

# Policy Brief

SUSSEX SUSTAINABILITY RESEARCH PROGRAMME | FEBRUARY 2021



## Diverse land use delivering diverse benefits

### EXECUTIVE SUMMARY

University of Sussex academics conducted research in the South East of England comparing different forms of land use using ecological and social science techniques.

The findings suggest that wildlife-friendly livestock production can contribute to both biodiversity conservation and ecosystem service delivery, underscoring the potential for large herbivores to support the delivery of a range of environmental public goods and services.

The research also shows that different approaches to managing livestock – including agroecological farming, conservation grazing and rewilding – deliver different types of biodiversity and other benefits, suggesting that combinations of these should be favoured at landscape scales. Of the sites studied, Tablehurst Farm in East Sussex was found to provide a particularly diverse range of benefits for both people and nature.

**FIGURE 1: (ABOVE) LONG-HORNED COW AT KNEPP CASTLE ESTATE, WEST SUSSEX, BY CHRISTOPHER SANDOM**

### KEY RECOMMENDATIONS

National government could harness the contribution of wildlife-friendly livestock production systems to deliver environmental public goods by nurturing them through the Agriculture Act, Environment Bill, the Environmental Land Management scheme (ELM) and the forthcoming National Food Strategy.

Local authorities could support an approach to landscape-scale planning that fosters greater diversity of land uses, e.g. by piloting 'agroecological zones', extending wildlife-friendly livestock production, and supporting rewilding and traditional conservation on public estates.

Engagement with land managers to better understand the opportunities and options for restoration, and to assess whether these forms of restoration will deliver the diverse needs of people and nature.

### AUTHORS

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### BACKGROUND

Food production and biodiversity conservation are two important land uses for supporting people and nature, but often come into conflict. Agricultural intensification in the UK has driven biodiversity loss since the end of WW2, whilst the presence of wildlife on farmed land contributes to productivity losses for agriculture. Conversely, farming is also dependent on nature, so farmers often adopt biodiversity conservation.

Historically, agricultural techniques have increased the provisioning of ecosystem services that nature provides to people, such as food. Nevertheless, approximately 800 million people worldwide remain undernourished, despite there being enough food produced to feed the global population. Moreover, improvements to efficient food production have come at the cost of nature loss, as well as the decline of associated benefits of nature such as carbon sequestration and cultural opportunities such as education.

The loss of nature also threatens the sustainability of current food production. The UN has declared 2021–2030 the decade of ecosystem restoration to help tackle the connected challenges of biodiversity conservation, food security, climate change and other global and national sustainability priorities. This raises the questions: (a) how should the UK's ecosystems be restored by



**FIGURE 2: TABLEHURST FARM, EAST SUSSEX**

2030 and beyond? and, (b) how can land owners and relevant stakeholders contribute to achieving this ecosystem restoration?

As a contribution to these debates, we share new research conducted in the South East of England where different forms of wildlife-friendly livestock production coexist, including conservation grazing, agroecology and rewilding.

### OVERVIEW

This briefing reports on a mixed-method, interdisciplinary study of ecological and social outcomes from livestock production and conservation grazing on agricultural and conservation sites in the South East of England. The research was conducted by an interdisciplinary team consisting of social scientists Rachael Durrant and Adrian Ely and ecologists Nick Balfour and Chris Sandom. Funding for the research was provided by the University of Sussex through the Sussex Sustainability Research Programme (SSRP).

