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Research, part of a Special Feature on High Nature Value Farming Systems in Europe

Innovation brokers in High Nature Value farming areas: a strategic approach to engage effective socioeconomic and agroecological dynamics

Claire Bernard[1,2], Xavier Poux[3], Irina Herzon[4,5], James Moran[6], Teresa Pinto-Correia[7], Diana E. Dumitras[8], Maria Isabel Ferraz-de-Oliveira[9], Fabrice Gouriveau[10], Dimitris Goussios[11], Mugurel I. Jitea[12], Yanka Kazakova[13,14], Riina Koivuranta[4], Francois Lerin[15], Magnus Ljung[16], Angela Lomba[17,18,19], Valentin C. Mihai[8], Maite Puig de Morales Fusté[20] and George Vlahos[21]

ABSTRACT. High Nature Value (HNV) farmlands currently retain most of the biodiversity associated with agricultural landscapes in Europe. In a time of globalized food systems, the social-ecological conditions to maintain these low-intensity and thus less productive HNV farming systems are difficult to meet. Halting the loss of HNV farmland requires fostering the socioeconomic viability of HNV farming systems that is compatible with social, cultural, and ecological values. Pursuing such viability calls for tailored actions to steer the development of HNV farming systems based on the strength of their local assets. Such a transformational learning process involves changing the territorial dynamic towards better integration of biodiversity at several levels of management (from farm to territorial level). Based on the description and analysis of ten HNV territories distributed across Europe, we explore how HNV innovation brokers can strategically engage with local actors to preserve the environmental characteristics of HNV farmland areas while improving their socioeconomic viability. The aim of this research is to improve the understanding of the range of approaches and strategies of innovation brokers to meet the challenges of HNV farmland conservation. The study analyzes the different innovation processes that took place in each area, concentrating on the engagement phase. Our results demonstrate that HNV farming situations across Europe are quite diverse from an agroecological and socioeconomic point of view. There are distinct conservation challenges and associated risks for each HNV farming context. The need for a strategic approach to HNV conservation at landscape–territory level is discussed. The key role of innovation brokers is highlighted, together with the need for a strategic approach to innovation brokerage, which is explicit in relation to territorial needs and the changes required. We demonstrate the importance of the landscape–territorial vision as an entry point for shaping HNV farming systems towards socially desirable scenarios.

Key Words: *high nature value farming; innovation brokerage; landscape-territorial vision; strategic environmental analysis; territorial prospective analysis*

INTRODUCTION

High nature value (HNV) farmlands are areas in Europe where agriculture is the dominant use of the land and where agriculture supports, or is associated with, either high species and habitats diversity or the occurrence of species of European conservation concern or both (Andersen et al. 2004). HNV farmland covers over 25% of the European Union's (EU) agricultural land and contributes to the perseveration of biodiversity, cultural landscapes, territorial cohesion, quality products, and employment (Lomba et al. 2020). However, the area of HNV farmlands is decreasing due to land intensification and abandonment. These two faces of an ongoing techno-economic process, occurring across European agricultural landscapes, have negative impacts on biodiversity and ecosystem services (Plieninger and Bieling 2013, Almeida et al. 2013, Plieninger et al. 2014, European Environment Agency 2013). In a time of globalized food systems characterized by production specialization and concentration, the social-ecological conditions to maintain low-intensity, and thus less productive, HNV farming systems are difficult to meet (O'Rourke and Kramm 2012, Ustaoglu and Collier 2018). HNV farming systems are thus economically and socially marginalized in the wider EU economic space (Jones and Poux 2012).

Halting the loss of HNV farmland requires fostering the socioeconomic viability of HNV farming systems and retention of a management intensity that is compatible with social, cultural, and ecological values. This perspective coincides with the "viable HNV farmlands" scenario described by Lomba et al. (2020), in which the socioeconomic viability of HNV farming systems is increased while maintaining a management intensity that ensures the conservation of farmland biodiversity. Pursuing such viability calls for tailored actions to steer the development of HNV farming systems based on the strength of their local assets. Due

[1]CIRAD, UMR INNOVATION, France, [2]Montpellier Research in Management - University of Montpellier, [3]AScA – Bureau d'étude pour la gestion de l'environnement, [4]Department of Agricultural Sciences, University of Helsinki, [5]Helsinki Institute of Sustainability Science HELSUS, [6]Department of Natural Resources & the Environment, Atlantic Technological University, Galway, Ireland, [7]MED – Mediterranean Institute for Agriculture, Environment and Development & CHANGE – Global Change and Sustainability Institute, Departamento de Paisagem Ambiente e Ordenamento, Escola de Ciências e Tecnologia, Universidade de Évora, [8]Economic Sciences Department, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania, [9]MED – Mediterranean Institute for Agriculture, Environment and Development & Departamento de Zootecnia, Escola de Ciências e Tecnologia, Universidade de Évora, Portugal, [10]Institut de Recherche pour le Développement (IRD), France, [11]Laboratory of Rural Space, Department of Planning Engineering, Planning & Regional Development, University of Thessaly, Greece, [12]University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, [13]STEP - Society for Territorial and Environmental Prosperity, Bulgaria, [14]UNWE - University of National and World Economy, Stud.grad "Hristo Botev," Sofia, Bulgaria, [15]AIDA – Association internationale pour le développement de l'agroenvironnement, France, [16]Swedish University of Agricultural Sciences, Sweden, [17]CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Campus de Vairão, Universidade do Porto, Portugal, [18]Departamento de Biologia, Faculdade de Ciências, Universidade do Porto, Portugal, [19]BIOPOLIS Program in Genomics, Biodiversity and Land Planning, CIBIO, Campus de Vairão, Portugal, [20]CIHEAM-IAMM, Univ Montpellier, Montpellier, France, [21]Department of Agricultural Economics and Rural Development, Agricultural University of Athens, Greece

to the rapidly changing socioeconomic and ecological contexts, previous studies highlight the need for innovation in HNV farming systems to increase their economic viability. Innovations in HNV farming systems need to balance the transformative character of innovation with the preservation of the practices that generated their nature value initially. Such innovations require a transformational process that extends far beyond the preservation of traditional low-input farming practices (Fischer et al. 2012).

In recent decades, a major shift in theoretical perspectives on agricultural innovation has occurred. The linear paradigm of innovation (Rogers 1962), an approach characterized by the design of technological-based solutions displayed toward passive beneficiaries, is evolving toward an open and dynamic viewpoint of innovation (Beckman and Barry 2007, Berthet et al. 2018). This evolution is characterized by interactive and iterative learning processes supported by multiple social networks (Klerkx et al. 2012, Pittaway et al. 2004). A core element of an open innovation model is stimulating linkages and cooperation opportunities between key actors across sectors, value chains, and territories. Within such complex and multi-actor networks, the essential role of an intermediary, known as an innovation broker, has been highlighted (Howells 2006, Klerkx et al. 2009, EU SCAR AKIS 2019). Previous research on innovation brokerage described the importance of brokers and broader network-bridging organizations for the co-production of knowledge, social learning, and innovation (Van Lenthe et al. 2003, Dedeurwaerdere et al. 2015). Research on design theory has emphasized the importance of the early stages of an innovation process. The negotiation of a shared frame for action is a crucial moment during these early stages, which influences the impact of the entire innovation process (Kilduff et al. 2000, Hey et al. 2007, Callon 1984, Beers et al. 2014). Recent developments in the design of effective innovation co-production systems highlight the role of the innovation broker within agricultural innovation systems (Klerkx et al. 2017). Here, innovation-brokering describes an explicit set of activities to bring together representative actors from different organizations and disciplines to stimulate collaboration toward the co-production of innovation (Klerkx and Nettle 2013).

To date, little research has focused on the design and implementation of innovation-brokering processes and its potential impacts on HNV farmland. Conserving HNV farming systems involves changing territorial dynamics toward better integration of biodiversity at several levels of management (from farm to territorial levels). There is a pressing need to understand how to design innovation-brokering processes so that positive impacts on HNV farmlands social-ecological viability are achieved. In this context, the innovation broker is more than a facilitator who builds bridges between different actors (practitioners and researchers) and organizations. An innovation broker with an environmental goal fosters the co-production of knowledge in a specific context and also plays a strategic role in facilitating certain types of innovation, influencing the wider context in which they operate (Mermet et al. 2013). HNV innovations aim to specifically address HNV challenges and are thus based on an explicit vision of the landscape and HNV attributes in a given territory (Poux and Moran 2017). Thus, we adopt an integrative concept of innovation. HNV innovations are described as a set of new activities and relationships aimed at the conservation of HNV features through socioeconomically-viable farming systems. This approach diverges from standard innovations which mainly focus on economic or efficient resource management regardless of biodiversity conservation.

The aim of this research is to improve the understanding of a range of different approaches of innovation brokers in HNV farmland areas to conserve their environmental characteristics while improving their socioeconomic viability. More specifically, it aims to characterize and compare the agroecological and socioeconomic dynamics occurring in HNV areas, which contribute to HNV conservation in specific territorial contexts. The study focuses on the engagement phase to explore the different dimensions of the design and initiation of an innovation-brokering process and examines the importance of landscape–territorial visioning as an entry point. Finally, our results are discussed, and guidelines are provided for innovation brokers to support the implementation of strategic approaches. These are tailored to the specific territorial contexts of European HNV farmland.

