engagement across different European contexts. To ensure conceptual consistency, the analysis was guided by the COM-B behavioural framework, which distinguishes between Opportunity, Motivation, and Capability. The documents were processed and coded using an AI-assisted text analysis approach, enabling the systematic extraction, categorisation, and comparison of drivers and barriers reported across projects. The following section outlines the methodological steps and analytical procedures used in this review.

3.1 Data and Analytical context

As input for this analysis, we examine grey literature emerging from recent European initiatives on Private Land Conservation (PLC). These sources include the outputs of several EU-funded projects that, to date, represent the primary collective effort to explore PLC within the European context. Earlier EU projects, such as LIFE ELCN, LIFE Land is Forever, and LIFE ENPLC adopted a strong practice-based focus, piloting PLC initiatives across diverse European regions.

These pilot projects were instrumental in generating experiential insights at multiple levels: learning within pilot sites, learning across regional contexts, and learning between different stakeholder groups including landowners, NGOs involved in nature development, and public authorities. The current Horizon Europe project MOSAIC builds directly on this practice-based foundation, aiming to synthesize and advance existing knowledge to better understand the behavioural, institutional, and policy dimensions of PLC.

The grey literature dataset used in this report comprises 51 documents and videos sourced from the aforementioned LIFE projects and relevant ILCN and ELO publications. These documents and videos are in several languages including English, French, Italian and Catalan. The dataset was created in a step-by-step approach: a first set of documents were made available by the MOSAIC policy leads of the EU policy lab (ELO and Eurosite), next all other available materials were downloaded from the LIFE project websites. Resulting in a database from the following sources:

- LIFE ELCN
- LIFE Land is Forever
- LIFE ENPLC
- IUCN, ILCN and ELO websites

Next the dataset was imported into a Google AI Studio with Gemini 2.5 Pro (Comanici et al., 2025) environment for qualitative synthesis:

While these earlier initiatives produced a wealth of qualitative data and practical lessons, this material had not yet been examined in a systematic or structured analytical framework. The present study therefore builds on these existing outputs to conduct a more comprehensive and comparative analysis of drivers and motivations for PLC across Europe.

This integrative approach allows us to connect the empirical learning from pilot experiences with a theoretical framework grounded in behavioural analysis, thereby contributing to the broader European understanding of how and why private landowners engage in conservation.

3.2 Theoretical Framework for Analysing PLC behaviour

To analyse the drivers and barriers of Private Land Conservation, the COM-B model was employed as the primary analytical framework. This framework provides a robust, theory-driven approach to understanding behaviour, conceptualizing behaviour as a function of *Capability, Opportunity, and Motivation* (Michie, van Stralen, & West, 2011).

This framework was selected for several reasons. Firstly, COM-B has strong empirical and theoretical validation across diverse behavioural contexts, ensuring its robustness and validity in social science research. Secondly, it is highly applicable to the heterogeneous population of private landowners, encompassing different land use activities (agriculture, forestry, hunting), scales, and motivations, rather than being restricted to either forestry or agricultural contexts. Thirdly, the framework offers a comprehensive perspective by capturing not only economic factors but also social, cognitive, and environmental determinants, which are critical for understanding the complex drivers and barriers influencing private land conservation (PLC). Fourthly, COM-B has been shown to facilitate systematic analysis and comparison across regions and contexts, enhancing analytical rigor beyond locally specific studies. Finally, its structure directly supports the translation of findings into policy-relevant recommendations, aligning with the overarching aim of the MOSAIC project to inform actionable strategies for strengthening PLC in Europe.

3.3 Analytical approach

As previously mentioned, a total of 51 text documents and videos were found that have been published on PLC in the context of European practice and policy-oriented projects. Since our resulting qualitative dataset comprised a total several hundred pages of text, we looked into ways of processing these texts thoroughly, rigorously and efficiently at the same time.

3.3.1 Building a PLC-database using AI

With the emergence of ever improving Large Language Models (LLM's) (Dunivin, 2024), we decided to actively use and evaluate AI support for this literature review. By prompting Appendix 0 the LLM as a research peer we were able to set up an environment where the model coded text fragments. This approach had the advantage of coding 1000's pages of text in multiple languages without having a certain bias, fatigue or inconsistency. All traits that could be occurring in human coders. On the other hand, we were less in control. To accommodate for this we tested different models, formulated definitions of the codes with the COM-B model and strictly asked to stay close to the original texts. In short, the final prompt (see Appendix 0) is the result of multiple

iterations whereby the researchers checked and reviewed the draft results to finetune the prompt.

The model we eventually chose for performing deductive coding of the texts was the LLM model Gemini 2.5 Pro. The settings of the model were a Top P of 0.95 and a Temperature 0.6, the latter is to make sure the model keeps close to the original documents and does not start to hallucinate. It is therefore more suited for deterministic work. To make sure all the documents were treated equally every document was imported separately into the context window. It was specifically asked to keep text segments verbatim[1], making sure the model would not 'invent' segments. For scientific accuracy the model was also tested on repeatability of the experiment. With the current settings the model was ran 10 times on the same text to check how it performed on picking the same texts.

To check for congruency between the 10 'readers' a Fleiss Kappa test (Fleiss & Cohen, 1973) was ran on the coding results of the 10 runs. The result of this was a score of 0.63, which means that there is a substantial agreement between the different runs. It is not perfect, but it leaves room for a bit of creativity and would not differ that much from working with 10 human readers.

The deductive coding of the LLM on all the different grey literature resulted in the so-called PLC-database with the filename, location of the text segments, verbatim text segment, allocated code based on the COM-B components of the behavioural change wheel (Michie et al., 2011) indicating it as a driver or barrier. The final column was introduced as an extra help for controlling the model. We explicitly asked to formulate a couple of sentences as a reasoning behind the coding of a text segment. After the model coded the text we could look into these segments and check if we agreed. One could see this step as an investigator triangulation, traditionally done in qualitative research by multiple colleagues (Patton, 1999).

Table 1: Headers of PLC-database

Filename	Page Number	Text Segment	COM-B Component or Policy Category or Extra	Driver or Barrier or Neutral	Notes / Comments

The deductive coding process produced a structured database comprising 702 coded text segments, which, for the purposes of this report, is referred to as the *PLC-database*. Each segment was systematically (AI-based) assigned to one of the three components of the COM-B framework (*Opportunity, Motivation*, or *Capability)* based on its content. The resulting structured dataset provides a transparent and replicable foundation for subsequent interpretation of components.

