

Sheep Grazing in the Holm Oak forests (Dehesas) of Cuatro Lugares, Spain: situation, problems and possible solutions from an ecological and socio-economic point of view

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Introduction

Approximately 3.5 million hectares of the Southwest of the Iberian Peninsula are covered with grasslands and scattered trees (dehesas). Dehesas have been created by an agro-silvopastoral land-use over centuries. Extensive grazing and arable cultivation under a thin layer of Holm Oaks (*Quercus ilex*) and Cork Oaks (*Quercus suber*) are rotated.

Area of Investigation

The study area “Cuatro Lugares” is situated in Extremadura, Spain. It is an “Objective 1 region” as well as a “less favoured area”. Fifty-six percent of the working population are employed in livestock farming, mainly with sheep and cattle. The dehesas of Cuatro Lugares have a strong importance as breeding an area for globally endangered species like the Spanish Imperial Eagle (*Aquila adalberti*). The study aimed to answer the questions:

- a) Does the actual pattern of vegetation of the dehesas in Cuatro Lugares agree with the ideal for conservation,
- b) which management practices do farmers apply in sheep husbandry and commercialisation, and
- c) how can farming in accordance with conservation be guaranteed by means of public programmes and marketing strategies?

Methods

Mapping of the dehesas was carried out by means of aerial photographs. The dehesas were cartographically overlapped by land register maps in order to describe the structure of land property. On eight farms (fincas) we made an inventory of vegetation. On the same fincas we carried out interviews with the farmers about their agricultural practices as well as their socio-economical situation. We obtained further information through an evaluation of average statistics and the literature as well as through discussions with experts.

Considerable parts of the dehesas of Cuatro Lugares are in public property. The Holm Oaks (*Quercus ilex*) have a very unbalanced distribution of age classes. The traditional raising of free-ranging pigs has declined. Livestock, as sheep and cattle, have increased. Local breeds, like the Merino sheep, are still highly relevant. Farmers gave up traditional practices like

shepherding and transhumance and are dependent on externally produced forage. They produce lamb in a semi-intensive way and commercialise mainly by a local co-operative directly to the national centres of consumption.

Central threat to the continuity of the dehesas is the gradual clearing of Holm Oak stands and an intensification that expels sustainable agricultural practices. The clearing of stands is especially caused by an insufficient public promotion of pruning and natural regeneration, a decrease of interest in the products of the tree layer (e.g. acorns as forage for pigs), an increased mechanisation of tillage, and a large increase in livestock densities.

Intensification is reflected in increased input of energy and matter, replacement of indigenous breeds by highly productive breeds, concentration of land use on one or two livestock species, that are less adopted to the natural site potentials of dehesas (e.g. cattle instead of sheep) and the abandonment of elements and practices of cultural landscapes such as traditional stonewalls and shepherding.

Possible Solutions

Due to its large stands of dehesas with high nature conservation value and due to the economic significance of animal husbandry, we suggest the establishment of a model project for dehesa conservation in Cuatro Lugares. The guiding principle should be the development of large dehesas with characteristic flora and fauna as well as a high diversity of land use types and places of work.

As a first step, dehesa-farms could even today transform to ecological agriculture or take part in agri-environmental programmes. Common initiatives in Cuatro Lugares could develop projects, such as an ideal management of *dehesas boyales* (dehesas in public property) or an added-value marketing of dehesa-products under a quality label with conservation criteria. On a larger scale a new design of agri-environment and afforestation programmes specifically for regions and habitats is required as well as a basic conservation-based reform of the Common Agricultural Policy (CAP) of the EU. In the long run we recommend the institution of a biosphere reserve in order to harmonise conservation and regional development.