

22 THE COMMON AGRICULTURAL POLICY AND RURAL LANDSCAPE CHANGES: THE EXAMPLE OF CARCHELES, JAÉN, SPAIN

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INTRODUCTION

The European Union Common Agricultural Policy (CAP) and its subsidy measures are largely responsible for the reduced biodiversity in Mediterranean ecosystems. This paper analyses the inevitable increase of olive plantations, a true monoculture today, *versus* the marked recession of other crops and of the original landscape, both of which have resulted in considerable landscape uniformity and simplification of Mediterranean ecosystems.

There is great biodiversity in olive orchards which are exploited by using traditional methods. The structural diversity in this type of land use (trees, weeds, wild plants, stone walls of terraces, etc.) allows habitat and community diversity. Traditional non-extensive olive orchard farming brings significant environmental benefits, especially in mountainous regions, but the CAP subsidies neglect these systems to favour more environmentally aggressive exploitation systems. Thus, traditional olive growing must either give way to intensification (and hence increased production and more subsidies), or else be abandoned. Both outcomes lead to loss of ecological value. Rationalization of olive tree growing has led to substantial tree replantation of century-old olive orchards. Since replantation is usually accompanied by removal of any remaining wild vegetation, stony patches and traditional field-boundary stonewalls, substantial habitat loss and erosion of the olive orchard's "ecological infrastructure" take place (Kabourakis, 1999). The expansion of new olive plantations in the major producing areas over the past few years has been achieved at the cost of turning Mediterranean forests and wildland into farmland, even in protected areas such as the Subbetic Sierras Natural Park in Andalusia (*Parque Natural de las Sierras Subbéticas*, WWF and BirdLife International, 2001). These habitats are extremely valuable, for they provide diversity to a landscape already dominated by intensive olive plantations. Olive tree growing has also replaced other agricultural uses of land that brought landscape diversity in rural areas. A particularly outstanding example of this has taken place in traditional cereal-growing areas in the provinces of Córdoba, Jaén and Málaga in southern Spain.

This paper examines the CAP in detail and its impact on olive tree growing, and describes a representative example of the process described above, namely, that of the village of Cárcheles. As will be explained, the expansion of olive plantations that has taken place in Cárcheles illustrates the three assumptions explained in this introduction and can be directly imputed to the CAP.

THE INFLUENCE OF THE CAP ON THE EXPANSION OF OLIVE PLANTATIONS

Since 43% of the European budget goes to the CAP, we may safely say that, together with Rural Development programmes, it is the cornerstone of the European Union, its centre of gravity and the key to its evolution and dynamics (Molinero, 2003).

In 1966, the Council of the European Economic Community, within the framework of the CAP, approved the regulations concerning the common market organization for olive oil. This breakthrough became all the more important after Spain joined the European Union and resulted in far-reaching economic, social and landscape changes. Spain's olive oil production has increased nationwide since then, very particularly in the province of Jaén, where olive tree growing has become the main agricultural land-use, effectively taking 100% of the cultivated land in certain parts (Araque, Gallego and Sánchez, 2002).

This unprecedented spread of olive plantations was caused by the CAP regulations, which established guaranteed minimum prices above world-market prices, as well as direct financial subsidies to olive oil production and consumption.

In this context, it was in the farmers' interest to produce as much as possible and benefit from all the European support policies, so that, since the mid-80s, olive tree plantations have boomed at the expense of other land uses, particularly cereal and forest farming. The spread of continuous plantations was favoured even further by the introduction of irrigation on most farms, which in turn has led to more regular and better quality crops, and to increased land prices.

The implementation of this subsidy policy for years has improved the quality of olive oil, boosted the region's economy, and created equilibrium in the international market. The downside, however, has been an unprecedented expansion of olive tree plantations and the subsequent negative environmental effects of a monoculture system.

