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Villafáfila (Castille and Leon-Spain)

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This example demonstrates how a wide range of highly different financial instruments can be applied to the same natural site with the aim of its conservation. Only one of these instruments, LIFE, is specifically designed for this purpose while the rest seek to integrate conservation and rural development, promoting 'green' tourism and local products.

1. Introduction.
2. Socio-economic profile.
3. The agriculture.
4. Ecological importance.
5. Community financial instruments.
6. Conclusions.

1. INTRODUCTION

Villafáfila is situated in the province of Zamora, in the region of Castille and Leon; which with a size three times that of Belgium is the most extensive region in the European Union (94.193 km²). In general terms, the geography of Castille and Leon is characterized as high plateau 900 m above sea level surrounded by mountains, giving it a continental Mediterranean climate

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defined by harsh contrasts, and with the predominance of flat cereal field landscapes.

The 42% of the population (2,5 million people) live in the provincial capitals. The population density of the region is very low, with 27 people per km² (the national average is 77 people per km²). The demographic situation is characterized by ageing and depopulation. During the period 1981-1991 there was a net population loss of 1.4% and in 1986 15% of the population was above 65 years of age¹.

The Villafáfila reserve covers an area of 32.682 ha with an average height above sea level of 700 m. It is characterized by a gently undulating treeless landscape with the predominance of extensive cereal crops. The centre of the reserve is an endorheic basin with a series of seasonal brackish lagoons, comprised by three main lagoons and 40 smaller, which in rainy years can inundate close to 600 ha.

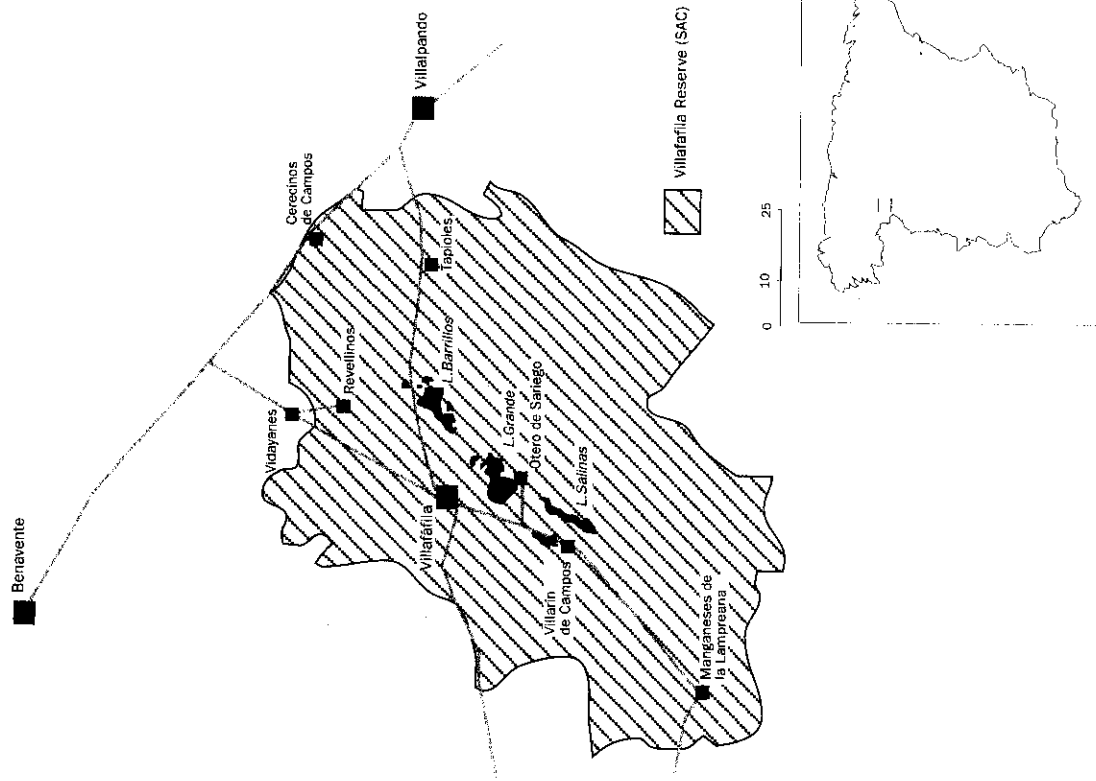
The climate is continental Mediterranean, with very cold winters and hot dry summers, with a mean annual precipitation of 450 mm and a mean annual temperature of 12°C, reaching minimums of -15.6°C and maximums of 45°C.

