Shaping a 'green desert': How philosophy & site-specific design offers a different Irish landscape

Ecology & Philosophy- an Irish Landscape Intersection

Niall O’Brien-Gregg

Southern Swedish Forest Research Centre

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Shaping a 'green desert': How philosophy and site-specific design offers a different Irish landscape.

Ecology & philosophy- An Irish landscape intersection

Att forma en "grön öken": Hur filosofi och platsspecifik design erbjuder ett annorlunda irländskt landskap.

Ekologi och filosofi - En skärningspunkt mellan irländska landskap

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Abstract

Ireland's rural landscapes have undergone significant ecological and cultural transformation through centuries of colonial land restructuring, agricultural intensification, and increasing dependence on globalized economic systems. County Roscommon represents a particularly relevant context within this condition, characterized by livestock-dominated land use, fragmented ecological systems, low forest cover, and declining biodiversity. Simultaneously, communities remain culturally connected to the landscape despite increasing physical and ecological disconnection from nature.

This thesis investigates how multifunctional landscape design can operationalize deep ecological principles to enhance ecological resilience and reconfigure human–nature relationships in rural landscapes such as Roscommon, Ireland. The research combines literature studies, historical analysis, qualitative interviews, thematic coding, site analysis, and speculative design methodologies to explore the socio-ecological interface between land use, ecology, culture, and community. Reference case studies, including Burrenbeo Trust and Common Knowledge, informed the development of design principles grounded in agroecology, ecological restoration, accessibility, and community engagement.

The findings identify biodiversity loss, ecological fragmentation, and restricted access to nature as central challenges within the contemporary Irish rural landscape. Interviews and thematic analysis further reveal tensions between environmental stewardship, economic pressures, agricultural policy, and cultural identity. In response, the thesis proposes a multifunctional design framework for the Cusack Family Farm in Strokestown, integrating agroforestry, wetland restoration, afforestation, ecological corridors, food production, education, recreation, and public accessibility. The proposal emphasizes ecological connectivity, local knowledge, and creating space for ecological autonomy within productive landscapes.

The research concludes that multifunctional landscape design informed by deep ecology can support both ecological resilience and stronger relational connections between communities and landscape. Re-establishing ecological resilience in Ireland is therefore framed not solely as an environmental challenge, but also as a cultural and relational process requiring cooperation, accessibility, and renewed ecological understanding.

Keywords: multifunctional, deep ecology, agroecology, ecological resilience, Ireland, Roscommon, landscape architecture, biodiversity, rural landscape, community, human-nature relationships, education

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1. Motivation and introduction

The motivation for this thesis comes from my culinary background that ended professionally when I wanted a better relationship with where our food is coming from and the environment in general. The choice to carry out the research in Ireland comes from both personal and academic reasons. My family is Irish and I have been spending time in the country on and off since I was 3 years old. From growing up in America hearing Irish mythologies told to me at night and being so far away from the country always spurred a desire to be there. When looking at the Irish culture and becoming familiar with the stories that tell of the landscape and how people interacted with it and valued it, it's quite sad to see so much of the land be ecologically stressed and degraded. The cultural mindset is one of great difference to the culture in the field. These conditions reveal a dominant anthropocentric paradigm in which landscapes are primarily valued for their productive capacity, often at the expense of ecological integrity and system resilience.

Productivity-centred approaches contribute to ecological simplification, reduced biodiversity, and increased vulnerability to climate-related disturbances (Foley et al., 2005; IPBES, 2019). Despite growing awareness of these limitations, there remains a lack of integration between critical environmental philosophies and applied land-use practices. Deep ecology offers a theoretical framework through which anthropocentric land-use models can be challenged by asserting the intrinsic value of non-human life and emphasising the interconnectedness of ecological systems (Naess, 1973).

In contrast to this perspective, some argue that nature is best protected through minimal human interaction and restricted public access. Counterexamples can be found in the Scandinavian principle of "right to roam", a customary right in Norway, Finland, and Sweden allowing public access to landscapes under specific responsibilities and limitations (Viken, 2025). While these countries possess significantly larger land areas, the principle reflects a broader cultural understanding of access to nature as both a social and ecological value.

My studies at SLU Alnarp and involvement with Alnarp's Agroecology Farm expanded my interest in ecological systems beyond productive foodscapes and highlighted the importance of community-based environmental stewardship (Altieri, 1995; Gliessman, 2015). The agricultural sector forms an important thread within this research project, but so too do economic pressures, local histories, ecological needs, and social perspectives. Together, these interconnected dimensions shape the local landscape.

This thesis explores how multifunctional landscape design can operationalise deep ecological principles to enhance ecological resilience and reconfigure

human–nature relationships in rural landscapes, with a specific focus on Roscommon, Ireland.

1.1 Contextual basis & relevance

The socio-ecological interface represents the nexus between humanity and ecological systems, where human actions increasingly determine the condition of ecosystems and natural cycles (McHarg, 1992; Folke et al., 2005). Humans and their cultures are embedded within nature, yet contemporary industrial society has positioned humanity as a dominant ecological force. This idea is not new; western philosophical traditions have long privileged human rationality above non-human life, dating back to classical Greek philosophy, including Plato's anthropocentric conception of humanity. These perspectives have persisted throughout western intellectual traditions and culminate in what is now commonly referred to as the Anthropocene (Crutzen & Stoermer, 2000), a period in which human activity has become the primary driver of planetary change.

Concerns regarding environmental stewardship emerged long before contemporary climate discourse. For example, John Evelyn's *Sylva* (1664) advocated sustainable woodland management in response to resource depletion in England. However, the Industrial Revolution (c. 1760–1900) accelerated extraction, industrial production, and fossil fuel dependence through rapid technological and scientific advancement (Steffen et al., 2011).

The post-1950 period, often termed the "Great Acceleration", marks a fundamental intensification of anthropogenic environmental change (Steffen et al., 2015). Atmospheric CO_2 concentrations have risen from approximately 311 ppm in 1950 to over 420 ppm today (IPCC, 2021; NOAA, 2025). Simultaneously, global biodiversity has declined dramatically, with monitored vertebrate populations decreasing by an average of 69% since 1970 (WWF, 2022). Approximately 75% of terrestrial environments have been significantly altered by human activity, primarily through agricultural expansion and intensification (IPBES, 2019). Synthetic fertiliser use has increased substantially since the mid-twentieth century, contributing to eutrophication, soil degradation, and water pollution (FAO, 2021).

While these patterns are evident throughout Europe and the industrialised world, they are particularly pronounced in Ireland. International frameworks such as the United Nations Sustainable Development Goals (SDGs) seek to promote sustainable development, particularly Goals 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), and 13 (Climate

Action) (United Nations, 2015). However, implementation remains uneven. Approximately 63% of Ireland's land area is dedicated to agriculture, often characterised by monocultural grassland systems and limited ecological diversity. This is reflected in relatively low forest cover (11.6% of total land area), low levels of organic farming, and disproportionately high greenhouse gas emissions, approximately 38% of which originate from the agricultural sector (CSO, 2023). As of 2023, livestock farming dominated Irish agricultural land use, with approximately 4.25 million hectares designated as grassland, compared to approximately 250,000 hectares used for cereal production and approximately 10,000 hectares for horticulture and other crops (CSO, 2023).

While statistical and policy-based analyses demonstrate the scale and urgency of environmental change, they often overlook the lived and experiential dimensions of landscapes. In response, qualitative and practice-based approaches within environmental humanities, agroecology, and landscape architecture increasingly explore the intersections of ecology, cultural history, and environmental philosophy (Corner, 1999; Ingold, 2000; Nassauer, 2012). This methodological orientation informs the present study, which combines empirical investigation with design-led exploration to examine rural farming landscapes in Roscommon, Ireland.

1.2 Problem statement

Within the EU, Ireland presents a highly intensified and specialised socio-ecological condition, characterised by the dominance of grass-based agriculture, comparatively low forest cover, and a largely privatised rural landscape. As of 2024, "85% of Ireland's protected habitats and almost one third of protected species of flora and fauna [have] an unfavourable status. Over half of native plant species are in decline and more than 50 bird species are of high conservation concern" (European Environment Agency, 2025). These conditions indicate a socio-ecological system under significant pressure, where biodiversity loss, land degradation, and increasing cultural disconnection from landscapes continue to intensify. Contributing to the nickname "green desert", used by environmentalists and ecologists to describe large areas of the "Emerald Isle" dominated by intensive pasture monocultures with limited biodiversity (Monbiot, 2013; European Environment Agency, 2025). A clear example of this Irish ecological simplification is shown in Figure 1.

Figure 1. 'Green desert' Strokestown, County Roscommon, livestock pasture. Taken by Author (2026).

1.3 Research question

This research project is of large scope, but is rooted in lived experiences of local people, historical cultural connections to the landscape, and the evidence from references that change is needed and possible. The research question guiding this project reads as follows:

How can multifunctional landscape design operationalize deep ecological principles to enhance ecological resilience and reconfigure human–nature relationships in rural landscapes such as Roscommon, Ireland?

Operational sub questions will facilitate structuring the thesis workflow and will be addressed orderly and serve as empirical foundation for each question thereafter.

- Which are the aspects of multifunctionality that address the rural socio-ecological interface?
- How integrated are communities with their landscapes and how is that reflected in social/political/ecological settings?

- What is the socio-ecological history of the site and region, and how does it differ now?
- What design principles could support a socio-ecological system through deep ecology principles and be anchored in a local context?

1.4 Objectives & goals

This research aims to define key concepts and terminology in relation to their specific historical and geographical context, ensuring that interpretations of land, ecology, and practice are grounded in place and time. It seeks to develop an understanding of local stakeholder positions, values, and lived experiences, recognising these as essential to shaping meaningful and realistic interventions in land use. The study further applies principles of deep ecology to inform design thinking, prioritising ecological interdependence and long-term system integrity within proposed interventions. A central objective is to identify areas of common ground between ecological aims and existing land-use practices, enabling constructive dialogue and reducing polarisation between perspectives. Finally, the research contributes to broader educational outcomes by translating findings into accessible knowledge through a design proposal that supports awareness, reflection, and informed decision-making around land and ecological systems in under-studied fields of knowledge.

1.5 Delimitations

This research is deliberately delimited to a qualitative and interpretive approach, focusing on values, perceptions, and relational understandings of land rather than economic modelling, quantitative analysis, or large-scale statistical generalisation. It does not aim to assess agricultural systems through productivity metrics, financial performance, or macroeconomic indicators, but instead prioritises how land is understood, experienced, and valued by local actors within specific social and ecological contexts. The study further excludes broad-scale or policy-level economic analysis, instead situating its inquiry at the scale of place-based engagement with farmers and land users. Methodologically, it adopts a speculative design approach grounded in existing site conditions, informed by local knowledge and stakeholder perspectives, and critically shaped through relevant theoretical frameworks and reference cases. The work is therefore not intended to produce universal solutions, but rather to generate situated, context-sensitive propositions that explore alternative relationships between people, land, and ecology.

1.6 Research ethics and use of AI

This research and the qualitative data generated followed SLU ethical standards, GDPR guidelines, and no personal identifying material is published. Consent on behalf of organizations for data collection i.e. interviews and questionnaires, was required and given prior to research commencement.

AI was used as a tool for the locating of published, peer reviewed research papers on specific topics and identifying associated published works in the field. This AI software is listed as a viable tool by SLU and was only used to identify prominent work relevant to this research project. All questions, ideas, analyses, data generated, conclusions, and designs are my own work and of my own account. I, as the author, am fully responsible for the content of this thesis

2. Methodology

This thesis develops a landscape design within a rural agricultural landscape in Roscommon, Co. Ireland. To propose an anchored landscape design to the local community a triangulation of methods is used, combining theoretical perspectives (literature & document study) with empirical data collection (reference sites, interviews, workshop, questionnaire, site analysis) to provide tangible visions anchored in academic research and local values/demands, see Figure 2. The methods for data collection include:

- Literature analysis and document studies
- Semi-structured interviews: two reference sites
- Design site analysis
- Semi-structured interview: agriculture consultancy at design site
- Farmer engagement group with questionnaire at design site

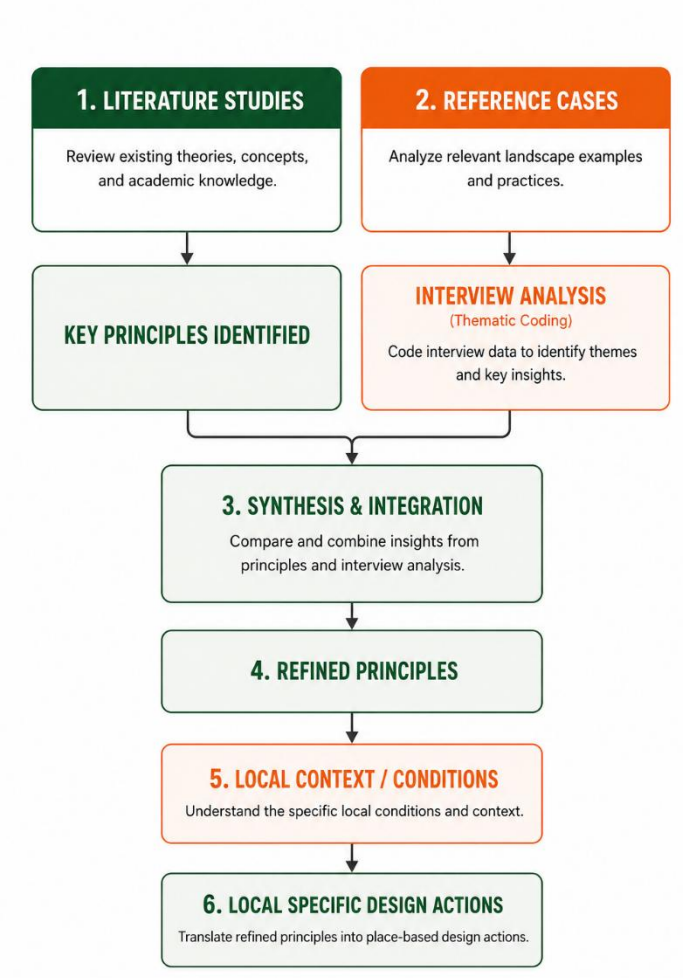


Figure 2. Flow-chart depicting the cognitive thought path triangulating methods and materials into design proposal (figure by author, 2026)

The International Federation of Landscape Architects (IFLA) defines the practice of landscape architects as such, “landscape architects deal with the interactions between natural and cultural ecosystems, such as adaptation and mitigation related to climate change and the stability of ecosystems, socio-economic improvements, and community health and welfare to create places that anticipate social and economic well-being” (IFLA, 2023).

Deep ecology is a philosophical framework that promotes biodiversity, the intrinsic value of nature, and the need for policy change, while opposing increased human interference with the non-human world and the reduction of biodiversity beyond human needs (Naess, 1973). A paradigm shift has begun at the socio-ecological interface with advances in the fields of permaculture, agroecology, and biophilic design among others that share some of the principles of deep ecology (Gliessman, 2015; Beatley, 2011).

Applying values of deep ecology within landscape architecture aims to add the non-human world perspective to the design principles this thesis will adhere to. These principles have a wide net and rely on neighbors and a community presence to make meaningful transitions in the landscape. As Vogel (2026, pers. comm.) stated, “nature does not live in a box”, and neither can the people who are taking responsibility in the landscape. The literature analysis offers a theoretical lens shaping the design principles that will be elaborated upon in depth (Chapter 3).

For the empirical data collection in the field multiple methods were used. Two established organizations within the Irish context were decided as reference cases based on their experiences with community engagement, social/environmental/economic barriers, and stewardship. Real world examples are very informative and important for generating empirical data, as Robert Yin explains in *Case Study Research and Applications* (Yin, 2018). The interviewees from these organizations provide crucial perspectives that will influence the design principles and serve as examples of the possibilities. Those two cases represent successes in environmental stewardship and community engagement and thus offer unique perspectives and first-hand experience for this thesis. To learn from those cases interviews were scheduled, in addition interview guides were sent in advance to meetings in person or via phone call. The interviewees completed the guides that were sent in question and follow-up format. This provided the basis for the interviews to take place over 30 minute to one-hour discussions in a semi-structured manner with both participants having agency in the discussion.

A design-oriented research project provides several invaluable opportunities. As a researcher coming from a different country and with an academic perspective in contrast to a professional one, it is very important to understand, value, and respect with whom you are interviewing. Differences in age, professional background, and personal values can play a distinct role in the outcomes of interactions in the field. In line with the methodology of Yin, interviews should be approached as context-sensitive, guided conversations, requiring the researcher to adapt to the conditions and characteristics of each participant (Yin, 2018). At the

same time, Steinar Kvale and Svend Brinkmann emphasize that knowledge is co-produced through the interview process, shaped by the relational dynamics between interviewer and interviewee (Kvale & Brinkmann, 2020).