METHODS

Unit of analysis: learning areas

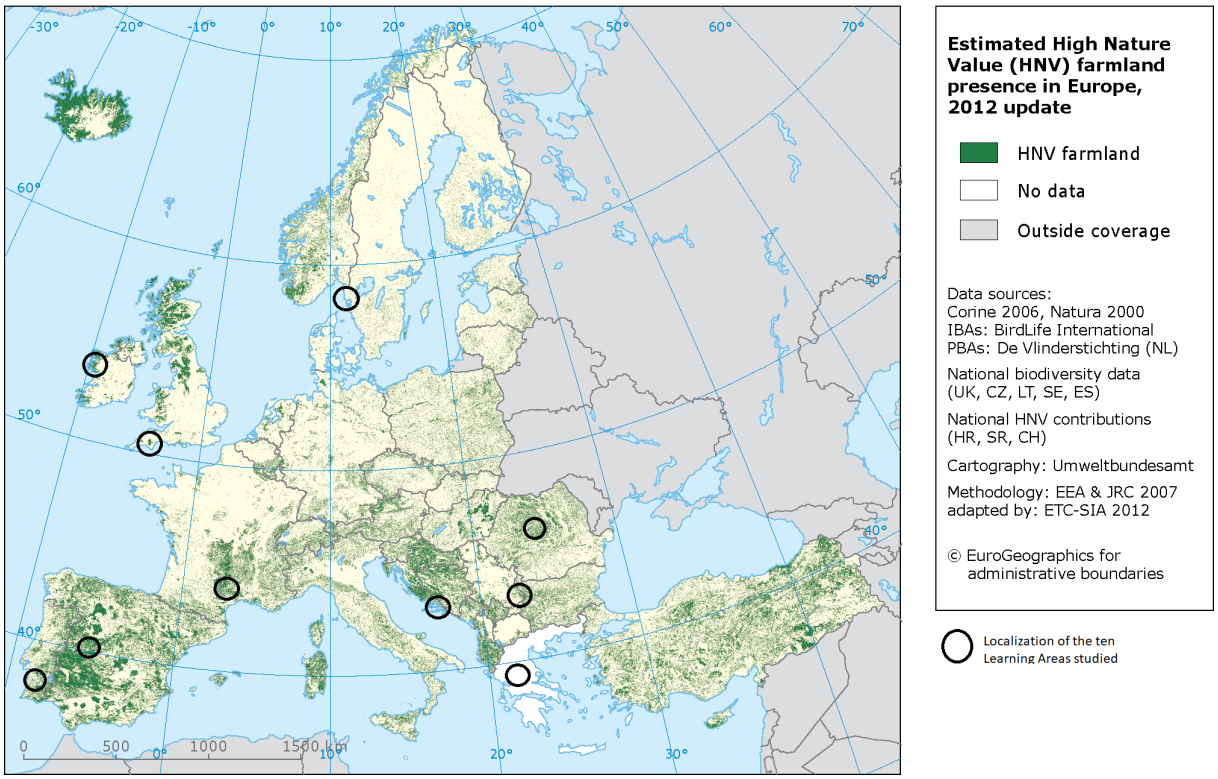
Our research builds on the experience of a Horizon 2020 thematic network titled HNV-Link, which was aimed at improving the profitability of HNV farming without losing its HNV characteristics (EIP-Agri 2016). Overall, the research developed by HNV-Link aimed to identify, foster, and disseminate pertinent innovations and best practices to maintain HNV farmlands by involving key actors in an innovation process tailored to distinct HNV territories.

We focused on the ten territories included in HNV-Link, which are all engaged in an innovation-brokering processes as part of agri-environmental conservation strategies in HNV farmland. Thus, we designate HNV farming areas as potential territories of innovation, as *loci* of a collective learning process (Kirat and Lung 1999), hereafter designated as "learning areas." The selection of the ten learning areas was based on the following criteria:

1. occurrence of HNV agroecosystems defined by its land cover and farming systems according to HNV farming typology (Andersen et al. 2004);
2. existence of agroecological management instruments at the territorial level (e.g., Natura 2000 area, UNESCO site, National Park, locally led agro-environment scheme under Common agricultural policy (CAP) rural development programs, etc.);
3. presence of a multi-actor cluster (e.g., private entrepreneurs, professional/farming organizations, local authorities, universities and/or research centers and NGOs) willing to engage in agroecological management to support HNV areas.

The ten learning areas covered ten European countries (Fig. 1) and included territories ranging from 190 to 4200 km^2, in which agricultural land covered 6–90% of the overall area. The ten targeted learning areas are representative of the diversity of HNV farming areas in Europe, both in terms of their agroecological and social characteristics (Appendix 1 for the full description of the ten learning areas).

Fig. 1. HNV-Link network: localization of the 10 learning areas within the European high nature value areas. Source: Poux et al. 2017. Background map: European Environment Agency 2014, except for Greece, extracted from European Environment Agency 2009.



Data collection

We focused on the first stages of the innovation-brokering process, namely the engagement process, i.e., the construction of a territorial–landscape vision (Albrechts et al. 2020). The vision was co-elaborated at the scale of the learning area based on a strategic appraisal of the HNV situation. The aim was to produce two alternative scenarios: a "business as usual" scenario, revealing what would take place without the introduction of HNV innovations; and a "HNV vision," consisting of a social-ecological image for desirable HNV landscapes-territories in the future. To do this, we performed a baseline assessment in each learning area to characterize and compare the agroecological, socioeconomic dynamics, and the territorial governance dimension of each territory. To create a common understanding of the baseline assessment process, a guidance document was provided to set out the main categories of the assessment. It was presented to the local innovation-brokering teams during a methodological workshop, which was discussed and amended before implementation. Four main dimensions were included in the baseline assessment: (1) the agroecosystem dimension, involving the characterization of the HNV farmland area in relation to geology, soils, hydrology, ecological features, land use, and land cover types; (2) the socioeconomic dimension of the farming systems (HNV and non HNV) coexisting within the same area, based on data from agricultural census e.g., crop types, livestock types and densities, farm numbers, size; (3) the wider rural socioeconomic dimension, consisting of the characterization of the population, demography, labor, capital of the area, based on existing available information; and, (4) the institutional dimension: analysis of the governance system and description of the different actor categories, which directly or indirectly influence the development of the agrarian system.

Data collection was undertaken by a local innovation broker team supported by the coordination team. A mid-term review, based on all material gathered in a six-month period, helped to streamline the overall assessment into a common presentation framework of the results across the ten areas. Part of the data collected and organized by each HNV innovation-brokering team was co-produced with local actors of the territory. Local knowledge co-production processes were diverse and specific to each context (i.e., local workshops, focus groups, surveys or in-depth semi-structured interviews or field studies), as well as being highly dependant on the pre-existing knowledge and social capital of the innovation brokers.

In addition, a semi-structured questionnaire employing a blend of closed and open-ended questions (Adams 2015) was administrated to the ten local coordination teams (i.e., innovation brokers) before initiating the baseline assessment. It aimed at providing qualitative and comparable feedback on the general design and initiation of the different engagement processes that occurred within the ten learning areas. The main entry points were formulated according to the four main descriptive dimensions of the facilitation process according to Loeber and Vermulen (2012)

Table 1. Examples of innovations identified in the 10 learning areas of the HNV-Link project supporting HNV (High Nature Value) farms' viability. Source: Beaufoy 2017.

Main dimensions of innovation brokering process	Closed and open-ended items of the questionnaire
Nature of the innovation broker	Who is the champion of HNV initiative?
Anteriority	Is there already an HNV innovation process in the LA, labelled as such? What type of situation is it referring to? How old is it? Who is/was at the origin?
	Does it cover the whole LA or only a part of it? Does it give a comparison?
Responsiveness	Main message for HNV conservation
	The issue is to...
Knowledge	Is there existing expertise/data/knowledge on habitats and biodiversity in your territory?
	Practically, what is your estimate of the effort to carry out the baseline assessment in your learning area?
	1. Most data and analysis already exist and are centralized and it is mostly a matter of data preparation and output
	2. Most data and analysis already exist but are scattered and it is mostly a matter of data collection, preparation and output
	3. Some fields of analysis need further investigation in the course of the assessment
	4. Most fields of analysis need further investigation in the course of the assessment
	5. Other
Power	Generally speaking, would you say that biodiversity conservation is a priority for most stakeholders in the LA?
Anchoring	Is HNV Link as a project already identified as a promising initiative by influential actors in the LA?

(i.e., responsiveness, knowledge, power, and anchoring), complemented with additional questions to capture the nature and anteriority of the local coordination team in the area. Questionnaire items based on these main dimensions of analysis are provided in Table 1.