[1] In a way that uses exactly the same words as were originally used. (VERBATIM | English meaning - Cambridge Dictionary)

3.3.2 Identification and Weighting of Key Determinants

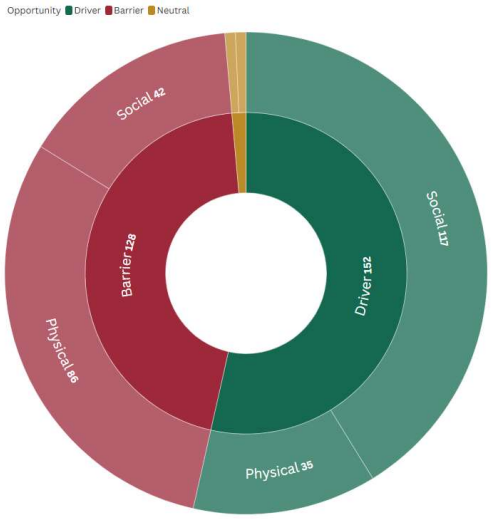
Following the initial AI-coding, the PLC-database was subjected to further human analysis (by the authors of this report) to identify the key determinants within each component. This also involved evaluating both the frequency of occurrence and the intensity of each determinant, allowing for an assessment of their relative significance in influencing private landowners' engagement in PLC. By combining quantitative measures (presence and intensity) with qualitative insights, this approach enabled a robust mapping of the behavioural drivers and barriers across the PLC context. We realize that using frequency as a parameter for importance is not desired. But it can give some idea on relevance or how well a certain type is documented. Because frequency is not

4 Structural external drivers for PLC

4.1 Opportunity

This chapter highlights the structural external factors that shape PLC-related land-use decisions. These structural external drivers refer to conditions beyond the direct control of individual landowners that nonetheless influence their ability to engage in Private Land Conservation (PLC). The COM-B model within the Behaviour Change Wheel (Michie et al., 2011) provides the analytical framework for identifying these external drivers under the *Opportunity* component. In this framework, *Opportunity* refers to external factors that enable or constrain an individual behaviour. It comprises two dimensions:

- **Physical Opportunity:** the material, environmental, and infrastructural conditions—such as financial resources, tools, land-use rules, or time—that shape what is possible. Market and policy factors are theoretically compatible under the COM-B concept of Physical Opportunity, as both shape the material conditions under which land-use decisions are made.
- **Social Opportunity:** the social norms, networks, and cultural cues that influence behaviour.



In this study, *Opportunity* is therefore understood as the external conditions that determine what private landowners *can realistically do*, in contrast to what they want to do (*Motivation*) or what they know how to do (*Capability*).
In Figure 1 a distribution is found on the amount of text segments indicating a determinant categorized as Opportunity. This does not indicate the overall importance of this determinant. Rather does it give a general idea on the amount of segments that have been found on this topic.

Figure 1: For illustration, the distribution of text segments between drivers and barriers in the component Opportunity.

4.1.1 Physical Opportunity Drivers: Economic and Policy Mechanisms

For private landowners, participation in PLC is shaped by the practical feasibility of implementing conservation measures within a viable business framework.

4.1.1.1 Financial and Market structures

The feasibility of engaging in Private Land Conservation (PLC) is highly dependent on financial viability, defined in terms of the external, structural conditions that enable or constrain landowners' actions. Across the PLC grey-literature dataset, multiple coded segments indicate that financial viability constitutes the most prominent Physical Opportunity constraint for engaging in PLC.

Financial viability consistently emerges as the strongest physical barrier related to opportunity for engaging in PLC. Various codes from the PLC dataset highlight how the economic logic of risk and return shapes the broader financial ecosystem surrounding conservation. Conservation is often described as a risky or financially burdensome activity for private landowners, farmers, and land stewards, who frequently operate under low or negative returns. As a result, conservation competes with strategies that provide more immediate or stable income. The PLC dataset repeatedly points to declining profitability in agriculture and forestry, driven by volatile markets, structural indebtedness, rising land prices, non-competitive product chains, and high labour or processing costs, as factors that further amplify this risk exposure.

Several text fragments from the PLC-dataset also indicate that philanthropic and public funding streams are perceived as stagnant or declining, while private capital markets remain underdeveloped, characterised by a shortage of bankable conservation deals, misaligned risk-return expectations (e.g. views on the risks and returns of land conservation diverge amongst landowners, public authorities and other parties).

Evidence from the PLC dataset further shows that, in contexts where market incentives, subsidies, or guaranteed programmes are absent, private land conservation often relies on landowners' own financial resources. For landowners whose land-use activities need to remain economically viable, this can reinforce the perception that engaging in conservation is a high-risk undertaking. While some stewardship may be motivated by intrinsic values or non-commercial objectives (see 0 Motivation), the lack of financial support can limit the practical feasibility of conservation under a market-based land-use model. As a result, landowners who might otherwise be motivated by altruistic considerations are discouraged when conservation entails relinquishing current or potential financial benefits without adequate compensation. Incentive programmes frequently fail to cover the full cost structure of conservation, leaving landowners exposed to residual financing gaps. Often new private markets, e.g. carbon or nature credits, are cited as possible ways to fill these gaps, yet private markets are still premature. Equally private investors, who are on the lookout to provide financial means to conservation efforts, state challenges resulting from an immature market.

"Investors also reported challenges consistent with an immature market, such as a shortage of investment prospects with appropriate risk-return profiles... and a lack of standardized impact metrics." (natureVest & EKO, 2014)

4.1.1.2 Legal and Administrative Frameworks

Legal and administrative systems shape *Physical Opportunity* by defining what forms of conservation are permissible, incentivised, or burdensome. The regulatory environment acts as a dual-edged determinant. While legal frameworks (e.g. policies on land use rights, covenants and easements) provide necessary protection, "overregulation" and complex bureaucracy are frequently cited as physical barriers. Many of the reviewed cases emphasise regulatory overload, rigid bureaucracies, and inflexible or underdeveloped legal instruments. The absence of standardised procedures for private land conservation, insufficient guidance for implementation, and inconsistent enforcement across jurisdictions generate uncertainty and risk for landowners. If legal frameworks do not compensate value losses (e.g., agricultural-to-nature conversions), owners face stark financial disincentives. Also, tax structures (specifically inheritance taxes) can physically force the fragmentation or sale of land, dismantling conservation efforts across generations.

"There is a risk that a high inheritance tax would not be covered by the rental income... resulting in land surface reduction and fragmentation." (Račinska et al., 2015)

In several European countries, public agencies responsible for conservation are perceived as understaffed and general lack of resources. What is more, there is insufficient coordination of land conservation as the policies are siloed and spread across municipal, regional, and national levels. Furthermore, conservation is often implemented through top-down approaches, with little attention to procedural clarity, financial support, or local decision-making contexts. When monitoring responsibilities fall to NGOs, the durability and credibility of conservation instruments can be jeopardised. Unlike public administrations, NGOs are typically not democratically mandated or embedded within stable governmental structures, and their internal organisation and funding may vary over time. As a result, landowners may perceive them as less reliable partners for implementing conservation obligations. This perceived instability can increase uncertainty and reduce confidence in the long-term security of conservation agreements.

4.1.1.3 Transaction and Scale Mechanisms

A second major cluster of physical constraints concerns transaction costs, administrative burdens, and scale inefficiencies. The "cost of entry", is defined in high administrative and technical overheads (soft costs) to access conservation markets (e.g., carbon or biodiversity credits). These costs disproportionately burden small landowners and smaller civil-society organisations. Conservation easements and other durable legal tools routinely incur high administrative costs, lengthy timelines, and complex procedural requirements. In countries with decentralised or inconsistent administrative systems, landowners face prolonged and costly approval processes that many small organisations are ill-equipped to navigate. Without

mechanisms to aggregate these smaller parcels, physical opportunity is restricted to large estates.