The lagoon area is of great interest to hunters because of the abundant wintering of water fowl, and in 1972 was designated a Controlled Hunting Zone (2.854 ha). However, the interest of Villafáfila is not limited to the wetlands but is also due to the presence of important Great Bustard (*Otis tarda*) populations, which led to the creation in 1986 of the National Game Reserve of Villafáfila (32.682 ha). In addition to the lagoon area the reserve provided coverage to the important population of Great Bustards in the zone. Subsequently all of the area was designated a SPA under the Birds Directive and the lagoon area a Ramsar site. At present it is in the process of being declared a Protected Natural Site by the regional government of Castille and Leon and has been proposed as SAC.

2. SOCIO-ECONOMIC PROFILE

The human habitat in Villafáfila is intimately linked with the natural environment through the important participation of agriculture in the local economy, the maintenance of extensive agricultural systems which permit the existence of the associated water fowl, and through the local architecture, whose predominant raw material is adobe (a mixture of straw and mud), all of which configures a cultural landscape of great interest.

The population is concentrated in small communities. There are 11 villages with a total of 4.708 inhabitants (1991) within the SAC, giving it a population density of 14 people per km². There are also some isolated cons-



tructions, generally for agricultural use and dovescotes, the latter being traditional structures which give the landscape a distinctive personality. Villafáfila is the largest village with 898 inhabitants.

The demographic tendency is regressive and tending towards ageing, the population having halved since 1960, with a vegetative growth of -9,67 per thousand and more than 25% of the population is more than 65 years of age. The area is eminently agricultural. 57% of the economically active population is employed in the farming sector, which accounts for 50% of family incomes. In 1993 the per capita income in Villafáfila was equivalent to 59% of the Community average².

Though the zone is well communicated, being situated at 15 km from the nearest motorway, and has interesting potential for tourism, these resources are not yet well developed.

3. THE AGRICULTURE

Agriculture, which is the main productive activity of the district, is centred on cereal crops. During the 1960's and 1970's the productivity of the zone was increased by means of landplot consolidation and an increase in the use of fertilizers and agrochemicals. Several irrigation projects were also attempted, but these failed due to the high salinity of the aquifer. A project to drain the lagoons for agricultural purposes was also carried out, and though one of the lagoons was drained in 1972 it was subsequently restored by the Administration in 1988.

At present 81,4% of the SAC is occupied by cereals, with a traditional crop rotation system (one year cultivated, one year fallow), and the only non-cereal crop of importance is dry-farmed lucerne, which occupies some 2.600 ha, i.e. 8,4% of the SAC³ (1988).

Livestock farming is relatively important, consisting above all of extensive sheep farming (43.850 sheep), with maximum densities of 2 head/ha and minimums of 0,2.

4. ECOLOGICAL IMPORTANCE.

Though the potential vegetation of the zone is Holm Oak woodland (*Quercus ilex*) this has been eradicated throughout history, giving rise to an open and humanized habitat with few natural habitats except around the perimeter of the lagoons. There is an interesting community of zooplanktonic crustaceans, with species which are only found in the north of Africa, the Asian steppes and some wetlands in this zone.

Table 1. Habitats and Species of the Birds and Habitats Directive present in Villafáfila

Habitats listed in annex I
8 habitat in annex I, two of them priority habitats:
Salt steppes (Limnietalia)* and Psudo-steppe with grasses and annuals (Thero-Brachypodietea)*

Most significant vertebrate species in the zone according to the criteria of the Birds and Habitats Directive (n.p. nesting pairs, ind. individuals).

Wintering	
Water fowl	
Greylag Goose <i>Anser anser</i>	24.000
Water fowl	maximum 34.183
Crane <i>Grus grus</i>	350
	maximum 800

Breeding	
Avocet <i>Recurvirostra avosetta</i>	15 n.p.
Black-winged Stilt <i>Himantopus himantopus</i>	150 n.p.
Marsh Harrier <i>Circus aeruginosus</i>	5 n.p.

