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- Ecological Functions of Drovers' Roads

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- Conclusions of the Round Table Debate

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- Sixth Environmental Action Programme
- General Conclusions of the International Conference on Drovers' Roads and Green Corridors and closing sessions

11. Sancti Petri Declaration

1. PREAMBLE

The content of this document is offered as reference material for the presentations and debates of the International Conference on Drovers' Roads and Green Corridors. The main aim is to divulge and discuss the potential of the Andalusian network of drovers' roads for integration, as a basic structural element, into more general resource management strategies, particularly those related to nature conservation, education, leisure, without forgetting those more strictly related to extensive livestock farming (the activity that originated the network), which, in this context of multiple functions, find new support and justification.

The document includes the general data and directives of the Drovers' Road Recuperation and Planning Programme of the Autonomous Community of Andalusia (an advanced regional planning proposal which gave rise to this Conference), a document containing the Scientific and Technical Basis of the Programme, whose aim is to document the problems of its application and its foundations, as well as indicating its possible weaknesses. Lastly, the document gives a brief history of the origin of the network of drovers' roads.

It aims to achieve the following Conference objectives:

- To identify the opportunities and limitations of current legislation for the recuperation and new multifunctional usage of drovers' roads.
- To analyse the current relevance of the traditional productive use of drovers' roads, their role in the conservation of livestock resources (pastureland, autochthonous breeds), as well as detecting and mitigating the social problems caused by the recovery and reorganisation of the drovers' road network.
- To debate the role of drovers' roads in nature conservation as contrasting, ecotonal elements between adjacent spaces, possible ecological corridors and areas of singular landscape.
- To determine the potential and functions of drovers' roads as basic regional planning elements (connection of natural areas, tourist and educational use, their role in the promotion of rural development).
- To explain the arguments in favour of the integration of the network of drovers' roads into the urban structure, as a means of connection between the city and rural and peri-urban spaces, or peripheral parkland.

We are confident that the conclusions of the different debates will contribute to a final Conference manifesto on the future and the utility of these routes, trails and corridors, which are basic to any advanced strategy for regional planning and the management of natural resources.

Fuensanta Coves Botella

Regional Minister of the Environment

Andalusian Government

2. PRESENTATION

The International Conference on Drivers' Roads and Green Corridors in our city last November, organised by the Andalusian Regional Government's Ministry of the Environment with the collaboration of the Chiclana Town Council, was a great success. For several days, a large number of participants debated the legal, social and planning aspects of the valorisation of drivers' roads.

There is no doubt that objectives, such as the analysis of current legislation for the recuperation of drivers' roads, the social problems caused thereby and the integration of the network of routes into urban areas, were fully achieved, with an exchange of opinions and experiences which allowed positive conclusions to be drawn.

This Town Council has, in recent years, backed several projects whose aim has been to rehabilitate the town's drivers' roads, promoting their use for recreational and educational purposes through environmentally-sound activities. This publication aims to reflect all that the International Conference heard from the experts on the subject. We hope that drivers' roads, which are intimately related to something as important as our environment, are the subject of future meetings which will serve to study in even greater depth these transcendental aspects.

Manuel Jiménez Barrios

Mayor of Chiclana de la Frontera

3. HONOUR COMMITTEE

President:

- HRH Prince Felipe de Borbón

Members:

- Mr. Manuel Chaves González, President of the Andalusian Regional Government
- Mr. Jaume Matas Palou, Minister of the Environment
- Mr. Miguel Arias Cañete, Minister of Agriculture and Fisheries
- Ms. Fuensanta Coves Botella, Regional Minister of the Environment, Andalusian Regional Government
- Mr. Paulino Plata Canovas, Regional Minister of Agriculture and Fisheries, Andalusian Regional Government
- Ms. Concepción Gutiérrez del Castillo, Regional Minister of Public Works and Transport, Andalusian Regional Government
- Mr. José Hurtado Sánchez, Regional Minister of Tourism and Sport, Andalusian Regional Government
- Mr. Alejandro Alonso Núñez, Regional Minister of Agriculture and the Environment, Regional Government of Castilla-La Mancha.
- Mr. Eugenio Álvarez Gómez, Regional Minister of Agriculture and the Environment, Regional Government of Extremadura.
- Mr. Jesús Javier Marcotegui Ros, Regional Minister of the Environment, Territorial Planning and Housing, Regional Government of Navarre
- Ms. Silvia Clemente Municio, Regional Minister of the Environment, Regional Government of Castilla-León
- Mr. Pedro Luis Calvo Poch, Regional Minister of the Environment, Regional Government of Madrid
- Ms. Caroline F. Jackson, President of the European Union Environment Commission
- Mr. Friedrich-Wilhelm Graefe zu Barringdorf. President of the European Union Agriculture Commission
- Mr. Luis Manuel Capoulas Fantos, Minister of Agriculture, Portugal
- Mr. Jean Glavany, Minister of Agriculture, France
- Mr. Giovanni Alemanno. Minister of Agriculture, Italy
- Mr. Georgios Anameritis. Minister of Agriculture, Greece
- Mr. José Moratalla Molín. President of the Federation of Municipalities and Provinces of Andalusia.

International Conference on Drivers' Roads and Green Corridors

Chiclana de la Frontera 21-24 November 2001

- Mr. Prudencio Perera Manzanero. Director General of Environmental Quality of Natural Resources. D.G. Environment of the European Union
- Mr. Manuel Jiménez Barrios, Mayor of Chiclana de la Frontera

4. SCIENTIFIC AND TECHNICAL COMMITTEE

President

- Mr. Manuel Requena García. Technical Secretary General, Regional Ministry of the Environment, Andalusian Regional Government

Scientific Management

- Mr. Antonio Gómez Sal. Professor of Ecology, University of Alcalá de Henares

Technical Management

- Ms. Inmaculada Ortiz Borrego. Head of the Drivers' Road Plan Office, Regional Ministry of the Environment, Regional Government of Andalusia