Scale further conditions access to opportunity: smallholders struggle to access funding that favours larger estates, to comply with strict documentation requirements, or to bear the burden of recurrent monitoring. Where agricultural subsidy systems impose heavy bureaucratic procedures, and where sanctions are experienced as punitive, land stewards perceive the administrative apparatus not as enabling but as constraining.

The involvement of volunteers, often viewed as a cost-saver, paradoxically generates additional coordination, training, and liability costs that many landowners or NGOs cannot absorb. The required skills and resulting transaction-costs produce a structural bias toward large entities, deepening inequality in access to conservation opportunities.

4.1.2 Social Opportunity Drivers: Network and Norms

Social Opportunity focus on whether landowners and conservation organizations are enabled or hindered by their social environment to take conservation measures. *Social opportunity* captures the cultural context, interpersonal networks, and norms that influence decision-making. In PLC, this is characterized by a tension between deep institutional mistrust and strong peer-to-peer reliance.

4.1.2.1 Trust, as a characteristic of the local network

Trust within the governance and stakeholder system constitute a key component of *Social Opportunity* in private land conservation. Various codes from the PLC dataset highlight that the design, stability, and coordination of institutions and stakeholder networks shape whether conservation actions are feasible and sustainable. Governance systems with frequent rule changes, fragmented responsibilities across municipal, regional, and national levels, or unclear enforcement procedures create structural uncertainty that constrains landowners' ability to participate in conservation programmes.

Similarly, NGOs and intermediary organisations play a structural role in the system: when these organisations are subject to variable funding, short-term mandates, or limited organisational continuity, their capacity to support conservation reliably is reduced. PLC-coded evidence shows that conservation mechanisms administered through unstable or weakly coordinated actors generate structural barriers, even when legal frameworks or incentives exist. Conversely, well-structured, coordinated networks of authorities, NGOs, and local institutions provide clear pathways, procedural guidance, and aligned incentives, enhancing the external conditions under which landowners can engage in conservation.

This framing highlights that *Social Opportunity* is determined not by individual trust or perception, but by the structural configuration, stability, and coordination of actors within the governance and stakeholder system, which collectively shape the feasibility and durability of conservation actions. Hence, trust is to some extent a contextual rather than a human factor.

In PLC, the trust dynamic is further characterized by a tension between deep institutional mistrust and strong peer-to-peer reliance. Consequently, the source of information (the messenger) is often more influential than the information itself.

> *"Trust among the contractual parties of a conservation easement is a key ingredient, as the agreement forms the basis for a lifetime relationship." (European Networks for Private Land Conservation (ENPLC), 2023)*

4.1.2.2 Peer Validation and Social Recognition Structures

Landowners' participation in private land conservation is strongly shaped by external social factors, including recognition by peers, perceived legitimacy, and approval within their networks. Public recognition such as awards, labels, or formal acknowledgement, functions as a social resource that can complement or partially substitute financial incentives.

> *"What's more, it hands out annual prizes - 'Oscars for farmers' - to those farmers whom a jury of peers has judged to excel in conserving nature." (Eurosite, 2023)*

Beyond individual expertise (addressed under *Psychological Capability*), the presence of peer networks, professional communities, and validating organisations provides a social context in which conservation-oriented practices are acknowledged and legitimised. These networks offer opportunities for exchange, benchmarking, and social validation among landowners, thereby embedding private land conservation within shared norms and collective practices. While such recognition structures are not always decisive on their own, they form part of the social environment that can support the continuation of conservation efforts.

> *"And it's not necessarily about financial motivation or incentives. It's about having that recognition and people seeing they are making a difference... they just want this simple recognition. (LIFE ENPLC, 2022)"*

Conversely, negative social narratives surrounding farming, land management, or conservation can constrain *Social Opportunity* by creating environments in which landowners feel judged rather than supported. In networks where stewardship practices are publicly problematised or devalued, landowners may experience social alienation, and conservation-oriented practices lack positive social visibility. Where role models and positive case studies are scarce, conservation success remains socially invisible, limiting diffusion effects within peer networks.

Intergenerational social expectations also shape *Social Opportunity*. In contexts where stewardship is framed as economically precarious or socially unrewarded, younger generations may be discouraged from inheriting or continuing land management responsibilities.

> *"This negative narrative can alienate farmers from nature, making them feel apart from it rather than part of it." (A. Gazenbeek, personal communication, n.d.)*

Finally, some socially embedded drivers operate through normative pressure, such as a sense of moral obligation arising from expectations within social or professional networks. While such pressures may support the uptake of private land conservation, they do not necessarily reflect intrinsic beliefs or values. These mechanisms therefore sit at the interface between *Social*

Opportunity (the presence of norms and expectations) and *Motivation* (the internalisation of those norms), and their long-term effectiveness may depend on whether social expectations align with landowners' own values and capacities.

4.1.2.3 Knowledge and Coordination needs

Effective conservation requires the flow of knowledge, the coordination of networks, and collaborative platforms. Many contexts, however, suffer from fragmented initiatives, limited technical assistance, insufficient guidance, and scarce opportunities for matchmaking between landowners, NGOs, volunteers, and public entities. Local-level disaggregation while offering proximity, often results in strategic incoherence, limited critical mass, and missed synergies.

Where expertise on conservation tools, funding application processes, or monitoring requirements is absent, the capacity to act becomes constrained even when actors are willing *(*See Chapter 5*)*. Volunteer networks, too, require structured coordination, clear rules, and shared training, which are often missing. The absence of durable intermediaries exacerbates these coordination failures. Networks alone cannot fully offset financial or legal barriers, but their absence significantly limits actionability.

> *"This network... seeks to bring together farmers who look after nature on their land. To enable them to swap experience, tips and tricks, between them and with conservation professionals." (A. Gazenbeek, personal communication, n.d.)*

4.1.2.4 Integrated Socio-Economic Drivers

Several determinants identified in the data resist binary classification *(Physical vs Social Opportunity)*. These factors operate at the intersection of *Physical and Social Opportunity*, where structural mechanisms are employed to solve relational problems, or social capital is converted into economic value. Examples from the data include collective arrangements such as landowner networks, cooperatives, or intermediary organisations that facilitate access to funding, markets, or advisory support, while simultaneously relying on trust, shared norms, and peer coordination. In these cases, social relationships enable material opportunities (e.g. reduced transaction costs, pooled investments, or eligibility for schemes), illustrating how social embeddedness can directly shape physical opportunity structures.

4.1.2.5 Market-Based Stewardship Mechanisms

Labels, certification schemes, and branding initiatives function as external coordination mechanisms that link social recognition with material incentives. From an *Opportunity* perspective, these instruments structure access to markets, price premiums, and support schemes, while simultaneously embedding conservation-oriented practices within recognised social and institutional frameworks. As such, they operate at the interface of *Physical Opportunity* (economic viability, reduced transaction costs, eligibility for programmes) and *Social Opportunity* (shared standards, collective visibility, and external validation).