For example, bringing my chihuahua to an interview on a walk along the coast was acceptable, whereas if I had brought my dog to the knowledge transfer meeting, indoors with professional livestock farmers averaging over 65 years old, I would expect an even lesser level of engagement than was given. This highlights the importance of situational awareness, rapport-building, and the need to act appropriately within different social settings, thus highlighting context sensitivity (Yin, 2018). Learning quickly and acting deliberately is crucial to engaging with the community and being able to have the sense of agency necessary to produce meaningful research results, while also recognizing, as noted by Kvale and Brinkmann (2020), that the researcher plays an active role in shaping the knowledge that emerges through these interactions.

The site where designs are proposed is an agricultural landscape with some forest, rivers, lakes, and cultural/historical monuments in the vicinity, located in Roscommon, Co. Ireland (more detailed information in Chapter 4). The owner of the site is also the owner of a local environmental agricultural consulting firm. As a researcher I was granted permission to interview two managers from the consulting firm regarding local regulations, governance practices, and environmental schemes farmers adhere to. This data provided a framework and a sense of place that would guide the discourse in a local engagement group workshop taking place at a knowledge transfer meeting with local farmers involved with schemes at the consulting firm that evening. This primary data on local perspectives, their connections to the landscape, and socio-ecological issues they encounter will center the proposed designs in Roscommon and provide a landscape through co-creation.

2.1 Methods & materials for data collection

The empirical data generated from this thesis comes from qualitative research carried out in the field. In contrast to quantitative research which is a collection of numerical or measurable data points that are aiming for objectivity and utilize statistical analysis, qualitative research focus on the data that is rooted in subjective experiences, perceptions, and culture. Further, qualitative research provides insights to the "why" behind the numbers and is not just important to understanding the numbers and objective data but is pivotal to understanding and meeting the social interface with results that meet the needs and represent the values of the locale or region one is working within (Creswell & Creswell, 2018).

2.1.1 Literature analysis & document studies

The desk studies on literature and documents could be described in four overarching themes: a) Deep ecology and its critiques as a theoretical lens inspiring the shaping of design principles; b) historical document studies to create

an in-depth understanding of the historical and cultural grown landscape relations at the site for the design proposal; c) institutional, EU-market based documents informing and impacting contemporary context for farming practices; and d) agroecology as a noteworthy field of change at the socio-ecological interface encompassing agricultural practices, ecosystem integrity, social paradigm shifts, and education.

A) Deep ecology is a philosophy that looks critically at the human-nature relationship and deems humans and the Anthropocene as extremely harmful to all life on earth and that this way of living is entirely responsible for the current and rapid climate change. The term "deep ecology", the movement, and proceeding literature published on the philosophy were founded by Norwegian professor Arne Naess. His first article published regarding deep ecology "*The shallow and the deep, long-range ecology movement. A summary*" was published in 1973 (Naess, 1973). Years later Arne Naess joined George Sessions and published "*The basic principles of deep ecology*" in 1984 (Naess & Sessions, 1984). Their writings are seminal and will be used as references for theoretical arguments.

   There have been many critiques of certain aspects of deep ecology, including citing it as radical and not highlighting men at the core of the Anthropocene (Plumwood, 1993). These works are important to study and use to critically analyse deep ecology and formulate the best methods to apply the best suited deep ecological principles in place and time. to best design for the needs and conditions in Roscommon at the socio-ecological interface. The exploration of deep ecology principles in landscape architecture through an ecofeminist lens in whole or in part will provide valuable insights into social dynamics that are often not considered.

B) A thorough review of the cultural and historical history of Roscommon is necessary to understand the landscape's currently fragmented condition and how the community's connection to the landscape has changed over time. The landscape is valued as a stakeholder alongside the farmer within deep ecology principles, and under Brehon law certain non-human entities such as trees and rivers were afforded forms of legal protection and social value (Kelly, 1988). To further grasp how these stakeholders interact with one another in the present context, it is necessary to become familiar with the cultural shifts that have changed the landscape over centuries into one facing multiple environmental crises including biodiversity loss, habitat fragmentation, and ecological degradation (NPWS, 2023)

C) Contemporary social and economic conditions pressure and often dictate how humans interact with nature. Reviewing documents from several Global and EU institutions a pattern arises that shows the dependency of the EU, and critically for Ireland on imports for economic stability, but more importantly food security. During the fieldwork, in Ireland, nation-wide protests against the cost of fuel and lack of government assistance and accountability shut down city centres, shipping ports, and normal governance proceedings. Finding out why seemed very important and linked to several ecological crises the country is facing. Easily found statistics from Irelands Central Statistic Office (CSO) provide evidence of the heavy reliance on external input for day-to-day practices (CSO, 2024).

D) Agroecology is a field of study in which the socioecological interface is central. Through community engagement and collective stewardship, local food systems are strengthened, ecological choices are prioritised, external inputs are reduced, and biodiversity is encouraged (Wezel et al., 2009). Agroecology consists of 13 principles encompassing education, community action, food sovereignty, and ecosystem health. These principles have been outlined by the Food and Agriculture Organization of the United Nations (FAO, 2018; Gleissman, 2007), see appendix 1.

2.1.2 Reference cases

Reference sites are useful tools to gain perspective on local environments and can provide the opportunity to engage with local stakeholders and learn useful information to further guide research and inspire designs (Yin, 2018). The reference site(s) and the organizations involved with them, contribute to the data collection with lived experiences, complex knowledge of socio-ecological interfaces, and strategies how to work for the environment within the parameters of society that govern the country.

One of the tow reference cases is a charity doing conservation work (reference case A) and the other is a skill sharing community enterprise (reference site B), both located in and around the Burren geological park/national park in the southwest of Ireland in counties Galway and Clare. Recognized by UNESCO for its limestone formations, unique hydrology and species currently the Burren consists of over 30,000 ha of protected land (UNESCO, 2022). Organizations A and B have different goals and strategies to achieve them. For example, case A relies on donors and grants associated with EU and Irish institutions and uses this money to fund educational programs, connect farmers to grants, and conserve unique biodiversity through cultural practices (Burrenbeo Trust, 2025). Case B is a co-operatively owned enterprise that also relies on grants from the same

institutions, but operates as a business offering accommodation, skill sharing and other services. Case B is focused on restoring local ecosystem integrity and producing energy, food and other resource sustainability (Common Knowledge, 2022).

A member from each organization participated in semi-structured interviews, see table 1. Both persons were offered an interview guide, prior to having a face to face or phone call interview. All interviewees could then familiarize themselves with the questions and flow of the interview and understand the objectives of the researcher clearly in terms of them and their organization's involvement in the research project. Names will be left anonymous, but consent has been given for the use of the information acquired in the interview process to be associated with the organizations in the research publication. Both interviewees digitally filled out the interview guides in advance to our actual interviews, see appendix 2.

After building rapport through conversation and scheduling prior to the interview day the interviews were very productive and personal which provided invaluable perspective on local and national issues, emotions of hope and some fear, and above all passionate emphasis on education and having tangible evidence that through education you can change human-nature relationships.

Table 1. Reference case interview scheme

Interviewer	Organization	Interviewees	Model
Author	BurrenBeo Trust	Ecosystem restoration manager	Landscape focused charity
Author	Common Knowledge	Conservation/outreach officer	Non-profit skill sharing social enterprise

These cases will inspire design principles that, combined with local ideologies, are translated into visual representations and can act as reference for future planning for other communities if so desired. While focusing on qualitative analysis to gather data for the rural Irish context, the frameworks and models that these cases work with provide examples of methods and practices that can be applied to other regions regardless of their geological and geographical locations.

2.1.3 Local agricultural consultancy- *Cusack Agri Consultants*

Cusack Agri Consultants are based in Strokestown, Roscommon, and they are owned and operated by Seamus Cusack and his family, they also own the property where designs will be proposed. Their clients are across Roscommon and in

neighbouring counties, they're all livestock farmers, and some of them are adhering to organic standards and practices. Their goals are to help farmers meet requirements and parameters of agricultural schemes to receive funding from Irish or EU institutions. This involves group setting knowledge sharing meetings, site visits and evaluations, and constant learning and adjusting as these institutional frameworks change frequently.

Two representatives for Cusack Agricultural Consultants sat down with me for an interview in their office, the interview guide can be found in the appendix 3. The interview consisted of 7 core questions with several sub questions, and a follow up discussion. The consultants were interviewed because of their expertise in the local frameworks the farmers operate within and their unique insights into the socio-ecological interface of County Roscommon and Strokestown. In addition, working with the locals and advising them on practices or implementations to undertake requires trust and community.

2.1.4 Engagement workshop with questionnaire

At a knowledge sharing meeting taking place at Cusack Agri Consultants, I gave a 10-15-minute-long presentation to a group of their clients, local farmers. The presentation was a visual aid to introduce myself, explain my background, and most importantly tell these farmers why I was there speaking with them. Afterwards I asked them who would like to voluntarily partake in a survey that will help influence design proposals for a farm in Strokestown. Five farmers participated in the survey and the results are invaluable for understanding local conditions.

Knowing your audience was mentioned in the beginning of this chapter and it is reflected in the outcome of your interviews and engagements with communities (Kvale & Brinkmann, 2020). Questions for this survey were tailored to seek out lived experiences of the farmers, not to impose academic jargon and nuanced philosophical principles. For example, leaving out intrinsic value and inquiring what one's favourite place is at the farm, or if there were not economic pressures, how would their practices and interactions with the land change, creating an openness the questions not unfamiliar and possibly off-putting (Kvale & Brinkmann., 2020). A blank questionnaire can be found in appendix 5

2.1.5 Site analysis

Site analysis is an important first step when proposing a design for a site to be context responsive (LaGro, 2019). Relevant regulatory parameters need to be accounted for within the governance of a place to know what is permitted by law

to implement in place and time and how designs can match up with environmental goals of the region and globally. Physical site conditions will impact what appropriate measures to take; thus, biodiversity, land use, soil conditions, invasive species, filtration, and water bodies can be important categories to investigate. Understanding impacts by climate change locally is in addition an important perspective that can shape the needs to be addressed via a design proposal (LaGro, 2019).There is significant local interest in County Roscommon, Ireland for taking responsibility to look after their local landscapes with 75-80% of the population being significantly concerned, see Figure 3, but insisting the government takes more action, including taxing fossil fuels to transition to a carbon-neutral economy (Roscommon County council, 2023).

Seamus Cusack, the founder of Cusack Agri Consultants owns the site and rents 50% of the housing space to others. Through social connections I was introduced to the property and the Cusack family. A new perspective on what is possible at the socioecological interface is very welcome here and there is desire for a social movement around engaging with the landscape as a part of it rather than the recipient of its resources.

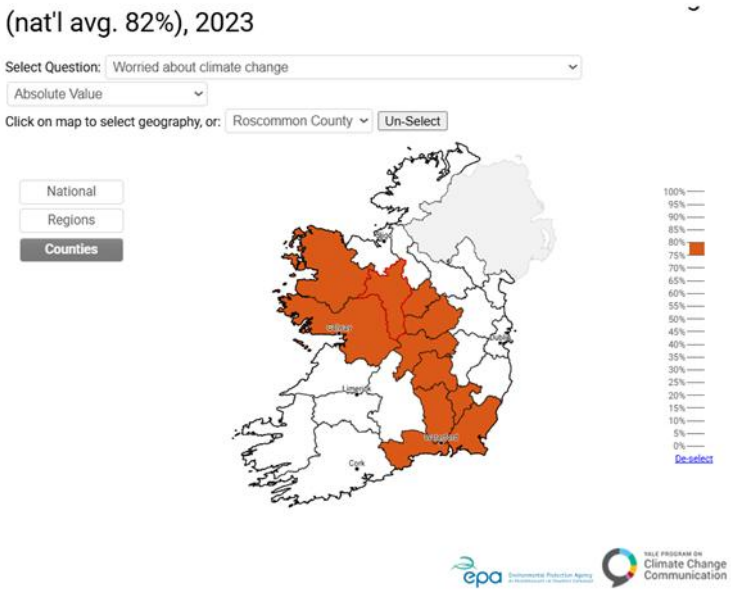


Figure 3. Climate change emotional metric map. Environmental Protection Agency (EPA) Climate Change in the Irish Mind survey data. Source: Environmental Protection Agency (EPA) and Yale Program on Climate Change Communication (YPCCC), Climate Opinion Maps (2025). Available at: https://www.epa.ie/our-services/monitoring--assessment/climate-change/climate-opinion-maps/ [Accessed 25 May 2026].

3. Framing theories

One of the clearest examples of deep ecological theory informing design is the work of Ian McHarg, expressly linking ecological theory to design in his work, *design with nature*. A literature analysis of deep ecology philosophy, local history and culture, contemporary economic pressures assist in framing design principles in combination with the synthesis of the reference cases. The data from the reference cases is processed using thematic coding and 'filtered' with the theoretical lens developed in this chapter to frame the design principles that can be brought to a local setting.

3.1 Deep ecology theory & values in practice

8 principles as inspiration – not as straight jacket
Arne Naess (1973), founder of Deep Ecology, argues for the sake of nature, of which humans need to identify with to change the valuation and respect for the non-human world. Deep ecology goes beyond 'shallow' or regular ecology, which at the time, late 20th century CE, was directed at pollution and resource management approaches. Deep Ecology has eight core principles:

- Biospheric egalitarian values
- Richness & diversity contribute to these values and are values themselves
- Human right to alter environment to satisfy *vital needs* only
- Flourishing of human and non-human life requires decreased human population
- Human interference with the non-human world is increasingly excessive and harmful
- Need for policy change, autonomy, and decentralization
- Paradigm shift in life quality valuation
- Responsibility to implement change if subscribing to these principles

Deep ecology is inspirational for the theory shaping design in this thesis, but the philosophy will be looked at critically with an eco-feminist lens. Additionally, of the eight core principles - the intrinsic value of nature, reduced human impact, policy change, social paradigm shift, responsibility - will be the principles brought into this thesis. Combining these principles with other theories and principles like that of eco-feminism, gaps in equity and equality enter the scope and population reduction is
Deep ecology addresses the anthropocentric world view of society and the resulting damage human beings, and specifically our consumption, are inflicting on the rest of the non-human world and highlights immense disparity in social,

environmental and political frameworks congruently. Ecological processes have intrinsic value, and in fact we as humans depend on this and should not alter them, a simple example is native species and pollinators relationships that heavily impact feed and food production (Potts et al., 2016). But the point being made is, humans are not separate from ecosystems and as a part of them we are not on a pedestal above the non-human world, but a piece of a larger network. The Wood Wide Web (WWW) is a great example where soil organisms, fungal networks, and trees can communicate, sending signals or compounds to other organisms in the network (Simard, 2021). If needed, space shall be allocated or 'created' for 'nature' to assume control, have the freedom to flood the plain if conditions call for it, give way for natural succession, and allow for natural processes to dictate micro and macro habitats. Hydrological, carbon, and nutrient cycles flowing unimpeded by human desires. Ensuring biodiversity in the long term by shifting human-nonhuman relationships now.

Ian McHarg (1992), writes of designing with nature and emphasizing that ecological functions are valuable to us, and within design following principles that work with these functions are possible. McHarg focuses on ecosystem services (ESS) as a core argument for designing with nature and his inspired many studies. This is a slippery slope. Corporations and political movements can and have latched on to ESS as an excuse to demolish nature and continue extraction via greenwashing their project, deforestation because they are considered renewable happens daily, and under the guise of renewable energy, sustainable jobs, environmentally friendly (Fletcher & Rammelt, 2017).

Arne Naess (1989) argues that unity and identifying with nature is how collective intrinsic value is achieved and a paradigm shift occurs where biodiversity and nature are unimpeded upon, with the exemption of essential needs. That there is an inherent need to change the quality-of-life standards people have grown accustomed to, which drives consumption levels higher. This is important and something to seriously consider when earth's overshoot day for 2025 landed in July. Overshoot day is calculated by "dividing the planets biocapacity, by humanity's ecological footprint, and multiplying by 365" (Global Footprint Network, 2025)

The hierarchical system that society has passed down over the generations, particularly in the western "civilized" world, is at the core of the dominating existence of humans and the environmental destruction and degradation globally. It is this hyper separation that Val Plumwood (1993) writes in her critical analysis of deep ecology, *Feminism and the Mastery of Nature,* in which the human colonizer separates apart from, and above those that are deemed a lesser form of nature.

Complementing with an eco-feminist view

Reviewing the works of Islam, Pulmer, Salleh, and Nhanenge [prominent academics in the ecofeminism field], critiquing deep ecology with an eco-feminist lens' informs on gaps in deep ecology and male philosophy that is primarily responsible for the status of the world we are in. Nhanenge (2007) writes in their work *Ecofeminism: Towards integrating the concerns of women, poor people and nature into development,* "Ecofeminism perceives an interconnection between the domination of women and poor people, and the domination of nature. This domination is founded on modern, Western, patriarchal, dualized structures, which subordinate all considered as "the other"..." (Nhanenge, 2007).