Members

- Mr. Juan Clavero Salvador. Andalusian Co-ordinator of Ecologistas en Acción
- Mr. Eduardo de Miguel Beascochea. Director of the 2001 Global Nature Foundation
- Mr. Jesús Garzón Heydt. President of the Concejo de Mestas Association
- Mr. Joaquín Jiménez Otero. President of the European Greenways Association.
- Mr. José Manuel Mangas Navas. Ministry of the Environment, Head of the Forestry Assets and Heritage Service
- Mr. Julio Martín Casas. Director of the Foundation for Ecology and Environmental Protection
- Mr. Carlos Montes del Olmo. Director of the Ecology Department of the Autonomous University of Madrid
- Ms. Montserrat Moyano Moyano. Co-ordinator of the Union of Small Farmers (UPA)
- Mr. Alejandro Rodríguez Blanco. Researcher, Doñana Biological Station, Higher Science Research Council
- Mr. Guido Schmidt. ADENA WWF Co-ordinator for Doñana
- Ms. Gloria Vega González. Head of the Territorial Planning Service of the Regional Ministry of Public Works and Transport, Regional Government of Andalusia.
- Mr. Emilio Vieira Jiménez-Ontiveros. ASAJA
- Mr. Juan Jesús Jiménez Martín. Managing Director of Egmasa
- Mr. Javier Serrano Aguilar. General Secretary of Egmasa
- Ms. M^a Teresa García Rodríguez. General Co-ordinator of the General Technical Secretariat of the Regional Ministry of the Environment, Regional Government of Andalusia

5. ORGANISING COMMITTEE

President

- Mr. Manuel Requena García. Technical Secretary General, Regional Ministry of the Environment, Regional Government of Andalusia

Co-ordinator

- Ms. Inmaculada Ortiz Borrego. Head of the Drivers' Road Plan Office, Regional Ministry of the Environment, Regional Government of Andalusia

Members:

- Mr. Fernando Mora Figueroa Silos. General Co-ordinator of the Directorate General of Environmental Management, Regional Ministry of the Environment, Regional Government of Andalusia.
- Mr. José Manuel Moreiras Madueño. Head of the Natural Resource Evaluation Service of the Directorate General for Planning, Regional Ministry of the Environment, Regional Government of Andalusia
- Mr. Francisco Oñate Ruiz. Head of the Participation and Social Initiative Service, Directorate General for Environmental Education, Regional Ministry of the Environment, Regional Government of Andalusia
- Mr. Pablo Sendra Arce. Technical Advisor on the Co-ordination and Management of the Network of Protected Natural Spaces, Directorate General of RENPA and the Environmental Services, Regional Ministry of the Environment, Regional Government of Andalucía
- Ms. Leonor Carrasco Martín. Director of the Strategic Development Division, EGMASA

6. PROGRAMME

WEDNESDAY 21 NOVEMBER

- 9.30h Welcome and distribution of documentation
- 10.00h Opening session and introduction of Conference
Mr. Antonio Llaguno Rojas General Secretary of Environmental Policy. Ministry of the Environment of the Andalusian Regional Government
- 10.15h Conference
Linkages in the Landscape: Networks, Security and Resilience
Mr. Jamie Skinner Director, Mediterranean Programme. IUCN The World Conservation Union
- 10.45h Coffee break
- 11.00h Conference
Protected Natural Spaces in Andalusia and their Connectivity
Mr. Hermelindo Castro Nogueira General Director of the Natural Protected Spaces Network and Environmental Services. Ministry of the Environment of the Andalusian Regional Government
- 11.30h Conference
General State Administration and Drivers' Roads
Mr. José Manuel Mangas Navas Head of the Forestry Assets and Heritage Service of the Ministry of the Environment
- 12.00h Conference
Andalusian Drivers' Road Recuperation and Planning Programme
Mr. Manuel Requena García Technical Secretary General. Ministry of the Environment of the Andalusian Regional Government
- 13.00h Reception for participants offered by Chiclana Ftra. Town Council

Session 1: Legal and Social Aspects of the Old Drivers' Roads

- 16.00h Lecture:
Legal Framework of the Old Drivers' Roads
Mr. José Francisco Alenza García Professor of Administrative Law. Public University of Navarre
- 16.30h Lecture
Drivers' Roads and Farmers. An Insoluble Conflict?
Mr. Vicente Pérez García de Prado Technical Secretary General. ASAJA Andalusia
- 17.00h Lecture
Dynamic Elements of the Rural Environment: the experience of TURIHAB
Ms. Cristina Calheiros e Menezes TURIHAB (Portugal)

International Conference on Drovers' Roads and Green Corridors

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17.30h Coffee break

18.00h Lecture

The Social Function of Drovers' Roads

Mr. Juan Clavero Salvador Co-ordinator of Ecologists in Action-Andalusia

18.30h **Round Table Debate: Social Aspects of Drovers' Roads**

Moderator:

Mr. Juan Jesús Jiménez Martín Managing Director of Egmasa

The round table will be joined by:

- Ms. Montserrat Moyano Moyano Co-ordinator of UPA Andalusia
- Ms. Luisa Lara Rosales Representative of COAG
- Mr. Manuel Rodríguez Pascual Researcher of Experimental Agricultural Station (CSIC-León)
- Ms. María Teresa García Rodríguez General Co-ordinator of the Technical General Secretariat. Ministry of the Environment of the Andalusian Regional Government.

19.30h Conclusions of the Round Table Debate

THURSDAY 22 NOVEMBER

Session 2: Multiple functions of Drovers' Roads and Green Corridors

9.30h Lecture

New Perspectives of the Common Agricultural Policy

Ms. Ángela Heerens Administrator DG Agriculture. European Commission

10.00h Lecture

Seasonal Livestock Migration and Ecosystem Conservation in Spain

Mr. Jesús Garzón Heydt President of the Association Concejo de Mestas

10.30h Coffee break

11.00h Lecture

Ecological Functions of Drovers' Roads

Mr. Antonio Gómez Sal Professor of Ecology. University of Alcalá de Henares

11.30h Lecture

The Potential for European Tourism: a new framework for co-operation

Mr. José Manuel Servert Martín Tourism Unit DG Enterprise. European Commission

12.00h Lecture

Environmental Education Programme and Participation in Drovers' Roads

Mr. Francisco Oñate Ruiz Head of the Social Initiatives and Involvement Service. General Directorate for Environmental Education. Ministry of the Environment of the Andalusian Regional Government

12.30h **Round Table Debate: Multiple Uses of Drovers' Roads**

Moderator:

Mr. Carlos Montes del Olmo Director of the Ecology Department. Autonomous University of Madrid

The round table will be joined by:

- Mr. Carlos Sánchez de las Heras Head of Research and Dissemination Service. General Directorate of Cultural Heritage. Ministry of Culture of the Andalusian Regional Government
- Ms. Mar Giménez Guerrero Provincial Delegate for Cordoba. Ministry of Agriculture and Fisheries of the Andalusian Regional Government

International Conference on Drovers' Roads and Green Corridors

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- Mr. Fernando Molina Vázquez Head of Co-ordination and Management Services of RENPA. Ministry of the Environment of the Andalusian Regional Government
- Mr. Fernando Mora-Figueroa Silos Co-ordinator of the General Directorate for Environmental Management. Ministry of the Environment of the Andalusian Regional Government

13.45h Conclusions of the Round Table Debate

Session 3: Drovers' Roads and Green Corridors in Territorial Organisation

16.30h Lecture

Drovers' Roads in Territorial Planning in Andalusia

Ms. Josefina Cruz Villalón Director General of Territorial and Urban Planning. Ministry of Public Works and Transport of the Andalusian Regional Government.