When effectively designed and supported, such mechanisms can increase product value, enhance market access, and provide formal recognition of conservation practices. They may also lower administrative barriers by aligning certification criteria with subsidy, procurement, or award programmes, thereby simplifying participation in conservation-related markets.

However, the effectiveness of these mechanisms depends on the presence of stable institutional backing, coordination, and collective organisation. In contexts where these conditions are weak or absent, labels and certification schemes face limited uptake, low visibility, or competition with other initiatives for public and market attention. In such cases, the marketisation of stewardship remains fragile, and these mechanisms fail to provide a reliable external opportunity structure for private land conservation.

> *"The benefit of participating in such labelling schemes is a better visibility for consumer groups with a demand and a willingness to pay for 'green', regional premium products." (Disselhof, 2015)*

4.1.3 Bringing the external drivers together

Overall, this chapter demonstrates that landowners' engagement in Private Land Conservation (PLC) is strongly shaped by the external conditions that surround and influence their decisions. These conditions encompass both material and social factors that either enable or constrain conservation actions.

Physical drivers (*Physical Opportunity*), including regulatory frameworks, administrative procedures, funding mechanisms, market incentives, and access to technical or organisational support, determine whether PLC is practically achievable. When well-aligned with local realities, these structures create opportunities for action; when misaligned or overly burdensome, they present significant barriers.

Social drivers (*Social Opportunity*) such as cultural norms, peer influence, and prevailing land management traditions, shape how conservation is perceived within communities. They influence whether landowners view PLC as legitimate, appropriate, or valued, and affect the social support and validation available for engaging in conservation.

Taken together, these external drivers make clear that participation in PLC is not solely a matter of individual choice. The broader system must provide the conditions, resources, and social coherence that make conservation both possible and meaningful. Understanding these structural and social factors provides the foundation for examining the internal drivers of behaviour *Capability* and *Motivation* which are addressed in the following chapter.

5 Factors influencing land-use decision making

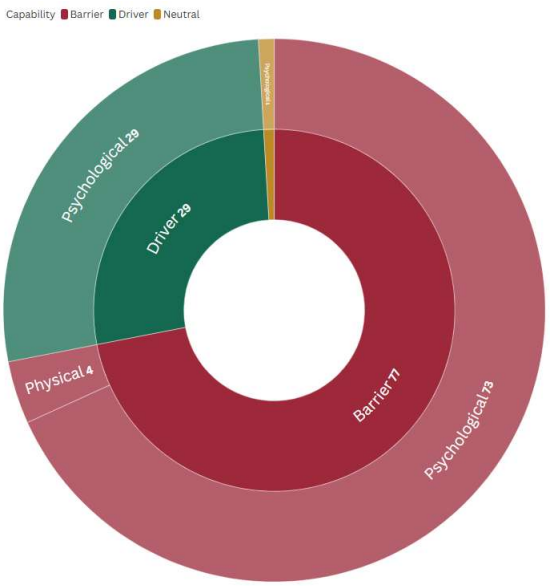
While the previous chapter focused on the structural external conditions that shape landowners' engagement in Private Land Conservation (PLC), this chapter turns more to the internal drivers of behaviour: *Capability* and *Motivation*. These dimensions capture what landowners are capable to do and want to do, complementing the external *Opportunity* factors explored in Chapter 4.

- **Capability** (Michie et al., 2011) refers to the knowledge, skills, and practical competencies that enable landowners to implement conservation actions. This includes understanding relevant ecological principles, navigating administrative procedures, and accessing the technical expertise or management practices necessary to carry out effective PLC.
- **Motivation** (Michie et al., 2011) refers to the internal processes that direct and energize behaviour, including beliefs, values, priorities, and attitudes toward conservation. It encompasses both reflective considerations (*Reflective Motivation*) such as weighing costs and benefits or aligning actions with personal or professional goals, and automatic responses, such as habits, emotional responses, or culturally ingrained tendencies.

By examining *Capability* and Motivation alongside the external *Opportunity* conditions, this chapter provides a comprehensive view of the behavioural determinants that influence landowners' participation in PLC. The following sections present the results of the analysis, highlighting the internal drivers that facilitate or constrain conservation decisions.

For the understanding of the analysis of the text segments, we interpreted Capability as the knowledge or skills: "Do you know and have what it takes?". Motivation is more seen as an internal drive: "Are you willing to do what it takes?

5.1 Capability



To introduce the qualitative analysis of the *Capability* component, we revisit the overview of codes. Most notably, capability in the context of private land conservation (PLC) is predominantly understood by actors as psychological capability, functioning as a driver and a barrier. In contrast, *Physical Capability* is mentioned far less frequently. When mentioned, it is exclusively framed as barrier; limitations in time, labour, or technical capacity to implement conservation measures. Unlike in academic literature on behaviour aspects of land management, *Physical Capability* does not emerge as a salient driver within the PLC context.

Figure 2: For illustration, the distribution of text segments between drivers and barriers in the component Capability.

5.1.1 Psychological Capability

Ipsa scientia potestas est (Knowledge is power), Francis Bacon wrote back in the 16th century. Likewise, this analysis indicates that having the 'right' knowledge is a key enabler for landowners to participate in PLC with more attention being given to the 'lack of knowledge' (barrier) rather than the availability of knowledge (driver).

The 'right' knowledge refers to knowledge in different fields. Private landowners are not necessarily all educated in ecology, biodiversity, climate change, water management, law, governance, … to name just a few of the areas of expertise closely linked to Private Land Conservation. The essential areas of expertise highlighted in the grey literature were Administration & Legal, Ecological, and Business & Financial. The following paragraphs expand on each of these expertise's.

5.1.1.1 Administration and Legal Literacy

The most attention in terms knowledge within the dataset refers not to lack of ecological awareness, but to lack of procedural competence. Different codes in the PLC-dataset repeatedly suggest that landowners may be motivated to conserve, however, they often lack the specific cognitive skills or the confidence needed to navigate the legal and administrative mechanisms aimed at supporting PLC. These mechanisms include easements, stewardship contracts, and relevant tax provisions. The legal and administrative inexperience adds to distrust and therefore scepticism towards policies and government. Meaning that not the conservation work itself, but the paperwork is the barrier.

5.1.1.2 Ecology

Various codes in the PLC-dataset refer to insufficient knowledge on the ecological value. On the one hand, some landowners don't realize how much biodiversity their land holds. They first need an AHA-moment, creating a mind shift. It is this moment of realisation or awareness that makes them ready to act.

Other landowners do realize the biodiversity on their land, and they highlight that they add "unique knowledge" on the land, e.g. a deep knowledge of the lands' history. Therefore, these private landowners see themselves as essential in the conservation of their land, adding specific place-based knowledge to conservation discussions which can be rather technical. Conservation schemes or national policies often require management plans that detail actions and practices which build on guidelines and principles founded in scientific disciplines such as biology and ecology. While these plans are often drafted by NGOs or public authorities, the private landowners struggle to transpose their tacit knowledge into these technical documents.

