The Cultural Value of Sheep Farming in Scotland: Intangible Heritage and Cohesion Externalities

A report by

Andrew Moxey, Pareto Consulting

submitted electronically
to
Iain Macdonald, QMS
June 2026

Contents

Executive Summary

E1. This short report examines the cultural value of sheep farming in Scotland, with a particular focus on its intangible but foundational contributions to heritage, landscape aesthetics and community cohesion. Such contributions are additional to more commonly cited effects on economic activity and employment but also need to be recognised in policy debates.

E2. Sheep farming is a pervasive feature of rural Scotland. Its geographic spread and long historical development have resulted in a strong imprint on both the physical and cultural landscape. This includes visible features such as grazed vegetation, drystone dykes and sheep-handling structures, but also less tangible elements such as language, place names, and traditions.

E3. For example, pastoral systems have produced landscapes that are widely regarded as iconic and central to Scotland's national identity and tourism offer. At the same time, sheep farming has contributed to intangible heritage through traditional knowledge, skills and practices, and locally embedded understanding of land and climate conditions.

E4. These cultural and aesthetic contributions are consistent with the concept of cultural ecosystem services, which recognises the non-material benefits derived from landscapes and land management. In Scotland, pastoral landscapes exemplify how long-standing interactions between people and the environment can generate valued cultural outcomes alongside food production.

E5. Beyond heritage and aesthetics, sheep farming also generates important social and economic externalities. Farm and crofting families contribute to rural cohesion through year-round residence, participation in community life and the informal provision of services. This includes maintaining minimum levels of demand for local services such as schools, healthcare and retail, as well as supporting community organisations and governance structures.

E6. Such contributions help to counter the 'hollowing-out' of rural communities associated with more transient populations, including second-home ownership and tourism. In addition, farmers often play a practical role in emergency response and recovery, drawing on their access to machinery and local knowledge to assist during events such as severe weather, flooding and wildfires.

E7. These combined effects position sheep farming as part of a wider foundational rural system**,** underpinning not only economic activity but also the social infrastructure and viability of rural areas. However, many of these benefits are not captured in market transactions and are therefore not fully reflected in policy appraisal processes.

E8. This creates a risk that policy decisions—particularly those relating to land-use change, agricultural support and climate mitigation—may undervalue or overlook the wider contributions of sheep farming. Changes that reduce agricultural activity may have unintended consequences for landscape character, cultural heritage and community cohesion, as well as for the viability of rural services.

E9. This perspective does not simply support maintenance of the status quo. Scottish agriculture, including sheep farming, currently encompasses farms exhibiting widely different outcomes in terms of resource productivity, environmental performance, and livelihoods. Consequently, there is scope for improvement in the face of multiple challenges facing the sector. However, taking a broader perspective helps to reveal wider trade-offs and potential unintended consequences as well as Just Transition needs stemming from further declines in sheep farming.

E10. The findings of this report therefore suggest the need for a more holistic approach to policy design. This includes greater recognition of cultural ecosystem services, improved consideration of a wider range of non-market externalities, and a stronger integration of agricultural, environmental and rural development policies.

The Cultural Value of Sheep Farming in Scotland: Intangible Heritage and Cohesion Externalities

1: Introduction

1. Sheep farming has played a fundamental role in shaping Scotland's landscapes, communities, and cultural identity for centuries. Yet whilst economic and environmental dimensions are widely studied, the accompanying cultural value of pastoral systems receives comparatively less attention in policy debates.

2. This report considers the cultural value of sheep farming in Scotland. It explores the historical development of pastoral systems, the role of sheep grazing in the shaping of landscapes, the importance of traditional knowledge, skills and cuisine, and the foundational contribution of sheep farming and farmers to rural identity and cohesion.

3. The qualitative commentary presented draws on literature relating to rural geography, cultural ecosystem services, and rural studies more broadly. The report also attempts to situate sheep farming within contemporary debates around land use change and agricultural transitions.