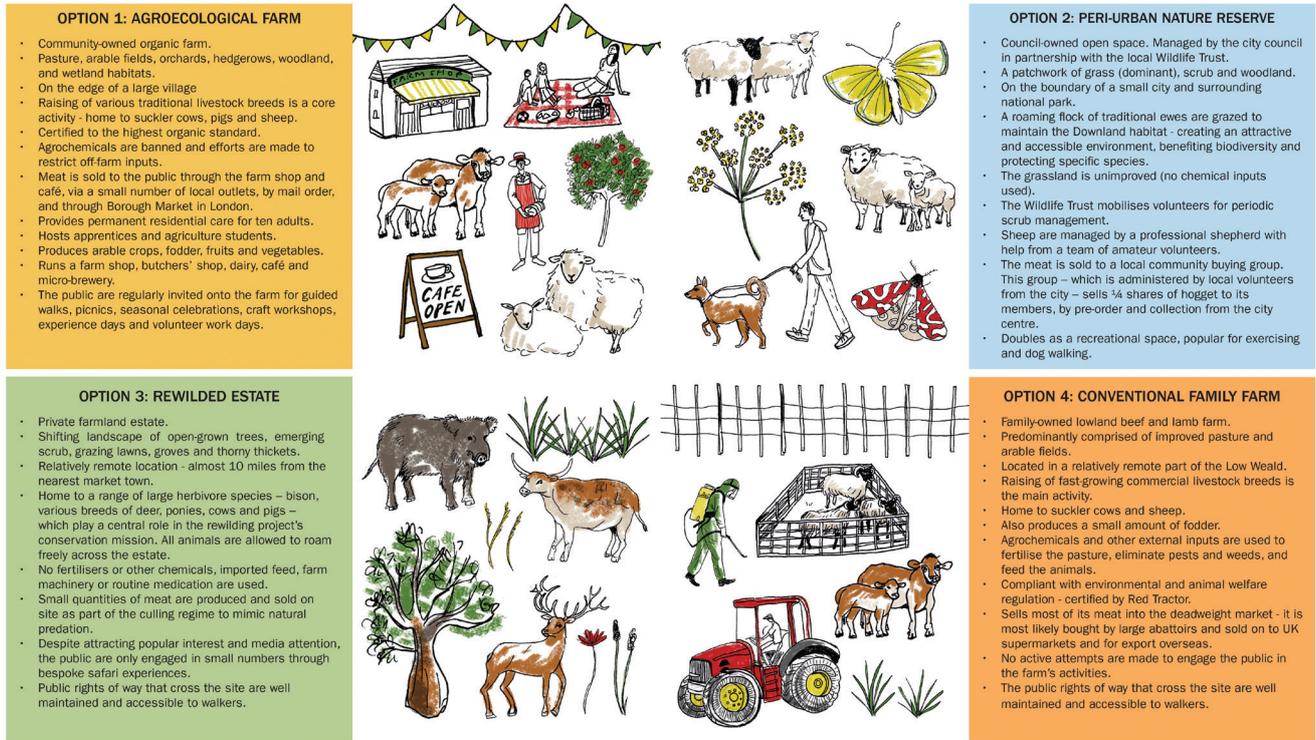
The study had two strands:

1. A participatory social appraisal exercise that engaged thirteen expert stakeholders from across the farming/conservation and policy/practice spectra using Multi-Criteria Mapping (MCM).
2. Ecological field studies and accompanying management surveys at six sites in the High Weald, Low Weald and Downland areas of East and West Sussex.

The Multi-Criteria Mapping (MCM) exercise explored different understandings of the performance of contrasting management approaches which partially mirror the study sites. These included agroecological farming on a community-owned mixed farm, conventional livestock farming on a family farm, conservation grazing on an open access nature reserve and rewilding on a former agricultural estate.

Six ecological metrics (vegetation structure, soil health, and the activity and diversity of medium/large mammals, birds, bats and invertebrates) were measured at four randomly located plots situated within each of the six sites. These included grazed areas within the Ashdown Forest area of outstanding natural beauty (AONB), Brighton and Hove City Council-owned parkland, the Butcherlands area of the Ebernoe Nature Reserve, the Knepp Castle Estate, Saddlescombe Farm, and Tablehurst Farm (Fig. 1). A management questionnaire was used to gather information about how the sites and large herbivores were managed.