Steppe birds	
Montagu's Harrier <i>Circus pygargus</i>	40 n.p.
Great Bustard <i>Otis tarda</i> *	2.168 ind.
Little Bustard <i>Tetrax tetrax</i>	30-40 n.p.
Lesser Kestrel <i>Falco naumanni</i> *	420 n.p.
Stone Curlew <i>Burhinus oedipnemus</i>	50 n.p.
Black-bellied Sandprouse <i>Pterocles orientalis</i>	50 n.p.

* Globally threatened species⁶, n.p. = nesting pairs
It is interesting the presence of Wolf *Canis lupus* (2 ind.).

The greatest acknowledged ecological importance of the zone is centred on the birdlife linked with the lagoons and above all the cerealistic pseudo-steppes (Table 1), and particularly the population of Great Bustards. This reserve supports the highest density of these birds in the world, with 1.000 individuals during the breeding period and 2.200 during the autumn and spring, reaching densities of 15 birds/km² 45. The importance of the zone for steppe birds is a result of the persistence of extensive crop systems which have permitted the maintenance of a mosaic of land uses vital for the different species, with zones of cereal alternating with uncultivated zones (fallow land, stubble fields and pastures), and of particular importance for the Great Bustard the presence of small areas of dry-farmed lucerne.

THREATS TO THE CONSERVATION OF THE SAC

The main threat to the conservation of the steppe habitats is the gradual abandonment of traditional farming practices, generally motivated by pressures of the CAP which promotes agricultural intensification and gives priority to cereal crops over dry-farmed lucerne. This implies the gradual disappearance of the mosaic of land uses and the abandonment of the cultivation of dry-farmed lucerne, vital for the Great Bustard. These changes, scarcely perceptible to the untrained eye, simplify the habitat and lead to the disappearance of the most sensitive species.

Among the threats to the wetland are the gradual silting up of the lagoons due to the erosion of crop fields. Though this is a natural process in all endorheic lagoons, it has accelerated since the 1970's in Villafáfila as a consequence of landplot consolidation which eliminated the boundaries between fields, which until then acted as a brake to erosion. It is estimated that the average depth of the main lagoon in the 1940's was 10 metres, which by the 1960's had been reduced to 4-5 metres and at present is 30 cm⁷.

Other threats to the SAC are the new irrigation projects envisaged in the Regional Irrigation Plan, which will affect a part of the SAC, the construction of a golf course in the interior of the SAC and the impact of uncontrolled tourism. Though a threat has not yet been identified, the gradual abandonment of agriculture due to the ageing of the population and the increasing importance of the services sector could condition the long term viability of the zone.

5. COMMUNITY FINANCIAL INSTRUMENTS.

STRUCTURAL FUNDS OBJECTIVE 1

All of the region is included within Objective 1, and therefore Community co-funding covers up to 75% of investments. During the previous program-

ming period (1989-93) the EAGGF-O Operational Programme for Castille and Leon was oriented in Villafáfila toward the improvement of rural roads and village infrastructures (paving, street lighting, etc.).

In the present programming period (1994-99) Structural Fund investments in Villafáfila come from the Operational Programme for Castille and Leon "Agriculture and rural development" with budget from the EAGGF. Within this Operational Programme there is a measure entitled "Conservation of biodiversity, natural spaces and wildlife" whose objective is to preserve biodiversity by means of the creation of a network of protected natural spaces and the conservation and recovery of species, for which it is intended to link conservation and rural development. The socio-economic impact pursued by this measure, as described in the Operational Programme, is the maintenance of the population in protected areas, which tend to be the most depressed areas in the region, the improvement of quality of life and the application of a model of sustainable development⁸.

To this end, the investments envisaged in Villafáfila are aimed to integrate conservation and development, with the largest investments destined to obtaining greater knowledge of the ecological processes necessary to conserve the zone and to providing infrastructures for the promotion of orderly 'green' tourism (Table 2).

Structural Fund investments in Villafáfila have been made in coordination with the INTERREG initiative, which since 1995 has taken over the investments in the zone.

Table 2. Objective 1 Structural Fund investments in the Villafáfila reserve during the programming period 1994-1999.

