

Scotland's Rural College

Editorial

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Published in:
Ecology and Society

DOI:
[10.5751/ES-14159-280220](https://doi.org/10.5751/ES-14159-280220)

Print publication: 01/05/2023

Document Version
Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):
Lomba, A., McCracken, D., & Herzon, I. (2023). Editorial: High Nature Value farming systems in Europe. *Ecology and Society*, 28(2), Article 20. <https://doi.org/10.5751/ES-14159-280220>

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Guest Editorial, part of a Special Feature on [High Nature Value Farming Systems in Europe](#)

Editorial: High Nature Value farming systems in Europe

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INTRODUCTION

The high nature value (HNV) farming concept recognizes that many European habitats and landscapes considered important for biodiversity conservation depend on the continuation of specific farming systems. It has developed in three main phases over the past 30 years.

Setting the scene

In the early 1990s, the UK Joint Nature Conservation Committee (JNCC) started investigating the importance of Common Agricultural Policy (CAP) payments for farming systems across Europe, especially in the more mountainous or remote areas. This established that many of the open habitats considered to be of high nature conservation importance (whether for plants, birds, insect life or, more usually, a combination) had been created, and therefore needed to be maintained, by some form of low-intensity farm management (e.g., Curtis et al. 1991, Bignal and McCracken 1992, Baldock et al. 1993, Bignal et al. 1994a). Subsequent research funded by JNCC and WWF Europe highlighted that although these low-intensity farming systems were dominated by livestock grazing, there was also a range of low-intensity arable and permanent crop systems still remaining in Mediterranean countries. It was estimated that some 30% of agricultural land across the European Union (EU) was under low-intensity farming system of importance for nature conservation (Baldock et al. 1993, Beaufoy et al. 1994, Bignal et al. 1994b).

Early work established that, unlike much of the intensively managed lowlands of Europe, the biodiversity value associated with HNV low-intensity farming systems was not just remnants in a sea of intensified farmland, as is the case for most of semi-natural elements. Rather the habitats, and associated species, were dependent upon low-intensity farming systems practiced at a landscape scale and the continuation of those farming systems were dependent upon access to those habitats (Bignal and McCracken 1996, 2000). Because the ability to intensify these farming systems had been constrained by underlying soil conditions, topographic features, and/or climatic conditions, this also meant that these systems were relatively unproductive from an agricultural perspective. Hence these systems were economically fragile and, though important, CAP payments were insufficient to increase their economic viability with the resulting abandonment of many of these systems (Bignal 1998, Luick 1998). By the same token, the conservation designations applied in some of these areas brought little or no financial reward. Producers in these systems found it difficult to enter agri-environment schemes, primarily because these were targeted at protecting and enhancing remnant areas of biodiversity rather

than supporting whole farm systems or landscapes (McCracken and Bignal 1998, Ostermann 1998).

Identifying extent and distribution

From the 1990s to mid-2000s, conferences and projects (e.g., McCracken et al. 1995, Poole et al. 1998, Pienkowski and Jones 1999, Bunce et al. 2004) and especially a wide range of reports and workshops organized by the European Forum on Nature Conservation & Pastoralism (EFNCP; e.g., Goss et al. 1998, Bignal 1999, EFNCP 2001) helped raise awareness of the importance of low-intensity farming systems at the EU policy level. It was quickly recognized that calling these systems “low-intensity farming” gave a wrong impression because many of the systems involved high labor input and careful planning drawing from intimate knowledge of local conditions, and thus were knowledge-intensive. High nature value (HNV) systems were then defined as “areas in Europe where agriculture is a major (usually the dominant) land use and where that agriculture supports or is associated with either a high species and habitat diversity or the presence of species of European conservation concern or both” (Andersen et al. 2003:4). This culminated in the incorporation of HNV as a policy focus within the CAP from 2005. However, it rapidly became clear that the majority of individual EU Member States were ignoring the requirements within the CAP to characterize HNV farmland in their countries, identify trends, and direct support to these systems (ECA 2011, 2020). The focus therefore switched to more detailed research to identify and quantify what type of HNV farmland occurred where within individual Member States (e.g., Andersen et al. 2003, Cooper et al. 2007, Lomba et al. 2014, 2015, 2017).