Data analysis

We first characterized and compared the agroecological and socioeconomic dimensions of each of the ten learning areas. From the baseline assessment, we compared the agri-environmental conservation challenges for each territory through the confrontation of the agroecology dynamics (evolving trends of HNV characteristics within the learning area, from an ecological point of view) with the socioeconomic dynamics of the farming systems (evolving trends of the agricultural sector from a socioeconomic point of view). To capture the latter dimension, we proposed a set of three characterizations of the overall agricultural dynamic within each learning area: (1) gross agricultural product evolution (stable, decline or growth); (2) evolution of the utilized agricultural area (UAA); and (3) farm take-over by young farmers (farm succession). The last indicator was selected as it constitutes a more robust indicator than the evolution of the number of farms or farmers alone as, in some cases, agricultural development has coincided with the replacement of numerous old farmers by a reduced number of younger competitive ones (early-retirement scheme). Together, these indicators enabled the identification of gradients reflecting socioeconomic trends within the ten learning areas (Table 2).

The agroecological dynamics of HNV farmland within each learning area was another dimension described in the baseline assessments. This aimed at characterizing the dynamics occurring in HNV areas from a nature conservation perspective. Overall, such characterization resulted from an interpretative analysis of sections 1 and 2 of the baseline assessments, focusing on the following indicators for each learning area: (1) patterns of HNV farmland distribution; (2) HNV types (Andersen et al. 2004); (3) distribution of HNV farming systems; (4) abandonment of HNV farming areas; (5) intensification of HNV farming areas; (6) share of UAA; and, (7) number of farms. Data illustrating agroecological dynamics of HNV farmland within each learning area are available in Appendix 2. From this, we proposed six distinct categories to qualitatively assess dynamics occurring in the 10 learning areas from a nature conservation perspective. They are summarized in Table 3.

To explore the importance of visioning as an important stage in the engagement of different actors in a multi-actor innovation process, we proceeded with a comparative analysis of the different designs of the innovation-brokering process within the ten learning areas. We built on Loeber and Vermeulen (2012) describing facilitation processes of sustainable agricultural projects. They identified four main dimensions of the facilitation process: responsiveness (identification of an issue for change); knowledge (bringing knowledge that fits with the situation and needs); power (identification of power relations and potential impact of unsustainable drivers); and anchoring (conditions for further elaboration of a dynamic of change). We used these four dimensions as descriptors to account for the design of the ten innovation processes. We compared the initial situation to the situation resulting from the HNV innovation-brokering process during its initiating phase. The description of engagement situations in each learning area (i.e., before initiating the innovation process) builds on the answers obtained through the semi-structured questionnaire administrated to the ten local coordination teams. Full tables with verbatims are available in Appendix 3. The characterization of the engagement situation at the end of the visioning exercise builds on the respective section contained in each baseline assessment. Using the same four descriptive dimensions of the innovation-brokering process, three external readers classified each HNV vision according to a common qualitative assessment grid. A transversal criterion about the participatory process was also added, in order to better qualify the multi-actor dynamic that occurred during the engagement phase. Emerging categories have been proposed to qualify the position of the innovation broker in relation to their external environment: external/consultative, external/co-production, embedded/co-construction (Table 4). Assessments were harmonized at the end of the exercise.

Table 2. Characterization of socioeconomic trends of the farming systems from an agricultural development perspective. Source: adapted from Poux et al. 2017.

Type of agricultural dynamic	Overall assessment	Gross agricultural product	UAA	Take-over of farms by young farmers
Stable	Farming activity remains stable	Stable or, if declining, compensated by public payments	Stable or gently declining (for urbanization or afforestation, not land abandonment or at limited scale)	Yes - demand on most farmland remains high
Eroding	Farming activity is decreasing but remains significant	Decreasing	Significantly decreasing, signs of land abandonment	Partial: only some farms are taken over
Decline/crisis	Farming activity is getting marginal	Strongly decreasing	Strongly decreasing, land abandonment generalized	Very low
Relict	Farming is only a small economic activity, for some individual farms	Low at territorial level (but some individual success can be found)	Agricultural use is marginal	Not significant
Reconquest	Having reached a critical "relict" point, new initiatives re-start, but the situation remains uncertain	Developing, but starting from nearly 0	Reconquest of pieces of land, but also from nearly 0	Might be significant

Table 3. Characterization of high nature value (HNV) trends from a nature conservation perspective. Source: adapted from Poux et al. 2017.

HNV dynamic occurring in the area	Overall qualitative assessment
Loss / intensification + abandonment	Combination of intensification trends in some parts of the agricultural landscape and abandonment in other (HNV) parts
Loss / abandonment	Land abandonment
Partial conservation	Recovering of some HNV areas (significant conservation efforts visible at land-use level), but the overall envelope is declining
Stability	HNV areas are sustaining in quantity (envelope) and quality (management)
Recomposition	HNV nature of the landscape shows a combination of loss in some parts (through abandonment/or intensification) and gains in other parts (but generally loss of overall land under HNV management)
Reclaim	Formerly abandoned HNV land is used again under HNV practices

Finally, to explicitly describe the different strategies for initiating an innovation-brokering process, we confronted the prospective dimension of each baseline assessment against their territorial context. In order to represent situations that do not have numerical values, we have chosen to use a qualitative visual interpretation (Coffey and Atkinson 1996, Burke et al. 2005). The aim was to compare and contrast the "business as usual" scenario and the "desirable future" scenario for the HNV areas, as they were elaborated by the multi-actor cluster at the level of each learning area. All ten prospective scenarios were reviewed by three external readers. They qualified the scenarios graphically from their agricultural and conservation dimensions using an arrow, whose length represents the intensity of the change (importance of the change by 2030) and the direction represents the nature of change at territory–landscape level (Albrechts et al. 2020). The judgment of each reader was then validated by the local coordination team, which had developed the scenarios.

RESULTS

A wider typology of HNV farming situations across Europe

Figure 2 represents the agroecological and socioeconomic dynamics resulting from the analysis of the baseline assessment for the ten learning areas. These results illustrate the wide diversity in the evolution of HNV farmland areas throughout Europe and the related conservation challenges in a given macro agri-environmental context. We were able to identify four different evolution patterns in HNV farming situations. The first pattern is characterized by the risk of agricultural intensification, in the context of stable agricultural development such as in *Dalsland* learning area located south of Sweden (Västra Götaland region); on the *Causses* karstic plateau in France (Massif Central); and the Montado type landscape in the *Sitio de Monfurado* learning area in Portugal (Alentejo) (*HNV dynamic type a*). The second evolution pattern is characterized by the challenge of maintaining HNV farming systems in a general context of eroding farming activities. This is the case for the *Western Stara Planina* learning area located in the mountain complex of the Balkans in Bulgaria; for the *Eastern Hills of Cluj* in the Transylvania region of Romania; and for the *Cevennes* schist valleys in the South of Massif Central (France). Territory–landscape dynamics described in *La Vera* learning area, located on the piedmont of the Sierra de Gredos mountain range, in Extremadura, Spain, follow the same pattern as *Dartmoor,* a mountainous region in central Devon, north of Plymouth, England (UK). We see that the erosion of (mostly extensive) farming activities can cause the loss of HNV characteristics in these learning areas (*HNV dynamic type b*). Two learning areas, both in the Mediterranean, show an evolution pattern characterized by a relict / recomposing farming dynamic associated with medium to good HNV conservation trends (partial conservation or re-composition). This type of evolution is described in the *Thessalia* learning area, on the east side of the Pindus mountains watershed in Greece, and in the context of the partial conservation of HNV areas in the *Dalmatian islands* (*HNV dynamic type c*). Finally, there are situations that articulate stable agricultural development with good conservation of HNV attributes, as in *The Burren* learning area in County Clare, Ireland (*HNV dynamic type d*).

Table 4. Qualitative assessment grid used to compare high nature value (HNV) visions of the ten learning area according to the main dimensions of the innovation facilitation processes.