Deep Ecology calls for an ethical shift in social organization and values but remains underdeveloped, philosophically idealist, and still of patriarchal power structure (Plumwood, 1993). With an eco-feminist lens, the thread through these causes is the motive to control, the core of the patriarchy (Salleh, 2000). If the motive to control is a part of the deep ecology movement it inherently cannot achieve unity with all, therefore Naess theory is contradicted. Without addressing gender subjugation and binary thinking, ecology is not being addressed wholly. Eco-feminism provides a valuable framework to comprehend and confront the destruction, inequality, and selfishness at the socioecological interface and the causes of them while advocating for and enabling solidarity (Islam, 2020).

Beyond the hierarchical dichotomy of humans and nature.

Not directly associated with the Deep Ecology movement, though the emeritus professor and nature philosopher Matthijs Schouten's works directly address the question, "What is nature?". Arguing "…perhaps we should do away with the whole concept of 'nature' as being a domain outside ourselves and rather talk about well-being of 'life'…" (Schouten, quoted in Van Veen, 2025, *Closing eyes*). Removing the domains and looking to the wellbeing of all life solidarity is achieved. Schouten is originally from the Netherlands and has experienced his country destroy its natural landscape over the decades and after the destruction of many ecosystems and natural processes, the reversals of methods and implementations are underway currently, flood plains, agroecology, nature-based solutions (NBS). Now, rights and a 'say' in legal proceedings across 11 municipalities in the Netherlands are given to nature. This highlights the intrinsic value of nature to act of its own accord, and that human perception of the human-nature relationship can and is being shifted (UNESCO, 2022).

Matthijs Schouten has been working in the field of conservation and human-nature relationships within Ireland for decades. In the 1980's Schouten was a lead actor in establishing the Dutch-Irish bog conservation project and once the land

was owned and protected by this Dutch organization, they donated the protected lands back to the Irish people so as to educate and connect people with these special landscapes (Irish Peatland Conservation Council, 2024). After seeing the Dutch landscape change so rapidly and oriented for humans, Schouten wanted to prevent such a catastrophe from happening to Irish landscapes. The most accessible of Schouten's work comes from his (guest) lectures and interviews with academics and people engaging with the landscape. One such case is a podcast interview with the late Manchan Magan, an Irish culture and language historian, advocate, theologist, and storyteller. This thesis is significantly inspired by this conversation.

Language and narratives build connections

Magan has written several books about the Irish language, *as gaeilge,* wherein the culture and literal language of Ireland is informed by the landscape, its condition, and how people engage with it. In his books *32 Words for Field* and *Listen to the Land Speak* a direct line is followed from the Irish landscape to the language that has been spoken here in Ireland for thousands of years (Magan, 2022). The conversation Magan and Schouten had, took place in the Burren geological park (close proximity to thesis reference cases) and directly addressed humans and nature, and that humans are inherently nature, and that they have and will continue to manipulate their landscapes to fit their needs and increasingly their wants.

The connection to more than ones-self, the connection to the other is abundant in children, and having workshops with young people where they interact with nature, intrinsic value is a given. In our adulthood and through culture our landscapes are directly reflecting ourselves, our images and ideas of the world, limiting spontaneity and organic events as much as possible. These disconnections resulting as ultimately making humans orphans of the world, isolated from natural systems (Schouten & Magan, 2020). The way to engage with people about the importance of these connections is through storytelling and taking them on a journey involving the soul and emotions (Scouten & Magan, 2020), a practice so deeply rooted in Irish culture and tradition. Community is necessary for these cultural practices and connectivity beyond self to persist in defiance of the severely out of balance Anthropocene. Schouten connects philosophy and ecology in an inspirational and poetic manner, stating for example: "when you see yourself as separate from this world, you stop really caring for yourself" and "in the city there is always the risk of slipping into the orphanship" (Schouten & Magan, 2020).

Agro-ecology informing community-based farming practice

Agroecology provides a theoretical framework for shaping landscape design through the integration of ecological processes, biodiversity, and local knowledge within agricultural systems. Rather than treating farmland as a purely productive surface, agroecological theory understands landscapes as interconnected social–ecological systems in which soil health, water cycles, species diversity, and human activity are mutually dependent (Biundo, 2024). Early foundations of agroecology described agricultural systems through ecological principles such as nutrient cycling, resilience, and polyculture (Altieri, 1989), while later frameworks expanded this to include food sovereignty, cultural knowledge, and participatory land stewardship (FAO, 2018). Within landscape design, these principles inform spatial strategies that increase ecological connectivity, diversify habitats and productive systems, reduce external inputs, and strengthen relationships between communities and the land they inhabit. In the context of Strokestown, agroecology offers a framework through which productive farmland can simultaneously support biodiversity, water quality, public engagement, and long-term ecological resilience while remaining grounded in local farming realities and practices.

3.2 Historical background

The focus of this research will culminate in design proposals focusing on a former livestock farm in Strokestown, County Roscommon, Ireland. County Roscommon covers 546 square kilometres and as of 2022 had a population of approximately 70,000 people (CSO, 2024). The region is of interest and importance regarding these issues given the local history and the remnants of that history dominating the landscape today. County Roscommon lies in one of the 4 provinces, or “cuige” as Gaeilge- in Irish, that distinguish different cultural and geographical regions within Ireland. “Cuige” translates to “fifth” as there were 5 provinces in ancient Ireland (MacKillop, 2004). The seat of the high king of Ireland was in Roscommon and mythology deeply rooted in ecology stems from there. The history is important but is quite elaborate so a small synthesis will suffice to impart the necessary lens of comprehension for the landscape in question and the circumstances that brought them about.

Ireland’s contemporary landscape cannot be understood without its layered history of land relations, governance, and dispossession. Unlike much of Europe, Ireland remained outside direct Roman control—referred to as Hibernia in classical sources—allowing indigenous systems of law, mythology, and land use to persist into the early Common Era (Bartlett, 2010). These systems were grounded in oral tradition and biodiversity, encoded within landscapes marked by

Neolithic monuments and ritual sites, reinforcing a cosmological relationship between people and land. When Christianity did make its way to Ireland via missionaries and saints such as St. Patrick, and St. Declan before him, it was merged with the local pagan mythology to garner acceptance from the local community. This effort was successful and these ancient oral traditions have continued through time and the church teachings in the Irish language in a way that has tethered the Irish people to their landscape and the way they interact with it.

Under early Irish governance, society was organised into tuatha (territorial kin groups), governed through customary law preserved in texts such as the Senchas Már. Land was not privately owned but held collectively by kin groups, with access determined by social obligation, status, and reciprocity. While hierarchical, this system did not operate through alienable property or market exchange; instead, it emphasised stewardship and continuity (Kelly, 1988). Mythological and seasonal traditions—including Samhain and Bealtaine—linked social life directly to ecological cycles, reinforcing this relational land ethic. Conflict and inequality existed, but the relationship with the land was one of obligation and continuity rather than viewing land as a production unit, commodity, or bounded property.

The Viking Age (c. 795–1100 CE) introduced urban trade centres such as Dublin and Limerick but did not fundamentally disrupt rural land systems. Norse settlers gradually integrated into Irish society, with both populations largely Christianised by the 11th century (National Museum of Ireland, 2020). Brehon law and non-extractive land practices largely persisted during this period.

The Anglo-Norman invasion (1169–1171), sanctioned through the papal bull Laudabiliter by the first and only English Pope, introduced feudal land tenure and English Common Law (Bartlett, 2010). In part the involvement of the Catholic Church was in response to the merging of Irish pagan beliefs and mythology within Christian scripture, seen as barbaric and a disgrace to God. The Statutes of Kilkenny illustrate the Crown's difficulty in enforcing separation between Gaelic and settler populations. For several centuries, Ireland functioned as a dual system, with Brehon law persisting across much of the island, and the Catholic Church and English crown centred in Dublin and surrounding areas (Bartlett, 2010).

A decisive rupture occurred during the Elizabethan conquest (1550s–1603). English State Papers and military correspondence from figures such as Charles Blount document scorched-earth tactics, including the destruction of crops and livestock, leading to engineered famine conditions (Canny, 2001). These

campaigns dismantled Gaelic lordships and imposed centralised governance under Elizabeth I. The subsequent Ulster Plantation (1609–1610s), authorised under James I, marked the first large-scale planned colonisation of land. Confiscated territories were surveyed, mapped, and redistributed to English and Scottish settlers, transforming land into a structured colonial asset. This process culminated in the Cromwellian Conquest. The *Act for the Settlement of Ireland* (1652) formalised mass land confiscation and the forced transplantation of Irish populations westward to the province of Connacht. Contemporary records describe famine, disease, and scorched-earth tactics as mechanisms of control (Canny, 2001).

The Penal Laws (1695 onwards) further entrenched this system by excluding Catholics from land ownership and enforcing fragmentation of land holdings. By the 18th and 19th centuries, most Irish people were tenants within an extractive agricultural economy, producing goods for export while retaining primarily potatoes. According to records the average person consumed >6 kg potatoes daily in the 1840's (Mokyr, 1983). In County Roscommon, population increased by approximately 300% between 1741 and 1841, intensifying vulnerability to famine and when the potato blight hit Europe, Irelands lack of crop diversity and dependence on a single cultivar of potato for sustenance guaranteed severe famine conditions (Kinealy, 1994), see Figures 4, 5 and 6 illustrating living conditions and archival evidence from the National Famine Museum, demonstrating how land use prioritised export over local survival. These conditions culminated in the Great Famine 1845-1852. Estate records from Strokestown Park House document evictions, assisted emigration, and continued export of food during the crisis. During these years, Ireland's population fell from approximately 8.4 million to 5.4 million, with one million deaths and two million emigrants (Kinealy, 1994). In 1847 alone, over 4,000 ships carrying food left Ireland for English ports while the famine and starvation persisted domestically (Kinealy, 1994). The National Famine Museum archives describe servants of the Strokestown House forced to stay awake all night stoking the fires to keep the glass house growing the pineapples warm, outside the walls people were starving to death in the streets (Strokestown Famine Museum archives; Parliamentary Papers, 2025).

In summary, Ireland's landscape transitioned from a relational, kin-based system of land stewardship to a surveyed, commodified, and extractive system through colonial dispossession, legal restructuring, and famine conditions weaponized repeatedly. These historical processes continue to shape how land is owned, used, and understood today.

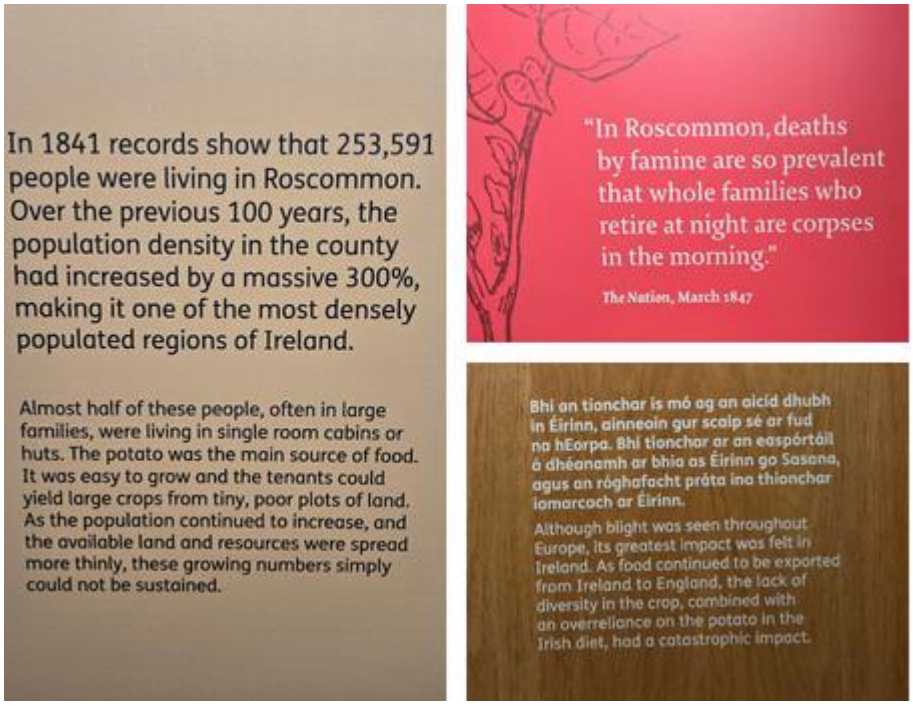


Figure 4. Population growth and decline in County Roscommon before and during the Great Famine. News report form 1847. Comparison Ireland to EU. Archived census and correspondence records on display at Strokestown Famine Museum (Strokestown Famine Museum Archives, 2025).

Figure 5. Famine-era dwelling conditions and Roscommon census data displayed at Strokestown Famine Museum (Strokestown Famine Museum Archives, 2025).

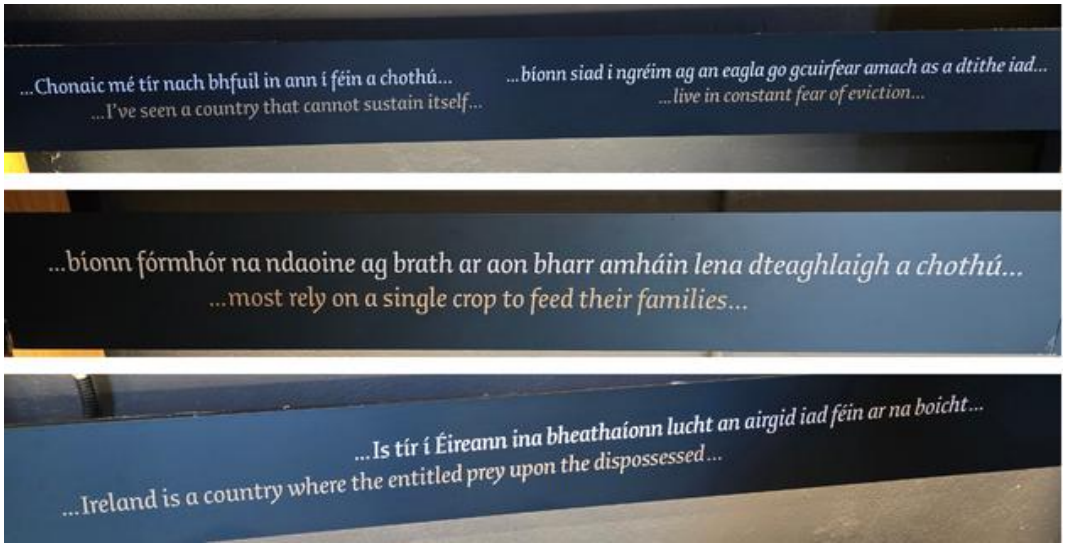


Figure 6. Records of tenants and conditions during the 1841 engineered famine, displayed at Strokestown Famine Museum (Strokestown Famine Museum Archives, 2025).

3.3 Contemporary market conditions and pressures

A snapshot of the European Union's reliance on exports and imports is important to frame the conversation of resiliency, the capacity for self-sustaining states (Ireland), and most importantly their local communities within their landscapes capabilities to not only survive, but to support one another and foster relationships that act for the future of nature, which we are a part of. It is an unfortunate must to include these economic factors in the conversation of community resilience, ecosystem health, and the human-nature relationship as modern society is propped up and propelled by its economic endeavours which has served as the guiding principles within which one succeeds or fails to maintain any sort of livelihood. Many European countries know this all too well, especially Ireland given its turmoiled colonization and the extractive measures instilled in the landscape and mindset of the people that persists to this day (Duffy, 2007).

The European Union (EU) is heavily dependent on external inputs in many sectors, especially fossil fuels and fertilizer. The dependence on global markets and supply chains leaves EU member states vulnerable to shortages and increased prices on many goods used for daily lives and industry, with many consumers feeling the economic and social pressures directly. While renewable energy is mounting to significant levels among EU states, with 43% of energy being used was produced via renewable energy sources within the EU in 2024 (Eurostat,2024), EU countries collectively consume about 300 billion cubic

meters of natural gas annually (IEA, 2024). The fertilizer industry and the supply chain to Europe are susceptible to limitations, inflation, and competition due to conflicts in the regions where portions of the world's supply come from. Fertilizer production in the EU is reliant on the importation of potash and phosphates to produce synthetic fertilizer, in addition to the reliance on natural gas for the means of production. In 2022 the EU imported 97% of its natural gas across all sectors (European Commission, 2022). Phosphates and potash covered 68% and 31% of EU consumption in 2021 (IFA & Fertilizers Europe, 2022). While nitrogen fertilizer imports in 2026 fell more than 75%, leaving only 40-50% of farmers fertilizer needs covered (European Commission, 2026).
In 2025 the EU imported 28.7 billion euros worth of fruit and nuts, comprising a marginal 15% of the EU's 188.6-billion-euro agri-food imports. Important to note this is a 9% increase and a new record level of agri-food imports, but in part this can be attributed to the rise in price for cocoa and coffee (European Commission, 2026). Meanwhile the EU's agri-food exports also reached a new level in 2025 of 238.4 billion euros cementing the continent as the largest agri-food exporter globally with dairy, wine, and prepared cereals topping the list (European Commission, 2026).
These statistics portray a potential dip in Europe's economy with farm production being affected by fertilizer shortages, fuel prices rising due to global conflicts, and a demand for more imports to follow a weakened agri-food production sector. Which in turn highlights the necessity for localized economies, community resilience and environmental stewardship.