5.1.1.3 Business and Financial Literacy

Next to an entrepreneurial mindset, there is a certain business and financial literacy needed to speak the right 'language' to attract funding. This field of business and finance uses its own vocabulary and concepts, and is not always easily accessible, e.g. for people with a background in forestry or agriculture. Private landowners with an interest in PLC have to become entrepreneurs on top of their conservation work and their other day-to-day activities. In addition, they must have management skills to run such new type of business, including challenges such as working with field workers and volunteers.

5.1.1.4 Coping strategies

Closely linked to the dominant barrier 'lack of knowledge' within the category capability, the PLC reports put forward several solutions:

(a) Built knowledge and spread awareness. Sometimes landowners would want to start with certain practices, but they simply don't know of their existence, hence the need for knowledge transfer. The spreading of awareness or knowledge is strongly influenced by themes addressed in Social Opportunity and the involved parties. The presence of a network makes knowledge transfer more efficient, effective and realistic, but on the downside knowledge risks to get stuck with the same, small amount of people.
(b) Examples and experts. The lack of real-life cases is a strong barrier to implement certain practices or policy instruments and closely related, the lack of (legal) experts to guide landowners. Hence, the capacity to act on PLC is strongly dependent on the capability to access the right advice.

The data thus places significant weight on the fact that individual capability is rarely sufficient or it is hard to organise on its own. Landowners rely heavily on learning capability from experts, peers and networks which closely relate to the concept of social opportunity (see Chapter 4).

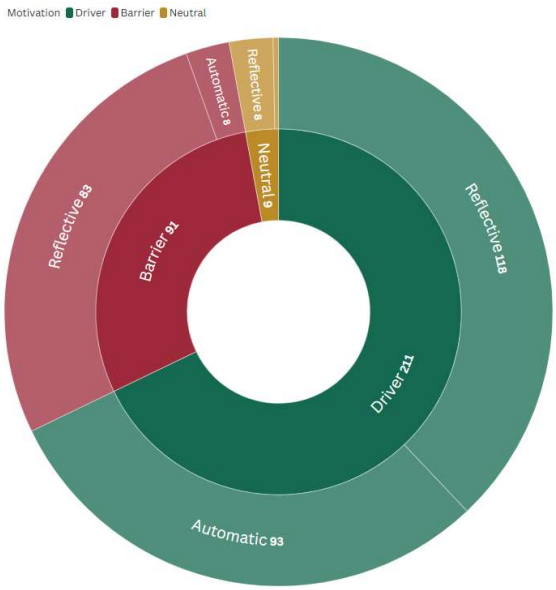
5.1.2 Physical Capability

As indicated above, *Physical Capability* is not mentioned often as a barrier (nor enabler) to start with PLC in the grey literature. To be clear, physical capability is a prerequisite for PLC: labour, time and other resources are a must to act on PLC. The (near) omission of this concept suggests that they are limiting factors of PLC, rather than enablers or barriers. Another possibility is that these factors are so obvious that they are not worth mentioning.

5.2 Motivation

> *"The motivations of landowners to conserve their property can be manifold, ranging from emotional place attachment to personal history, general environmental ethics and values, the feeling of social responsibility, financial considerations or compliance with environmental regulation."*
>
> (Fundación Biodiversidad et al., 2018)

Motivation could be seen both as the beginning and the end for action. Without it, people will never start with PLC. It is therefore a key component in behaviour. The COM-B model addresses motivation on two levels: *Automatic Motivation*, 'the fire from within' or 'the heart', and *Reflective Motivation*, 'I need to think on that' or 'the head'.



Both *Automatic* and *Reflective Motivation* popped up as important factors, backed by around 300 text segments. *Automatic Motivation* almost never identified as a barrier, showcasing the idea that PLC comes from a positive internal driver. People who possess certain traits, such as Agreeableness and Openness are known to show more pro-environmental behaviour (Hirsh, 2010; Kaiser & Wilson, 2004). On the other hand, people might want to start with conservation, but they waiver these ideas when they think them over. This is illustrated by the dataset: near all mentions of barriers are related to *Reflective Motivation*.

Figure 3 For illustration, the distribution of text segments between drivers and barriers in the component Motivation.

5.2.1 Automatic Motivation

5.2.1.1 Identity and legacy

Identity is something that is hard to grasp. It could mean different things to people. In the PLC data there were many references to altruism, i.e. 'doing the right thing', and place-based identity, i.e. 'connection to the land'. Identity and legacy are the main instigators for PLC since private landowners seem to feel a strong internal driver to start conservation. The landowner acts as a guardian for the land and wants to pass this piece of heritage to the next generation in a good, or even better, state. Doing this they can feel a deep emotional satisfaction and pride in being a "good steward" and receiving social recognition from peers or the community. "Love of the land" and "peace of mind" are cited frequently as the actual root cause of action, with finance merely making it possible or even considering it of minor importance.

> *"Not the best profitability, but it is pleasant." (LIFE ENPLC, 2023)*

5.2.1.2 (Dis)trust

As mentioned earlier, *Automatic Motivation* is mostly stated as a positive factor, conceived as an enabler rather than a barrier. The barriers related to automatic motivation are linked to trust, or distrust to be specific. The concept of trust spans the boundaries of the components in the COM-B model, e.g. trust being a characteristic of the local network of social peers (see Section 4.1.2.2) or a characteristic of the relations between land users and public authorities (see Section 4.1.2.1). While there may be rational arguments to (dis)trust someone or something (see section 5.2.2), this section refers to (dis)trust as a gut feel. Generally, there are more feelings of distrust against public institutions or the governmental agencies. What is more, conservation practices or PLC instruments that imply providing public access or offering amenity values are distrusted, linked to a strong sense of loss of autonomy or ownership. For example, some landowners are eager to conserve nature, but they don't want to grant the public access to their estate out of privacy concerns, fear of damage or misuse. From their perspective, there is a mismatch between public access and conservation works.

5.2.2 Reflective Motivation

Reflective Motivation involves the conscious, cognitive processes where landowners evaluate the costs, benefits, and feasibility of conservation. The data indicates that key rationale of landowners related to reflective motivation are a desire for financial viability and the preservation of decision-making autonomy. This section addresses the thoughts that block transposing beliefs into action.

5.2.2.1 Financial Viability

While profit maximisation is rarely the sole driver or even a driver at all, financial viability does often act as a critical baseline condition. The data suggests a hierarchy of needs: only when the land is financially secure, conservation becomes possible. Conversely, structurally loss-making

assets force landowners towards commercial development or sale, regardless of their conservation ethics.

Landowners view land as both a natural asset and a financial instrument. Incentives (tax breaks, subsidies) are often not viewed as rewards, but as necessary mechanisms to bridge the gap between conservation costs and (agricultural) income.