2: Background

4. Quantitative analysis of the red meat sector estimates that sheep production in Scotland contributes around 8% of agricultural output, underpinning on-farm employment but also contributing to economic activity and employment both upstream and downstream along the supply-chain.[1] However, analysis of market linkages and market values neglects the broader influence of sheep farming as a foundational activity embedded within rural communities and landscapes.

5. Notably, more than ten thousand farm businesses across Scotland have sheep, meaning sheep are present on more than half of all Scottish farms.[2] These include specialist sheep farms but also more mixed farming systems, predominantly in the Less Favoured Area (LFA) of the Highlands, Islands and Scottish Borders but also in more lowland areas too.

6. The participation of more than ten thousand farm and croft families and their geographic spread across Scotland illustrates the pervasive nature of sheep farming, present in both the visible physical landscape but also the less visible cultural landscape of Scotland. For example, in relation to vegetation and buildings but also language and traditions, affecting the lived experience of residents and tourists.

7. Equally, farm families also contribute to rural cohesion through the informal provision of public services, participation in local governance, and being resident throughout the year. For example, through local

[1] See https://s3.eu-west-2.amazonaws.com/quality-meat-scotland/documents/Publications/QMS_Red_Meat_Economics_Report_Landscape_A4_2023_s10.pdf and https://s3.eu-west-2.amazonaws.com/quality-meat-scotland/documents/QMS0103517_QMS-RMIP_A5-booklet_online_161025-1.pdf

[2] Although there are c.50k farm holdings in Scotland, many businesses encompass multiple holdings and the number of individual farm businesses claiming agricultural support payments is less than 18k, of which more than 10k have sheep.

emergency response efforts, membership of community groups, and maintaining baseline levels of demand for local services outwith the tourist season.

8. Such heritage and cohesion effects are often indirect and/or intangible, representing economic public goods and externalities or spillovers[3] that are not valued directly by markets but nonetheless have system-wide economic value. For example, by contributing to the continued vitality and 'sense of place' of rural areas as locations to visit and to live and work in.

9. Whilst difficult to express in monetary terms,[4] the qualitative importance of such influences is recognised by the explicit inclusion of cultural services and community cohesion within the ecosystem services framework, which is now widely adopted for policy purposes. This places such values squarely alongside other recognised sources of economic value derived from land management. For example, the provisioning services of producing food, fibre and fuel but also the perhaps less apparent regulating and supporting services such as carbon sequestration and nutrient cycling.[5]

10. The concept of cultural ecosystem services provides a useful approach to understanding the non-material benefits that people derive from landscapes and ecosystems. Cultural ecosystem services include aesthetic value, heritage, recreation, sense of place, and cultural identity.

11. Moreover, agricultural landscapes often generate significant cultural ecosystem services because they reflect long histories of interaction between people and the environment. In Scotland, pastoral systems have produced distinctive cultural landscapes that are valued both locally and nationally.

12. The UN's Convention for the Safeguarding of Intangible Cultural Heritage, as ratified by the UK in 2024[6], represents a further attempt to recognise such values through cataloguing national cultural examples. Although these are not comprehensive nor limited to agriculture, early registered entries for the UK include related to pastoral traditions, as do entries for some other countries.[7]

13. The next section of this report traces the historical interplay between sheep farming and physical and cultural heritage. Section 4 then considers additional foundational cohesion externalities stemming

[3] Public goods are under-provided by market forces, because limiting use to paying customers is difficult (the so-called 'free-rider' problem), meaning that providers have no incentive to provide the goods. Externalities and spillovers are benefits (or costs) experienced by third-parties as a by-product of an economic activity, with no market relationship between the producer and the third-party beneficiary (or loser). Both are examples of market failures.

[4] Estimation of non-market benefits can be attempted through various techniques. For example, contingent valuation and choice experiments. However, these are challenging to conduct and disentangling different sources of value is very difficult.