Project name	Total investment (ECU)	Year
Demarcation of areas in the agr-environment programme	3.164	1994
Census of nesting harriers (<i>Circus</i> sp)	6.226	1994
Sedimentological and limnological study	35.396	1994
Radio-tracking of Great Bustards (<i>Otis tarda</i>)	60.167	1995
Construction of a bridge in the wildlife park	16.936	1994

1 ECU = 159 pesetas

Source: Data from monitoring reports of the operational programme.

INTERREG

The INTERREG II initiative for transboundary cooperation between Spain and Portugal is constituted in the form of an Operational Programme and

Table 3. INTERREG II investment programme in Villafáfila reserve (1995-1999)

Project	Total budget (ECU *)
Infrastructures for public use	6.140
Water management infrastructure in the artificial lagoon	4.085
Infrastructures of the Reserve	56.920
Nature information centre (construction)	137.206
Nature information centre (adaptation)	138.365
Improvement of waste water treatment systems	100.629
Adaptation of dovecoats	31.446
Reconstruction of a roman bridge	9.434
Reconstruction of dovecoats	125.786
Study of the impact of combine harvesters on birdlife	6.289
Limnological study	50.314
Construction of a traditional pelota court	157.232
Recreation area	9.433
4WD vehicles	44.025
4WD vehicles for feeding birds	106.918
Total estimated cost of investments in the Reserve	968.553

(*) 1 ECU = 159 pesetas

Source: data from monitoring reports of the operational programme.

incorporates a measure known as protection of the natural heritage, whose objective is to achieve a balance between nature conservation and the development of tourist capacity. 73% of the total investment comes from Community co-funding, mostly from the ERDF. This measure has been applied in Villafáfila since 1995 to replace the activities co-funded by the EAGGF-O Operational Programme. For this reason, the funded projects pursue the same objectives, i.e. in-depth ecological studies for the conservation of the SAC, restoration of elements of the cultural landscape (dovecoats and roman bridge) and providing the zone with the infrastructures necessary to receive "green" tourism (Table 3).

This aspect is of great interest as until just a few years ago Villafáfila was only visited by ornithologists, and it is intended to stimulate the development of the zone by trying to attract a broader and less specialized tourism but which also goes in search of nature. To this end an area of 24 ha has been prepared, including a lagoon, with different infrastructures destined to attract non-specialized visitors while dissuading visits to the more fragile

zones in the reserve and offering added value to the visitor. The infrastructures include a reception centre, in which an explanation about the history, interest and ecology of the reserve is provided, a car park, and a long itinerary visiting 8 observatories in the form of dovecoats in the area around the lagoon, from where it is possible to observe the different species of water fowl characteristic of the zone.

As a result of this the area is now attracting "green" tourism which did not previously visit the zone and which contributes to the revitalization of the local economy. The number of visitors to Villafáfila has risen from 30.000 in 1993 to 60.000 in 1996. A cooperative has been created to run the attractions in the Reserve, providing employment for 5 people, and new jobs have been created in the hotel and catering sector.

THE AGRI-ENVIRONMENT PROGRAMME (REGULATION 2078/92/EEC)

Since 1993 Villafáfila has been included in the scope of the "Zonal Programme for steppe birds in Castille and Leon", which covers a total of 1.190.762 ha. The objective of this programme is to promote agricultural systems compatible with the maintenance of steppe bird populations and more specifically the Great Bustard (*Otis tarda*). This species is threatened at world level and has its main bastion in Spain where there are 17.000-19.000 individuals, 40% of the world population. The greatest density in the world is found at Villafáfila.

Table 4. New types of contract in the Zonal Programme for steppe birds in Castille and Leon.

Basic menu
Increase in fallow areas
Improvement of fallow land
Improvement of pastures
Reduction in use of fertilizers
Creation of margins and copses
Complementary environmental measures
Abandonment of land for 20 years
Planting of species of conservation interest

For the application of the steppe programme there are a series of measures destined to maintain and foster certain practices. Until 1997 the programme had 4 options, and in Villafáfila a basic menu with greater environmental demands was applicable due to its status as a priority zone. During the 1996-

97 campaign 16% of the reserve was covered by the programme, and though it is still early to evaluate the results it seems to be insufficient to prevent the abandonment of the cultivation of dry-farmed lucerne.