17.00h Lecture

Presentation of the REVER MED Project - INTERREG III B MEDOC Programme

Mr. Joaquín Jiménez Otero President of the European Greenways Association

17.30h Coffee break

18.00h Lecture

Recuperation and Re-establishment of Drovers' Roads in Chiclana de la Frontera

Mr. José María Román Guerrero Deputy Mayor and Environment Delegate. Chiclana de la Frontera Town Council

18.30h Round Table Debate: Drovers' Roads and Green Corridors in Territorial Organisation

Moderator:

Ms. Gloria Vega González Head of the Territorial Planning Service. Ministry of Public Works and Transport of the Andalusian Regional Government

The round table will be joined by:

- Mr. Daniel Zarza Ballugera Head Lecturer in Urban Planning. Polytechnic University of Madrid
- Mr. Manuel Calvo Salazar Department of Ecology. University of Seville

19.30h Conclusions of the Round Table Debate

FRIDAY 23 NOVEMBER

Session 4: Restoration and Management Criteria for Drovers' Roads and Green Corridors

9.00h Lecture

From RAVEL To REVER: Integration of a Regional Network into a European Green Network

Mr. Albert Simon President. Chemins du Rail (Belgium)

9.30h Lecture

The Experience of the North Sea Cycle Route: general facts

Mr. Chris Heymans Lead Consultant on the North Sea Cycle Route

10.00 h Lecture

Restoration and Management Criteria for the Guadiamar Green Corridor

Mr. Javier Serrano Aguilar General Secretary of Egmasa

10.30 h Coffee break

International Conference on Drovers' Roads and Green Corridors

Chiclana de la Frontera 21-24 November 2001

11.00 h Lecture

Appraisal of the Socio-Economic Benefits of Green Corridors. The Experience of the Ruta del Carrilet (Girona)

Mr. Xavier Corominas i Mainegre Advisor for the Greenways of Girona

11.30 h Lecture

Management Models and Compatibility of Uses in Transhumance Systems: a European Perspective

Mr. R.G.H. Bunce ALTERRA The Netherlands

12.00h **Round Table Debate: The Andalusian Drovers' Road Recuperation and Planning Programme**

Moderator:

Ms. Inmaculada Ortiz Borrego. Head of the Drovers' Road Plan Office. Ministry of the Environment of the Andalusian Regional Government

The round table will be joined by:

- Mr. Francisco J. Salazar Rodríguez Managing Director of the La Sierra Greenway
- Mr. Miguel Simon Mata Head of the Environmental Management Service, Jaén Provincial Delegation of the Regional Ministry of the Environment. Co-ordinator of the Action Plan for the Conservation of the Iberian Lynx. Regional Government of Andalusia
- Mr. Miguel Ángel López González Vice-President of the Andalusian Mountaineering Federation. Co-ordinator for Andalusia of the F.A.M. Nature Committee

12.45h Conclusions of the Round Table Debate and Proposals

Closing Session

13.00h Conference.

Sixth Environment Action Programme

Ms. Pia Bucella Inter-institutional-Matters. D.G. 11 Environment. European Commission

13.30h Conference

General Conclusions of the International Conference on Drovers' Roads and Green Corridors and closing sessions

Ms. Fuensanta Coves Botella Regional Minister of the Environment of Andalusian Government.

SATURDAY 24 NOVEMBER

- Visit to the Dos Bahías Green Corridor (*Bahía de Cádiz – Bahía de Algeciras*)

7 BACKGROUND

Historically, drovers' roads were common land used for the transit of livestock.

Although the seasonal migration, or transhumance, of animals to new pastures is not an activity exclusive to Spain, drovers' roads, as they are conceived today and as they were conceived in the past, exist only in this country. In order to understand this situation, it is necessary briefly to review the historical background.

Some authors believe that drovers' roads go back to the Roman period, though this hypothesis can be ruled out, since the social conditions of the time were not suitable for the movement of livestock over long distances. The phenomenon of seasonal migration, as a pure concept, must be situated in the Middle Ages, independently of the fact that there exist references from the Visigoth period which mention the protection of public paths for the movement of livestock.

The economic importance of the wool industry in Spain in the Middle Ages, when the country was the world's leading power, and the existence of ideal climate conditions for animal migration, led to the establishment of a system of protection of the paths needed for livestock migration.

This migration was necessary in order to increase the stock of merino sheep, which was the main source of Crown income. The increase in the number of sheep required the rational use of pastureland, to which end the livestock had to be driven in search of new pasture to complement that available in its place of origin. This new pastureland was to be found in other regions whose climate conditions were different, and therefore, distant.

These movements made it possible to keep more livestock than could be fed on local resources, because in this way, sufficient food was available to maintain the animals both in summer and in winter.

Today, from a legal point of view, transit on drovers' roads is the Traditional and Priority Use of the trails. This Use conditions any other exploitation or Use which might be made of the trails, precisely because that is the original reason for their existence.

For different well-known reasons, which are not of interest to this Conference, the progressive reduction in animal migration led to a lack of any basis for arguments and for the protection of the drovers' roads, which in turn led to the deterioration of the system, to the point that the need for the very existence of the trails was questioned, subjecting them to the sell-off pressures which were prevalent at the time.

Law 3/95 on Drovers' Roads defines them as routes or itineraries used today or which have traditionally been used for the transit of livestock, but the Law also opens up the possibility of giving the trails other Uses, which it calls Complementary and Compatible Uses. This Law, technically holding the status of Basic Law, states in its preamble that "the network of drovers' roads (**more than 100,000 kilometres** spread throughout mainland Spain) still provides a service to the national extensive livestock industry (**700,000 head of sheep, 100,000 cattle and others, whether migratory on a national or on a local scale**), with favourable results as regards the exploitation of underused pastureland resources (**over 1,000,000 hectares of marginal land**), for the preservation of autochthonous breeds (several of which are in danger of extinction); the drovers' roads must also be considered true **ecological corridors** which are essential to migration, the geographical distribution and genetic exchange of wild species", as is recognised under Royal Decree 1997/1995, dated 7 December 1995, which establishes measures which help to guarantee **biodiversity** through the conservation of natural habitats and of wild flora and fauna (Art. 7). "Finally, and in response to a growing social demand, the

drovers' roads could be an instrument to enhance the **contact of people with nature and for environmental planning**", as stated in the aforementioned preamble.