[5] See https://www.millenniumassessment.org/documents/document.356.aspx.pdf

[6] See https://www.unesco.org/en/articles/united-kingdom-great-britain-and-northern-ireland-ratifies-2003-convention-safeguarding-intangible

[7] See https://livingheritage.unesco.org.uk/info/inventories, https://ichscotland.org/ and https://nationalinventoryich.ccs.gov.ie/ Equally, Alpine Pastoralism is recognised in Switzerland and Austria, Transhumance in Spain, France, and Italy, and Sámi reindeer herding in Nordic countries.

from the presence and community contributions of sheep farmers. Section 5 concludes with some reflections on the policy implications of cultural values.[8]

3: Aesthetics and Heritage

14. Sheep farming has deep historical roots in Scotland. Although not native to Britain, sheep were first introduced over 6000 years ago, brought by Neolithic settlers. These early sheep were small and short-tailed, capable of thriving on marginal grazing as part of rudimentary agricultural systems. Modern Soay and Hebridean breeds are considered to be their direct descendants.

15. Larger, long-tailed breeds capable of producing more meat and wool arrived with later, successive waves of settlement, including Roman, Anglo-Saxon and Viking influences. Modern Cheviot and Scottish Blackface breeds descended from these introductions. These larger breeds required better grazing, contributing to greater landscape change. For example, with the rise of medieval monastic sheep flocks in the lowlands and the later turbulence of Highland Clearances.

16. Over time, sheep farming systems and supply-chains adapted to evolve an intricate web of inter-dependencies. For example, the stratified system of store lambs produced in the hills and uplands for finishing in the lowlands, alongside selective breeding for specific traits and qualities. At the same time, the pervasiveness of sheep farming also seeped into everyday language and cultural practices.

17. For example, from religious metaphors of shepherding a flock and returning to the fold, to common phrases such as 'earmarking' and 'separating the sheep from the goats', to perhaps less obvious terms such as 'bellwether' and 'score'. Similarly, many placenames refer to sheep or sheep farming. For example, Bucht Knowe, Stell Hill, Meall nan Caorach, and Meall a' Bhuachaille. Moreover, the woolsack sat upon in the (English) parliament is a reminder of the historical political significance of sheep farming, including various attempts to manipulate the market for wool.[9]

18. These linguistic influences are mirrored in artistic and material culture. For example, in paintings, poetry, and distinctive textile traditions, particularly (but not exclusively) in relation to tourism marketing and merchandise. Equally, although less central than beef, sheepmeat also became an important component of traditional Scottish diets. For example, in relation to Scotch Broth and Haggis. More recently, as culinary repertoires have expanded, other cuisines using mutton and (especially) lamb have been adopted in Scotland.

19. Whilst such linguistic, art and culinary heritage effects are important, the aesthetic influence on landscapes is perhaps the most obvious effect of sheep farming. While the extent of pre-agricultural woodland cover in Scotland is debated, it is widely accepted that livestock grazing has played a key role in maintaining open landscapes across much of the country.

[8] As an etymological aside, it is interesting to note the common language root for 'agricultural' and 'cultural' is cultivation - of the soil or the mind.

[9] For example, the position of the current British Wool Marketing Board as both sole buyer and seller echoes a tradition of commodity market controls stretching back to at least the medieval period.

20. Sheep farming has therefore contributed to the development of many of Scotland's iconic landscapes, which are central to cultural identities and tourism. This reflects influences on vegetation patterns but also built landscape features.

21. For example, sheilings, fanks and dykes are all emblematic landscape attributes associated with sheep farming. Equally, by extension, the use of fleeces and wool in the textile industry created additional architectural features found in Scottish landscapes. For example, weavers' cottages and woollen mills. Again, these contribute to a sense of place for locals and to the attractiveness for tourists.