At the end of 1997 the programme was reviewed, simplifying the options which were reduced to 3 and promoting interest in the cultivation of dry-farmed lucerne by means of its inclusion in contract 4 with the maximum permitted subsidy (293 ECU/ha), making this option competitive with other CAP subsidies (Table 4). The programme is open to farmers who commit themselves to fixed practices for a period of 5 years or to abandon their lands for environmental purposes for a period of 20 years. Current take-up in the Villafáfila SAC consists of 4,324 ha under the basic menu, 35 ha under the land abandonment option and 89 ha under the option for planting species of conservation interest.

THE FORESTATION PROGRAMME (REGULATION 2080/92/EEC)

The forestation programme is applicable in the zone, and in fact at first aroused greater interest than the agri-environment programme. Though applications for reforestation in the Reserve were made during the first year, these were rejected by the regional environmental authorities in view of the ecological importance of the semi-steppe character of the zone.

LEADER II

The SAC is included within the scope of the LEADER programme "Tierra de Campos", which covers an area of 1,892 km² and affects 23,624 people.

Table 5. Main lines of action of the LEADER programme Tierra de Campos (in MECU)

Creation of rural development and innovation centre	1,36
Vocational training	0,68
Promotion of rural tourism and 'green' tourism	4,76
Support to SMEs and crafts	2,04
Valorization of agricultural products	3,40
Conservation of the natural and rural environment	1,15
Total	13,40

This programme is managed by a Local Action Group located in the village of Villafáfila and participated by local administrations, agricultural trades unions, associations and business organizations. The LEADER objectives are centred on supporting rural development through 'green' tourism,

the promotion of SMEs and the valorization of agricultural products. 25% of the investment is earmarked for conservation and environmental improvement (Table 5). However, given the recentness and the ongoing character of the programme, it is still early to evaluate its effects on the SAC.

The projects which have been presented to date are oriented towards the development of tourist infrastructure (hotels and restaurants), the promotion of local production (cheese, pigeon meat) and support to small businesses (craft shops, agricultural warehouses). In the environmental field the projects seem to be centred on the reconstruction of dovecotes, which constitute important landscape elements. At the time of writing a new restaurant had been opened in Villafáfila as well as a small hostel, the only one in all the Reserve.

LIFE

In September 1996 the Commission approved a LIFE project whose main objective was the conservation of the Great Bustard in Villafáfila. The project envisages the application of measures to complement the agri-environmental programme (Regulation 2078/92), including the purchasing of land to maintain the cultivation of dry-farmed lucerne, management work and equipment (Table 6).

Table 6. LIFE project in Villafáfila¹⁰

	ECU
Acquisition of land (purchase)	332,278
Management	31,645
Equipment, personnel, etc.	98,101
Total budget	460,000

1 ECU = 158 pesetas

6. CONCLUSIONS

- Conservation in Villafáfila can be seen to be intimately linked with the balanced rural development of the zone, in which the human factor plays a fundamental role. The region's development authorities have interpreted protected areas as a set of resources and possibilities rather than a limiting factor, and Villafáfila is a good example of this.

- Advantage is being taken of the different opportunities offered by Community funds to conserve the zone through two clearly differentiated types of actions: on the one hand developing strictly conservation actions on

the habitat, including research activities, and on the other hand fostering the maintenance of the population by promoting a type of rural development which valorizes the endogenous potential of the zone - 'green' tourism and local production. These two strategies are connected through the promotion of traditional agricultural practices compatible with the natural resources of the zone.

- Though it is still soon to evaluate the results of these investments it may be noted that they have contributed to valorize the natural heritage of the zone and to offer new economic alternatives to the local population.

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Appendix 1. ECU EXCHANGE (December 1997)

Belgique	Franc belge	40,76
Danmark	Dansk krone	7,52
Deutschland	Deutsche Mark	1,97
Ellas	Drachmi	310,86
España	Peseta	167,11
France	Franc français	6,61
Irlande	Irish pound	0,76
Italia	Lira italiana	1937,16
Luxembourg	Franc luxembourgeois	40,76
Nederland	Nederlandse gulden	2,22
Portugal	Escudo	201,94
United Kingdom	Pound sterling	0,66
United States	US dollar	1,11
Sverige	Svensk krona	8,65
Finland	Markka	5,97
Oesterreich	Oester Schilling	13,90
Austria	Chelín austriaco	13,90