In accordance with the stipulations of Law 3/1995, drovers' roads are the public property of the Autonomous Communities (Art. 2), which are responsible for the management and administration of the trails in their respective regions (Art. 5), and which in principle, and unless there is an express change in the legal use of the land (Art. 10), must guarantee the preferential right of passage of livestock, together with other compatible uses (Art. 16) and complementary uses (Art. 17). To this end, such actions as are deemed necessary may be taken, among which is the restitution of boundaries (Art. 8). All of which is without prejudice to the recognition that some drovers' roads are of general public interest, since they pass through two or more Autonomous Communities or because they are connecting routes for transborder livestock movements, on what is known as the National Drovers' Road Network (Art. 18).

8 STRATEGY OF THE ANDALUSIAN DRIVERS' ROAD PLAN

NEW HORIZON OF THE DRIVERS' ROAD SYSTEM

The recognition of the ecological, historical and cultural values of the drivers' road network has led to the revival of their functionality. The roads have gone from being an underused, undervalued infrastructure exclusively used for livestock farming purposes, to being a spatial element for regional structuring or networking of high planning, environmental and cultural value.

Spatial planning is a key instrument for the conservation and use of drivers' roads. The function of spatial planning is to co-ordinate actions with spatial implications. It must therefore consider drivers' roads as a spatial element which, due to their grid-like layout, can make a significant contribution to regional co-ordination. The integration of drivers' roads into spatial planning, along with their natural, environmental, cultural and historical values, enhances the social function of the drivers' road system.

The integration of drivers' roads into urban planning, as an instrument for the regulation of land use, enables this type of common land to form part of the configuration of the system of open spaces in cities, acting as a link between urban areas and parks and designated metropolitan sites, as well as serving as an appropriate spatial resource for the creation of walking or cycling paths to access the countryside from the city and vice versa, providing alternatives to the conventional highway system, in line with the new conception of sustainable cities.

The ecological function of drivers' roads has been largely emphasised in general state legislation and its associated Andalusian regulations. Both legal frameworks refer to drivers' roads as "those ecological corridors which are essential for the migration, geographic distribution and genetic exchange of wildlife species".

As a result, there exists a conceptual connection between drivers' roads and green corridors. In the European context, the Habitat Directive 92/93/EEC (21 May 1992), on the conservation of natural habitats and wild flora and fauna should be mentioned.

"Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora.

Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species".

There is no doubt that drivers' roads fall into this category of continuous, linear elements.

At national level, Executive Order 1997/1995 (7 December 1995), which establishes measures to help guarantee biodiversity through the conservation of natural habitats, flora and fauna, confirms the role of drivers' roads as elements that can improve the coherence of the Natura 2000 network.

"With the objective of improving the coherence of the Natura 2000 network, the competent public authorities will endeavour to promote the management of those landscape elements which are of primary importance for natural flora and fauna and, in particular, those elements such as drivers' roads that, due to their continuous, linear structure...."

The proposal drafted by the Andalusian Regional Government for Sites of Community Interest (SCI) declares the need to connect different protected areas of our territory, with the aim of achieving continuity between large natural units. Andalusia has Spain's most extensive network of drovers' roads, and so the green corridor networks to be designed in this region will have to be based on the existing drovers' road network.

This explicit acknowledgement in environmental policy of the importance of corridors as a means to contribute to the preservation of natural areas and wild flora and fauna enhances the need to protect drovers' roads of ecological interest, so much so that the environmental function has the same level of priority as the traditional uses of drovers' roads.

The environmental functions of drovers' roads go beyond the administrative borders of protected natural areas. The landscape interest of drovers' roads or the functions they may acquire once they have been restored make them an ideal scenario for environmental education. In this respect, they are a valuable resource that allows for the enjoyment of nature in the course of an itinerary through the region and for open-air activities, thus meeting the growing demand for leisure activities.

GENERAL DATA AND ORIENTATIONS

Since the transfer of policy-making powers to the regions and in particular, since Law 3/95 came into force and the Andalusian Regional Ministry of the Environment was created, as the body responsible for drovers' roads, the Andalusian government has been committed to the regeneration and use of the common land of the drovers' roads.

Milestones:

1. The creation of the Digital Inventory of Drovers' Roads, made up of digital maps on a 1:50,000 scale linked to an alphanumeric database, in which the routes and other legal features of all the drovers' roads so far registered in Andalusia are described in detail. As a result, this is an excellent tool for analysis aimed at the management of drovers' roads, with statistical, mapping or photographic images. Later, the Inventory was integrated into the Andalusian Environmental Information System (Sinamba).
2. The enactment of the Andalusian Drovers' Road Regulations under Executive Order 155/98 (21 July 1998). This established the mechanisms necessary for the defence and protection of this common land, in the general public interest. Its design is based on the consideration of drovers' roads as a basic element for spatial planning (in the configuration of the Regional Natural Resource Protection System and of the Open Space System in urban and metropolitan areas) and for environmental planning (landscape diversity, biodiversity, green corridors for the connection of outstanding protected natural sites, promoting outdoor activities). The Andalusian regulations on drovers' roads, aware of the need to tackle their legal regulation, define a set of requirements for their protection, linked to sustainable socio-economic development and environmental policy.
3. Creation of a Documentary Archive on Drovers' Roads in Andalusia, as established by article 6 of the Regulation. Its aim is to compile complete information so as to optimise the management of drovers' roads and to make information available to third parties. It includes the disclosable documents, maps and background information currently held by the Ministry of the Environment, National Historical Archives and the Archives of the Spanish Stockbreeders Association.
4. The fourth, decisive step was the drafting of the "Andalusian Drovers' Road Recuperation and Planning Programme".

1.- In the drafting of the Plan the following was taken into account:

- The continuity of the network and its integration within the National Drovers' Road Network.

- The legal framework established by the Third Additional Clause of Law 3/1995 on Drovers' Roads concerning those roads that cross nature reserves and natural parks.
- Existing livestock transit.
- The physical features of drovers' roads.
- The ecological value and importance of drovers' roads as a corridor for biodiversity and the genetic exchange of wild flora and fauna.
- The potential for public use and for connecting the network of areas of outstanding natural interest.