22. Importantly, whilst it is accepted that over-grazing by sheep can generate environmental damage, so too can under-grazing. Specifically, many of the iconic landscapes and accompanying biodiversity associated with lower-intensity sheep farming have emerged precisely because of sheep grazing.

23. These habitats are often of high aesthetic and ecological value but generate limited financial returns, making them vulnerable to changes in farming viability. For example, agriculturally unproductive yet iconic moorlands supporting charismatic bird species. This has led to the development of the concept of High Nature Value (HNV) farming as a means of supporting continued management.[10]

24. Sheep farming also contributes to the seasonal rhythms of rural life. For example, lambing, shearing, and gathering sheep from hills create shared experiences that reinforce social ties and also attract visitors. Similarly, agricultural shows, livestock markets, and sheepdog trials provide additional opportunities for farmers to exchange knowledge and celebrate rural traditions, as well as providing ways to showcase rural life and traditional skills to visitors.

25. For many farming families, sheep farming is closely tied to identity and heritage. Farms are often passed down through generations, creating strong emotional connections between families and landscapes. Moreover, much local knowledge about how best to manage particular parcels of land is tacit, passed down the generations by observation and mentoring rather than being documented.

26. For example, in relation to micro-climates, handling sheepdogs and grazing management. Similarly, many sheep flocks are hefted, instinctively understanding the local topography without the need for enclosures and active shepherding. Consequently, intangible cultural connections within farm families and flocks help to maintain continuity.

4: Cohesion externalities

27. As noted above, agriculture permeates rural Scotland, with the traditions and seasonal rhythm of land management practices shaping both physical and social life. However, farmers also contribute to community cohesion in other ways.

28. By its nature, sheep farming occurs in rural locations and requires sheep farmers and crofters to reside nearby. Consequently, whilst shielings and shepherd's huts may no longer be required, farmers live in rural areas throughout the year. This provides an important degree of local population stability compared to more transient groups such as second-home owners, tourists and seasonal workers.

[10] For example, see https://www.scotlink.org/publication/briefing-supporting-high-nature-value-farming-and-crofting/

29. Such stability helps to counter the 'hollowing-out' of rural communities, where transient populations are insufficient to retain year-round local service provision. For example, with respect to minimum public-sector enrolment thresholds for local schools and GP surgeries or off-season demand for local retail and fuel services.

30. Without such stability, rural areas may experience a vicious downward spiral of reduced viability of local services prompting population decline which in-turn further undermines viability, prompting further population decline and so on.

31. In addition, the stable presence of farming and crofting families also helps to maintain the social capital that underpins functioning local networks of relationships and inter-dependencies. For example, through informal family and friendship ties but also participation in formal governance bodies such as local community groups and council committees. Where social capital becomes 'thin' due to sparse and/or transient household and business populations, communities risk fragmentation and decline.

32. Beyond these more-or-less everyday positive externalities associated with the presence and social behaviours of farm families, less regular contributions may also occur. Notably, due to their possession of large machinery (e.g. tractors) and skill in using such machinery, farmers are well-placed to assist with responses to and recovery from emergency events.

33. For example, farmers and crofters across Scotland routinely assist with clearing heavy snowfalls, emergency transportation during floods, clean-up operations after flooding, and combating wildfires.[11] In some cases, such efforts are alongside official emergency services, in other cases simply instead of them. Whilst such public services may on occasion be formally contracted, in general they are informal public services offered by community members to the local community.

34. It should of course be acknowledged that a year-round presence and interactions with local services or participation in local networks are not necessarily exclusively the preserve of farming and crofting families. That is, people with other occupations may also be permanent residents and may also participate in local governance and community activities. Equally, others can and sometimes do contribute to emergency response efforts.