Olive plantation expansion has continued to this day despite the gradual subsidy cuts introduced at different reforms of the CAP. These reforms have reduced the maximum amount of olive oil eligible for support and abolished consumption subsidies, so that today only olive trees planted before 1st May 1998 are eligible to receive aid.

Nevertheless, the amount of land devoted to olive tree growing keeps spreading and olive production is the main agricultural sector in the province of Jaén and, more particularly, in the village under study. This has had a disastrous effect on the

environment, mainly because of the loss of topsoil as a result of the cultivation techniques used.

In this context, early in 2005 the European Union adopted a series of measures in the reform of the CAP aimed at meeting the requirements of Agenda 2000, that is, having a more competitive and market-oriented European agriculture, so that the agricultural budget may be more evenly distributed among a higher number of countries and farmers, thus anticipating the accession of the 10 candidate countries. The aim was to make the CAP more consistent with the objectives concerning sustainable development strategies adopted at the European Council meeting in Göteborg in 2001. It was agreed that the CAP was to contribute further to sustainable development by emphasizing the promotion of healthy, high-quality foods and environment-friendly production methods. However, olive-tree growing does not seem to meet these objectives: the new proposals encourage farmers to remove the thin vegetation cover under and between olive trees, which results in increased erosion and soil degradation. This practice benefits only intensive olive plantations, but is absolutely blind to the real needs of our agriculture and constitutes a threat to the preservation of traditional and quality cultivation methods.

THE STUDY AREA: CÁRCHELES

The municipality of Cárcheles (Carchelejo) is located in the south-southeast of the province of Jaén, to the SE of the province's capital city (Fig. 1). Cárcheles belongs to the Subbetic Mountains of the Betic Range. Most geological structures run in a northeast-southwest direction (folds, faults, overthrust faults), with Triassic and Quaternary outcrops. Cretaceous and Jurassic materials (limestones, marls, dolomites) are dominant in the southern section, whereas the Triassic materials (clays, marls and gypsums) and Tertiary materials (breccias and conglomerates) are found mainly in the northern section. Some alluvial deposits in fluvial and colluvial beds at the foot of certain mountain ridges complete the remaining landscape (ITGE, 1992 a, 1992 b).



Figure 1: Study area (source: in-house figure).

As for the climate type, the study area is Mediterranean-Subtropical, though affected by altitude: distinctive features of mountain climate apply, especially in the higher areas. Rainfall ranges from 600 to 1000 mm/year depending on the altitude, and is irregular with long dry summers. The hydrographical network comprises the river Guadalbullón, which marks the eastern limit of the municipality. It drains to the north to the Guadalquivir River. Given its peripheral position within the municipality, its tributaries come from the left: the gullies of Cazalla, Salado or Parrilla, with seasonal low-flow values.

Two main ranges flank Cárcheles: La Pandera (1872 m) to the west and Mágina to the northeast (2167 m), both outside its administrative limits. Altitudes within the municipality are moderate: approximately 1200 m in the south and slightly above 1500 m in the west-northeast (1566 m, Cuello de Ventarique). The eastern border is marked by the river Guadalbullón and has the lower altitudes, slightly below 600 m in the northern section. The two population centres, Cárchel (798 m) and Carchelejo (801 m), stand in-between on moderate slopes. By contrast, the southern and western sectors of the municipality have steep slopes (up to 60%), even though they do not reach

outstanding altitudes. Between these ridges and the river Guadalbullón lie inclines ranging between 10% and 20%. However, stream courses cutting deep into them increase local steepness values. To sum up our topographical description, this is a very rugged region and qualifies as a typical example of a mountain municipality, where traditional olive tree growing permitted rich ecological and landscape diversity.