Developing solutions

Although important and still needed in many regions, much of the research into the extent and distribution of HNV in the 2000s simply served to add greater detail of where HNV farmland was already known to occur from the previous work (e.g., Beaufoy et al. 1994). However, work started in the early 2000s in the Burren in western Ireland blossomed by the late 2000s into an excellent example of both raising awareness, conducting research, and then taking action to develop support policies and structures to help maintain and, just as importantly, revitalize HNV farming systems on the ground (Dunford and Parr 2020). The early 2000s also saw eastern European countries enter the EU, bringing with them large areas of existing HNV farming systems and, in many cases, a recognition at a national level that these were important to maintain (e.g., Bunce et al. 2004, Beaufoy et al. 2008, Kazakova and Stefanova 2010, Oppermann et al. 2012). Coupled with the

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accumulated evidence on irrelevance of prescription-based agri-environment approaches to HNV farming systems, this has led in recent years to an increased focus on research into ways of ensuring a viable future for such social-ecological systems (e.g., Keenleyside et al. 2014, EIP-Agri 2016, Byrne et al. 2018, Gouriveau et al. 2019, Lomba et al. 2020).

CONTRIBUTIONS TO THIS SPECIAL FEATURE

This Special Feature underlines the social-ecological character of the concepts of HNV farmland and HNV farming systems. It explicitly refrains from the identification and delineation of HNV farmlands and development of the criteria. The intention was to overview the current state of understanding and research agendas around the concepts across the European continent, to highlight recent research into innovative solutions for revitalizing social-ecological processes in HNV farmland regions, and to signpost promising research directions in the field. We have included four research articles and three review papers in this Special Feature, which cover all key EU regions as well as Norway and Switzerland.

Social-ecological system approaches

Through time, the scope of HNV farmland studies has evolved from sectoral assessments (dominated by Conservation and Environmental Sciences) toward interdisciplinary research integrating the multiple dimensions that shape HNV farmlands (Benedetti 2017). Such a paradigm shift stems from an increasing awareness of the intertwined relationship between farmers and farming systems, and the nature value of agricultural landscapes (Lomba et al. 2020). This set of articles on HNV farmland as social-ecological systems provides a more holistic understanding on how socioeconomic and ecological drivers interact, delivering multiple social-ecological assets, and explores the impacts of social-ecological dynamics under scenarios of environmental change (Lomba et al. 2020). The articles assess HNV farmland as a social-ecological system using complementary approaches. Buchadas et al. (2022) found an association between higher multifunctionality of landscapes, depicted as a wider range of ecosystem services, and low-intensity farming systems (i.e., HNV), identifying socioeconomic (number of farmers, farm size) and ecological (landscape complexity) factors as relevant drivers of such association.

Plieninger et al. (2021) performed a social-ecological synthesis of the published research addressing relevant conservation questions in two emblematic Iberian systems of *dehesas* and *montados*, using the DPSIR (Drivers, Pressures, State, Impacts, Responses) framework. In addition to identifying socioeconomic factors (e.g., agricultural policies) as key drivers of change, the authors advocate the importance of scrutinizing the role of people to further understand social-ecological systems underlying their viability. In their review on agricultural semi-natural habitats (mostly semi-natural grasslands), Herzon et al. (2021) observed that policies have strongly shaped the research agenda in HNV farmland over the past 20 years, emphasizing the role of governance as part of social-ecological research.

Loos et al. (2021) investigated the factors hindering the effective conservation of a rare species of butterfly, *Colias myrmidone*, associated with Natura 2000 designated sites within HNV farmland in Romania. One of the key constraints they highlight is the lack of clear governance arrangements regarding

responsibilities and powers within these protected sites, which prevents the establishment of transparent collaboration and management structures. They highlight the need for greater involvement of small farmers to ensure greater collaboration within the conservation governance structure for these sites, and that over the EU as a whole the CAP should be adapted so that it genuinely supports small-scale farmers.