35. However, as a distinct group with a clear self-identity and well-established national and local representative bodies (e.g. NFUS, Young Farmers, SCF), members of farm and crofting families are perhaps more predisposed to active participation in local and community matters than other more diffuse groups. For example, retailers, construction workers and hoteliers are typically less unified by a common identity or representative organisational body. Similarly, the widespread distribution of farms, together with their machinery, equipment and skilled operators, provides a capacity for emergency

[11] Indeed, farmers efforts during the 2025/26 winter in north east Scotland prompted some call for formal recognition see https://www.pressandjournal.co.uk/fp/news/aberdeen-aberdeenshire/6930361/farmers-snow-thank-you-payment/ Farmers contribution to emergency recovery efforts is noted internationally, although concerns have been raised that capacities to respond are being eroded by the increasing frequency and intensity of climate-change induced disasters

response that is rarely matched by other rural businesses, which are generally fewer in number and less evenly distributed across rural areas.[12]

36. As such, continuing support for sheep farming across Scotland arguably contributes indirectly to the cohesiveness of rural communities via positive externalities associated with the presence and social behaviours of farm families. Hence, in the absence of sheep farms, community cohesiveness could be further eroded and/or other public interventions and further funding would be required to sustain local vitality.

37. More fundamentally, pastoral farming can be viewed as a foundational component of rural economies. This reflects the historical fact that land-based activities were the original mainstay of any rural settlement but more importantly that they remain an important backdrop to modern rural life.

38. Modern foundational sectors are characterised by apparently low profitability and/or productivity, yet their presence shapes the services used and places lived in by communities.[13] Other foundational sectors include education and healthcare, sectors where public good and externality effects have long been recognised as justifying public support. Hence, justifications for on-going public support of sheep farming could reasonably be extended beyond their current focus on food production and environmental improvement.

5: Conclusions

37. The qualitative insights offered above highlight that sheep farming generates a range of intangible benefits that extend beyond conventional measures of economic output and employment, important though these are. Such additional benefits include contributions to landscape character, cultural heritage, community cohesion and the viability of rural services. However, many of these benefits are non-market in nature and therefore are not captured within standard economic metrics or policy appraisal frameworks.

38. This creates a risk that policy decisions—particularly those relating to land-use change, agricultural support and climate mitigation—may undervalue or overlook the wider contributions of sheep farming. In turn, this may lead to unintended consequences for rural communities and landscapes if changes in land management reduce the presence of sheep farming activity without adequate consideration of associated externalities and the challenge of recreating them by some other means if sheep farms disappear.

Recognising cultural ecosystem services

39. Existing policy frameworks increasingly acknowledge ecosystem services, but cultural services remain comparatively difficult to define, measure and incorporate into decision-making. There is therefore a need to ensure that cultural ecosystem services associated with pastoral systems are more systematically recognised. This might include:

- incorporating cultural indicators within land-use appraisal frameworks

[12] Conversely, farm labour shortages and excessive working hours can lead to isolation for individual farmers and farm workers – social capital depends on interactions between people.
[13] For example, see https://www.gov.wales/foundational-economy

- strengthening qualitative assessment alongside quantitative metrics
- recognising the importance of 'sense of place' and landscape identity in policy evaluation

41. In particular, the aesthetic and heritage value of pastoral landscapes should be considered alongside environmental objectives such as carbon sequestration and biodiversity, rather than treated as secondary considerations.

42. Importantly, this should not be interpreted as excusing poor environmental performance. As with other agricultural sectors, Scottish sheep farms exhibit a range of practices and outcomes. Consequently, there is scope for sectoral improvement through wider adoption of best practice and innovation to meet emerging challenges. For example, in relation to greenhouse gas emissions, soil health and animal welfare. Equally, some stakeholders perceive disservices. For example, with respect to physical and cultural homogenisation and exclusion.

Accounting for non-market externalities

42. Sheep farming generates a range of positive externalities, including landscape management, biodiversity maintenance, and community cohesion. These benefits are not reflected in market returns and therefore risk being underprovided in the absence of policy support.