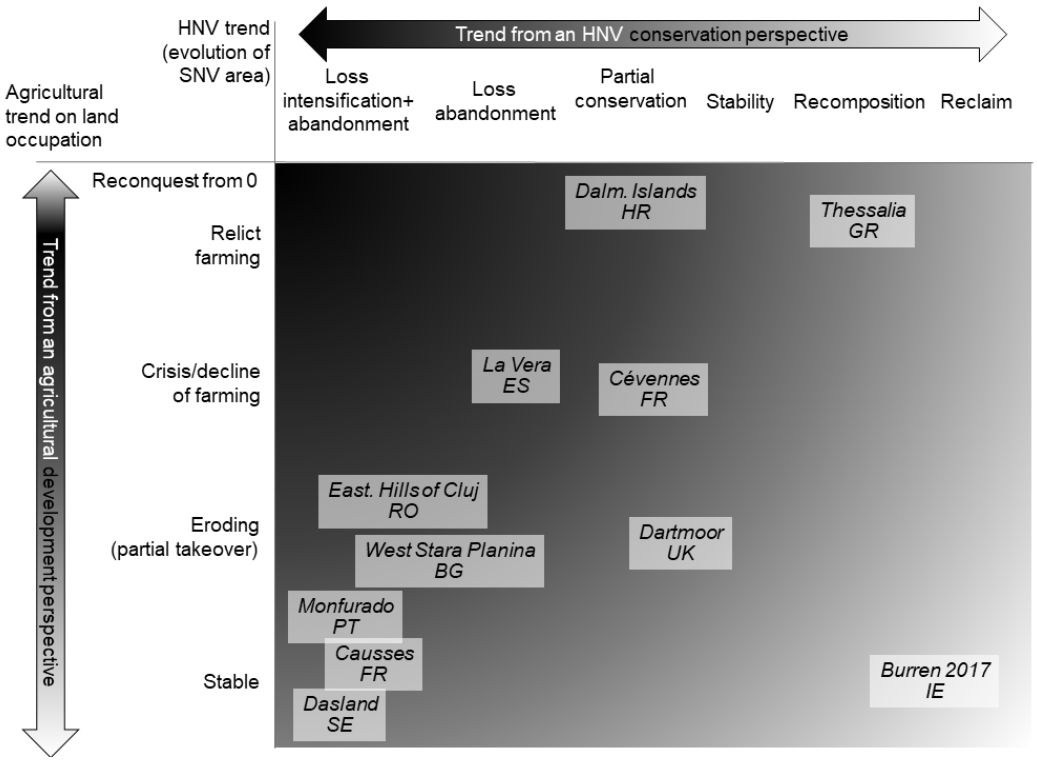
Participatory process	Responsiveness	Knowledge	Power	Anchoring
Position of the innovation broker / type of participatory process	Does HNV vision provide a socioeconomic analysis of production systems as well as its impact on HNV conservation dynamics?	Is HNV vision based on multidisciplinary knowledge that articulates actionable statements?	Does HNV vision provide a clarification of the system of actors and levers of action in favor of HNV territories?	Does HNV vision identifie relay actors (potential ambassadors), and propose a roadmap to achieve the objectives?
External / consultative	Partial - scattered	Partial - scattered - no visual	Partial - scattered	No explicitation - no roadmap
External / co-production	Dynamics of production systems and ecological issues are made explicit	Material to describe the socioeconomic functioning of farming system and ecological conservation trends at territory-landscape level + visualization	Identification of key strategic actors	Explicitation of potential ambassadors but no roadmap
Embedded / co-construction	Dynamics of production systems and ecological issues are made explicit at territory-landscape level	Rich material to describe the socioeconomic functioning of farming system and ecological conservation trends at territory-landscape level + visualization	Multi-actor strategy in the medium and long term, including all the key players in the territory	

Distinctive HNV conservation challenges and associated risks

In order to further describe different strategic configurations for initiating an innovation-brokering process, we analyzed the HNV vision and the BAU scenario against the different types of HNV dynamics observed within the ten learning areas. It builds on our previous typology of HNV dynamics, to which we added the prospective dimension, as elaborated through the visioning exercise (i.e., HNV vision and business as usual scenario). Figure 3 represents HNV conservation challenges and associated risks for a given HNV territorial dynamic.

Building further on the innovation brokers interviews, we were able to better describe and compare the strategic nature of HNV conservation challenges within each group of learning areas sharing the same broad HNV dynamics. For learning areas showing HNV evolution patterns characterized by an intensification risk to HNV systems in a favorable farming development context (*HNV dynamic type a*), most of the HNV challenges are formulated to recover HNV ecological characteristics (horizontal arrows) within the existing farming systems. Adaptation or change in production practices is seen as the appropriate way to address the HNV challenge, targeting the agricultural productive sector mainly. Farmers are then at the center of the engagement process (farm level). In these types of situations, the level of risk is moderated. A failure of the innovation-brokering process would lead to a status quo situation (circular doted arrows). For territories where the HNV strategic challenge is to maintain HNV farming systems in a general context of eroding farming activities (HNV dynamic type b), HNV visions follow the same visual pattern (diagonal arrow) showing that the HNV conservation objective aims both at energizing the agricultural sector and increasing its environmental performance. We observe that the innovation-brokering strategies are aimed at the agricultural sector (more specifically the extensive livestock sector). They target mainly public schemes and regulation (i.e., rebalancing policy schemes in favor of extensive farming systems through agri-environmental payments and others available CAP measures). They also focus their strategy on market dynamics using quality schemes to better valorize the agricultural production (cheese and meat products) and public regulations (on hygiene rules). The risk is that a decline of farming activities entails a decline of HNV attributes (dotted arrows). In the learning areas where the HNV conservation challenge is to increase the share of HNV agriculture in a context of agricultural reconquest (HNV dynamic type c), we can observe very different HNV conservation strategies (different directional arrows). The first HNV vision proposes an important change both in the agricultural dynamic as well as in the HNV conservation trends (diagonal arrow). This ambitious scenario builds on a territorial strategy of re-articulation of production systems between plain and mountain, mainly through pastoral farming (i.e., Learning area of *Thessaly*, Greece). It targets both the agricultural sector as well as other territorial actors. Alternatively, the second HNV vision is mainly articulated toward the development of agricultural projects linked with tourism activities, taking place on fallow recovery areas and former agricultural plains (i.e., Learning area of *Dalmatian islands*, Croatia). The aim being to reinforce HNV ecological features (mosaic agricultural landscapes) targeting rather small-scale agricultural activities and niche markets (i.e., orchards, aromatic plants, honey, small-scale breeding). But both visions are confronted by the same risk, which is to favor the agricultural reclaim dynamics with adverse impacts from an environmental view point. Finally, in territorial–landscape situations where the overall territorial context is characterized by stable agricultural development with good conservation of HNV attributes, as in *The Burren* learning area, Ireland (*HNV dynamic type d*), the HNV strategic challenge is to maintain an existing situation, balancing nature conservation with the development of farming activities. The HNV vision proposes to better anchor biodiversity conservation in individual farming practices thanks to locally led agro-environment schemes. The risk is to observe a progressive disengagement of farmers, and an intensification of practice, leading to the loss of the environmental value of HNV features (e.g., semi-natural vegetation maintained by extensive winter grazing) in this particular case.

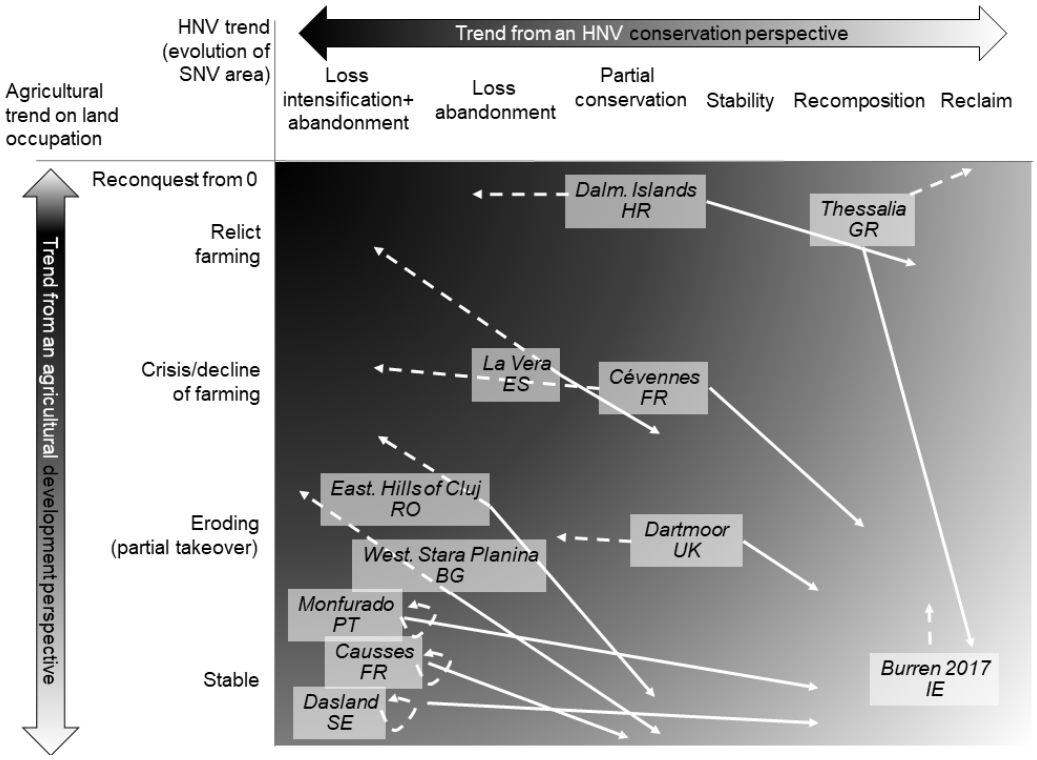
Fig. 2. Dynamics of farming systems and high nature value (HNV) landscapes within the ten learning areas across Europe. The X axis refers to the trends of the area from a high nature value conservation perspective: what are the issues with biodiversity and habitats? The Y axis refers to the trends of the area from an agricultural perspective: what are the issues in terms of overall land use (abandonment or not) and, therefore, with a sufficient takeover of farms? On both the X and Y axes, the white polarity suggests positive trends while the black one suggests negative trends. Source: Poux et al. 2017.