## DIVERSE LAND USE DELIVERING DIVERSE BENEFITS



**FIGURE 2: DESCRIPTIONS OF LAND USE OPTIONS PRESENTED TO THE INTERVIEWEES FOR EVALUATION IN THE MULTI-CRITERIA MAPPING EXERCISE (MCM)**

### KEY FINDINGS

The Multi-Criteria Mapping (MCM) exercise indicated that stakeholders who participated in the study believe agroecological farming to be particularly well placed to meet the needs of both people and nature. This outcome was principally driven by two factors:

1. Conservation-focused stakeholders' aversion to conventional farming.
2. Farmers' preference for agroecological practices.

However, the performance of different options varied strongly across criteria, suggesting that diverse land use and management practices utilising combinations of these options may be preferable at landscape scales.

Our ecological field studies and management survey highlighted

both the variety of management (no two sites have the same large herbivore assemblage, and stocking density varies considerably) and the variety of biodiversity, food production, and other ecosystem service outcomes delivered within and across the sites. Of particular note was that one of the agroecological farms (Tablehurst) produced the most red meat per unit area and was amongst the best performing sites for biodiversity (we recorded the greatest number of species at Tablehurst and it ranked in the top three for diversity in all of the taxa recorded, with Knepp and Butcherlands also performing well). However, it is also apparent that each site provided different habitats, species assemblages and species of conservation concern. For example, Ashdown Forest did not record high species richness and activity, but did have the greatest number of species of conservation concern. Furthermore, each site provided other wider ecosystem services such as carbon storage and public recreation.

### BENEFITS AND POTENTIAL FOR PEOPLE, NATURE AND LARGE HERBIVORES

Taken overall, the results suggest that diverse wildlife-friendly livestock production and conservation grazing systems in the South East of England can simultaneously support food production whilst contributing to biodiversity conservation and ecosystem service delivery. In particular, the study underscores the potential for these systems to deliver a range of environmental public goods. Given that food, farming and environmental policy in the UK are undergoing a period of rapid and far-reaching change, this could present opportunities for large herbivores to play an important – though changing – role in the future of the British countryside.

For local authorities this could mean that alongside initiatives to increase the vegetable and fruit (as opposed to meat) content of diets, strategies should be put in place to support the development of agroecological food supply chains and develop diverse strategies for conserving nature on public estates. This could include a role for livestock production within diverse mixed crop and livestock systems – such as practiced at Tablehurst Farm – alongside rewilding and conservation. These kinds of ideas were discussed at a workshop on Brighton and Hove City Council's Downland Estate in 2018 ([STEPS Centre Workshop Report PDF 646KB](#)). This highlighted the potential to use strategic areas of the Estate for piloting 'agroecological zones' as well as supporting diverse strategies for nature conservation.

For national government this means that the characteristics of small-scale, mixed (and agroecological) farming systems should be explicitly taken into account with respect to the design of new policy frameworks and instruments, including the Agriculture Act 2020, the new Environmental Land Management scheme (ELM) and the forthcoming National Food Strategy. The potential contribution of these sorts of systems to deliver environmental public goods, whilst also producing high quality nutritious food, means that failing to do so would risk missing an important opportunity at a critical moment in time. There is also evidence to support diverse approaches to nature conservation that balance targeted species and habitat conservation alongside natural-process led rewilding. These approaches also have the potential

to deliver a diversity of benefits to people and nature and should be considered in the ongoing Environment Bill debates and the Environmental Land Management scheme, as it evolves.

### FURTHER INFORMATION

This policy brief is based on results from the [Sussex Sustainability Research Programme](#) (SSRP) funded research project '[Delivering food security and biodiversity conservation through rewilding and community agriculture?](#)' and the subsequent published paper:

Balfour, N.J., Durrant, R., Ely, A. and Sandom, C.J. (2021) 'People, Nature and Large Herbivores in a shared landscape: A mixed-method study of the ecological and social outcomes from agriculture and conservation'. *People Nat.* 2021; 00:1–13. <https://doi.org/10.1002/pan3.10182>

### CITATION

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