43. This provides a rationale for continued public intervention, including:

- targeted agricultural support for systems delivering public goods
- recognition of the role of grazing in maintaining semi-natural habitats
- support for land management practices that balance environmental and cultural outcomes

44. Importantly, policy frameworks should consider both positive and negative externalities, recognising that appropriate grazing intensity is critical to delivering desired outcomes.

Supporting foundational rural systems

45. Sheep farming functions as part of a foundational rural system. Foundational externalities refer to the wider social and economic spillovers generated by activities that anchor the basic functioning of (rural) places, even when those activities themselves appear low-margin or only modestly productive.

46. Policy approaches should therefore move beyond a narrow focus on farm-level productivity to consider the broader system-level role of agriculture. This might involve:

- recognising the contribution of farm households to sustaining rural populations
- considering impacts on local services (e.g. schools, healthcare) in land-use decisions
- integrating agricultural policy with rural development and service provision strategies

Managing land-use change and transition

47. Scotland is undergoing significant land-use change driven by climate, biodiversity and economic objectives. While these transitions present opportunities, they also carry risks for rural communities if not carefully managed.

48. In particular, land-use changes that reduce agricultural activity may lead to reduced population levels, loss of cultural landscapes, and weakening of community cohesion. Policy should therefore adopt a place-based approach, recognising that:

- the impacts of land-use change vary spatially
- some areas are more dependent on farming for social and economic sustainability
- alternative land uses may not provide equivalent community benefits

Strengthening evidence and valuation approaches

53. A recurring challenge is the difficulty of quantifying cultural and social benefits. While non-market valuation techniques exist, they are subject to uncertainty and may not fully capture intangible values.

54. There is therefore a need to:

- develop improved methods for assessing cultural ecosystem services
- integrate qualitative and participatory approaches
- ensure that local knowledge and community perspectives are reflected in policy processes

Implications for future policy design

55. Overall, policy frameworks should adopt a more holistic understanding of agriculture, recognising its role not only as a productive sector but also as a provider of wider, foundational public goods and services. Such understanding is perhaps implicit in current policy discussions - such as the Agricultural Reform Programme and Just Transition commitments – but needs to be more explicit.

56. This implies a need for:

- integrated land-use policy that balances environmental, economic and cultural objectives
- continued support for farming systems that deliver multiple public benefits
- recognition of the interdependencies between agriculture, communities and landscapes

57. Failure to account for these wider contributions risks undermining the long-term sustainability and resilience of rural areas. For example, through the erosion of tacit knowledge and social capital, loss of valued semi-natural habitats, and increased public expenditure to otherwise maintain local services.[14]

58. Importantly, whilst more explicit recognition of inter-dependencies between different objectives will help to better inform policy debates and design, policy choices will ultimately still involve trade-offs. That is, economies grow and develop through finding new ways of doing things and new things to do, a process that unavoidably involves change. However, greater awareness of what may be lost through change, and by whom, should be welcomed in helping to avoid unintended consequences and identifying Just Transition needs.

[14] Interestingly, the Welsh Government's newly launched Sustainable Farming Scheme (SFS) includes an explicit "social value" payment element (currently £107/ha). Whilst the underlying calculations and relative importance of different elements of value have not been revealed, the description and justification of the payment marks recognition of wider social and cultural values as important. See Sustainable Farming Scheme 2026: scheme description [HTML] | GOV.WALES

Background reading

Blair, K., Moran, D., Alexander, P. and Isabel, F., 2025. (Re) framing Sustainable Livestock Futures: Academic Narratives and Transformation Pathways. Available at SSRN 6008294.

Bowman, A., Ertürk, I., Froud, J., Johal, S. and Law, J., 2014. The end of the experiment? From competition to the foundational economy. Manchester University Press.

Brouwer, R., Brander, L., Kuik, O., Papyrakis, E. and Bateman, I., 2013. A synthesis of approaches to assess and value ecosystem services in the EU in the context of TEEB. VU University Amsterdam.