The drafting of this plan is based on the consideration of drovers' roads as a multifunctional spatial element, leaving aside the old sectoral perspective to the benefit of a more global and integrated perspective. Furthermore, it has made it possible to define the scale and scope of the network and to ascertain the current state of drovers' roads. Drawing on this knowledge, an action programme was designed for stockbreeding development and other complementary uses, as defined in the Drovers' Road Law and the Andalusian drovers' road regulations.

2.- Basic objectives

The definition of an Andalusian Network of Drovers' Roads is a priority objective of the Plan. The Network is a compendium of all the drovers' roads that are both feasible and have a potential to accommodate complementary activities, as established by legislation governing drovers' roads (Law 3/95 and Decree 155/98). Different levels of priority are defined for each use in the different stretches of the network.

The level of priority sets the relative importance of each route or itinerary with respect to the whole, using the priority actions undertaken by the Andalusian Regional Government in this field as a reference.

Once the specific uses have been defined and the priorities set, the Plan defines the model for the recovery, restoration and conservation actions to be applied to the livestock trails in order to develop and protect the specific use assigned to each section of road or connection axis.

Finally, the Plan includes the budgetary estimates for each model proposed.

3.- Scope of action

The general scope of action covers all the designated drovers' roads included in the Digital Inventory of Andalusian Drovers' Roads.

4.- Development and Phases of the Plan

Following the usual stages of spatial and general planning, the development of the Plan started with the definition and characterisation of the uses that are to be assigned to the Network of Drovers' Roads, which can be outlined as follows:

1. Traditional uses: these are the transit of livestock and access to farms adjacent to the drovers' roads.
2. Recreational and tourist uses: this refers to "rural tourism" of high environmental, historical and cultural value.
3. Environmental uses: referring to the potential of drovers' roads as a connection between protected areas, generating biodiversity in areas that are ecologically impoverished and as corridors for flora and fauna species in areas of high natural value.

Once this initial phase was completed, the following phases of the Plan were:

Phase I – FORMULATION OF THE WORKING METHODOLOGY

The design of the methodology to be used for the definition of the Andalusian Network of Drovers' Roads was based on the recognition of drovers' roads as multifunctional spatial connection elements, integrated into spatial, environmental and economic planning in Andalusia

• SPATIAL PLANNING

The integration of drovers' roads into the General Spatial Plan is based on the contribution that these trails can make to regional integration in Andalusia. In particular, drovers' roads:

- allow for the connection of the urban system with the natural resources of the surrounding area.
- contribute to the improvement of the quality of life and social welfare.
- are a brake on the occupation of rural, natural and cultural heritage areas .
- favour sustainable economic development.
- contribute to landscape diversification and have great potential to contribute to the conservation, restoration and transformation of the landscape. The Plan foresees models for planting species which are necessary for the improvement of the landscape on drovers' roads which cross threatened or degraded landscapes, making rural activities and uses compatible with natural and landscape values. In the urban context, the aim is to increase visual enjoyment of landscapes by planting vegetation on the borders of the drovers' roads. This will make the urban-rural borders less sharp and increase the prospects for leisure activities for local communities.
- harmonise urban and rural activities at regional level.
- influence urban planning, as an added element for the inclusion of environmental concerns.
- contribute to the General System of Open Spaces. Few cities have classified their open spaces, although leisure time has increased and there is a greater demand for spaces suitable for outdoor sports and recreational activities. The drovers' road network allows for the connection of spatial elements which are currently unconnected, that host leisure activities, without excluding the option of purpose-built linear spaces.
For this reason, drovers' roads in urban contexts must be taken on board by the new urban planning approaches within the System of Open Spaces, so as to contribute to the creation of a true, structured set of public parks, protected suburban areas and drovers' roads (*cañadas*, *cordeles* and *veredas*) existing in the areas surrounding towns. These would serve as pedestrian access from the city to the countryside and vice versa, enhancing the creation of long-distance recreational environmental paths and routes for the use of all citizens, which would in turn allow them to appreciate the natural features of the region, its landscape, wildlife and cultural elements.
- are a basic element in the configuration of the Regional System for the Protection of Resources, whose aim is the conservation of the natural and cultural heritage.

• ENVIRONMENTAL PLANNING

The need to create green corridors between natural areas which have already been consolidated, administratively speaking, with management plans is endorsed by Directive 92/43 (on the Preservation of Natural Habitats and Wild Flora and Fauna). In its article 10, it states that "When appropriate, Member states in order to improve the ecological coherence of Natura 2000, will endeavour to promote the management of landscape elements of primary importance for wild flora and fauna", by which it means linear elements.

The European Union is clearly committed to the construction of an interconnected environmental network that permits the distribution of species and overcomes the isolation of protected areas.

The proposal drafted by the Andalusian Regional Government for Sites of Community Interest (SCI) declares the need to connect different protected areas in our region, with the aim of achieving continuity between large natural units. In this regard, the working methodology used

for the definition of the drovers' roads with an ecological function foresees the association of drovers' roads with SCIs, as positive external factors.

- RURAL DEVELOPMENT

Drovers' roads are an axis for rural development that favours the stabilisation of the local population in degraded rural areas due to their high potential for the development of socio-economic activities, such as tourism, the valorisation of the cultural and historical heritage and the promotion of craft industries.

They favour the conservation of long-distance herding practices and extensive stockbreeding which conserve habitats as diverse as *dehesas* (low density cork and oak woodlands), moorland and high mountain pastures, all of which contributes to sustainable development.

The methodology of work includes the selection, appraisal and weighting of all those variables that are considered to be relevant to the analysis of the functional potential of the Drovers' Road Network. These variables are related in different ways to drovers' roads and will determine the importance of each one of the defined uses. The methodology for data collection on the ground was also established, as this is essential in order to compile sufficient information on the current state of drovers' roads, and is the base for the implementation of the phases following their recovery.

Phase II.- INVENTORY

Collection of all available information on the relevant variables, as defined in the working methodology. The inclusion of geo-referenced data on maps has made it possible to link the available information with environmental and spatial planning in Andalusia. The Digital Inventory of Drovers' Roads was a basic pillar of this work.

Phase III.- ANALYSIS OF BACKGROUND INFORMATION AND DEFINITION OF USES

This phase consists of the application of the designed methodology to measure the functional potential of trails, taking as a reference the Digital Inventory of Drovers' Roads and geo-referenced data, so as to understand the current state of the network. Later, within the range of pre-defined values, priorities are set for each type of use. Conflicts of use can be solved using the compatibility matrix specifically designed for this purpose and the existing priority of use, indicating in each case the priority use and the complementary and compatible use(s).