From understanding to evidence-driven solutions

It is generally assumed that the mechanisms for encouraging people to alter their behavior can be (1) economic and market based, (2) economic and based on public contracts, (3) legal, or (4) pertain to the societal moral (e.g., Williamson 2000). The studies included in this Special Feature touch upon the research-practice and research-policy interfaces, moving from understanding the system to investigating evidence-driven solutions. Throughout this Special Feature, the CAP, that is, economic and public contract-based mechanism, is high on both the list of drivers of change and the list of mechanisms capable of supporting the maintenance and development of HNV farming systems. However, all the manuscripts also make clear that in order to revitalize HNV farming systems, both research and action need to move beyond the current strong dependence on mainstream public policy.

Moran et al. (2021) revisit a highly acclaimed participatory process in the Burren and showcase how results-based payments for biodiversity can reverse some of the market failures associated with food production through creating a market for ecosystem services. Such public contracts with an explicit reward for public goods have considerable potential for channeling support to ecologically most distinguished areas (review in Herzon et al. 2018). As Moran et al. (2021) state, the creation of additional opportunities of markets also “requires specific HNV innovations across a range of areas ... that lead to HNV farming systems that conserve the characteristic nature of these areas.”

The specific characteristics of HNV farmland also need to be taken into account when developing processes to monitor the success of tailor-made support measures. Pinto-Correia et al. (2022) worked with farmers in southern Portugal to identify farm-based indicators that could be used by both farmers and technical staff to assess the scale of benefits being achieved by results-based measures designed to maintain the *montado* silvo-pastoral system. The 10 field-based visual indicators that were produced have the potential to allow farmers to understand better how effective their management practices are being and, where necessary, adapt them accordingly.

Plieninger et al. (2021) emphasize that the process of modernizing HNV farming systems while maintaining their ecological and cultural values should be accompanied by innovative governance models and research into the process, which is currently only beginning. For example, the study by Baur and Nax (2021) highlights promising institutional adaptations at differing governance levels that could potentially counteract the decrease in use of HNV pastures under common ownership in Switzerland. The manuscript by Bernard et al. (2023) also illustrates how the use of innovation brokers working in any arena where public goods, such as biodiversity or culture, are in decline could also form part of a strategic approach to HNV conservation. It builds a case for designing an engagement process that articulates quick

wins with sufficient strategic reflexivity, in which the HNV conservation issue remains prominent within a long-term territorial-landscape vision for developing HNV regions.

CONCLUSION

The understanding gained over the last 30 years into how HNV farming systems provide the ecological conditions for a range of biodiversity, and how the systems are influenced by socioeconomic concerns, has helped improve the perception of these systems. Collectively the articles in this Special Feature highlight the additional need for a strategic approach to HNV farmland conservation based on innovation and modern solutions. This will not only help to develop the farming systems and retain their high nature value but also avoid simply preserving some of them as living museums. Future support mechanisms for HNV farming need to maintain functioning social-ecological systems. To revitalize HNV territories, more research is needed particularly into innovation processes relevant to HNV systems and landscapes, environmental stewardship (Johnson et al. 2020), and other governance models for conservation (e.g., Leventon et al. 2021). Much remains to be done, especially when discussions about the need to reform the CAP, maintain European food security, and reduce dependence on fossil fuels and other inputs from politically unstable countries, such as Russia, continue to be primarily dominated by non-HNV agribusinesses that are resistant to change. Nevertheless, we are finally in a position where the HNV focus is on designing approaches to help HNV farmers maintain and enhance the systems and build for the future. We are no longer simply quantifying their decline.

Acknowledgments:

Angela Lomba is supported by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., in the context of the Transitory Norm - DL57/2016/CP1440/CT0001. Input by Davy McCracken was supported by the Scottish Government's Rural & Environment Science & Analytical Services Division (SRUC-D4-1).

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