Ireland as an island nation outside of the EU's Schengen zone has built its economy around trade with 11.3 billion euros worth of goods entering the country in February 2026 alone, and 15.9 billion euros worth of goods exported with chemicals and related products dominating the share (CSO, 2026). For every person in Ireland in 2024, 18 kg of bananas, 12 kg of oranges/citrus, 10 kg of apples, and 8 kg of onions were imported. In addition to approximately 105,000 tons of potatoes and 255 million litres of beer imported to the country collectively (CSO 2024). In a country known for its dairy products Ireland is also importing approximately 1.2 billion euros worth of dairy products annually. With livestock farming comprising approximately 60% of all land in Ireland the country is 233% self-sufficient in all meats, which leads the agri-food export sector and dictates farmers economic incentives for how they work within the landscape. Thus, leaving the country and farmers economically vulnerable to supply chain and market shocks, and everyone's food sources vulnerable with 80% of Ireland's food (non-meat), animal feed, and beverages being imported (CSO, 2024), indicating a heavy reliance on these global supply chains that leave industry and communities at risk.

3.4 Synthesis of reference case interviews

Having two separate reference case interviews is incredibly useful as they provide the means for comparative thematic analysis. This analysis highlights examples of theory in practice, successes and challenges in real life, and clear data sets/themes to organize and critically evaluate. Establishing themes guide the data analysis with parameters that organize and distinguish values that will guide design principles through local and lived reality. Before themes are established, to first decipher the data sets, different codes or values will categorically organize responses, working based on Braun and Clarke's (2021) reflexive thematic analysis methodology. This methodology provides a suitable framework for analysing qualitative interview data in landscape architecture research, as it emphasises interpretation, researcher reflexivity, and the iterative development of meaning. These codes are grouped into themes where Organization A, Burrenbeo Trust will be compared to Organization B, Common Knowledge. Codes and themes from processing the interview data are found in table 2. At large, the *themes* reflect the overarching thematic topics from the interviews. The *codes* developed from a content analysis reviewing the empirical material of the reference cases in more detail.

Table 2. Thematic coding for analysis.

Themes	**Codes**
Education	generational, rights of nature, natural cycles, ecology
Values	Culture, sense of place, intrinsic value, emotions
Pressures	climate change, economy, governance, social, invasive species
Landscape	history, multifunctionality, biodiversity, resilience, agroecology
Future	conservation, protection, generational, education, community engagement

The analysis of each interview's codes leads to a comparison of thematic elements from each case. Identifying similarities and differences provides a data set that highlights two varied approaches and overlapping principles that can be integrated in design work regardless the approach taken, this process follows the steps in Figure 7. Infusing theoretical principles from the literature studies and academic

curiosity with localized references and real-world examples generates a unique window into landscape design in the fields of agroecology, regenerative agriculture, ecological rural landscape design which are understudied in Ireland (Moran et al., 2021)

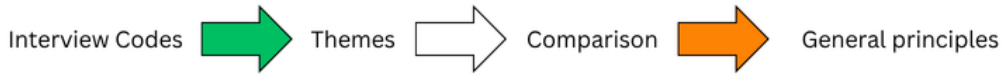


Figure 7. Analytical process showcasing how the codes are used to develop design principles based on reference sites interview analysis (Figure by author, 2026).

The process of filtering this data through theory grounded in critical analysis—including deep ecology, anthropocentrism, and local and global cultural narratives, particularly within the Irish context—is visually represented in the flow chart in Figure 8. Movements such as Deep Ecology (Næss, 1973), Agroecology (Food and Agriculture Organization, 2018), and Permaculture (Holmgren, 2002) are each structured around core ethical and ecological principles that can inform approaches to landscape design. Within this research, design principles are understood as guiding frameworks for interacting with and shaping the landscape. The proposed design direction is informed by the principles outlined in Figure 8 while remaining responsive to the socioecological conditions and stakeholder relationships present in Strokestown, County Roscommon. Community perspectives surrounding landscape diversification are expected to influence levels of participation, cooperation, and ultimately ecological connectivity across the site. As such, cooperation, co-creation, and community engagement are positioned as fundamental principles within the design process. The principles formulated in this chapter therefore function as conceptual and practical tools with which the Strokestown landscape can be explored and envisioned. For example, ‘protected areas’ might not happen soon, or even at all, but keeping the matter in public purview is important for discourse to evolve around the matter. Such is the case with all the principles derived in Figure 8.

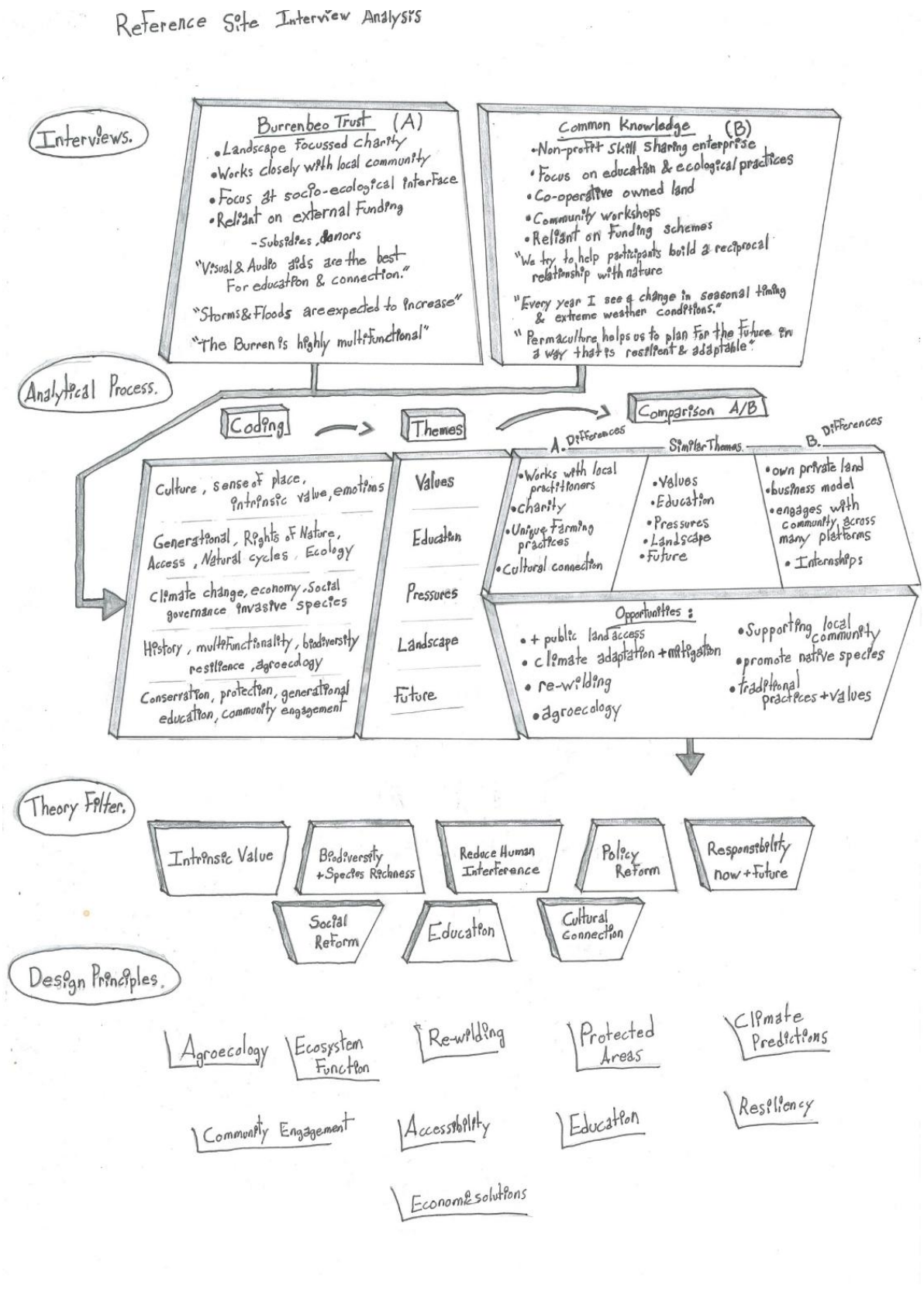


Figure 8. Flow chart of filtering reference case data through theory (Figure by author, 2026)

4. Strokestown analysis.

The analyses in Strokestown serve as the localized data collection methods. Combining the previous methods—literature analysis and reference case studies—with the methods discussed in this chapter—site analysis, consultant interview, group questionnaire—Strokestown can be critically evaluated with a developed theoretical framework and examples of different practical scenarios serving as inspiration.

In this chapter the site is introduced and analysed. Within the allotted research time a thorough quantitative analysis did not take place. In the field, biodiversity and landscape characteristics were studied and recorded with the assistance of satellite imagery.
An interview with two consultants of Cusack Agri Consultants, provided detailed local information on land-use practices and environmental frameworks that shape the landscape.
Further expanding the localised data pool, a presentation was given to local farmers. Following the presentation volunteers filled out a survey designed to learn their perspectives on their roles in the landscape, pressures they face, and what the future looks like.

In combination with theoretical perspectives, these methods support the translation of relational and ecological understanding into design application, ensuring that proposals are grounded in local knowledge, interests, and addressing needs at human and non-human levels, reflecting the principle that ecological analysis should directly inform spatial design (Ian McHarg, 1992).

4.1 Site analysis

Introduction to the site:
The Cusack family farm of Cloonslanor, Strokestown (Figures 9 & 10), offered their site of 13.92 Ha for this research's design proposals. The rich cultural history of this region provides valuable context for understanding peoples sense of place and connection to the landscape.

Figure 9. Left- Ireland provinces & counties map. Middle- County Roscommon map, Strokestown marked. Right-Cusack Farm design site in relation to Strokestown. Base maps adapted from Ireland administrative boundary data and OpenStreetMap, edited by author (2026).

Figure 10. Cusack Family Farm in surrounding Cloonslanor. Source: Google Earth, accessed 2026; edited by author.

Site analysis:

Landscape characteristics-

At the time the research is conducted, the cows had not been released in the pastures, allowing seasonal vegetation dynamics to be visible. Wildflowers, tree buds, and pollinators are erupting in the landscape, but grass still dominates the line of sight, the *Picea sitchensis* plantation sits in the background, and the overall floral diversity in the fields is limited, *Figure 11*. The Cusack farm sits within a broader agricultural matrix characterized by livestock grazing and silage production, as shown in Figures 10 &11.

Figure 11. Monoculture Picea sitchensis production stand and low diversity pasture (photo by author, 2026)

Woodland patches and hedgerow corridors provide some ecological connectivity within the landscape mosaic, though their limited size, fragmentation, and low species complexity constrain habitat function. Streams, wetland areas, and Cloonfree Lough are in close proximity to the site. Topographically, the land gradually slopes approximately ten metres from the southeastern roadside boundary towards the lake edge in the northwest.

The site's hydrological systems are vulnerable to nutrient enrichment and slurry runoff associated with intensive livestock production, contributing to declining water quality and ecological degradation within freshwater systems (EPA, 2023). Compacted and biologically degraded soils reduce the landscape's capacity to absorb, filter, and retain water, increasing runoff while diminishing ecological resilience. These conditions highlight the importance of restoring soil microbiomes and transitioning toward more regenerative agricultural and forestry practices. Dense production stands of *Picea sitchensis* further contribute to long-term soil acidification, suppressing native ground flora and reducing overall habitat diversity (Farrelly et al., 2011).

All fields are partitioned with dry stonewalls hosting hedgerows of *Prunus spinosa and Crataegus monogyna* with interspersed mature *Fraxinus excelsior* trees and *Hedra helix* creeping through the walls, hedges and all the way up the trees. In the wetter fields close to the lake *Salix caprea* and *Betula pubescans* compose the canopy layer, with *Salix repens, Cornus sanguinea, Rubus caesius, and Sambucus nigra* the shrub layer, and *Iris pseudacorus, Mentha aquatica, Carex elata, Glechoma hederacea,* the herb layer, with the latter growing in the fields between vegetation litter. Photos of flora from the Cusack Farm are shown in Figure 12 and 13. The biodiversity analysis can be found in table 3 at the end of this section.

Figure 12. Cusack Farm property landscape. Vegetated field boundaries, semi-flooded wetland area (photos by author, 2026)

Figure 13. Cusack Farm early spring vegetation: Top left, Vaccinium myrtillus L.; Top right, Fraxinus excelsior; Bottom left, Crataegus monogyna; Bottom right, Prunus spinosa (photos by author, 2026)

Ownership & Cultural structures/norms-

Strokestown has a population of 850 people, as of the 2022 census, with a small village centre, a few residential parks, but people mainly reside in the surrounding rural setting (CSO, 2022). The landscape is physically separated between neighbours and keeps the farming practitioners and communities isolated from one another (Cusack, pers. Comm., 2026). These serve the same purpose now as they did when they were implemented during the Cromwellian Conquests, to prescribe value to nature and exploit that value at the expense of nature and the community. Privately owned land is the landscape and that ownership dynamic restricts access to the lake at the edge of the property and many, many more areas that could be of huge value when educating people about their environment and providing pathways for people to appreciate nature.

Main actors-

The primary actors influencing land use in Strokestown include local farmers, environmental consultants, residents, Roscommon County Council, Irish and European institutions, and the ecological systems themselves, including flora,

fauna, and waterways. These actors collectively shape the environmental and cultural landscape of the region.
Irish and EU agricultural policies strongly influence local farming practices through subsidy and grant schemes such as the Common Agricultural Policy (CAP), Organic Farming Scheme (OFS), and Hare's Corner initiative. As a result, financial support mechanisms play a significant role in determining how land is managed and maintained (Teagasc, 2019).

While farmers ultimately make decisions regarding land use on privately owned holdings, agricultural consultants such as *Cusack Agri Consultants* act as intermediaries between farmers and institutional frameworks, advising landowners on compliance requirements and access to funding opportunities (Cusack, pers. Comm., 2026).

Main land use functions-
Livestock farming represents the dominant land-use function within the Strokestown region, with many households participating either full-time or alongside other employment. These dynamics are reflected in herd and flock sizes, grazing intensity, silage production, and varying levels of reliance on agricultural subsidies and external supply chains.

Although most residents live within a rural setting, much of the surrounding landscape consists of enclosed pasture with limited ecological diversity or public accessibility. Local ecologists have referred to these intensively managed grasslands as "green deserts" due to their relatively low biodiversity compared to more structurally diverse ecosystems (Monbiot, 2013). Outside of Strokestown Park House and its surrounding grounds, opportunities for recreation and direct engagement with nature remain limited. Planning and development within the region are overseen by Roscommon County Council (Roscommon County Council, 2020).

Due to the dominance of livestock systems, there is limited vegetable or diversified crop production within the region, increasing dependence on imported goods and external agricultural inputs. Interviews and discussions with local actors indicate growing curiosity surrounding alternative farming practices and crop diversification (Cusack, pers. Comm., 2026). However, many farmers also describe strong economic pressures associated with regulatory requirements, market conditions, and subsidy structures, which significantly influence land-use decisions, stocking rates, slurry management, conservation measures, and afforestation practices.