Phase IV.- ON THE GROUND DATA COLLECTION

Once the priority use of the drovers' road has been defined, data collection begins on the ground. This covers information on all those complementary aspects that is not included in the classification project nor obtained from the automatic process of analysis and that is necessary for the use of the selected trails. Based on this, a map is generated superimposing the route of the roads, resulting from data collection on the ground, onto a 1:10,000 map of Andalusia. As for the rest of the information, data is collected locally in such a way that it can be automatically translated into a digital format and linked to the Geographical Information System through geo-referencing.

Phase V.- DEFINITION OF AN ACTION AND CONSERVATION PROGRAMME

With all the relevant geo-referenced data, action models are defined according to the combination of proposed uses and present state of the road. Additionally, the necessary conservation strategy for the network is analysed. Finally, all proposed measures are assessed from an economic perspective, distinguishing between the costs derived from restitution (demarcation and land marking) and those related to restoration for subsequent use of the drovers' road and conservation.

5.- General sources of information: maps and data bases

As a starting point for the development of the working methodology, the following maps and data bases were used as sources of information, along with the sectoral literature concerning each type of use, as listed below:

- SINAMBA, Regional Ministry of the Environment. Digital mapping to provide:
 - Inventory of Drivers' Roads 1:50,000
 - Digital mosaic of Andalusia composed of Spot satellite images (1995), 20x20 m.
 - Natural Protected Areas 1:10,000
 - Land Use and Vegetation Cover 1:100,000
 - Public facilities of the Regional Ministry of the Environment
 - Public land: scales from 1:50,000 to 1:10,000
 - Proposed Sites of Regional Interest (SRI) in Andalusia

- ANDALUSIAN CARTOGRAPHIC INSTITUTE (1999). "Digital Map of Andalusia 1:100,000". Ministry of Public Works and Transport of the Andalusian Regional Government.
 - Road Network 1:10,000
 - Road Cloverleaves 1:10,000
 - Railway and high speed railway lines 1:10,000
 - Hydrological network 1:10,000
 - Water surfaces and reservoirs 1:10,000
 - Settlements 1:10,000
 - Contour lines (interval: 50 m)
 - Services
 - Archaeological sites
 - Monuments
 - Historical sites
 - Administrative units 1:10,000

- ANDALUSIAN STATISTICAL INSTITUTE (IEA) (1998). "Interactive Statistical Atlas of Andalusia. Spatial Information of Andalusia (SIMA)". Andalusian Regional Government
 - Population data by settlement
 - Livestock data by municipality
 - Tourist accommodation capacity by municipality

- FOUNDATION FOR ECOLOGY AND ENVIRONMENTAL PROTECTION (FEPMA). "Information document: Analysis and Appraisal of the state of the National Drivers' Road Network (LIFE nr. 94/E/A221/E/01126/A/SI)". National Institute for the Conservation of Nature (ICONA). Ministry of Agriculture and Fisheries.

6.- Use of Geographical Information Systems: processing of digital information

These digital maps included in the Digital Inventory of Drivers' Roads were combined with 1:10,000 raster information and with satellite images, using the Geographical Information System ARC/INFO to process all this information.

The power and versatility of these tools has allowed the appropriate processing of information. Specific applications have been designed to handle the large number of variables defined in the course of this process, from the definition of the reference network to the setting of priorities for the defined routes.

By crossing the alphanumeric data necessary for the existing geographical information with the data generated by computer data processing, a set of routes were defined using ARC/INFO dynamic segmentation tools, describing all the different cases of drivers' roads. Dynamic segmentation is a procedure that associates multiple sets of attributes to portions or segments

of a linear map without the need to modify the topological structure. This procedure was used to assign alphanumerical information to each stretch of drovers' roads.

7.- Selection of an Analysis Reference Network

The reference network for analysis is the network from which the drovers' roads that are to be integrated into the Andalusian Network of Drovers' Roads are selected. It is the cartographic basis for all analysis of subsequent functional potential. The starting point is the Digital Map of Drovers' Roads. For its definition, two basic principles are considered:

- The continuity of the network, providing interconnection between all the stretches, so that one can get from any given point of the network to any other.
- The real availability of drovers' roads, determined by multiple factors. In this respect, the overlap of drovers' roads with transport infrastructure and with water infrastructure has been examined.

The application of these two principles was based on the following:

1. The creation of small connection axes called virtual stretches that reconnect gaps in the original drovers' roads, following the most logical route according to the maps and satellite images, as long as there are no obvious obstacles in the way
2. The exclusion of the all significant stretches where, due to overlap with other transport routes, the drovers' roads have completely disappeared.
3. The exclusion of all stretches affected by water infrastructure.
4. The inclusion of all continuous stretches, or discontinuous stretches of over 100 km.

8.- Criteria for the Selection of Drovers' Roads

Based on the reference network for analysis, the drovers' roads within it were ranked by their relative importance for the proposed uses. The current uses are considered the most important, when data is available on them and on their potential to accommodate the proposed uses. When the current use cannot be determined, the assessment of the potential use is less important, as the drovers' roads or stretches of road are directly included in the priority networks. When no evidence of current uses can be found, or if the current use is in line with applicable legislation, the assessment only focuses on the potential accommodation capacity.

SECTORAL METHODOLOGY

Stockbreeding uses

Current use: Those drovers' roads used for livestock have been included in the highest priority, when they are sufficiently large. The methodology for the assessment of the potential for livestock use was applied to the rest of the stretches of the network that are sufficiently large.

The sources of information used to examine current stockbreeding use were the Transhumance Note Books edited by the Directorate General for Nature Conservation, as well as data from the Regional Veterinary Surveys, the Environmental Agents and data collected in situ. With the Geographical Information System and the integration of data, the routes of drovers' roads currently in use have been defined and automatically included within the highest priority, regardless of their current physical state.

Potential use: In the rest of the drovers' roads where no livestock activity has been analysed, the potential for this type of use has been assessed. The assessment of potential was based on two basic elements: the existence of livestock (itinerant or non-itinerant) in the region and the suitability for livestock transit, regarding both grazing (pastureland, water) and support elements (resting grounds). Additionally, the main resting and wintering sites have been defined in the stockbreeding regions, and these have been included in the set of elements to be connected.

Once the potential itineraries have been established, their suitability as traditional drovers' roads is analysed, selecting the best-rated option between each pair of stockbreeding villages or

pasture areas to be connected. Thus, a communication network between stockbreeding villages, similar to a road network, is created. It is expected that the recovery and improvement of these routes will increase this type of use, even in less frequently used routes.

