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A qualitative approach to study social perceptions and public policies in *dehesa* agroforestry systems

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ABSTRACT

Agroforestry systems, which include woodlands, pasturelands and various livestock species, are multifunctional systems that must be productive in order to guarantee their conservation, as well as their provision of services such as the maintenance of the landscape and/or cultural uses.

These systems generate commercial and environmental values, which are not always perceived by the society. It is therefore necessary to analyse the value society places in agroforestry systems, with a special focus on the *dehesa* system as a paradigmatic example.

The information has been obtained from 4 focus groups organised in Badajoz and Caceres (Spain) in May/June 2015. The discussions involved 35 people with an even distribution of age and gender being sought for each group.

The results of the study revealed a lack of citizen familiarity with the agroforestry system, as well as of the services it supplies, besides those that are purely associated to food production. Other key findings were the low importance given by the consumers to the item "production system" – a key aspect in order to valorize the products derived from these systems – as well as the difficulty perceived by the citizens in finding a compensation for the proprietors of these systems as suppliers of ecosystem-related services.

In summary, it has become clear that it is necessary to implement specific policies and complement the existing ones so that system proprietors can be financially remunerated for the services supplied to the society, although citizen awareness must also be reinforced so that they become conscious of the goods they receive from the agrosystems and therefore understand their value.

1. Introduction

Agroforestry systems are characterised by the mixed handling of the natural resources, where the woodland (trees, shrubs, etc.) is used together with pasturelands, crops or livestock. Depending on the predominance of each element, an array of various systems can be originated with more or less agricultural or livestock farming vocation (Cubbage et al., 2012; Haile et al., 2010; Mosquera-Losada et al., 2009). The integration of the woodlands, pasturelands and the various livestock species create systems which need to be productive at the same time as assuring their conservation or environmental protection (Smith et al., 2013), without forgetting the maintenance of the landscape and/or the uses of cultural nature.

These systems generate environmental benefits such as the prevention of pastureland degradation, the improvement of land fertility due to the introduction of livestock, the exploitation of marginal resources and the increase of animal welfare due to shelter provided by trees (Kremen et al., 2012; Kremen and Miles, 2012; Nair et al., 2009; Smith et al., 2013).

One of the most representative agroforestry systems in Europe is the *dehesa*, situated in the southwest of the Iberian Peninsula and characterised by the use of large pasturelands in wooded areas. These production systems stand out for their high environmental and socio-economic value (Escribano et al., 2001), where livestock farming activities play an essential role in their maintenance and conservation.

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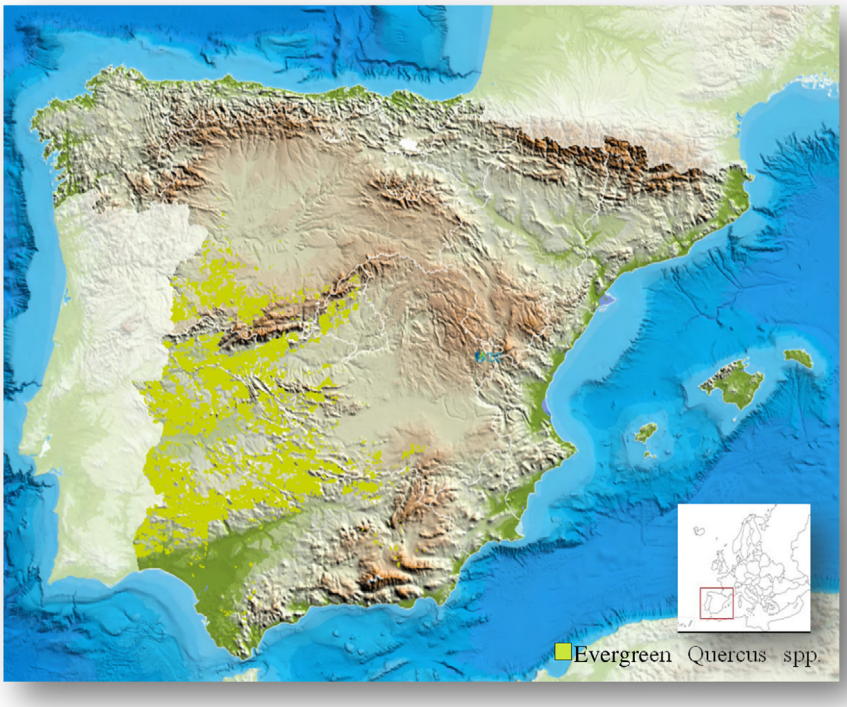