Table 3. Biodiversity analysis at the Cusack farm, Strokestown. (by author, 2026)

Flora layer	**Conditions / place found**	**Species**
Canopy	dry-wet / field borders	*Fraxinus excelsior*
	wet-submerged / low areas-marsh	*Salix caprea*
	dry-wet / field borders	*Crataegus monogyna*
Shrub	hedgerows / field borders	*Cornus sanguinea*
	hedgerows / field borders	*Hedera helix*
	hedgerows / field borders	*Prunus spinosa*
	hedgerows / field borders	*Prunus laurocerasus*
	hedgerows / field borders	*Rubus caesius*
	hedgerows / field borders	*Salix repens*
	hedgerows / field borders	*Salix viminalis*
	hedgerows / field borders	*Sambucus nigra*
	hedgerows / field borders	
	hedgerows / field borders	*Vaccinium myrtillus*
Herb	wet / low areas-marsh	*Agrostis stolonifera*
	dry-wet / field	*Alopecurus pratensis*
	hedgerows / stone walls	*Asplenium scolopendrium*
	hedgerows / stone walls	*Bellis perennis*
	wet / low areas-marsh	*Caltha palustris*
	wet / low areas-marsh	*Carex elata*
	dry-wet / field	*Cirsium palustre*
		Filipendula ulmaria
	hedgerows / stone walls	*Galium aparine*
	hedgerows / stone walls	*Geranium lucidum*
	dry-wet / field	*Glechoma hederacea*
	wet / low areas-marsh	*Iris pseudacorus*
	dry-wet / field	*Luzula campestris*
	wet / low areas-marsh	*Mentha aquatica*
	hedgerows / stonewalls	*Nasturtium microphyllum*
	hedgerows / stonewalls	*Primula vulgaris*
	dry-wet / field	*Ramularia rubella*
	dry-wet / field	*Ranunculus acris*
	dry-wet / field	*Ranunculus repens*
	dry-wet / field	*Trifolium repens*
	dry-wet / field	*Vicia sepium*
Fauna	Phylum/Order	Species
	Hymenoptera	*Apis Mellifera*
	Coleoptera	*Gastrophysa viridula*
	Hymenoptera	*Halictus rubicundus*
	Mollusca	*Oxyloma elegans*
	Hemiptera	*Palomena prasina*
	Diptera	*Platycheirus albimanus*
	Diptera	*Rhingia campestris*
Unclassifiable...		Bees
		Beetles
		Birds
		Butterflys
		Flys
		Snails

4.2 Interview with agri-environmental consultants

The agricultural consultant firm in Strokestown is owned and operated by the Cusack family whose farm I am proposing these designs. The company services clients in Strokestown, County Roscommon and close neighbouring regions by educating farmers, primarily livestock, how to implement changes in their practices to meet requirements for any EU grants through the CAP or schemes from the Irish government. The farmers rely on the consultancy to handle their applications, ensure they are informed on the parameters of the schemes, and to survey their farms for compliance. These farmers would not survive economically in this system of working with the land if it were not for these subsidies. With these subsidies and grants relied on as the lifelines for their farm's education is crucial (Cusack, pers. comm., 2026). Cusack Agri Consultants put on a weekly two-hour knowledge sharing seminar with groups of their clients and either a guest speaker or informed discussion on specific topics. Succession is a serious issue. As of 2024 the average age of a farm holder is 59.4 years old, out of approximately 50,000 farmers the largest percentage of farmers were over 65 years old, with each age group decreasing in farm holder except for the >65 group (CSO, 2024). These current agricultural conditions are historically rooted in centuries of land commodification and extractive land-use systems shaped through colonial, patriarchal, and industrial agricultural development (Canny, 2001). Research also suggests that women-led farms may demonstrate stronger pro-environmental attitudes and environmental stewardship practices than male-led farms (Dudek & Wrzochalska, 2019). In Ireland, however, only approximately 13% of farm holders are women (CSO, 2024), see Figure 14.

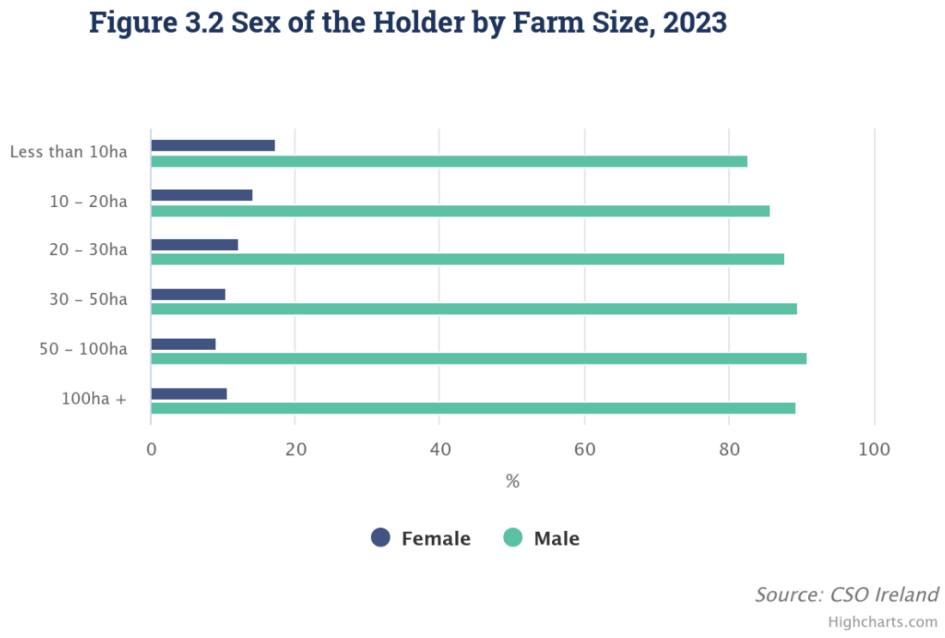
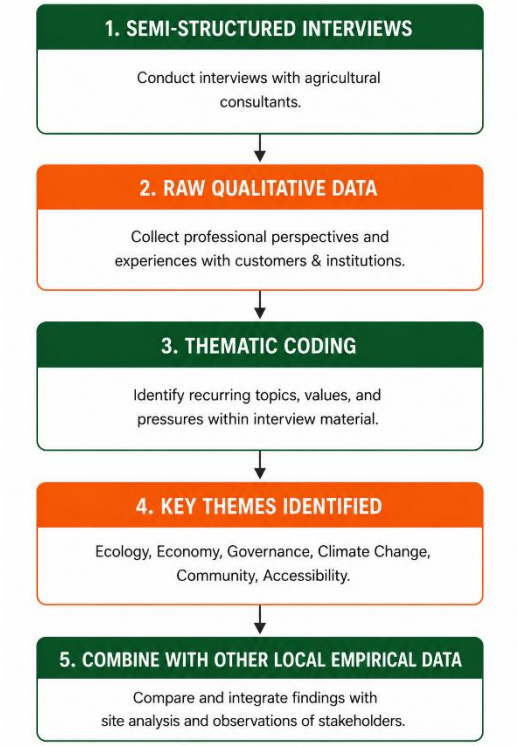


Figure 14. CSO statistics farm size in relation to sex of the holder (CSO, 2023).

The interview began by discussing the regulations that farmers are bound to. The clients mainly being livestock farmers they adhere to the Irish Department of Agriculture, Food and the Marine designations on flock/herd sizes, and in terms of meeting requirements for economic payouts from Irish/EU institutions they have specific requirements. We continued to talk about the landscape use and what barriers there are to diversifying farming practices. The main barrier is the economic incentive and focus on production engrained in the local Irish farmer's mind. When asked about the mood or perspective of their clients relating to ecology and healthy ecosystems the consultants said there are two different types of farmers: part time farmers that support ecosystems, full time farmers with a sole production focus. The latter type converts to environmental schemes and initiatives via financial incentives, "but over time seeing the ecosystems coming back to life is engaging" (Cusack, pers. comm., 2026).

There are several institutions that provide economic relief/payments to farmers in Ireland, primarily the Irish government body, and the EU regulating body. There are multiple schemes in CAP that the farmers are a part of: BISS, CRISS, ACRES, and EIP (European Commission, 2026). These initiatives span basic income support, environmental set asides for bird habitats, and biodiversity. Irish institutions offer economic relief through organic initiatives, set-asides, biodiversity and conservation (Department of Agriculture, Food and the Marine, 2024). The mood of the farmers regarding these initiatives is generally good. They have some issues with payouts happening in a timely manner and the frequent change of the parameters they are to operate within, "but minimal work… good payments" is working for them (Cusack, pers. Comm., 2026).

The interview finished with questions on the community's participation in nature and any climate related changes noticed on the ground over the time the consultants had been with the company. In terms of nature, "access to nature is shockingly limited in the rural setting" and with such expansive rural areas with small woodlands, lakes, and rivers "this is insane that this is here and nobody uses it" (Cusack, pers. Comm., 2026), referencing public access limitations. The climate related information is coming from their clients who some of which have been farming the land >40 years. They note "longer spells of rainfall, longer spells of drought…more intensity of both". The environmental protection agency has regulations on when and how much slurry can applied to fields, but when the weather is not consistent there is "contradicting environmental protection when boxed in by rigidity" leading to "major leeching into watercourses" (Cusack, pers. Comm., 2026). Impacts to the landscape over time include heavier machinery, slurry vs. manure, and expansion limiting the need for cooperation and more sustainable practices. Generational succession is a prominent problem currently



and the nature of the work having become more isolating there have been "two suicides in the past two years" (Cusack, pers. Comm., 2026). This interview provided a professional, experienced, and first-hand account of affairs with the farmers in the local community concerning their successes, struggles, and their moods. The interview data has been reviewed and organized using *RTA,* reflected in the flow-chart in Figure 15.

Figure 15. Methodological flow chart showing how empirical data is processed and filtered from Cusack Agri Consultants (figure by author, 2026).

4.3 Group questionnaire

After a short presentation to approximately 12 farmers a survey was handed out to all individuals who volunteered to participate anonymously. Conversation struggled, but a few individuals opened up and shared some of their thoughts about the challenges they are in and how they view the landscape. In total 5 farmers filled out the survey. Notably, the survey questions were framed in a way to garner personal connections to the land without framing the rhetoric in an overtly academic way; intrinsic value, rights of nature etc. The goal was to learn and gain perspective from the people who are engaging with the landscape daily. The survey was analysed using in a similar thematic method to the reference cases, but for the survey analysis themes were established based on the questions, and codes were derived from the responses. These codes were then interpreted collectively to have the entire groups perspective, but key quotes are included that anchor the interpretations with an inclusive perspective, this is shown in table 4. Both the presentation and the survey guide can be found in the appendix 5.

Table 4. Group questionnaire thematic analysis (table by author, 2026).

Theme	Key Findings/Codes	Interpretation	Key Quotes
Farming Type & Landscape	Livestock-focused systems, grassland, water features, hills, forests, hedgerows, cultural features	Predominantly livestock-based systems, existing non-livestock landscapes, ecological diversity	"livestock farming and livestock rearing"
Regulations & Policy	Organic structures, stocking rates, agri schemes	Governance prioritizes productivity and economic pressure	"can produce what we need"
Vegetation & Invasives	Blackthorn, hedgerows, siting areas, trees, flowers, introduced	Mixed rural vegetation, limited woodlands, with increasing invasive pressures, green desert	"national figures on biodiversity and initiatives are a bit of a joke"
Livestock Roles	Vegetation control, soil type, outdoor labour, maintenance	Livestock understood as landscape management and emotional connection	"livestock can act as a controlled way to keep lands with no trees and fields"
Economic Pressures	Subsidies/CAP, BISS, ECO, ACRES, imports, payouts, labour, grants	Land use influenced by subsidy structures and market pressure	"needed for viable farming viable"
Climate Change Impacts	Weather extremes, increased rain, flooding issues, drought periods, shifts	Increasing climatic instability, disrupted ecological systems, and compressed risk	"more long periods of wet weather and long periods of drought"
Responses to Climate Change	Afforestation, biodiversity grants, environmental initiatives, reduced intensity, tree management	Incremental efforts and environmental restructuring have emerged	"an direct quote provided"
Ecological Awareness	Soil health, water infiltration, biodiversity, quality	Practical ecological knowledge routinely present in farming	"why keep the soil in good health to produce good grass"
Multifunctionality	Biodiversity, fragmentation, carbon sinks, cultural heritage, mixed landscape	Awareness of ecological interconnections but limited integration	"farm and land is regulated"
Resilience & adaptation	Flood prone land, imported goods, fuel, fertiliser, funding reliance	Systems structure disconnects ecological cycles, highly externally dependent	"more diversity" / "how long this system can continue"
Future Vision	Organic farming, more trees/forests, reduced production, rewilding concerns	Mixed outlook: tension rooted in biodiversity, land use and local productivity	"there has to be a reduction in the way livestock and subsidies structure things today, trees and vegetation will diversify species production"
Cultural Connections	Rights, local myths, history, lakes, fields, forests	Strong cultural and historical ties with landscapes	"the old things return, and reconnect with our culture"
Access & Community	Walking, fishing, limited access except for owner	Limited accessibility, desire for more connection without harming ecosystems	"could it be more recreational etc rather than urban sprawl?"
Negative Impacts	Drainage, pesticides, slurry runoff, wet conditions	High external and extractive forces contributing to ecological degradation	"land is wet and difficult and still worked by dry weather, with weather makes connected to the stock farming ethic"

5. Design principles & proposal

This chapter presents the resulting design principles and the proposals based on these principles for the Cusack Family Farm in spatial and temporal scenarios. Visually exploring how the landscape may evolve from present interventions to conditions 50 years in the future.

5.1 Design principles for the Cusack Family Farm

The design principles inspired from the empirical data generated from this thesis and their thematic framing are shown in table 5.

Table 5. Developed design principles, post analysis (table by author, 2026)

Theme	**Design Principles**
Farming Type & Landscape	Agroecology: regenerative horticulture, agroforestry - Re-wilding & native afforestation, public access
Regulations & Policy	Align design with Irish and European institutions as much as possible
Vegetation & Invasives	Target invasive removal, strengthen landscape connectivity, reduce impact on non-human environment
Livestock Role	Develop cooperative community managed grazing systems (rotational grazing, silvopasture)
Economics	Diversify agricultural practices (agroecology/agroforestry), Environmental grants/subsidies
Climate Change Impacts	Floodable areas, irradicate monocultures, design for shading, permeability, and water retention
Ecological Awareness	Knowledge sharing venue, soft infrastructure, public access to nature
Multifunctionality	Re-build soil health, carbon sequestration, nutrient fixing, habitat connectivity, recreation, local economy, education
Resilience & Reliance	Increase local self-sufficiency (diverse production, reduced inputs, coworking)
Future Vision	Design combining diverse production, rewilding, afforestation + non-human sovereignty + community engagement/education
Cultural Connection	Co-creation, historically informed designs, native species and habitats facilitated
Access & Community	Introduce controlled access, trails, educational and viewing spaces
Negative Impacts	Increase soil permeability and health, increase biodiversity, diversified economy, increase education and engagement

5.2 Future prospects- the farm in 2076

Design legend:

1. Thinned *Picea sitchensis* stand afforested with native trees: *T. baccata 'Fastigiata, P. sylvestris, F. excelsior, Q. petraea*
2. *Afforested mixed broadleaf forest: F. excelsior, B. pendula, S. acuparia,* providing connectivity and rotational space for silvopasoral practices
3. Parking area, with flower patch and berry bushes, raised pathway, *Q. petraea* and *F. excelsior* meadow with *Oxford Sandy and Black* pigs. Knowledge center (KC) located in the north corner of area
4. Raised walkway provides border between altered/untocuhed landscapes. The north east side houses a forest stand of *Populus tremula, and S. acuparia*. The southwest portion of this area is left as a re-wild zone where the nature decides what to do.
5. 2 residential properties, storage, compost, pig stables, *Malus sylvestris* orchard intercropped with *Vaccinium myrtillus L.* bushes.
6. Farm kitchen, pond with *Prunus avium* and *Corylus avellana* stand, 2 20 m long polytunnelsand 20 20 m long raised beds for crops, flower patch, and the chicken coop for *Gallus gallus domesticus*
7. Silvopasture meadow with *Malus domestica* orchard, afforested area; *Salix Caprea, Alnus glutinosa, and Betula pubescans* in north corner including campsite connected via raised pathway from area 4
8. Continuation of afforestation efforts in east corner. Rewilding/unmanaged area allowed to self-'govern'. Raised footpath guides through wild forest area to a central pond.
9. Fully 'wild' area. Raised footpath takes users through the flood plain/wild area
10. Wildlife viewing points are positioned on the lake for recreation with minimal impacts. Soft infrastructue is placed throughout the footpaths educating people on why actions are taken, and what they are.
11. Section of the drystonewall/hedgerow hybrid. Frequently interspersed with *Fraxinus excelsior*

Figure 16. Masterplan, aerial view year 2076, Scale 1:2000 (at A3) (sketched by author, 2026). See appendix 6.

The design proposal above in Figure 16 is a projection of what this site could look like in the year 2076 through various management methods and infrastructure implementations. A guiding legend can be seen in Figure 17.

The agroecological practices taking place are highlighted in Figures 18 & 21. This includes an intensive horticultural production, biodiversity patches (native flowers & hedgerows), rotational swine and chicken silvopastoral system among oak, ash, and meadows. A pond is introduced and a building for knowledge sharing and educational purposes with the community is in the centre of the farm.

The low-lying areas of the property are afforested, left to rewild, and they act as a flood plain/wetland. There is public access to these areas via raised pathways. Soft infrastructure is placed appropriately to educate and engage users. Wildlife viewing points are positioned to connect people with their environment. These areas are highlighted in Figure 19.

Figure 17. Zoomed view of raised bed system, polytunnels, orchard, pond, hedgerows, silvopastoral area, and a knowledge centre (KC) Scale 1:2000 (at A3) (sketched by author, 2026).

Figure 18. Zoomed in view of raised pathways, wildlife viewing point on the lake, afforested area, and the rewilded area/flood plain, Scale 1:2000 (at A3) (sketched by author, 2026).