Brulotte, R.L. and Di Giovine, M.A. eds., 2016. Edible identities: Food as cultural heritage. Routledge.

Burton, R.J., Forney, J., Stock, P. and Sutherland, L.A., 2020. The good farmer: Culture and identity in food and agriculture. Routledge.

CANEPAL 2014. Celebrating Pastoral Life Heritage and Economic Development. Conference Proceedings

Coulthard, S. 2020 A Short History of the World According to Sheep. Head of Zeus, London.

Countryside and Community Research Unit. 2007. The Social Contribution of Land-based Industries to Rural Communities. Final Report Prepared for the Commission for Rural Communities.

Eriksson, O., 2022. Coproduction of Food, Cultural Heritage and Biodiversity by Livestock Grazing in Swedish Semi-natural Grasslands. Front. Sustain. Food Syst. 6: 801327. doi: 10.3389/fsufs.

Fish, R., A. Church, and M. Winter. 2016. Conceptualising cultural ecosystem services: A novel framework for research and critical engagement. Ecosystem Services 21: 208–217.

Fraser, M.D., Moorby, J.M., Vale, J.E. and Evans, D.M., 2014. Mixed grazing systems benefit both upland biodiversity and livestock production. PloS one, 92., p.e89054.

Froud, J., 2022. Foundational economy: the infrastructure of everyday life. Manchester University Press.

Gray, J.N., 2000. At home in the hills: sense of place in the Scottish borders. Berghahn Books.

Hall, C., McVittie, A. & Moran, D. 2004. What does the public want from agriculture and the countryside? A review of evidence and methods, Journal of Rural Studies, 20, 211-225.

Hansen, T., 2022. The foundational economy and regional development. Regional Studies, 56(6), pp.1033-1042.

Institute for European Environmental Policy, Land Use Consultants and GHK Consulting. 2004. An assessment of the impacts of hill farming in England on the economic, environmental and social sustainability of the uplands and more widely, Volumes 1, 2 & 3. Defra, London.

Leroy, G., Hoffmann, I., From, T., Hiemstra, S.J. and Gandini, G., 2018. Perception of livestock ecosystem services in grazing areas. Animal, 1212., pp.2627-2638.

Lomba, A., Moreira, F., Klimek, S., Jongman, R.H., Sullivan, C., Moran, J., Poux, X., Honrado, J.P., Pinto-Correia, T., Plieninger, T. and McCracken, D.I., 2020. Back to the future: rethinking socioecological systems underlying high nature value farmlands. Frontiers in Ecology and the Environment, 181., pp.36-42.

McCleery, A., McCleery, A., Gunn, L. and Hill, D., 2008. Scoping and Mapping Intangible Cultural Heritage in Scotland Final Report. Edinburgh: Napier University Centre for Cultural and Creative Industries.

Moran, D. 2005. The Economic Valuation of Rural Landscapes, AA211 Study for SEERAD.

Nowak-Olejnik, A., Schirpke, U. and Tappeiner, U., 2022. A systematic review on subjective well-being benefits associated with cultural ecosystem services. Ecosystem Services, 57, p.101467.

Pellaton, R., Lellei-Kovács, E. and Báldi, A., 2022. Cultural ecosystem services in European grasslands: A systematic review of threats. Ambio, 5112., pp.2462-2477.

Plieninger, T., Bieling, C., Fagerholm, N., Byg, A., Hartel, T., Hurley, P., López-Santiago, C.A., Nagabhatla, N., Oteros-Rozas, E., Raymond, C.M. and van der Horst, D., 2015. The role of cultural ecosystem services in landscape management and planning. Current Opinion in Environmental Sustainability, 14, pp.28-33.

Primi, R., Bernabucci, G., Evangelista, C., Viola, P., Girotti, P., Spina, R., Compagnucci, S. and Ronchi, B., 2025. Ecosystem services linked to extensive sheep and goat farming in Mountain areas: a global literature analysis using text mining and topic analysis. Animals, 15(3), p.350.