Different design for engaging an innovation-brokering process in favor of HNV areas

In addition to better characterization of HNV dynamics, related conservation challenges and strategies in each learning area, we sought to explore the different designs of engagement within the HNV innovation process. Building on our comparative assessment grid (cf. Table 4), we were able to characterize different types of HNV vision from a procedural view point. These were characterized according to the four constitutive dimensions of facilitation processes in the field of agricultural innovation, as proposed by Loeber and Vermeulen (2012). Our results show three types of HNV vision-building processes. In some cases, HNV visions result in a rather general territorial narrative based on experts' work and a participatory consultative process. This type of visioning exercise delivers a partial analysis of the production systems as well as a view of its impacts on HNV conservation dynamics (responsiveness). Even if the HNV vision is based on descriptive elements involving different disciplines, it does not deliver an actionable understanding at a territorial–landscape level. This kind of partial and scattered narrative does not provide a strategic understanding of the system of actors and key levers for transformative collective actions in favor of HNV territories (power). This production is a good start but proved to be too general to inform the local debate with an actionable ideal perspective and will not be a major tool for stakeholder engagement in the long run (anchoring). Some visions prove to deliver a detailed and explicit HNV vision in terms of landscape and ecological dynamics based on experts' work and a co-production participatory process with some actors of the territory. This type of exercise makes explicit the functioning of agricultural production systems and related ecological issues (responsiveness). It builds on multidisciplinary material describing the socioeconomic functioning of farming systems and ecological conservation trends at the territory–landscape level. It displays a synthetic understanding of major HNV conservation issues through a visualization component (knowledge). Key strategic actors for the maintenance of the HNV farming system in the area are identified, as well as socioeconomic and/or technical lock-ins (power). This type of HNV vision might be useful for engagement but lacks being anchored within the current system of actors. It does not provide an actionable roadmap for potential ambassadors of HNV innovations (anchoring). Finally, a third type of HNV vision convincingly combines landscape and ecological strategic perspectives based on a co-construction participatory process with key actors having an impact on HNV dynamics in the area (responsiveness). As in the previous situation, this type of visioning exercise builds on rich multidisciplinary material to deliver a good understanding of the socioeconomic trends in farming systems, as well as a clear understanding of ecological conservation dynamics and

Fig. 3. High nature value (HNV) vision versus business-as-usual scenario against specific territorial contexts. Dotted arrows show the expected dynamics under a business-as-usual scenario, and solid arrows show the dynamics aimed at under the HNV vision. The differential delineates a HNV conservation challenge and its associated level of risk from an agro-environmental perspective (i.e., a strategic setting). Source: Poux et al. 2017.



respective challenges, into an actionable assessment (knowledge). This type of HNV vision is co-constructed with strategic actors for the maintenance of HNV farming. Possible options for change at the landscape–territorial level are identified. It articulates a multi-actor strategy in the medium- and long-term. It proves to be useful for engagement and for selection of transformative HNV innovations (anchoring).

DISCUSSION

Reconsidering the understanding of HNV conservation challenges

Our results show an important diversity of territorial situations, both in terms of HNV conservation patterns and their related strategic challenges. Indeed, the founding texts of HNV farming insist on the fact that low-input farming is a necessary condition for HNV conservation (Beaufoy et al. 1994, Bignal and McCracken 1996). Thus, when this low-input farming is lost, HNV attributes are also lost. However, we illustrate that this prevailing perception of HNV conservation challenges is only one among other possibilities. The loss of HNV attributes results from a gradient of land abandonment and of intensification (Bignal and McCracken 1996) (*HNV dynamics b and c)*. In some cases, the risk of intensification prevails over the risk of abandonment, even though it does not fit the archetypal image of HNV areas (e.g., *HNV dynamics a and d*). This consideration changes the strategic perspective of the HNV broker and thus the relevant approach for engagement. Therefore, agricultural development in HNV farmland areas does not necessarily correspond to the conservation of HNV farming (HNV scenarios in Lomba et al. 2020). For instance, the innovation of branding local cheese produced by HNV farmers to attract a higher price illustrates this aspect. It might appear to be an appealing innovation *per se* as it may combine biodiversity conservation and farm viability, regardless of the context. However, its environmental benefits are not guaranteed and depend on many other factors. If such an innovation takes place in areas with potential for intensification and a weak socio-institutional setting, there is a high risk that this brand will encourage land intensification and farm concentration. The weak institutional setting is unable to monitor the market development on the basis of environmental and social criteria. It may correspond to increased viability of (former) HNV farms in a (former) HNV area. Indeed, such trends have been described for some areas producing cheese under protected denomination of origin, with adverse impacts on biodiversity (Quetier et al. 2005, Duvaleix-Treguer et al. 2018). Therefore, we argue that it is crucial for a HNV innovation broker to understand the territorial context and HNV dynamics when engaging. They need to consider the two axes: 1) the dynamics in place in terms of the development of farming systems (under the main indicator of overall land use: does agriculture maintain its role in land use or is it losing importance?); and 2) the dynamics in terms of HNV conservation (Lomba et al. 2014). An accurate analysis is needed to ensure that biodiversity conservation and agricultural development go side-by-side.

HNV conservation challenges: the importance of strategically framing the innovation-brokering process through a landscape–territorial approach

Our results led us to revisit the classic diffusionist approach of innovation-brokering (OECD 2005) and better consider its strategic and landscape–territorial dimensions. Along with Klerkx et al. (2012:458), we highlight the social dimensions of innovation. This involves not only a change of technology but rather a holistic vision of what the future should look like and the changes that are needed to achieve it. In that sense, our results show that for a given type of HNV agri-environemental dynamic, HNV conservation challenges call for different strategies and involve different levels of risk from an agri-environmental perspective. Thus, the framing of the HNV conservation challenges (i.e., what is at stake with HNV farming within a given landscape–territory?) is of crucial importance, as well as the degree to which the framing is shared within the learning area. If we go back to the definition of Schön and Rein, frames are implicit values, goals, or underlying assumptions that designate or make visible specific issues and how they should be best addressed (Schön and Rein 1994). The selection of a desired end state implicitly includes the identification of a problem or a focused narrative of collective action. This step then determines the constitution of a coalition of actors, the possibility of creating a "collective becoming" (Metzger 2013) or a "vision." It would help to formulate a set of values, norms, cognitive and shared conception of reality and meaning, as well as related habits and routines, in a new and coherent organizational system. In that sense, HNV innovation brokers are displaying a wide range of activities to negotiate shared frames. The objective is to build a game-changing coalition of actors to achieve an agri-environmental objective: the conservation of HNV attributes in a given territory. This calls for a more reflexive approach to engaging successful territorial coalitions and leads to the question of how to tactically equip HNV innovation brokers to achieve successful engagement (Mizrahi and Rosenthal 2001, Aldrich and Marsden 1989, Ospina Peralta and Hollenstein 2015). Our exploration of the different HNV vision-building processes builds on a strategic landscape–territorial approach and leads to different levels of achievement. This raises a fundamental question: is it preferable to build a HNV desirable vision under the form of a long-term perspective of what constitutes a sustainable HNV landscape–territory (Albrechts et al. 2020, Metzger 2013), or is it more efficient to focus on specific immediate needs to deliver socioeconomic viability of the farming systems in HNV areas? That is assuming the latter coincides with an overall biodiversity conservation goal.

Exploring the strategic dimension of innovation process design: the ideal versus practical engagement for the HNV innovation broker

In their analysis of the facilitation of sustainable agricultural projects, Loeber and Vermeulen (2012) distinguished two different types of brokering approaches. The first approach aims at developing an understanding of, and responsiveness to, participants' needs as a basis for pushing ideas and visions beyond their immediate reach (henceforth "ideal"). The facilitator designs the project as a co-learning process to induce reflexivity from the participants. The second approach of brokering is "designing implementable structures" (henceforth "practical"). It "strives for an understanding of and responsiveness to the participants' needs and motives to gain their mandate for steering the process toward a shared vision and an implementable design." The aim is to steer toward tangible and rapid results, building on intermediate milestones. The two approaches do not have to be in opposition but are meant to be complementary. However, this complementarity cannot be taken for granted as each approach insists on different dimensions and entry points for innovation and HNV farming coalition building. There is a need for a HNV broker to make a strategic choice when engaging with other actors. When developing innovation for HNV conservation, they need to decide on what aspects they insist on introducing into the (already existing) local process: as an ideal or a practical broker. Although it should be made clear that the words themselves should not be literally used as such. In our research, the engagement process explicitly included HNV agri-environmental dynamics as the basis for a landscape–territory vision. This placed the exercise in an "ideal" perspective. The enrollment of actors was based on the common understanding of what is at stake for the long-term biodiversity management of the area (HNV conservation challenges). It insists on the social process component of innovation, highlighting the role of strategic narratives in territorial transformations in favor of HNV conservation. In this perspective, the HNV innovation broker's role is to bring an explicit HNV conservation goal into the actors' interactions and to facilitate their understanding and sharing across a growing community of actors. Our results show that, in some situations, the visioning exercise proved to be a successful tool to frame the engagement process and strategically build a coalition promoting HNV innovations, but not always. The issue of the social capital of the innovation broker, the nature of the boundary organization from which they operate (Leith et al. 2016), and, therefore, the financial and human resources they can mobilize are central to success. Though seemingly obvious, this is frequently underestimated. The alternative to this first option (i.e., building a HNV vision) is to engage in an innovation process from a practical standpoint by focusing on practical innovations aimed at improving farm viability. Our results show that it could be a choice with higher risk from an agroecological perspective. This is especially true in territorial situations where the risk of agricultural intensification is prevailing. Therefore, we claim that it is important to design any innovation-brokering strategy based on some inputs from an "ideal" strategy. We argue that there is a need to clearly articulate the risk. This is of particular importance where it is rarely accepted as such; in contexts where a certain level of intensification might be judged as normal from a farming perspective and too high from a biodiversity conservation perspective. Developing a landscape–territory vision helps to justify HNV conservation goals and equip a collective learning process with evaluative agri-environmental landmarks. Otherwise, a practical approach alone may result in the risk of engaging with actors on the basis of actions which respond to their expressed needs (i.e., to achieve socioeconomic viability of agriculture) without visibility of the impact on the environment of the HNV landscape–territory in the medium-term.