Selection of variables to assess routes: The following intrinsic route variables have been considered:

- Appropriateness for grazing, which will depend from the legal width of each trail.
- Presence of livestock transit support structures, watering points, resting sites, etc.

The following variables, which depend on external uses or elements, have also been considered:

- Appropriateness for livestock movement, measured by the function of the land crossed by the trails.
- Overlapping and intersections with communication routes.
- River or stream crossings.

Weightings have been allocated using a 1 to 4 scale for the positive variables and -1 to -3 for the negative ones, thus indicating the favourable or unfavourable effect on the itinerary.

Definition of priority levels: Three priority levels have been established for livestock trails:

Priority level 1: Transhumance (long range) or transtermitance (short range) routes verified on the ground, connection routes between summer and winter grazing areas and sections most frequently used in important livestock farming regions.

Priority level 2: All other routes with a current livestock use.

Priority level 3: Potential routes generated by the connection of livestock populations which currently do not have a frequent livestock farming use.

Tourist and recreational use

The methodology for the assessment of the tourist and recreational use of drovers' roads stems from their function as routes linking places of historical, cultural or landscape value and linking these to areas with a greater demand for this type of tourism (rural or environmental tourism). In addition to this, these routes have an intrinsic value as natural itineraries crossing very different rural environments.

Current use: All the sections currently with a recreational use have been selected. For this purpose the information sources have been as follows: catalogues of the Mountain Activities Federation, information guides of protected natural spaces and data supplied by Municipalities and Provincial Councils. All drovers' roads with a current recreational use and those that are part of the usual itinerary of pilgrimages have been included in the top priority of the tourist-recreational network.

Potential use: All the points or areas defined as sites of interest or which are in demand and which may be connected have been geo-referenced in order to determine places with a tourist-recreational potential. The information sources used for this purpose, in addition to those mentioned above in chapter 6 (general information sources), are: the Building Heritage, Archaeological Heritage and Architectural Heritage databases of the Andalusian Regional Ministry of Culture.

As for livestock use, all data collected was incorporated into the Geographic Information System. Later, the importance of the sites and areas to be connected and the appropriateness of the itineraries was assessed. The final result evaluates the suitability of a given itinerary for public use. It is obtained by integrating the assessment of the points of origin and destination and of the itinerary.

The inclusion of origin and destination points requires that they are on the drivers' roads or lie less than 1 km away from them. We differentiated between those points that may serve as both the origin and destination of routes or itineraries (since these areas usually attract public demand, and they are usually accessible by some means) and those that are visited only on a sporadic basis or are only accessible via trails which are in poor condition or on foot, and therefore can be considered only as destinations. The sites considered as route origins and destinations are:

- Villages and towns, ranked by population, tourist visits, whether they are provincial capitals or not, and their historic and cultural value.
- Public facilities, ranked by the average stay or type of use, service facilities, educational function and relationship with public bodies.
- Railway stations, ranked by the number of trains stopping there.

The sites that can be only considered as destinations are:

- Sites with a great historical and cultural interest, ranked by their catalogue definition, condition, presentation and distance from the drivers' road.
- Lakes or reservoirs.

Selection of variables for itinerary assessment: The variables affecting the appropriateness of an itinerary depend not only intrinsic features, but also external factors and on the type of road in question. Among the external features, we have included the following:

- Itinerary through Protected Natural Spaces and other spaces of environmental interest
- Landscape value of the territory crossed by the drivers' road
- Overlapping and intersections with communication routes
- Overlapping and intersections with waterways
- Sites of lesser historic and cultural interest adjacent to the itineraries
- Difficulty

Among the intrinsic characteristics of trails we have selected the type and topography. The weights have been assigned on a 1 to 5 scale for positive variables and -1 to -3 for negative ones.

Definition of priority levels: Three priority levels have been defined for tourist-recreational routes:

Priority level 1: Routes coinciding with existing paths or itineraries of all kinds established by the Mountain Activities Federation, the Regional Ministry of the Environment or by any other public body, and those coinciding with popular pilgrimage itineraries, as long as the common section with the drivers' roads exceeds 5 km. Routes with a global score of over 45.

Priority level 2: Routes with a global score of between 30 and 45.

Priority level 3: Routes with a global score of between 0 and 30.

Environmental use

The methodology developed for the appraisal of drivers' roads as environmental corridors is based on the fact that they may link well-preserved natural spaces, or even discontinuous distribution areas of endangered species, covering the gaps resulting from large stretches of farmland or other areas with a high human impact.

Here, the first step was to select the species whose movements between separate distribution areas can be aided through environmental corridors. Carnivorous mammals are considered as the most valuable group, since they include several endangered species and due to their specific vegetation requirements. Among them the lynx has been selected, since it is the most emblematic and demanding species and it fulfils the main requirements in this group.

With regard to natural spaces of special interest, all areas of special natural value which fall under any of the legal protection formulas have been selected. The entire network of protected natural spaces in Andalusia has been included and it has been complemented with the spaces of environmental interest listed in the Special Physical Environment Protection Plan of each province.

Thus, a number of itineraries using drivers' roads have been generated. They link together discontinuous distribution areas of the lynx or well-preserved natural areas. The following excluding factors have been considered:

- Stretches of the itinerary which cross cities and villages
- Built-up areas covering a total width for more than 500 m.
- Whole itinerary through well-preserved natural areas.
- 100 km maximum length.

The appraisal of corridors has been made on the basis of the importance of the areas they link together and the appropriateness of the itineraries, integrating these values into a single result which jointly assesses their itinerary capacity and the importance of the areas connected.

Selection of areas of origin and destination

Lynx distribution areas: Specific studies on the subject and specialised literature have been used to define lynx distribution areas, among them:

- "Actions for the preservation of the Iberian Lynx (*Lynx pardina*) (LIFE nr. B4-3200/94/740). Control, monitoring and surveillance team". Regional Ministry of Environment.
- "The Iberian Lynx (*Lynx pardina*) in Spain. Distribution and preservation problems". Higher Scientific Research Council (CSIC). National Institute for the Conservation of Nature (ICONA). Ministry of Agriculture, Fisheries and Food.

The selected areas correspond to the real and potential lynx distribution areas in Andalusia. Areas in which there is evidence of current presence of this species have been directly included as eligible for connection. Potential distribution areas are those in which there is no evidence of the presence of the lynx, but could be suitable habitats for it. The requirements for these potential distribution areas are a minimum area of 800 hectares, suitable plant cover with a predominance of scrub and the presence of prey.

Once the distribution areas to be connected were defined, the following step was to assess the areas for their suitability as points of origin or destination of a lynx corridor. Suitability has been defined based on three factors: current lynx distribution as compared to the potential surface involved; potential local area of distribution as compared to total potential distribution; and density of prey.