Fig. 1. Location of the *dehesa* areas in Spain.
Source: National Spatial Data Infrastructure of Spain (www.idee.es)

The *dehesa* occupies 5.8 million hectares in Spain (Gaspar et al., 2008) and it is a system requiring human intervention for its maintenance, as the lack of use of the herbaceous layer derives in shrub invasion with the subsequent degradation of the ecosystem (Horrillo et al., 2016). Fig. 1 shows the distribution of the *dehesas* in Spain.

The predominant wooded species belong to the Quercus genus (Quercus ilex (80%) and Quercus suber). These systems offer low productivity due to extreme weather and scarcely productive soil, with low organic matter content (Schnabel et al., 2013).

From the economic point of view, livestock production based on the farming of autochthonous breeds constitutes the main source of income for the *dehesas*. These breeds are able to efficiently use the natural resources (pasturelands, acorns, shrubs, etc.) when grazing, additionally generating high-organoleptic quality products. The diverse use of these resources by the various livestock species (cattle, sheep, pigs and goats) contributes to farm multifunctionality (Gaspar et al., 2007).

Dehesas are also a fundamental component of regional identity and have been valued at an international policy-making level for their biodiversity, aesthetic qualities and potential for tourism and recreation. In this sence, these systems are among the best preserved low-intensity farming systems in Europe (Moreno and Pulido, 2009) and in them the integration of traditional land-use and biodiversity conservation is considered an exemplary land use management.

Fig. 2 shows the main production characteristics of the *dehesa* where an adequate use of the land may enable the simultaneous presence of commercial and non-commercial functions which guarantee its conservation.

As Fig. 2 shows, these systems' productive framework is complex, as they have commercial and environmental values (ecosystem services[1]) which are not always perceived by society, although it is the citizens who most enjoy them. In this sense, the role of public policies in agroforestry systems becomes essential. These must satisfy the demands of society at the same time as being deemed as adequate by the product and service suppliers. It is therefore necessary to be familiar with the Society-Agrosystem-Policies relationship if the service supply and the system's maintenance are to be ensured.

It is widely known that the development of rural areas has become a key point of social and agricultural policies. Dehesa systems are supported by the EUís rural development policies since they play an important role in the conservation of traditional landscapes and ecosystems (Escribano et al., 2015). Such support schemes should be improved in order to reward systems that produce positive social and environmental externalities (Manos et al., 2013).

Environmental and land use management should be taken into account when designing agricultural policies. In this regard, CAP subsidies should be better adapted to both local conditions and current management practices especially in sensitive ecosystems strongly dependent on rural society Additionally CAP cross-compliance could be reinforced and subsidies reassigned in systems with low productivity but providing high environmental services in order to take into account the positive externalities they create (Franco et al., 2012; Horrillo et al., 2016)

[1] Ecosystem services are the direct and indirect contributions of ecosystems to human well-being (TEEB, 2010). They can be categorized in four main types: (i) Provisioning services are the products obtained from ecosystems such as food or fresh water, (ii) Regulating services are the benefits obtained from the regulation of ecosystem processes such as climate regulation or water purification, (iii) Habitat services highlight the importance of ecosystems to provide habitat for migratory species and to maintain the viability of gene-pools and (iv) Cultural services wich include non-material benefits that people obtain from ecosystems such as recreation and aesthetic values.