CONCLUSION

This study argues for a strategic approach to HNV conservation at the landscape–territory level. Building on existing literature on innovation-brokering and coalition building. It explores distinct designs of the engagement process for HNV innovation within different territorial settings. It goes beyond the classical definition

of innovation-brokering and challenges the neutrality of innovation brokers. As strategic actors, they endorse an active commitment in favor of HNV area conservation. They act as coalition builders, reconciling biodiversity conservation and agricultural development needs. The issue then turns to how to engage with other actors to have an impact on the wider environment? What does the broker promise to be credible? We demonstrate the role of landscape–territory visions and visioning processes as guiding principles which are a prominent characteristic of the brokering process. The process of engagement and the overall framing have to be considered carefully within the overall territorial context of the area. In this perspective, the intention of this study was to show that there is an issue for such engagement and a need to improve understanding of the context in which a HNV broker might engage. Building on Loeber and Vermeulen's (2012) work on approaches and attitudes developed by facilitators in the field of agricultural innovation, we discussed two different designs of coalition building for HNV innovations. The practical approach proposes a set of innovation solutions as an entry point in the social process. This might be appealing in a context where biodiversity conservation is rarely a priority within the mainstream agricultural agenda. In this situation, the needs of biodiversity conservation may disappear from the agenda of the coalition in the medium- and long-term. Another more indirect way to engage is to collectively frame the HNV conservation issue, building on a long-term territorial–landscape vision (i.e., the ideal approach). This strategic approach to innovation brokerage requires being explicit about what is at stake for biodiversity conservation for a given territory and what needs to change in the course of agricultural development (framing). Such understanding of the innovation-brokering process is addressing two blind spots of the classic diffusionist approach of innovation. It questions the nature of the innovation itself in a territorial–landscape perspective and it also raises the issue of the broker's "assets" (social, scientific, and financial capital) in a given organizational field. The challenge is to design an engagement process that articulates quick wins (implementable structures) with sufficient strategic reflexivity (landscape–territory vision) so that they effectively answer HNV conservation challenges. This can pave the way for an incremental strategy which seeks to secure agri-environmental gains for agricultural systems with high nature value in the long-term.

Author Contributions:

XP and CBM designed the paper and conducted the analysis; all authors contributed to writing.

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Data Availability:

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

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Appendix 1. Description of the ten studied high nature value farming learning areas distributed across Europe.

General description				HNV agroecosystem			Learning area			Innovation broker
Country	Learning Area (LA)	Size	% of farmed land in the overall landscape	Land cover	Farming system	HNV Type	Territorial institutional setting dedicated to agroecological issues	Multi-actor cluster	Explicit agro-ecological management issue	Local innovation broker teams
UK	Dartmoor	460 km^2	80%	Blanket bog; Atlantic Wet Heath; European Dry Heaths; other semi-natural non-Annex 1 communities	Upland farms with common rights and enclosed uplands. Combination of hill and upland systems with sheep, cattle and ponies	Type 1 mainly semi natural vegetation	National Park + Dartmoor Commoners Council	Dartmoor Commons Council; Duchy College; South West Uplands Federation; Dartmoor National Park Authority	Targeted: Dartmoor Hill Farm Project	ENFCP (NGO)

Portugal	Sitio de Monfurado	240 km^2	90%	Montado (both Quercus suber and Quercus rotund folia) + small scale mosaics of olives, vegetables, grazing	Cork production/harvesting. Low intensity livestock production (cattle, and in a smaller extent sheep). Finishing Alentejano pigs. And vegetable production for self-consumption and short supply chain	Type 2 (semi natural vegetation and mixed farming)	Natura 2000 + locally led agri-environment scheme (CAP - Rural Development Programme)	Planning division of DRAPAL; Land management department of CCDRA; CMMN ; Universidade de Évora (U.Evora – ICAAM).	General: different local development initiatives	University of Evora (Research)
Croatia	Dalmatian Islands	1,858 km^2	6% of agricultural land + unquantified rangeland	Karst limestone landscape dominated	Permanent crop dominated production systems (olives, figs, caroub, almonds) + residual pastoral systems and Medicinal and Aromatic Plants cultivation	Types 1 and 2	National Park	Lag 5, LAG Skoj and Lag Mareta; National park of MLJET; University of Split; LAGs municipalities or/and County	General: agricultural revitalisation through LEADER's activities	LAG 5 (NGO)

Romania	Eastern Hills of Cluj	190 km^2	75%	Semi-natural pastures and meadows, with associated arable and orchards especially around villages	Large number of semi-subsistence farms, some larger scale shepherded systems, also trend towards large-scale land use in somewhat more intensive systems	Type 2 (semi natural vegetation and mixed farming)	Natura 2000 + locally led agri-environment scheme (CAP - Rural Development Programme)	USAMV Cluj; Local Action Group "Somes Transilvan"; Romanian lepidopterological Society; IJARUL Farmer Association; Agrocluster Transilvania	General: different local development initiatives	USAMV Cluj – Napoca (Research)
Bulgaria	Western Stara Planina region	1,659 km^2	50%	Extensive pastures surrounded by forests and patches of small-scale arable land and traditional orchards.	Extensive grazing by dairy cows; suckler cows; sheep; some goats. Grasslands management by mowing.	Type 2 (semi natural vegetation and mixed farming)	Natura 2000 + locally led agri-environment scheme (CAP - Rural Development Programme)	Linbul farm and partner farmers; National Union of Small Family Farms and Producers; University of National and World Economy (UNWE)– Economics of Natural Resources Dept; National Agriculture Advisory Service (NAAS)	General: different local development initiatives	Society for Territorial and Environmental Prosperity (NGO)

Sweden	Västra Götaland	4,000 km^2	25%	Permanent pastures and meadows. Semi-natural grasslands characterized by species and habitats dependent on agricultural activity.	Permanent pastures and meadows. Mosaic mixture of low intensity farming and natural elements.	Type 1 (mainly semi natural vegetation)		Stenkas construction Ltd.; LRF (The Federation of Swedish Farmers); SLU (Swedish University for agriculture Sciences); The municipality of Åmål	General, at county level	County of Administrative Board, Västra Götalands (Local authority)
Ireland	The Burren	720 km^2	85%	Karst limestone landscape dominated by calcareous grassland and heaths with associated areas of limestone pavement, Atlantic Hazel woodland and turlough (temporary lakes used for extensive grazing).	Dominated by extensive cattle rearing systems, some Dairy farming and some mixed sheep and beef enterprises.	Type 1 (mainly semi natural vegetation)	Special Area of Conservation under the EU Habitats Directive + National Park + locally led agri-environment scheme (CAP - Rural Development Programme)	Burren LIFE; Burrenbeo Trust; Institute of Technology Sligo; Burren Irish Farmers Association	Targeted: the Burren programme	IT Sligo (Extension Services)

Greece	Thessalia	4,200 km^2	65%	Pastures areas in the mountains and semi-mountain areas in articulation with pasture areas in the plain of Thessaly.	Extensive agro-sylvo-pastoralism, extensive sheep and goat breeding in coexistence with intensive and irrigated agriculture, natural aromatic and medicinal plants.	Types 1 and 2	No	Individual farmers (breeders and cheese making); Pasture Cooperatives; Territorial Collectivities; Network of Thessalian NGO's; University of Thessaly; Cooperation of Small dairy territories (Terra Thessalia Lactis); ANKA Local Action Group; Supporting mechanism of cheese making sector in Thessalia (Thessaction)	Targeted : plain/mountain complementarity	Univerity of Thessaly (Research)
France	Causses	3,000 km^2	>60%	Open landscape and "dolines", grassland cover (steppes type) on a karstic plateau.	Dominant livestock system: extensive agro-sylvo-pastoralism system of sheep/goats.	Type 2 (semi natural vegetation and mixed farming)	Unesco Heritage Site + locally led agri-environment scheme (CAP - Rural Development Programme)	Chambre régionale Agriculture Languedoc-Roussillon ; CEN-LR (Life + Programs) ; Ciheam-Montpellier + CEFE	Targeted: under the Unesco initiative, still in progress	Conservatory of Natural Areas of Languedoc-Roussillon (CEN-LR) (NGO)

	Cévennes		<30%	Natural high-altitude grass and moorland land, peaty soil and wetland on a granitic substrate.		Type 1 (mainly semi natural vegetation)		CNRS.Entente inter-départementale C&C		
Spain	La Vera, Extremadura	883 km^2	50%	Semi-natural mosaics of grassland, shrubs and wooded land, at mid-high altitudes. Mixed with small parcels of olives, figs and other tree crops.	Extensive goat and cattle raising. Traditional olive and fig production (olives have PDO label).	Type 1 (mainly semi natural vegetation)	Natura 2000 + locally led agri-environment scheme (CAP - Rural Development Programme)	Unión de Ganaderos del Norte de Extremadura ; QueRed - Red Española de Queserías de Campo y Artesanas; ACRIVER Asociación de Criadores de Caprino de Raza Verata; EFNCP Fundación Entretantos; Universidad de Extremadura; Local Action Group ADICOVER	Not for the HNV farms of the area	Entretantos (NGO)

Appendix 2. Agro-ecological dynamics of HNV farmland within the ten learning areas.