> *"When the rate of return of agricultural land is negative, landowners struggle to maintain an asset that is structurally making a loss. They are tempted to sell or develop their land in order to make a profit that is neither null nor negative." (Fondation pour la recherche sur la , 2021)*

Next to these more classical approaches on land conservation there are new phenomena surging on how to balance the books. The text segments indicated a strong reflective drive to integrate conservation with market mechanisms, such as eco-tourism, green energy points, or premium value-added products (e.g., wool, honey), in order to finance the "cost" of nature conservation. Of course, the pendulum cannot swing too far in the other direction: the PLC frontrunners are looking for a way to cover costs, not to capitalize on nature. Entrepreneurship of an estate or farm thus encompasses more than purely financial or business strategies, yet they is an inherent component of entrepreneurship. This need equally applies for other forms of entrepreneurship, including social entrepreneurship which focuses on the local environment and the community rather than sole financial gain. Even when profit is not the main driver of action, there is still a business that needs to be ran and, as a consequence, financial stability is a prerequisite. This is strongly linked to the business role that landowners need to take on (see Chapter 5.1).

5.2.2.2 Autonomy

The fact that landowners aim to be at the drivers' seat is considered important. When NGOs or environmental organisations want to help, many codes in the dataset refer to the landowners' desire to have the final say, as they are the owners. This determinant is categorized as *Reflective Motivation* because it includes planning and allows for risk management and flexibility.

There is a strong preference for voluntary schemes over regulatory ones. This preference is a mixed determinant, which means there is some aspects of *Automatic Motivation* behind it. Because it also satisfies the psychological need for self-determination and ownership. When a scheme is voluntary, it aligns with the landowner's identity as an independent steward; when it is mandatory, it threatens that identity, triggering resistance.

The sense of autonomy could also spark proactive, self-governing conservation: pre-emptive voluntary decision to prevent the need for harsher interventions down the line. Such defensive conservation link clearly to the sense of autonomy. Through current, voluntary actions, landowners want to avoid a hard change in the future. On the other hand, some landowners see this voluntary and futureproof thinking as a possible trap. They are worried that when the conservation is successful, this could lead to even more regulatory consequences. The most perverse effect of this, landowners explicitly not reporting the presence of certain species. This does not mean that they do not conserve them, but by keeping it quiet they avoid the risk of extra rules or obligations.

5.2.2.3 Ambiguity of Long Term

Long term contracts or agreements, such as easements or some agro-environmental measures are regarded as both a driver and a barrier. Positive arguments by landowners for such long term contracts or agreements is the guarantee that their land will be conserved after they are gone. Through interventions such as conservation easements, for example, landowners ensure that their heirs cannot simply overrule their work, or the work by their ancestors. In addition, such strategies are an efficient way of keeping an estate intact and to ensure its' unity. Preventing the fragmentation of land is particularly hard as private land passes from one generation to the next. What is more, long term conditions are beneficial as their time horizon exceeds the lifespan of a government, a policy framework of even an legislation.

On that downside, this rigidness that is the main barrier to enrol in these long term contracts. The opponents of these long term agreements see them as not flexible enough and they stress that they 'feel locked in'. A dominant determinant is the fear of "permanence" (e.g., permanent easements). Landowners prefer short-term contracts (5-10 years) or result-based schemes that allow them to decide how to manage the land rather than following rigid prescriptions or rules.

5.3 Linkages between determinants

To understand how different components and determinants contribute or limit behavioural change, it is important to untangle the various interrelations. This section evaluates the relative weight or hierarchy of the determinants. In this qualitative research, "weight" is based on the dataset, e.g. the frequency of components that are managed as well as the emphasis on certain topics in the coded text segments, the determinants seem to operate in a hierarchy: some are non-negotiable prerequisites, while others have more of a driving or motivating role.

Both financial viability and autonomy seem to be essential to landowners. When these conditions are not met, the move towards PLC will probably not happen. People are usually aware that they will not get rich of PLC, but some financial reward to cover the expenses seems to be the lower limit.

Together with the financial aspect, landowners also attach great importance on autonomy. As the land is often already within the family for generations, they feel a lot of pride on keeping and maintaining these lands. When the sense of autonomy is lost this acts as a large barrier. It can even overrule financial reward, when it comes with too many strings attached. This is one of the main struggles with contracts like easements, where the feeling of a lock-in or loss of control is felt. These feelings closely relate to both *Automatic* and *Reflective Motivation* and are intensified when there is a lack of confidence in third parties such as NGOs and the government.

On a somewhat lower level of importance there are the determinants linked to *Automatic Motivation*, like pride and legacy. These are necessary to spark the idea and keep the landowners on board. They act as the internal drive. Opposingly, the external drive is considered equally

important and motivating to continue with PLC. Trust in peers and colleagues is valued very high. Especially recognition and expertise that are exchanged in these networks act as a strong driver.

Finally, there are some nice to haves but not really essential determinants for enrolling in PLC. These factors, many related to the component Capability, will mostly influence the scale or longevity rather than enable or inhibit PLC actions. For example, the lack of a network of volunteers, lack of technical knowledge, the big amount of paperwork are discouraging factors but don't influence a landowner's decision about PLC since the main hurdle of starting with PLC is already passed at that stage.

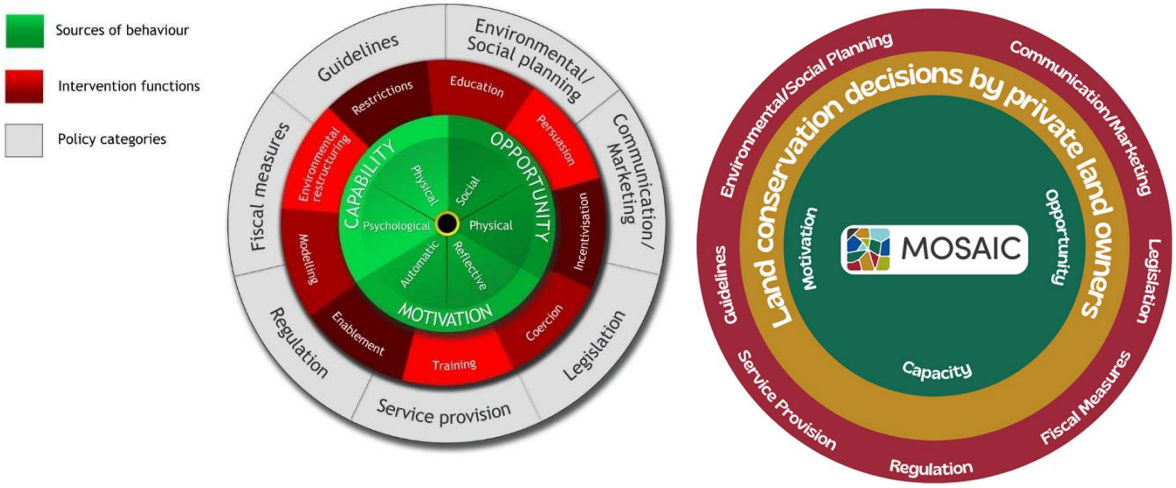


Figure 4: Original Behaviour Change Wheel (left) and adapted version with the elements we are focussing on in this report (right).

Table 2 Summarizing table with the determinants and their function in behaviour.