Ready, R.C. and Navrud, S., 2002. Methods for valuing cultural heritage. Valuing Cultural Heritage: Applying Environmental Valuation Techniques to Historic Buildings, Monuments and Artifacts. Edward Elgar: Cheltenham, pp.10-28.

Romanazzi, G.R., Koto, R., De Boni, A., Palmisano, G.O., Cioffi, M. and Roma, R., 2023. Cultural ecosystem services: A review of methods and tools for economic evaluation. *Environmental and sustainability indicators*, *20*, p.100304.
Scottish Government. 2022. Scottish Land Rights and Responsibilities Statement 2022: advisory notes.

Slee, R.W., Roberts, D., Thomson, K., Barnes, A. & Wright, I. 2001. Agriculture's contribution to Scottish Society, economy and environment: A literature review for the Scottish Executive Rural Affairs Department and CRU. Report by Department of Agriculture and Forestry, University of Aberdeen and Macaulay Land Use Research Institute, Aberdeen.

Speed, J.D., Austrheim, G., Birks, H.J.B., Johnson, S., Kvamme, M., Nagy, L., Sjögren, P., Skar, B., Stone, D., Svensson, E. and Thompson, D.B., 2012. Natural and cultural heritage in mountain landscapes: towards an integrated valuation. International Journal of Biodiversity Science, Ecosystem Services & Management, 84., pp.313-320.

Stampa, E., Schipmann-Schwarze, C. and Hamm, U., 2020. Consumer perceptions, preferences, and behavior regarding pasture-raised livestock products: A review. Food Quality and Preference, 82, p.103872.
Swanwick, C., Hanley, N., Termansen, M. 2007. Scoping Study on Agricultural Landscape Valuation. Report to Defra.

Steiner, A. and Markantoni, M., 2014. Unpacking community resilience through capacity for change. Community Development Journal, 49(3), pp.407-425.

Thomson, S., McMillan, J., Williams, A., Atterton, J. and Jones, S. 2021. The Rural Report 2020: The Impact of Change on Rural Businesses 2017 – 2020: Evidence from non-agricultural businesses in Aberdeenshire, Dumfries & Galloway, the Scottish Borders and Tayside.

Thomson, S., McMillan, J., Pate, L., Vuin, A., Nelson, B., Merrell, I., Atterton, J., Coleman, N. and Naab, F., 2025. Rural and Islands Insights Report: 2025. A NISRIE project report to the Scottish Government (2025). Scotland's Rural College.

Tindale, S.J., Elliott, J., Elings, M., Gallardo-Cobos, R., Hunter, E., Lieberherr, E., Miškolci, S., Price, P.N., Quatrini, S., Sánchez-Zamora, P. and Schlueter, H., 2020. A systematic review of European farmer and non-farmer attitudes towards landscapes, ecosystem services, and agricultural management practices: Implications for permanent grassland management. bioRxiv, pp.2020-06.

Vanslembrouck, I. & Van Huylenbroeck, G. 2005. Landscape Amenities. Economic Assessment of Agricultural Landscapes. Springer, Dordrecht. 202pp

Vera, F.W.M. 2000 Grazing Ecology and Forest History. Wallingford: CABI Publishing

Verbrugge, L.N., Bjarnason, G., Fagerholm, N., Magnussen, E., Mortensen, L., Olsen, E., Plieninger, T., Raymond, C.M. and Olafsson, A.S., 2022. Navigating overgrazing and cultural values through narratives and participatory mapping: a socio-cultural analysis of sheep grazing in the Faroe Islands. Ecosystems and People, 18(1), pp.289-302.

Walling, P., 2014. Counting Sheep: A Celebration of the Pastoral Heritage of Britain. Profile Books, London.

Woods, M., 2010. Rural Geography. Routledge.