	Distribution of HNV farmland in the whole landscape of the LA	HNV types	Overall status of HNV farmland	Present share of HNV farmland in the overall landscape	Agro-ecological trend	Distribution of HNV farming systems in the LA	Abandonment of difficult HNV area (present)	Intensification of most favourable HNV area	Number of farms	Size of farms
Dartmoor, UK	One large specific area in a surrounding semi-intensified landscape.	Type 1 (mainly SNV)	Concerns	Large	Erosion / under-grazing	Most systems using the moorland are HNV farming systems. Gradient of practices in inbye land.	Limited	Not applicable in the area	c. 1,122 but only c.850 with common pasturage rights	Small to large, predominantly small farms
Sitio de Monfurado, Portugal	The whole landscape is potentially HNV - gradients	Type 2 (SNV and mixed farming)	Maintenance until present	Large	Erosion	No clear limit between HNV and non HNV systems - gradient of practices	Limited + overgrazing	Yes	149 – estimate on the lower side	Small to large, predominantly small farms, but large farms dominate for land use
Dalmatian Islands, Croatia	The whole landscape is potentially HNV - gradients	Types 1 and 2	Mostly disappeared	Spots	Not visible	HNV systems are the exception	Generalised	Generalised	5,748	Very small farms

Eastern Hills of Cluj, Romania	The whole landscape is potentially HNV - gradients	Type 2 (SNV and mixed farming)	Concerns	Significant	Erosion	Strong gradient of practices across HNV and non HNV farming systems	Moderate + overgrazing	Moderate	Estimated at 4,000 small subsistence households and commercial farms	Very small farms
Western Stara Planina region, Bulgaria	The whole landscape is potentially HNV - gradients	Type 2 (SNV and mixed farming)	Strong concerns	Significant	Erosion	Strong gradient of practices across HNV and non HNV farming systems	Strong	Yes	3,561	Very small farms
Västra Götaland, Sweeden	Spots of HNV farmland in a surrounding intensified agricultural landscape and forest	Type 1 (mainly SNV)	Mostly disappeared	Spots	Strong erosion	HNV systems are the exception	Generalised	Generalised	11,000 farmers	Medium-large (?)
The Burren, Ireland	One large specific area in a surrounding intensified landscape.	Type 1 (mainly SNV)	Fragile reconquest	Significant	Reconquest	Most systems using the limestone pavements are HNV farming systems. Gradient of practices in inbye land.	No (since the Burren Life)	Generalised	1,543	Medium-large

Thessalia, Greece	The whole landscape is potentially HNV - gradients	Types 1 and 2	Reconquest	Significant	Strong erosion and local reconquest	No clear limit between HNV and non HNV systems - gradient of practices	No	Variable	6,000	Small-medium
Causses et Cévennes, France	Spots of HNV farmland in a surrounding intensified agricultural landscape (and forest)	Type 2 (SNV and mixed farming)	Strong concerns	Spots	Erosion	Strong gradient of practices across HNV and non HNV farming systems	Dominant	Generalised	1,200	Large
	The whole landscape is potentially HNV - gradients	Type 1 (mainly SNV)	Strong concerns	Significant	Strong erosion and local reconquest	Strong gradient of practices across HNV and non HNV farming systems	Strong	Yes		Small
La Vera, Extremadura, Spain	The whole landscape is potentially HNV - gradients	Type 1 (mainly SNV)	Mostly disappeared	Large	Strong erosion - disappearing	Strong gradient of practices across HNV and non HNV farming systems	Generalised	Not applicable in the area	120 livestock farms approx	Small-medium

Appendix 3.

Table A3.1 Description of the engagement situation in each learning area, before the visioning exercise (part A)

		Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
Innovation Brokers	Who is the champion of HNV initiative?	Environmental NGO on pastoralism and HVN farming along with the National Park and Commoners Associations	University of Evora	Local Action Group along with National Park and University	Local Action Group + University of Cluj Napoca	Rural development NGO
Anteriority	Is there already an HNV innovation process in the LA, labelled as such? To what type of situation does it refer to?	NO	The innovation process is a work in progress. There was an important plan designed under previous projects, but very few actions are really happening.	The innovation process is just starting and/or is planned.	Is a work in progress	Work in progress
	How old is it? Who is/was at the origin?	Not applicable	The Life GAPS – Site of Monfurado Active and Participated Management	It's quite new. Its origins are in COAST project of UNDP at the territory of LAG	Implement agri-environment package "important grasslands for butterfly	3-5 years, starting (new) farmers, local residents (women) and conservation NGOs.

	Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
		project (LIFE 03/NAT/P/000018) starting from 2003, was probably the origin of a “formal” innovation process.	Škoji, and in the LAG 5 Green Agenda that is a mission statement document. In the territory of LAG Brač we can say that LEADER and the formation of their local action group was a precondition to start planning an HNV innovation.	(*Maculinea sp*.)". This measure was proposed by the site custodian and it was accepted by the Romanian Gouvernment. In 2014 for this measure applied 421 farmers from Cluj County. The land under commitment to this measure: in 2012 - 1849 ha, in 2013 - 3538 ha, in 2014 - 6398 ha, and in 2015 - 2636 ha. By 2015, this package counted for more than 3,450,000 euros.	
Does it cover the whole LA or only a part of it?	Not applicable	Yes	There are parts of the area that are in the process of HNV innovation (fields in National Park of	Only farmers that applied for the above mentioned agri-environement package.	Covering individual farms and rural households throughout the region.

		Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
				Mljet in LAG 5, that are planning an HNV innovation such as island of Vis in LAG Škoji and some farmer's initiatives in the islands of Brač (regarding the revitalization of the traditional agricultural landscape- building dry stone walls and similar types of agricultural infrastructure).		
Respons-iveness	Main message for HNV conservation	In Dartmoor, the stocking density is now too low. Nature conservation is too decoupled from the fate of livestock sector: there is a need to support and manage	There are different driving forces playing against HNV conservation. Farmers should be convinced that HNV conservation is the best option on the long term, for the sustainability of	HNV is an asset for the development of Dalmatian Islands, overwhelmed by a mass tourism.	Traditional HNV farms are left away from the current agricultural development, developing farms are not properly manage HNV farmland.	Traditional HNV farms are left away from the current agricultural development.

		Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
		the development of this latter.	their farming system.			
	The issue is to…	Strengthen extension for extensive livestock, change agri-environment schemes, hygiene rules and extension services.	Demonstrate to farmers the interest of HNV management.	Initiate pilot projects to promote of HNV permanent crops and putting livestock on the agenda.	Rebalance policy schemes and more globally rural conditions in favor of HNV farming systems.	Rebalance policy schemes and more globally rural conditions in favor of HNV farming systems.
Know -ledge	Is there existing expertise/data/ knowledge on habitats and biodiversity in your territory?	Yes, quite a bit, but prob with gaps.	Yes, mainly in the form of existing expertise and on scientific papers (or reports and thesis) produced by different research institutions that use the LA, or part of it, as case study. In the scope of the Sectorial Plan for Natura 2000 network, cartography of habitats was also produced.	Yes.	Yes, there is some data/knowledge on the present situation of habitats and biodiversity; We can also mobilize existing expertise. If the data is missing field research will be carried out. Data about habitats and biodiversity in dynamic are missing.	Yes – in the form of some existing synthetic documents and expertise, but scattered amongst the different institutions and administrative bodies.

		Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
	Practically, what is your estimate of the effort to carry out the baseline assessment in your learning area? *	Mostly 1 or 2, some 3 as info not organized/conceived in the context we need it.	For the major part of the assessment will be a mixture between: most data and analysis already exist but are scattered and it is mostly a matter of data collection, preparation and output, and some fields of analysis need further investigation in the course of the assessment.	Some fields of analysis need further investigation in the course of the assessment.	Some fields of analysis need further investigation in the course of the assessment.	Most data and already exists, but some fields need further investigations, data collection, preparation and output.
Power	Generally speaking, would you say that biodiversity conservation is a priority for most	Yes, in principle, but often mindsets are subconsciously influenced by the dominant agricultural narratives which may work against this objective	Generally speaking, biodiversity conservation is A priority, but not THE priority for most stakeholders. In a survey conducted in Monfurado, only	The possibilities for agriculture are in favor for biodiversity conservation regardless of the stakeholder's priorities as the biophysical	Biodiversity conservation is a priority for several stakeholders like: Lepidoptera NGO (Natura 2000 custodian); Environment agency; The local	The majority of the influential actors are not in favor of farming activities for biodiversity conservation (except for subsidies). The few innovative

		Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
	stakeholders in the LA?		20% of the land managers expressed the conviction that their land should be managed for multifunctionality while the remaining expressed clearly productivist goals (Pinto-Correia and Godinho, 2013).	constraints of the islands don't give much opportunity for extensive farming activities and as the isolation of the islands raises the cost of traditional farming activities.	authorities are favorable to more intensive farming activities and other rural economic sectors; the same demands come from the local population.	farmers/residents in favor of biodiversity are working against the tide.
Anchoring	Is HNV Link as a project already identified as a promising initiative by influential actors in the LA?	Yes. Maybe – issue is that data is not presented on local basis any more. Yes, maybe The LA is seen to lead on innovation that has a relevance throughout UK.	Yes, the actors that are officially responsible for the institutional management of the site (Municipalities of Montemor-o-Novo and Évora) and also DRAPAL (the regional structure of the Ministry of Agriculture) are engaged and supportive with HNV-Link.	HNV-Link as a project is announced and perceived as a project for the preservation of agriculture in south Dalmatian islands that will link islander farmers closer to one another and foster a creation of a first European Innovation Partnership for	HNV LINK needs to prove its worth. We can expect to obtain active support from same actors like: the Natura 2000 site custodian; the Local action group; several city halls.	No yet – it is a project that needs to prove its worth.

	Dartmoor	Sitio de Monfurado	Dalmatian Islands	Eastern Hills of Cluj	Western Stara Planina region
		Furthermore, a significant amount of research has been conducted at ICAAM-Universidade de Évora over the years in close alignment with key stakeholders from and related to the LA representing sectors and communities such as farming, policy and advisory services and the agricultural and forestry industry.	Agriculture in Croatia. The national partners in the project are committed to give impetus to HNV innovation in the entire LA of Dalmatian islands by communicating it directly to local, regional and national stakeholders.		

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1. Most data and analysis already exist and are centralized and it is mostly a matter of data preparation and output
2. Most data and analysis already exist but are scattered and it is mostly a matter of data collection, preparation and output
3. Some fields of analysis need further investigation in the course of the assessment
4. Most fields of analysis need further investigation in the course of the assessment
5. Other

Table A3.2 Description of the engagement situation in each learning area, before the visioning exercise (part B)

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
Innovation Brokers	Who is the champion of HNV initiative?	County Administrative Board	Agricultural extension agency along with National Park	University of Thessalia	Environmental NGO along with territorial syndicate and National Parc	Environmental NGO along with small farmers association
Anteriority	Is there already an HNV innovation process in the LA, labelled as such. To what type of situation does it refer to?	We would describe the situation as a mix of the first three examples above.	Innovation process already an old enough story	The innovation process is a work in progress. The main issues that are addressed are: (a) How the qualifying extensive production system can be interlinked with the market? (b) How the qualities and the values of an extensive production system could be supported through their recognition by the markets? (c)	The innovation process is a work in progress	NO

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
				What new organizational forms can support the above objective and enhance the anchorage of resources?		
	How old is it? Who is/was at the origin?	About 15 years. Some private landowners, keepers, along with a few people on the Swedish Forest Agency and the County Administrative Board.	Origin was EU LIFE Nature project from 2004-2009- BurrenLIFE and preceding research from 1998. Expanded into Burren farming for conservation article 68 programme 2010-2015. 2016 became Locally Led Burren Agri-Environment Programme.	The first is approximately 4 years old, the second 2 years old and the third has just been planned. This innovation has been developed within the context of a European project (LACTIMED).	not informed	not applicable
	Does it cover the	It covers the whole LA, but we only	Open to farmers across LA but	It covers only a part of the LA but at the	not informed	not applicable

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
	whole LA or only a part of it? Does it give a comparison?	have resources to work intensively on a few per mille of the area.	number of applicants restricted due to available resources. Dissemination reaches farmers across LA and beyond.	same time it incorporates the relations between these areas and the adjacent plain.		
Responsiveness	Main message for HNV conservation	There is a need to coordinate actors and to raise awareness for HNV conservation	The Burren is a national heritage, its encroachment is a loss. Farmers are the best managers and can value winterage. Both nature conservation and farm economy expertises are required.	The mountains of Thessalia have a natural and heritage value. They are presently re-invested by new farmers willing to develop activities in the context of crisis and strong social demand. Local authorities can accompany and better manage this momentum.	Pastoralism is a word heritage, there is a need to conserve livestock, to the extent it stands on continuing pastoral practices.	The pastoral economy is collapsing, this leads to loss in terms of landscape and ecosystem services (forest fires).

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
	The issue is to…	Initiate pilot projects: promotion of local HNV farms as "germs".	Continue the sound approach of the Burren programme and expand it: maintaining the flame.	Formalize a charter and a proper space management planning engaging local and regional authorities for the reconquest of mountainous villages and farmland: Managing the spatial development of the area.	Strengthen extension for extensive livestock: rebalance policy schemes in favor of HNV farming systems.	Urgently redirect payments towards pastoral farms and address the hygiene rules hampering the development of cheese selling: Give hope to extensive goat farmers.
Knowledge	Is there existing expertise/ data/ knowledge on habitats and biodiversity in your territory?	A mix of "In the form of existing synthetic documents" and "In the form of existing expertise", but still scattered.	Yes, a lot of existing information on the habitat and biodiversity in the area.	There is a large amount of information on the habitats and the biodiversity in the area. The information is scattered and focused mainly on NATURA areas. The sources of this information are:	Yes, a lot from Parc National des Cévennes.	Some data, e.g. on types of habitat and species present. But not on evolution and tendencies, such as the massive process of abandonment of the past ten years, which is not

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
				project reports, policy documents, scientific journals as well as spatial geodata, thematic maps, etc.		recorded in data but is clearly visible in the landscape.
	Practically what is your estimate of the effort to carry out the baseline assessment in your learning area? *	A mix of "Most data and analysis already exist but are scattered and it is mostly a matter of data collection, preparation and output" and "some fields of analysis need further investigation in the course of the assessment".	No answer	While there are data, reports and documents, some fields of analysis need further investigation.	Most data and analysis already exist and are centralized and it is mostly a matter of data preparation and output.	Most fields need further investigation, especially through "social research" to gather expert judgement, i.e. interviews, questionnaires.
Power	Generally speaking, would you say that	Biodiversity conservation is not a priority for most stakeholders in the	The development of farming activities irrespective of biodiversity	Most of the stakeholders in the LA have understood the significance of	Biodiversity conservation is not a priority but very often considered.	No. Yes.

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
	biodiversity conservation is a priority for most stakeholders in the LA?	LA today. But on the other hand, there is a strong interest in these subjects, for example, from land owners and keepers, when the issues are raised in structured dialogues.	conservation is a priority of most stakeholders but it has been realized through the work of Burren LIFE that biodiversity conservation can be a component of farming activity. How much biodiversity conservation is a priority on individual farms is variable and is potentially influenced by a range of factors.	the biodiversity and are indirectly in favor of the conservation of the biodiversity, retaining the extensive livestock production systems.		
Anchoring	Is HNV Link as a project already identified	We believe that HNV LINK has to prove its worth. A few actors knew about the project,	As yet the project is unknown (apart from some media pieces around launch) outside a small circle	There is already an actor's network with which we have a communication and an interactive	The project is identified by administrative structures, but mostly not by the "field actors". We need to prove its worth to	No. Needs to prove its worth. Not quantified data, but expert opinion yes.

		Västra Götaland	The Burren	Thessalia	Causses et Cévennes	La Vera, Extremadura
	as a promising initiative by influential actors in the LA?	and some of them can support data provision. But most of the actors doesn't knew about the project yet.	of key actors identified in the application at the moment. There will be active support from these key actors and from experience of other projects there is very much a realisation that you get out what you put in! The LA partner has built up a strong support network in the LA and is a trusted organisation which will lead to support from other actors.	exchange of information since 2000. In light of the above mentioned, the active support of the actors within the LA is considered certain.	have full active support from actors.	University might help in providing data. Local agrarian advisory services might provide anecdotal information. For meetings, new association of graziers might be helpful, also the association of Verata goat breed, the Milk Co-operative.

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1. Most data and analysis already exist and are centralized and it is mostly a matter of data preparation and output
2. Most data and analysis already exist but are scattered and it is mostly a matter of data collection, preparation and output
3. Some fields of analysis need further investigation in the course of the assessment
4. Most fields of analysis need further investigation in the course of the assessment
5. Other