THE EVOLUTION OF LAND USE BETWEEN 1975 AND 2003

Materials and methods

In order to determine land use at the beginning of the period under study (1975) we have used maps of the Ministry of Agriculture (*Mapas de Cultivos y Aprovechamientos del Ministerio de Agricultura*), scale 1:50000, specifically pages 947 (Jaén) and 969 (Valdepeñas de Jaén) (Ministerio de Agricultura, 1977 and 1979), with cartographic data for the years 1974 (page 947) and 1975 (page 969). For the last year under study, 2003, we have used fieldwork data collected in the spring of 2003, complemented with the latest available aerial photographs of the area (May 1994, *Junta de Andalucía*, approximate scale 1:20000). It should be pointed out that, because agricultural policy greatly affects changes in land use, the period from 1975 to 1994 shows very noticeable changes, while 1994 to 2003 shows only minor ones.

Land use configuration

The situation in 1975 (Fig. 2) reveals a neat division of the municipality of Cárcheles into two clearly different sectors, north and south of the village of Carchelejo, which is located near the geographical centre of the municipality. The boundary line between the two types of land use runs in an east-west direction on both sides of the village. To the west there is an elongated area with scrubland, pastures and scattered trees. To the east, a road links the village to the Jaén-Granada motorway, which runs along the bottom of the Guadalbullón valley, the eastern limit of the municipality. North of the boundary line (northern sector), the predominant land use is olive tree growing with patchy pastures, scrubland and occasional trees. There is, however, one major exception: the eastern third of this sector is taken by a large area of mountain pastures and scrubland (located in the heights and the eastern slopes of the Ventarique, Fresno, Palomares hills...).



Figure 2: Land use, Cárcheles, 1975 (source: MAPA. in-house figure).

South of the boundary line (southern sector), the landscape changes: a continuous stretch of unirrigated land devoted to cereal growing reaching as far as the mountain limits of the municipality, especially in the south and west, which are taken by sizeable areas of woodland, scrubland and pastures.

The situation in 2003 (Fig. 3) is substantially different: most of the cereal farms are gone (only isolated spots remain). The large cereal patch located south of Carchelejo in 1975 has been replaced almost exclusively by olive trees. Thus, while the northern sector barely changed between 1975 and 2003, the southern sector has changed dramatically. Except for this change, the pastures, the scrubland and wooded areas on the western and southern mountains remained unaltered in the main from 1975 to 2003.



Figure 3: Land use, Cárcheles, 2003 (source: in-house figure).

From the point of view of the environment, the spread of olive tree growing produces great loss in biodiversity and increased erosion. Because of the cultivation method used in the area, the vegetation growing around the tree trunk and under the tree is completely removed, so that the soil is left bare. This constitutes a serious problem, since the olive trees in the southern sector are planted on very steep hill slopes (40%) with a very crumbly marl substrate. Besides, though rainfall is irregular, it is often very heavy. There is much material evidence against current cultivation practices: we may still find many remains of the traditional terrace-cultivation system, in which some trees even had their own terrace. This system was better suited to the physical features of the region and has left its stamp in some areas of the municipality with a more diversified landscape.

Thus, the landscape we find today is monotonous. One would expect greater diversity in such a hilly substrate. In fact, local place-names also point to the existence of much

richer vegetation in the past. Today, olive monoculture takes most of the land as far as the western and southern mountains, where further expansion is prevented only by an unfavourable topography: rocky soil and very steep slopes.

CONCLUSIONS

This paper shows how an agricultural policy which is fundamentally based in granting subsidies to some agricultural sectors, and which has financially supported olive tree growing, has actually changed the countryside around the village of Cárcheles and brought almost absolute uniformity to the landscape. This landscape homogenization has resulted in a huge loss in biodiversity, not only because farmers have replaced traditional cultivation practices with intensive ones in order to maximize profits but also because traditional alternative crops have virtually disappeared. This paper also stresses the negative effects of today's monoculture: increased soil erosion caused by new cultivation practices ill-suited to steep terrains. Not only did traditional agricultural methods prevent erosion, but they also allowed greater ecological and landscape diversity, which today seem to have almost but disappeared.

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