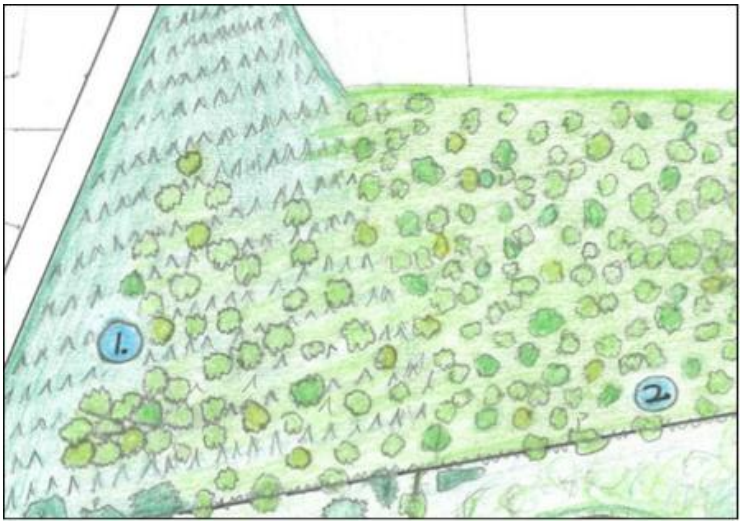


Figure 19. *Zoomed in view of extensively thinned Picea sitchensis production stand, afforested with F. excelsior, Q. petraea, Pinus sylvestris, T. baccatta. Of crucial importance, zone 1 & 2 are outside of the property lines, and this area highlights the need for cooperation within the community to establish environmental connectivity, Scale 1:2000 (at A3) (sketched by author, 2026).*

Spatial and temporal considerations are taken into consideration in this proposal. With a time span of 50 years until the master plan is realized natural processes will change how the landscape looks and functions over time. Focusing on the rewilded area of the northern corner of the site, visual projections are sketched to show the evolution over 20 years and 50 years. Figure 21 shows this zone as it currently stands. Figure 22 presents a 20-year time lapse and Figure 23 shows a 50-year time lapse.

Figure 20. Northern corner of the site showing submerged agricultural field meeting the lake as it currently exists in 2026 (photo by author, 2026)

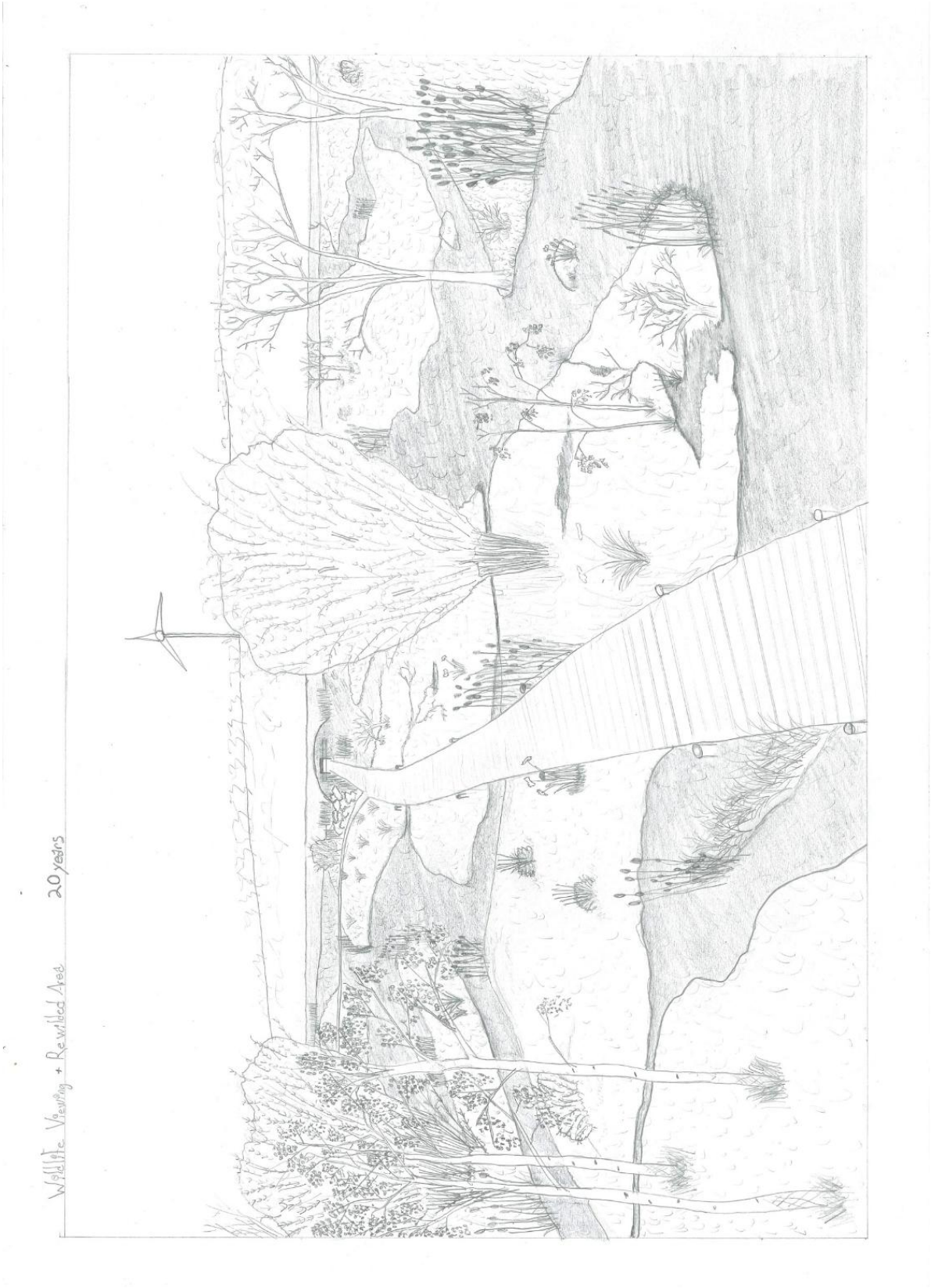


Figure 21. Wetland and wildlife viewing location, year 2046. Not to scale (sketched by author, 2026).

Figure 22. Wetland and wildlife viewing location, year 2076. Not to scale (sketched by author, 2026).

The 20-year time progression in Figure 22 shows tree species *B. pubescans, A. glutinosa, S. caprea* in a high disturbance zone with constantly wet conditions. With herb layer species *Cirsium palustre, Carex elata, Iris pseudacorus, and Luzula campestris* finding space to grow.
The 50-year time-lapse in Figure 23 shows the same species as seen in Figure 22, but they are further along in their maturation with some trees naturally felled. A shrub layer has naturally occurred with *Sambucas nigra, Salix repens, Cornus sanguinea, Frangula alnus, and Crataegus monogyna.* While not explicitly detailed in the sketch the herb layer is expected to be more complex with additional species *Mentha aquatica, Caltha palustris, Typha latifolia L.,* among others.
This environment provides habitats to many species that have lost theirs previously, including the endangered *Numenius arquata.*

Below in Figure 24 a perspective of the agroecological farming practices is shown with various elements and species. Oxford sandy and black pigs are introduced as they are considered a heritage breed (pre-industrialization breed), and are suited for silvopastoral practices especially among oak, willow, and birch trees (Mosquera-Losada, 2012). The pigs rotate between the *F. excelsior, Q. petraea* meadow and the afforested zone to the SE of the property, providing lots of area to reduce compaction, spread nutrients widely, and allow for oaks to reach maturity by reducing competition from other vegetation species.
The chicken coop is in the field behind the stone wall and allows access to two fields for the chickens to roam, manage pests, and spread nutrients.
Two 20-meter long polytunnels are positioned behind the pond and in front of them lies 20 20-meter-long raised beds for rotating a wide variety of crops (cabbage, potatoes, carrots, beets, kale, turnips, onions, lettuce, etc…). Flower patches are apart of the rotation to provide for the pollinators needed for crop production.
Around the pond *Coryllus avellana* and *Prunus avium* are serving as cultural connections to place, Irish mythology has an affinity of stories associated with Hazel trees and water bodies (MacKillop, 2004), in addition to a source of food and habitats for many species.
Social infrastructure depicted includes a knowledge centre, farm kitchen and raised steps over hedgerow/wall.

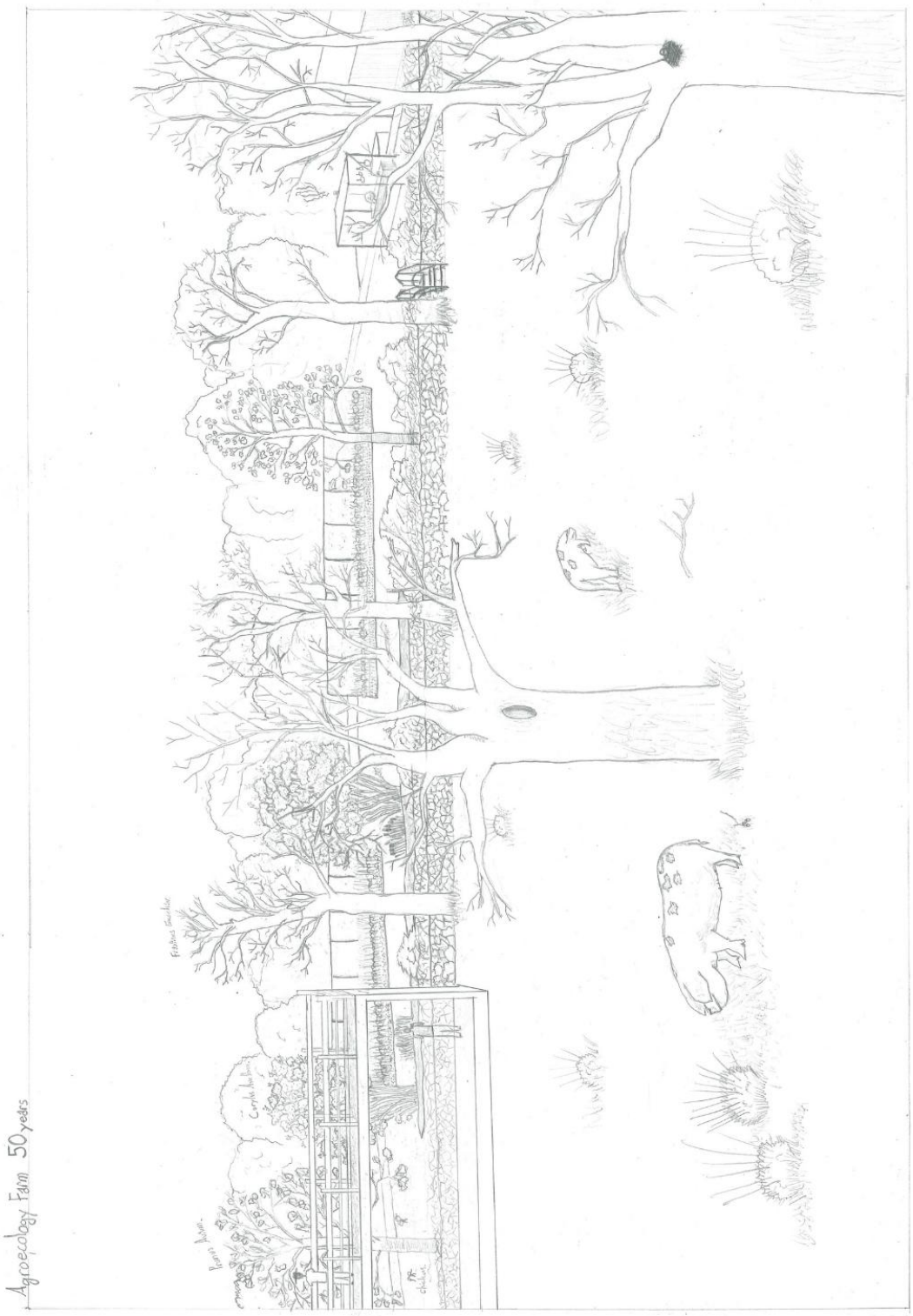


Figure 23. Perspective of farm as seen from silvopasture perspective (sketched by author, 2026)

Below Figure 25 illustrates dry-stone-wall anatomy, species living in the wall, and the species composing the hedgerow above it.

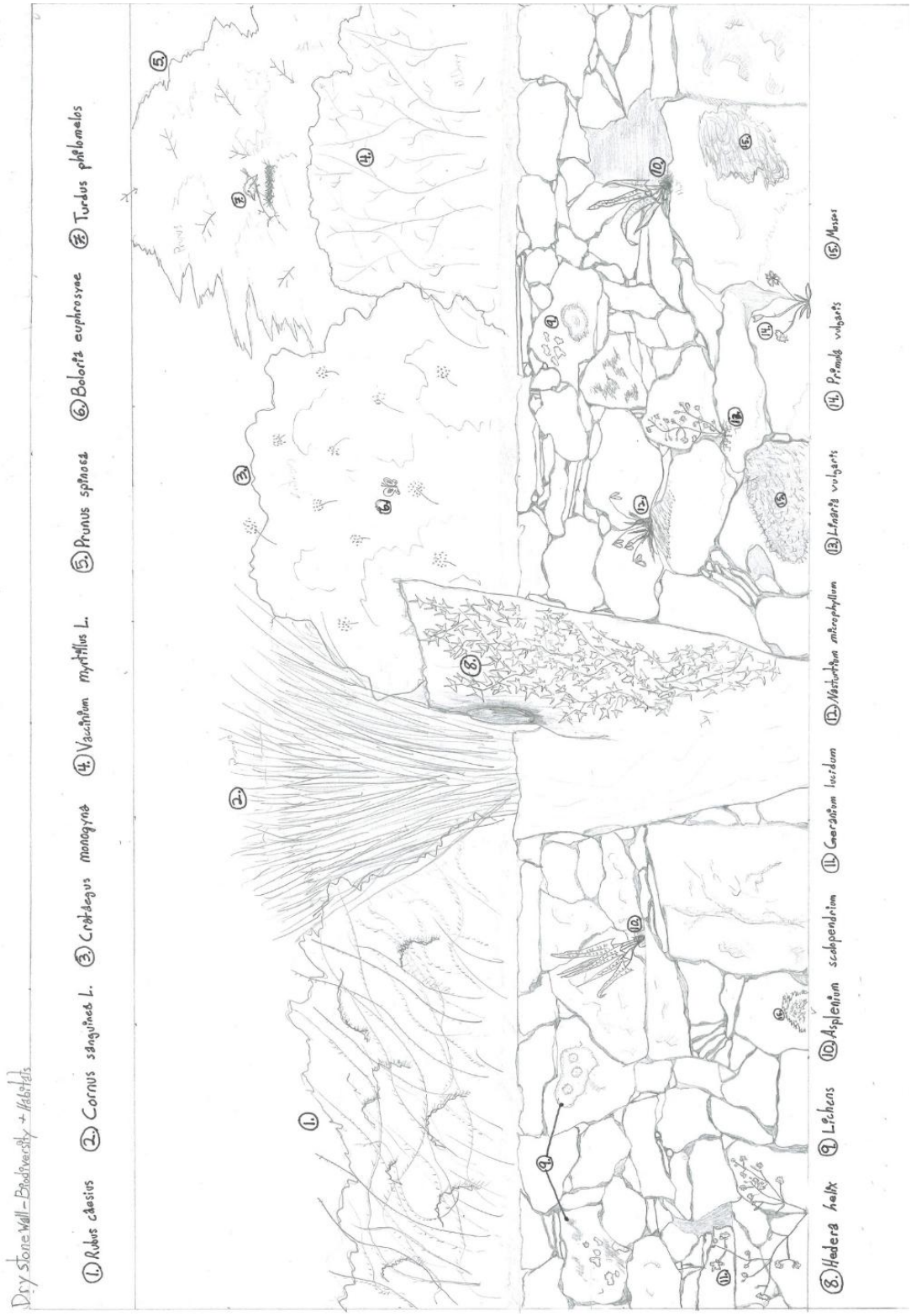


Figure 24. Dry stone wall structure and biodiversity. Scale 1:16 (at A3) (sketched by author, 2026).

6. Discussion

The design proposed for the Cusack Family Farm is based on an amalgamation of the data generated with local stakeholders, reference sites, literature studies, and academic analytical lens and background. Of primary importance locally is to understand the community, their needs and desires, and how to make more room for natural processes while restabilizing and invigorating local communities and ecosystems. This chapter discusses the multifunctional qualities of the design proposal from an ecological and social perspective and the theoretical lens that developed it.