Determinant Cluster	Function in behaviour
Financial Viability	Gate: "If this is not okay, I cannot start."
Autonomy & Control	Safety Mechanism: "I won't do this if I lose my rights."
Identity & Legacy	Impulse: "I do this because it is who I am (Kaitiaki)."
	Purpose: "I do this for my children/future."
Trust & Networks	Bridge: "I will work with *you* (NGO), but not *them* (Gov)."
Privacy Concerns	Friction: "I want nature, but I don't want strangers."
Market/Labels	Cherry on Top: "It's nice if I can sell 'green' honey too."

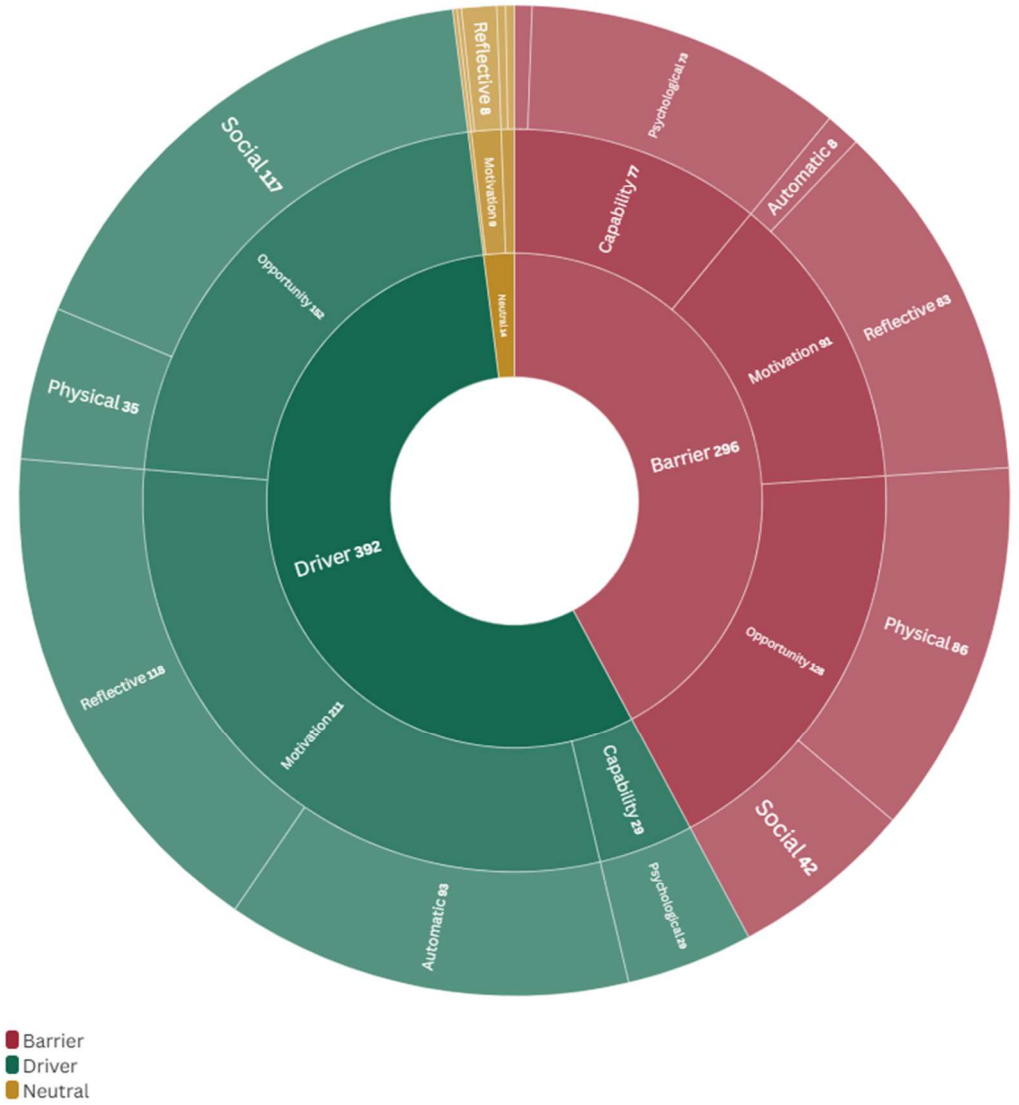


Figure 5: Overview of all analysed text segments and the way they are categorised by the AI-peer.

6 Discussion

6.1 Methodological reflections

6.1.1 Using COM-B for deductive coding

The COM-B model (Capability, Opportunity, Motivation – Behaviour) (Michie et al., 2011) provided a structured and transparent framework for deductive coding in this study. Its use allowed the highly diverse grey-literature dataset to be organised systematically, making it possible to disentangle the different behavioural influences shaping private land conservation. By breaking behaviour into three core components, COM-B offers an accessible way to interpret the interplay between what landowners are able to do, what the context allows them to do, and what they want to do. In this sense, COM-B complements more traditional land-use modelling approaches by producing actionable insights for intervention and policy design.

The simplicity which makes COM-B a practically applicable framework, however, equally sets some limitations. Reducing complex behaviour to three (or six) categories risks oversimplifying nuanced determinants, and its reliance on minimal contextual information constrains the model when addressing rich, context-dependent land-use decisions. More fundamentally, COM-B's focus on *individual*-level behavioural mechanisms does not fully capture structural and systemic drivers, such as market dynamics, policy path dependencies, social norms, and legal frameworks, that operate at institutional or landscape scales. Although these drivers are touched upon in the capability component, they are not addressed in full even though they are critical in shaping long-term ecological outcomes.

For these reasons, COM-B should be viewed as one analytical lens within a broader decision-making framework. In the context of PLC, it offers valuable behavioural insights and adds to the understanding of what policy interventions could be interesting to generate more interest in PLC, yet can be complement with other research methods to feed into policy design such as Agent based modelling and multi-criteria decision analysis (MCDA).

6.1.2 Reflections on AI-method

As noted in Section 2.3.1, the use of an AI research assistant enabled us to handle a substantially larger and more diverse set of texts than would have been feasible manually. The ability to access and process knowledge previously restricted by language barriers was particularly valuable. The AI-assisted approach allowed for the consistent analysis of thousands of pages without fatigue, resulting in the creation of a rigorous dataset of coded text fragments, the PLC-database. This database effectively identified the main drivers and barriers reported in the literature, including sources that might otherwise have been overlooked.

There are, however, important limitations to this approach. One concern is the potential for the model to overlook relevant text segments, which could bias results. To address this, we included a large number of documents and triangulated the coding, checking each other's work and interpretation, ensuring that general trends were reliably captured. Even with robust triangulation, the broad and interpretive nature of the COM-B framework leaves room for ambiguity, which sometimes affected the AI's coding precision. Despite these challenges, AI

proved to be a valuable tool for scaling qualitative analysis, enhancing reproducibility, and revealing patterns across a vast and heterogeneous dataset that would have been difficult to manage using traditional methods.