6.1 Ecological Multifunctionality

Agroecology:
The agricultural systems introduced here a conform to the 13 agroecological principles put forward by the Uniteed Nations Food and Agriculture Organization (FAO, 2018), see appendix 7, and include a horticultural garden (vegetables, fruits, flowers) and agroforestry systems (intercropping fruit orchard, silvopastoral grazing). There are two orchards of Irish heritage apple varieties; *Malus domestica*- Kilkenny Pearmain, Irish Peach, Kemp; *Malus sylvestris*- Lough Key Crab. Two 20-meter long polytunnels in addition to 20 20-meter-long raised beds for crops. Appropriate crop rotations, no till, organic methods, and including flower patches promotes soil filtration, a thriving soil microbiome, and pollinator biodiversity, as proven at Alnarp's Agroecology Farm (Biundo, 2024) Silvopastoral practices are combined with native apple orchards, oak and ash pastures, and a mixed forest with low duration grazing will keep the biodiversity of the pastures rich, provide shade/shelter for the livestock, and provide fertilizer (Mosquera-Losada et al., 2012). Intercropping annuals like flowers and clover in the apple orchard can provide a unique environment in contrast to the more permanent ecosystem of the orchard itself and attract different pollinators and 'natural enemies' of pests (Herz, et al., 2019). Diversifying agricultural practices with rotational horticulture systems and implementing multiple agroforestry methods, orchard inter-cropping and silvopasture builds soil microbiome, and reduces compaction (Biundo, 2024). The oak and ash meadow is assisted via seedlings and management to achieve maturity. Some levels of management will assist in creating conditions for habitats to succeed that otherwise would take hundreds of years (Mitchell et al., 2014).

Afforestation/Rewilding:
On the northern section of the site mixed native trees-*Salix caprea/cinerea, Populus nigra* L*., Betula pubescans, Alnus glutinosa*- are afforested on the low-

lying field creating connectivity to the young forest recently planted at the campsite location. The remaining area of the low-lying fields are unmanaged and expect an evolution over the next 50 years. Climate predictions and trends show that increased intensity and frequency of storms and precipitation are expected, in addition to extended periods of drought conditions (EPA, 2024) With these forecasts, this area of the site bordering the lake can expect more frequent flooding and will likely grow with some connectivity and influence from the afforested area on the northern edge and the existing *Salix caprea* patches. An alluvial floodplain forest is projected as the outcome of this sovereignty. The mixed broadleaf trees making up the wet woodland provide varied food sources and habitats for a wide array of organisms including birds, invertebrates, pollinators, and mammals. Simultaneously water filtration, prevention of soil erosion, and carbon sequestration are achieved (Forest Service Ireland, 2023).
The **southwest** area of the site connects a rewilded section to the afforested mixed native broadleaf and conifer forest. The monoculture *Picea sitchensis* production stand has been extensively thinned and planted with *Taxus baccata 'Fastigata', Pinus sylvestris, Quercus petraea, Sorbus acuparia* and *Fraxinus excelsior*. By increasing native species presence, the local soil will increase its permeability, improve soil microbiome, and deacidify (Farrelly et al., 2011). Native pollinators and animals reliant on native mixed forest habitats are provided for, and cooperation with neighbouring land(owners) allows for afforesting at a scale that provides continuity and connectivity at a scale that is not isolated or fragmented.

Corridors/Connectivity:
The species rich *Hedgerows* and the *Fraxinus excelsior* interspersed among them create an edge effect to the afforested areas and corridors throughout the property. The current hedgerows are at least two centuries old and provide many functions. For agricultural purposes the hedges act as a permeable windbreak and barrier for flooding effects in addition to food and habitats for pollinators. Out of the 35 species of butterflies in Ireland, 23 of them breed in hedgerows (Teagasc, 2022). *Crataegus monogyna, Rubus caesius, Prunus spinosa, Vaccinium myrtillus,* and *Cornus sanguinea* compose the hedgerows and grow intertwining with one another in a tall, dense, and thorny ensemble.

Dry stone walls are beneath the hedgerows and are approximately one to one and a half meters in height. Besides having immense cultural value these walls provide many ecological benefits too. The lack of mortar in the walls creates another permeable surface in the windbreak slowing down the wind speed, keeping the turbulent eddy higher above the ground where conditions are calmer (Buffam, lecture, 2025). The different shaped and angled stones create unique habitats in response to the respective conditions they are exposed to. Thus,

creating diverse habitats and promoting biodiversity. Wide ranges of mosses and lichens call these stone walls home too. In this proposal a distinction between the dry-stone walls and the hedgerow is illustrated in Figure 25, to highlight the cultural practice of crafting dry-stone walls. Which through local stakeholders can be offered as a course in the knowledge centres to educate the community and others in a world heritage trade that is decreasing in practitioners and proficiency (UNESCO, 2018).

Two *ponds* are introduced to the landscape, one in the flood plain acting as a landmark, connecting waterway, and if needed it can be used for water retention. The other pond in the southeast section of the site sits in a meadow rotationally grazed by chickens and pigs. Surrounding the pond *Coryllus avellana* and *Prunus avium* provide shelter, shade and food sources for the grazing animals and the wildlife. Small ponds and wetland features can significantly increase biodiversity within agricultural landscapes by supporting amphibians, invertebrates, birds, pollinators, and aquatic ecological processes while also contributing to water retention and filtration (Ennis, 2023).

6.2 Socio-multifunctionality:

The *social dynamics* of the design proposal start with the farm. Operating as a community hub and local business cooperating with other farms and stakeholders the farm is a key component of the landscape. It is owned (as it is currently or potentially cooperatively), but the nature and camping areas are open to the public under the strict adherence to the "leave no trace" policy. A framework provided by the state to the public establishing protocols to minimize and reduce human impacts to the environment (Leave No Trace Ireland, 2026). Agroecology in practice relies on the community as much as it does the primary actors. Participation, co-creating knowledge, social values, connecting local producers and communities, and governance of land are key community centred principles of agroecology (Wezel et al., 2009; FAO, 2018). With such diverse agricultural landscape management of the crop and livestock rotations is imperative for the soil and animal health. Limiting as much outside input as possible takes a lot of planning, research, and labour. This provides the opportunity for educational farming sessions, volunteer programs, internships, and academic collaborations. There are two 'Knowledge Centres' introduced on the property where skill sharing workshops, classes, and meetings will take place such as dry-stone wall cultural ecology build workshops are provided by a local master stone mason. The space can be used for community biodiversity art exhibitions, generating a tangible sense of place.
The local economy has become more circular in function by producing more diverse agricultural outputs there is less of a reliance on imports, nutritious foods

are accessible, and greater emphasis on ecosystem integrity and socially regenerative economies (Raworth, 2017). A farm shop with self-produced and locally produced goods provides job opportunities and engages producers with the community. As an operating business (for/non-profit up to owners), jobs are provided throughout the year with demand based on seasonality. Local producers engaging with diversified practices are simultaneously meeting requirements for agroforestry, biodiversity and other environmental subsidies and grants (European Commission, 2026)

A parking area is located in the southwest corner of the site for the drivers looking to engage with the farm or the nature area. Exiting the parking lot is a raised pathway system leading through the oak pasture and vanishing out of site behind the oaks, ashes, and hedges. The raised paths are wooden, courteous of the spruce plantation, and they are established throughout the property to allow accessibility, though limit any adverse human impacts to the environment. After the Oak pasture, a field half replanted and half rewilded appears before another field with a pond, and the path winds through the wetland marsh to the lake. Two wildlife viewing points are positioned along the path at the lake. Signs are posted along the paths with different soft infrastructure elaborating on the ecological benefits taking place, pointing out the biodiversity, and connecting elements in the landscape that could appear independent of one another. The path eventually loops back towards the farm, and another pathway splits off and leads to the campsite in the forest.

This is an environment that builds community engagement and education through outreach and collaboration with neighbouring properties to expand the connectivity as much as possible. Re-wilding, planting with environmental intentions, and minimizing human impact will bring back species that have left for better conditions and even provide the opportunity to re-introduce others.

6.3 Exploring a deep ecology lens

Within the philosophy of Deep Ecology humans and human culture are recognized as a part of the non-human world rather than separate or above it (Naess, 1989). A piece of a whole. With this concept in mind this proposal attempts to design a landscape on behalf of nature. Designating areas with their own autonomy in cooperation with neighbours and designing areas with agroecological management delineates a space where needs are met, culture is intact, and people can connect with and learn about the non-human world in meaningful ways (McHarg, 1992). The self-governing non-human elements will blur the lines of the plans in the future and always be a reminder that you cannot keep nature in a box, change is constant, and adapting with our counter parts in this world is necessary for continued existence (Schouten, 2022). Economies and

energy supplies are shifting to reach low emission goals and preserve their landscapes to enjoy them as such. It is of utmost importance that people can connect with the nature that they are a part of to stimulate a connection and a sense of responsibility that nature is seen with intrinsic value (Naess, 1989).

7. Reflections & Conclusions

Conclusions:
This thesis explored how multifunctional landscape design can operationalize principles of deep ecology to enhance ecological resilience and reconfigure human-nature relationships in the rural Irish landscape. The research shows that integrating agroecological systems, ecosystem restoration/conservation, afforestation, accessibility, and community engagement can create a landscape that supports the rights of nature to exist on its own terms while maintaining livelihoods and enriching cultural association and sense of place.

The study identified key multifunctional elements to attribute to the Cusack Family Farm including agroforestry, wetland restoration, ecological corridors, education, research, and food sovereignty. Reference cases and literature analyses reveal that communities remain culturally connected to the landscape, though physically and ecologically disconnected through privatization, agricultural intensification, and production-focused land use. The research further demonstrates how the socio-ecological interface can be more resilient and supported through implementation of ecological design principles rooted in deep ecology, local knowledge, and cooperation.

This thesis ultimately argues that ecological resilience in Ireland is not solely an environmental issue, but also a cultural and relational one. Reconnecting communities with the landscapes they inhabit may be equally important as restoring biodiversity itself. “The whole landscape a manuscript/ We had lost the ability to read”, written by the Irish American poet John Montague, captures multiple dimensions of an Irish, human-nature disconnection. One of forced poverty and dispossession, and one of not having the capacity to have a sense of place. Simultaneously the oral and written traditions of Ireland persist through the disconnect to provide the cultural sense of place albeit the physical landscape and all that inhabits it widely remains viewed as units of production rather than a system of life that has as much of a right to exist as humans do. The future of the non-human world is of concern for many Irish people and through connections made, conversations had, and ideas shared, tangible change is possible with bottom-up (social/grass-roots) collaborations and top down engagement in addition to policy changes within the EU that value environmental integrity rather than output and production.

Future research:
With a longer period to conduct the thesis, the research would gain key elements to either strengthen or weaken the approach taken in Strokestown. Several follow-

up feedback sessions with the local community is imperative for local design proposals to understand how well data has been translated into the design process. Additionally, and of utmost importance is the opportunity for co-creation to take place where involvement includes participation in shaping your environment. Provided more time, the research would also put a greater emphasis on long-term management planning and economic viability. The workshop and survey methods could have been structured differently to generate more collaborative discussion and iterative community feedback. This step was considered necessary to root the theory and design principles locally, but the opportunity happened near spontaneously and could achieve more significant results with proper planning.

Future work should explore larger-scale ecological connectivity through collaborative land stewardship models similar to commonage systems already present within Ireland. Expanding ecological corridors, restoring wetlands and native woodland systems, and strengthening community access to nature could support both biodiversity and rural resilience.

The research also suggests that future ecological landscape design in Ireland may benefit from combining ecological science with cultural and relational understandings of landscape, strengthening connections between biodiversity restoration, local identity, and community stewardship.

Reflections/critical thought:
A major reflection from this research concerns the importance of communication and stakeholder engagement when discussing ecological change within rural communities. Many of the farmers engaged with throughout this thesis have worked the land for decades or generations under systems shaped by production targets, subsidy structures, and economic pressures. Approaching these conversations through academic terminology, prescriptive ecological ideals, or personal perspectives would likely have created distance rather than dialogue. Instead, framing discussions around lived experience, local knowledge, and shared concerns regarding biodiversity, input/output livelihoods, and future succession created more meaningful engagement.

The qualitative methodology generated a large body of valuable empirical material rooted in lived experiences and local perspectives, though the results remain interpretive and shaped by individual values and experiences, including my own positionality as a researcher. Time limitations restricted opportunities for quantitative ecological surveys, long-term stakeholder collaboration, and more developed management frameworks. Economic viability was also not explored in significant depth.

Another critical reflection concerns scale and cooperation. The ecological connectivity proposed throughout the design depends upon collaboration between neighbouring landowners and communities. Existing traditions such as commonage demonstrate that shared stewardship already exists culturally within Ireland and may provide a framework for future ecological cooperation beyond individual property boundaries and in favour of

The research also strengthened my own knowledge of ecological philosophy from an abstract theoretical position toward a lived and relational condition embedded within landscape and culture. The work of Manchán Magan and Matthijs Schouten was particularly influential in this regard, both emphasizing that Irish mythology, language, and oral traditions historically positioned humans as part of ecological systems rather than separate from them. Schouten's reflections on nature as a partner rather than a resource, alongside Magan's writings on recovering a cultural relationship with landscape, reinforced the importance of designing not only for biodiversity restoration but also for emotional and cultural reconnection with place.

This thesis attempts to envision a landscape literacy in Ireland for the future, from the past.

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Popular science summary

The Irish landscape has undergone profound ecological and cultural transformation over centuries of colonisation, agricultural intensification, and changing relationships between people and land. Today, large areas of rural Ireland are dominated by livestock farming systems that prioritise productivity and economic output, often resulting in biodiversity loss, water pollution, habitat fragmentation, and limited public interaction with nature. At the same time, many rural communities maintain strong cultural and historical connections to the landscape, shaped by generations of lived experience, memory, and identity.

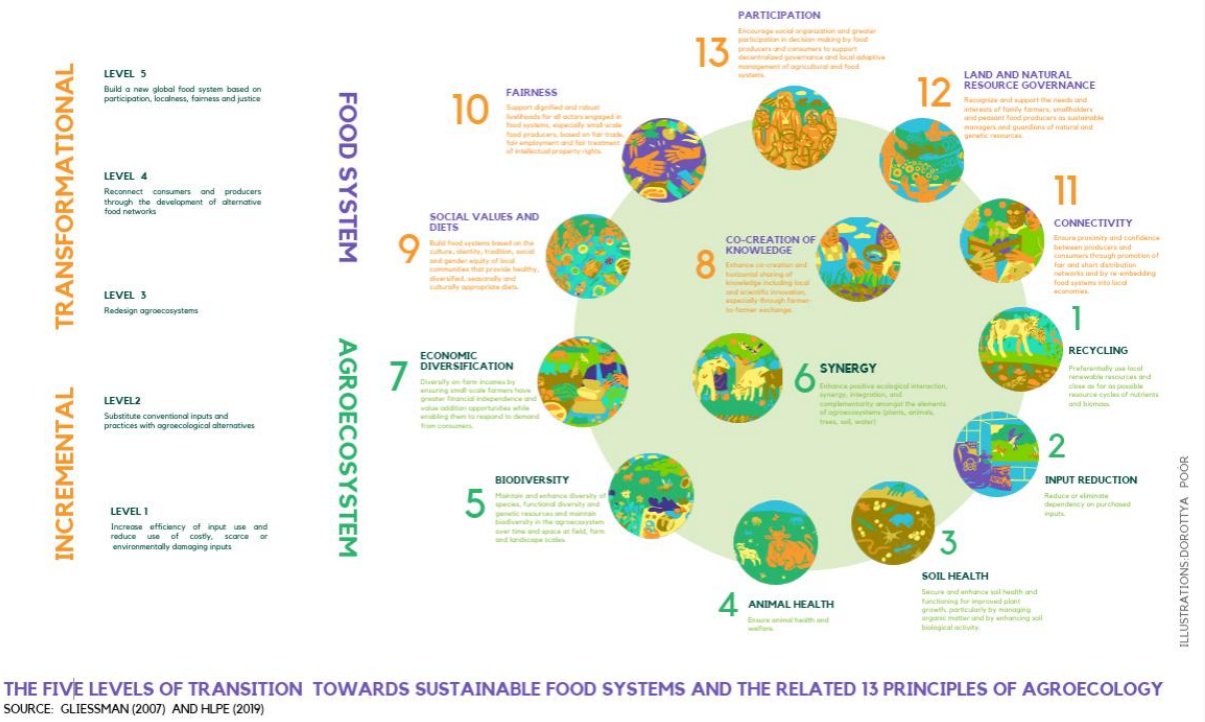
This thesis investigates how ecological landscape *design* can support more diverse, connected, and resilient relationships between people and land in Strokestown, County Roscommon, Ireland. Through historical analysis, ecological site studies, stakeholder engagement, and speculative landscape design, the project explores how alternative futures for agricultural landscapes might be imagined and discussed within existing rural contexts.

The research is informed by ecological and philosophical frameworks including deep ecology, agroecology, and eco-feminism, which emphasise biodiversity, ecological interdependence, local knowledge, and long-term stewardship. Historical analysis traces how systems of land ownership and use in Ireland shifted from collective and relational structures under Brehon law toward privatised and extractive systems shaped through colonisation, plantation, famine, and agricultural modernisation. These histories continue to influence how landscapes are owned, accessed, and valued today.

The study combines qualitative methods such as interviews, conversations, and participatory engagement with ecological observation and landscape analysis. Rather than proposing universal solutions, the project develops site-specific design principles grounded in local social and environmental conditions. Particular attention is given to wetlands, hedgerows, biodiversity corridors, public access to nature, and opportunities for diversifying agricultural land use while remaining sensitive to local farming realities.

Ultimately, the thesis argues that ecological restoration in rural Ireland is not only an environmental challenge, but also a cultural and relational one. By reconnecting ecological processes, historical understanding, and community participation, the project explores how rural landscape design might support both environmental health and renewed relationships between people and the land they inhabit.

Appendix 1. 13 Principles of Agroecology



THE FIVE LEVELS OF TRANSITION TOWARDS SUSTAINABLE FOOD SYSTEMS AND THE RELATED 13 PRINCIPLES OF AGROECOLOGY
SOURCE: GLIESSMAN (2007) AND HLPE (2019)

Appendix 2. Reference case interview guide

Sveriges Lantbruksuniversitet, Alnarp
Landscape Architecture Independent Field Work
Semi-Structured Reference Case Interview Guide
Interviewer: Niall O'Brien-Gregg
Institution: Swedish University of Agricultural Sciences
Participant: _____
Role/Organization: _____
Length of involvement: _____

1. Organization & Landscape Context

- Describe the organization and its main goals.
- How would you describe the landscape and its functions?

2. Human–Nature Relationships

- How do people interact with the landscape?
  (professionally, privately, recreationally)
- Have relationships with nature changed over time?

3. Values & Environmental Ethics

- How is the value of nature understood or communicated?
- How do humans and nature relate to one another here?

4. Environmental Change & Climate

- Have you observed environmental changes?
- How are these changes discussed or responded to?

5. Land Management & Governance

- How is land use regulated or managed?
- What challenges exist between productivity and ecology?

6. Multifunctionality

- To what extent is the landscape multifunctional?
- What functions could be added or improved?

7. Resilience & Future Preparedness

- How prepared is the landscape for future change?
  (floods, drought, storms, food, social needs)

8. Future Vision & Design

- What would you like this landscape to look like in the future?
- How should people interact with it?

9. Rights of Nature

- Have you encountered the idea that nature could have rights?
- What are your thoughts on this in relation to this landscape?

Prompts (if needed):

- Areas deserving protection regardless of use?
- Important places within the landscape?
- Connections to Irish culture/history/tradition?

Closing

Anything else to add?

- **Notes**

Appendix 3. Consultancy interview guide

Sveriges Lantbruksuniversitet, Alnarp
Landscape Architecture Independent Field Work
Semi-Structured Interview Guide - Cusack Agri Consultants
Interviewer: Niall O'Brien-Gregg
Institution: Swedish University of Agricultural Sciences
Participants: _____
Organization/Role: _____
Length of Involvement: _____

---

1. Farming & Landscape Context

- What are the dominant farming systems in the region?
- How are farms zoned or designated?
- What landscape features characterize the region?

2. Diversification & Land Use

- How do regulations influence tree planting, agroforestry, or vegetable production?
- What barriers exist to diversified farming systems?

3. Ecology & Environmental Attitudes

- What is the general perspective of local farmers regarding ecology and biodiversity?
- How are environmental initiatives perceived locally?

4. Agricultural Schemes & Governance

- What environmental or agricultural schemes are farmers involved in?
- How do subsidy systems influence land management decisions?
- What challenges exist regarding policy implementation or payments?

5. Community & Access to Nature

- How does the local community engage with the surrounding landscape?
- Are there opportunities for recreation, volunteering, or education in nature?

6. Climate & Environmental Change

- Have environmental or climatic changes affected the region?
- What impacts are visible on farms and ecosystems?
- How are these changes managed or discussed?

7. Landscape Management & Practices

- How have farming practices changed over time?
- What impacts have machinery, slurry management, or intensification had on the landscape?

8. Generational Change

- How are younger generations approaching farming differently?
- Are environmental perspectives shifting over time?

9. Economy & Social Conditions

- What economic pressures affect farming communities?
- How has globalization or supermarket competition affected local farming economies?
- Are there social challenges connected to farming lifestyles?

10. Future Perspectives

- What changes would improve environmental and economic resilience in the region?
- How should future landscapes in Roscommon evolve?

Additional Notes

Closing

Anything else you would like to add?

Appendix 4. Stakeholder workshop

Research Context
Community engagement workshop conducted in Strokestown, County Roscommon at the Cusack Agri Consultant's firm. A presentation was given to local farmers introducing them to the researcher, the contectual basis for workshop, and the researchers understanding of rural Irish landscape needs and struggles. Following the presentation discussions opened up regarding themes from the workshop. A voluntary questionnaire was the final element of the workshop.

Researcher Background
- Undergraduate Landscape Architecture student
- Swedish University of Agricultural Sciences
- Experience in agroecology, ecology, climate change, and community food systems

Workshop Objectives
- Listen to local stakeholder perspectives
- Identify ecological and economic pressures
- Discuss future landscape possibilities
- Co-create ideas relating to farming, biodiversity, and community resilience

Key Issues Identified
- Rising fuel and fertilizer prices
- Delayed subsidy payments
- Dependence on livestock systems
- Land degradation and biodiversity loss
- Invasive species
- Climate instability and changing growing conditions

Community Needs Discussed
- Livable farm incomes
- Diversified agricultural production
- Reduced external inputs
- Improved local food access
- Public access to nature
- Generational succession planning
- Stronger community identity

Workshop Discussion Themes

- Favourite places within the landscape
- Cultural relationships to land
- Future visions for farming
- Ecological restoration opportunities
- Agroforestry and local food production
- Community engagement with nature

Intended Outcomes

- Inform conceptual design proposals
- Integrate local knowledge into landscape design
- Explore multifunctional agricultural futures
- Support ecological and social resilience

Appendix 5. Questionnaire

Sveriges Lantbruksuniversitet, Alnarp
Landscape Architecture Independent Field Work
Local Stakeholder Questionnaire
Researcher: Niall O'Brien-Gregg
Institution: Swedish University of Agricultural Sciences
Contact: Niob0001@stud.slu.se
Participant Name: _____
Role/Organization: _____
Length of involvement: _____

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1. Landscape Use & Farming

- What type of farming is carried out on your property?
- What does the landscape consist of?
  (vegetation, water bodies, topography, geology)
- What zoning or regulations are you bound to?

2. Landscape Management

- What natural elements are grown or managed on your land?
  (trees, grass, crops, hedgerows)
- Have you noticed invasive species or environmental changes?

3. Livestock

- What role does livestock play in the management of the landscape?

4. Economy & Subsidies

- Are you reliant on farming as a primary income source?
- Do you participate in grant or subsidy schemes?
  (local, national, EU)
- What is your perspective on these programs?

5. Environmental Change & Climate

- Have you observed changes in weather or environmental conditions?
  (storms, flooding, drought, growing seasons)
- How are these changes discussed or responded to locally?

6. Ecology & Land Health

- What natural element is most important for farming success?
  (soil, water, biodiversity, climate, community)
- What challenges exist between productivity and ecology?

7. Multifunctionality

- Is the landscape multifunctional? In what ways?
- What functions could be improved or added?
  (biodiversity, recreation, education, carbon storage, etc.)

8. Resilience & Future Preparedness

- How prepared is the farm/region for future environmental change?
- How reliant is the region on external inputs?
  (fuel, feed, fertilizers, funding, labour)

9. Future Vision

- Without economic pressures, would you farm differently?
- Are there cultural or personal connections to aspects of the landscape?
- Are there opportunities for community engagement with nature?
- How do you imagine this landscape in 50 years?

10. Ecosystem Health

- Is ecosystem health important for farming success?
- Are there practices negatively impacting the environment?

Additional Questions

- Should parts of the landscape be protected?
- Are there places deserving special care or respect?
- Does this connect to Irish culture or traditions?
- How could communities become more engaged with nature?

Additional Notes

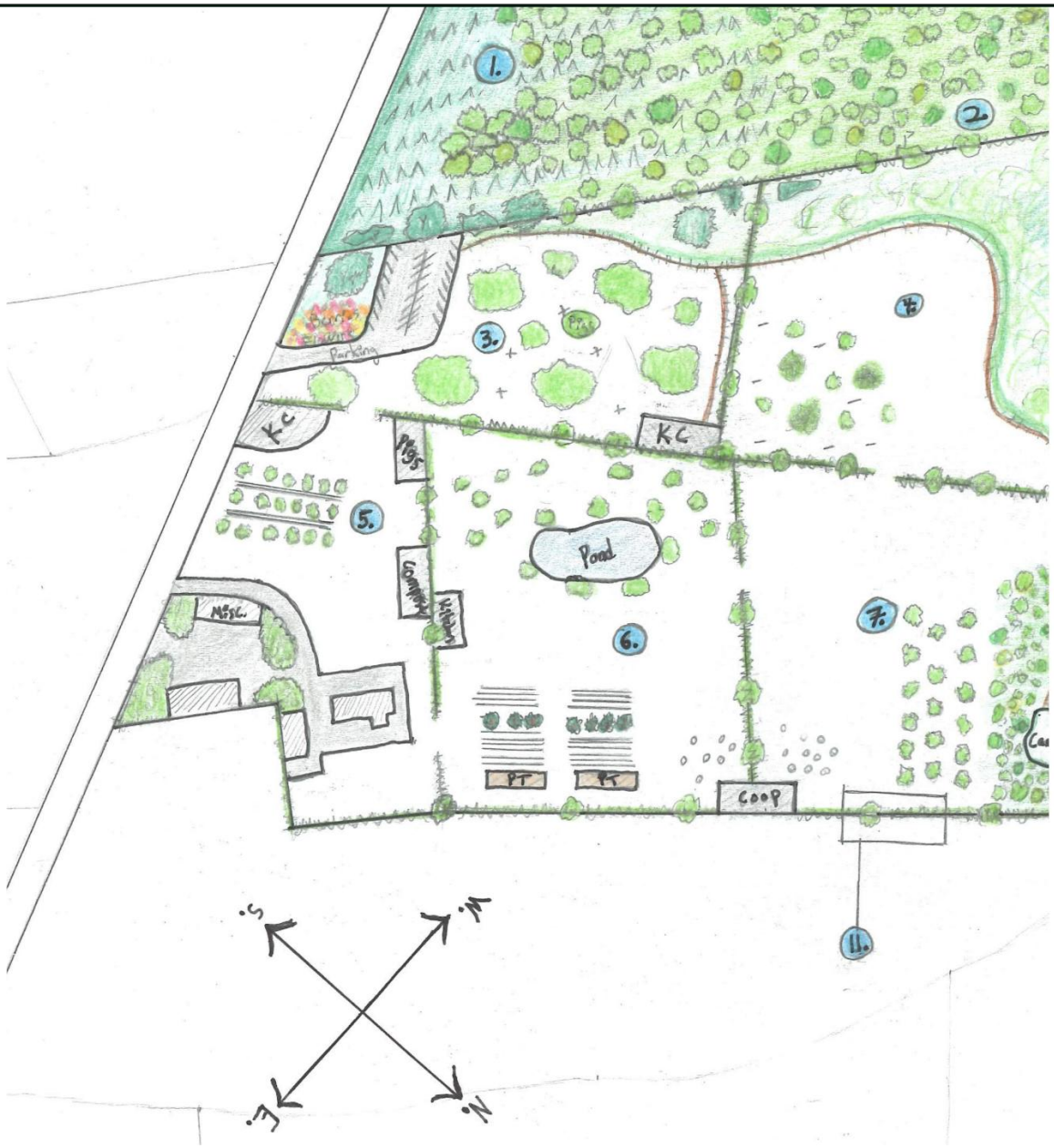
Closing

Anything else you would like to add?

Appendix 6. Design proposal master plan

Design legend:

1. Thinned *Picea sitchensis* stand afforested with native trees: *T. baccata 'Fastigiata, P. sylvestris, F. excelsior, Q. petraea*
2. *Afforested mixed broadleaf forest: F. excelsior, B. pendula, S. acuparia,* providing connectivity and rotational space for silvopasoral practices
3. Parking area, with flower patch and berry bushes, raised pathway, *Q. petraea* and *F. excelsior* meadow with *Oxford Sandy and Black* pigs. Knowledge center (KC) located in the north corner of area
4. Raised walkway provides border between altered/untocuhed landscapes. The north east side houses a forest stand of *Populus tremula, and S. acuparia.* The southwest portion of this area is left as a re-wild zone where the nature decides what to do.
5. 2 residential properties, storage, compost, pig stables, *Malus sylvestris* orchard intercropped with *Vaccinium myrtillus L.* bushes.
6. Farm kitchen, pond with *Prunus avium* and *Coryllus avellana* stand, 2 20 m long polytunnelsand 20 20 m long raised beds for crops, flower patch, and the chicken coop for *Gallus gallus domesticus*
7. Silvopasture meadow with *Malus domestica* orchard, afforested area; *Salix Caprea, Alnus glutinosa, and Betula pubescans* in north corner including campsite connected via raised pathway from area 4
8. Continuation of afforestation efforts in east corner. Rewilding/unmanaged area allowed to self-'govern'. Raised footpath guides through wild forest area to a central pond.
9. Fully 'wild' area. Raised footpath takes users through the flood plain/wild area
10. Wildlife viewing points are positioned on the lake for recreation with minimal impacts. Soft infrastructue is placed throughout the footpaths educating people on why actions are taken, and what they are.
11. Section of the drystonewall/hedgerow hybrid. Frequently interspersed with *Fraxinus excelsior*



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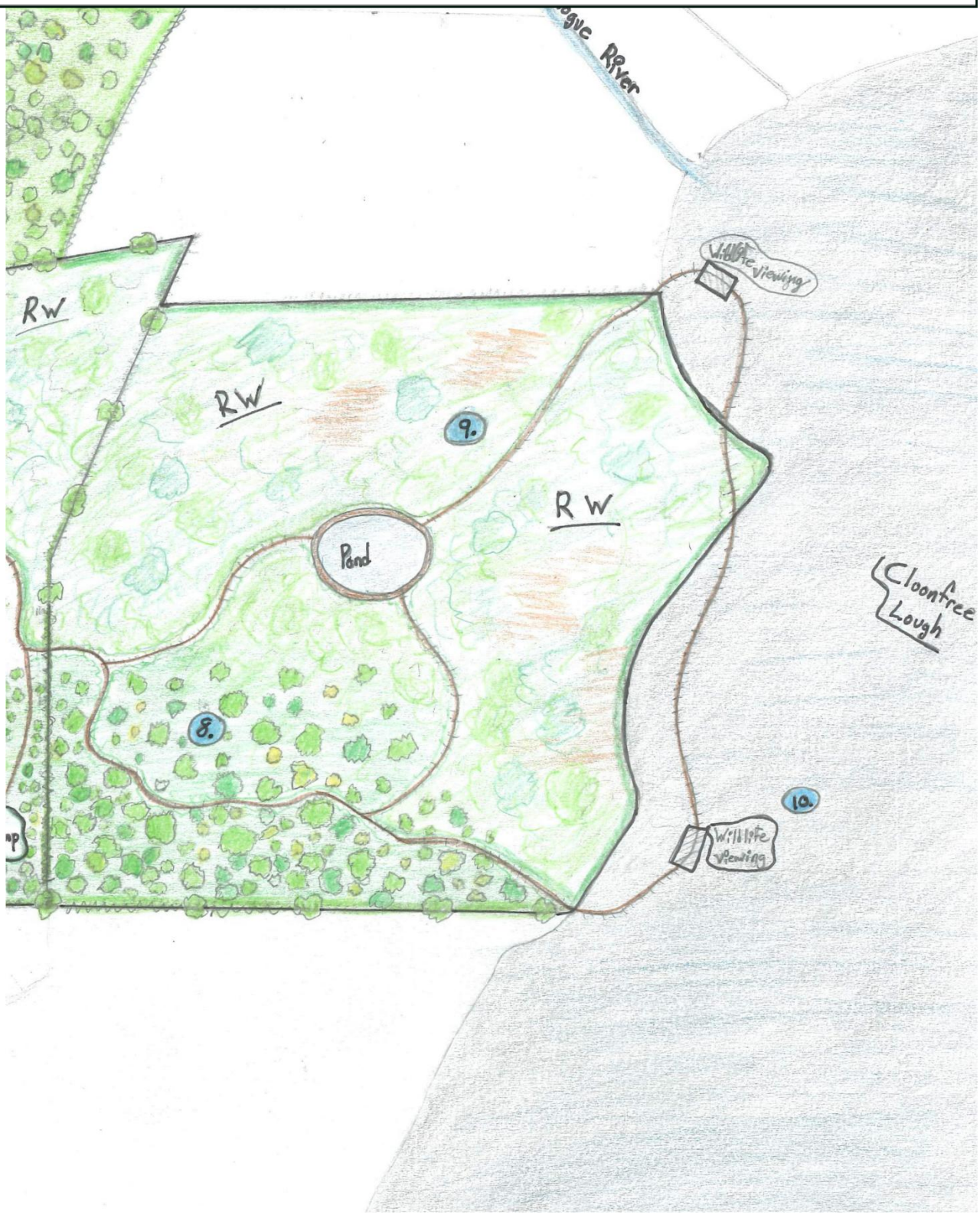

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