6.2 Key determinants of voluntary Private Land Conservation

This study provides a systematic, cross-European syntheses of behavioural determinants of Private Land Conservation (PLC) based on grey literature from pioneering PLC initiatives. This focus is significant for two reasons. First, PLC is an emerging policy domain in Europe: many countries are experimenting with voluntary conservation tools, yet structured behavioural evidence has been scarce. Second, the reports, testimonies and project outputs analysed here, although not published in scientific journals, represent the most immediate and practice-grounded body of knowledge on how landowners actually respond to PLC instruments. By systematically analysing this material through the COM-B framework, this study contributes new conceptual clarity to how PLC behaviour is shaped, blocked or enabled across Europe. From this analysis, three overarching conclusions emerge:

- **The Gate is Economic Viability**. Structural economic conditions—particularly risk, return, and transaction costs—form the decisive threshold. Without resolving these external constraints, neither Motivation nor Capability can materialise in behaviour.
- **The Key is Social Trust**. Where physical barriers are addressed, social trust determines whether landowners are willing to step through the gate. Intermediaries, peers and trusted networks are the most influential mediators of participation.
- **Motivation is Latent, not missing**. Rather than lacking environmental concern, many landowners are already motivated by identity, stewardship and legacy. These motivations do not need to be created; they need to be enabled.

These findings underline the value of analysing grey literature: they reveal how PLC behaves “on the ground” not in theory, but in the lived realities of European landowners navigating a still-immature policy field. They echo and refine insights from existing research on land-use behaviour. First, the strong influence of economic conditions confirms a long-standing pattern observed in studies of agricultural and forestry decision-making: when land becomes a structurally loss-making asset, behavioural intentions however positive, are overridden by financial reality. This alignment with earlier work underscores the need to foreground economic feasibility and market design in PLC policy development.

Although the established importance of economic determinants in land-use behaviour is confirmed, this study also highlights dimensions that remain underexplored in PLC research particularly the behavioural weight of trust, identity, and autonomy. This suggests that PLC cannot be effectively understood and promoted through economic tools alone; social legitimacy and relational structures are known to be equally decisive (Fairbrother, 2017). Whereas economic constraints determine whether PLC is possible, social opportunity and intrinsic motivations shape how and with whom landowners are willing to engage. This illustrates the

distinctive behavioural profile of PLC as a voluntary, relationship-dependent form of conservation.

Finally, these results raise important questions for future research. A logical next step is to compare the grey-literature determinants identified here with insights from white academic literature on PLC and land stewardship. An important factor would be to look at the possible bias in the grey literature. Farmers and landowners working in LIFE projects and participating in these interviews could be part of a coalition of the willing. It can therefore give a wrong idea on the motivations or drivers of PLC. For example, work by MOSAIC colleagues Jens Abildtrup and Esther Devillers from INRAE using farm-accountancy and behavioural datasets may provide an empirical counterpoint to the practice-based narratives analysed in this study. A systematic comparison would clarify the extent to which determinants emerging from pioneering PLC projects particularly those related to social trust and identity, are also reflected in formal behavioural research. Such triangulation would strengthen the evidence base for PLC and help distinguish context-specific findings from generalisable behavioural mechanisms.

6.3 Policy implications

Although a formal policy implications analysis was beyond the scope of this study, the findings provide several valuable reflections for private land conservation (PLC). First, PLC remains a high-risk venture for landowners, with uncertain returns and potential loss of rights; policy efforts should aim to de-risk participation to normalize the behavior. Second, barriers are less about knowledge (*Capability*) and more about structural constraints (*Opportunity*), suggesting that interventions should focus on restructuring markets and institutional support rather than education alone. Third, small landowners cannot effectively engage in global conservation markets without intermediaries; professionalizing aggregators such as cooperatives or trusts is critical. Fourth, motivation can be enhanced by combining financial incentives with social recognition: programs that leverage pride and peer influence may drive uptake more effectively than monetary incentives alone. Fifth, mistrust of government-led initiatives can be bypassed by funding and empowering local, bottom-up networks to implement conservation measures. Finally, further research could expand on these insights by applying the *Behaviour Change Wheel*'s outer layer in deductive coding, linking individual behavioural mechanisms to policy and structural incentives. Together, these reflections highlight that effective PLC policy must integrate behavioural, structural, and social levers, combining de-risking, institutional support, and motivation strategies to create lasting impact.

7 Conclusion

This study demonstrates the value of combining a structured behavioural framework and AI-assisted analysis to generate actionable insights for private land conservation (PLC). By systematically coding a diverse and extensive dataset of grey literature, we identified key drivers and barriers shaping landowner decisions, revealing both behavioural and structural influences. While the study does not provide a full policy evaluation, its findings offer practical guidance for de-risking participation, supporting intermediaries, and designing incentive mechanisms that align motivation with opportunity. Importantly, these results can also serve as an input for land-use modelling within MOSAIC, linking behavioural insights to broader landscape and policy scenarios, enhancing the relevance and applicability of PLC interventions.

Appendix

Appendix 1: Prompt for deductive coding in Gemini 2.5 Pro

You will act as a qualitative researcher performing open coding on grey literature about private landowners' decisions on land conservation.

For each uploaded document:

Carefully read the document and identify text segments, quote length — recommend 20–200 words, that relate to landowners' behaviour, drivers or barriers to conservation, and references to policies or interventions.

For each segment assign one or more of: a COM-B component (Capability / Opportunity / Motivation — and subtype where possible), a Policy category (Guidelines, Environmental/Social Planning, Communication/Marketing, Legislation, Service Provision, Regulation, Fiscal Measures), or an Extra code if it doesn't map. Double-code segments when appropriate (e.g., Motivation + Fiscal Measures).

Record: File name (format= DocName_YYYY.pdf), page number, exact quoted text segment, assigned code(s), and optional notes.

Produce a single consolidated spreadsheet (Excel/CSV) with all coded segments. Work document-by-document, but return one consolidated table. Provide a short codebook of all custom "Extra" subcodes used.

Output format (columns): Filename | Page Number | Text Segment | COM-B Component or Policy Category or Extra | Notes / Comments

Requirements: Link every code to exact text; include page number; create subcodes only when required and list them in the codebook; keep quotes verbatim; anonymize owner or location names if present; show examples for each document before completing the whole spreadsheet. Allow multi-codes, but put them in different rows.

Suggested compact codebook (COM-B ↔ examples + Policy categories)

Use this as the assistant's internal mapping. It helps keep coding consistent.

COM-B — definitions + short examples you can use:

- Capability — Psychological: knowledge, awareness, skills.
- Capability — Physical: physical ability, labour capacity.
- Opportunity — Physical: access, time, money, infrastructure.
- Opportunity — Social: cultural norms, peer pressure, social support.
- Motivation — Reflective: plans, beliefs about outcomes, intentions.
- Motivation — Automatic: emotions, habits, identity.

Policy categories (definitions):

- Communication/Marketing — media, outreach
- Regulations — rules/standards (voluntary or required)
- Guidelines — recommended best practice
- Fiscal Measures — subsidies, tax breaks, payments for ecosystem services
- Environmental/Social Planning — design of physical/social environment, zoning, landscape planning;
- Legislation — laws/statutes
- Service Provision — direct services/technical support, extension services

Extra — for concepts outside COM-B/policy (include subcode name)

Appendix 2: Bibliography for PLC Database

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