Natural spaces of environmental value: The starting point was to include the entire network of protected natural spaces in Andalusia, as well as areas of environmental interest included in the Catalogue of the Special Physical Environment Protection Plan of each province.

As in the lynx distribution areas, once the areas to be connected had been defined, the next step was to assess them on the basis of their suitability as starting or finishing points of environmental corridors. The variables determining suitability are as follows:

- Surface area as a percentage of total natural space.
- Ownership of land.
- Protection formula to which it is subject.
- Prevailing ecosystems.
- Presence of freshwater reservoirs.

The assessment has also taken into account whether the most representative ecosystems in those areas are similar or not, awarding an added value to those itineraries linking ecosystems with similar fauna cohorts.

Selection of variables for route assessment: The variables defining the suitability of a drivers' road as an environmental corridor can be intrinsic to the trail or depend on external factors. The only intrinsic factor included has been trail width, established by its classification and determining to a great extent its adaptation to environmental use. The external factors considered are:

- Natural character and plant cover of surrounding areas
- Sites of Community Interest included in the SCI network
- Overlapping and intersections with communication routes
- Overlapping and intersections with waterways

9.- Field data collection

Data collection has made use of GPS devices allowing for the registration of all parameters of interest regarding the layout of the trails and the geo-referencing of all the information. The parameters recorded for drivers' roads have been:

- Clear width of drivers' roads
- Legal width
- Vegetation in the clear width
- Physical boundaries (wire fences, power lines, walls, etc.).
- Adjacent uses and occupation
- Significant elements in the drivers' road
- Gaps - discontinuous sections

10.- General data

Basic Network to be Analysed

We have started with a total of 33,071 km of drivers' roads, of which we have selected 31,746 km as a basic network to be analysed. The basic data is as follows:

- | | |
|--|--------|
| • Initial length | 33,071 |
| • Length excluded due to coincidence with roads and railways and waterways | 588 |
| • Sections excluded because of discontinuous stretches | 737 |
| • Basic network subject to analysis | 31,746 |

Andalusian Drivers' Road Network

After performing all the selection and planning processes we have obtained a total length of 25,125 km of drivers' roads, which will make up the Andalusian Drivers' Road Network. In this calculation the different overlapping uses have been taken into account whenever they are compatible. From this total figure, some 1,110 km are within urban limits and therefore their restoration is not considered. Thus, the Andalusian Drivers' Road Network will include a total of 23,087 km.

Breakdown by use and priority level:

	Level 1	Level 2	Level 3
Livestock network	4,009 Km	6,129 Km	11,222 Km
Tourist-recreational network	3,973 Km	6,155 Km	8,716 Km
Environmental network	3,176 Km	240 Km	1,473 Km

11.- Actions proposed

General administrative actions

- Classification: Administrative procedure involving a formal declaration which determines the presence, name, width, layout and other general physical features of each drovers' road.
- Demarcation: Administrative procedure that defines the limits of drovers' roads, including drinking and rest areas, nearby public pastures and other places linked to livestock transit, in line with the classification.
- Land marking: Administrative procedure by which, upon approval of the demarcation, the limits of the drovers' road are established and indicated on the ground by means of permanent signage.
- Recovery: Administrative procedure by which the Regional Ministry of the Environment recovers the possession of drovers' roads unduly occupied by third parties.

Signage

- Start of drovers' road sign
- Direction signs, intersections with other drovers' roads, intersections with highways, etc.
- Identification sign, indicating the presence of public facilities or of interesting sites.
- Complementary sign, whenever there is any cultural heritage element along the course.
- Indicative sign, providing information on the layout of the trail.
- Sign on drovers' road, also indicating the layout of the trail and as a land marking element.
- Danger or give-way sign.

12.- Restoration models defined

Action taken on drovers' roads

- Livestock trail cleaning, removing all those obstacles that hinder transit, either natural obstacles, such as thick vegetation, or man-made obstacles, such as the accumulation of waste and rubble.
- Fencing of the roads, preventing livestock from leaving the legal width of the trail in areas where there is a nearby channel, road or any other infrastructure which might cause accidents.
- Work on isolated intersections in order to improve livestock transit on the trail.
- Restoration of infrastructure, such as drinking areas, water facilities, pens, etc., and even the construction of new ones whenever distances between them and their scarcity make it appropriate.
- Tree planting, both along the borders of the drovers' road and in copses in livestock resting areas.

Action in tourist-recreational areas

- Livestock trail cleaning, elimination of refuse dumping areas and any vegetation which blocks transit, and also recovering the landscape value appropriate for any recreational use.
- Planting of trees and bushes in degraded areas or areas without vegetation, especially near villages.
- Public facilities, such as recreational areas, viewpoints, observatories, free campsites, shelters, etc., especially in urban environments.
- Construction of fords and footbridges.
- Improvement of the road surface. This will depend from the type of use intended.
 - ✓ Footpaths: Special care will be given to the surface of drovers' roads near urban areas, as well as to the paths close to recreational areas. In mountain itineraries, long-range itineraries, etc., action will take place only in areas where passage is harder.

- ✓ Bicycle routes: Bicycle tourism with conventional bikes, related to urban areas, requires purpose-built roadbeds and lanes, as well as gradual slopes and easy layouts. Itineraries for mountain bikes have minimum requirements, and these are generally met, and exceeded, by drivers' roads in their current state.
- ✓ Horseback routes: These do not require special action on the road surface.
- ✓ Itineraries used in pilgrimages: Their condition is adapted to their current use, however, some surface repairs will be carried out in particularly degraded areas.

Action on environmental routes

- Livestock trail cleaning, elimination of refuse dumping areas.
- Plant restoration; the following criteria have been followed:
 - ✓ Type of corridors according to their potential: specific corridors for the dispersion of the lynx or corridors connecting natural spaces.
 - ✓ Plant coverage: The initial situation has been taken into account, whether untilled land, farmland, degraded areas, shrubbed and forested areas, etc. Conditions have been quantified as percentages of cover with regard to tree, shrub, and sub-shrub layers. Comparison with the solution adopted for each type of corridor (the proportions of plant strata and density depend upon the type of corridor), provides the amount of cover that has to be added to each layer.
 - ✓ Land preparation, minimising any alteration of pre-existing vegetation as far as possible.
 - ✓ Design of the species to be planted in small forests. Their surface will be determined by the trail's width.
 - ✓ Selection of species and models to be applied, on the basis of the potential plant series affecting the lynx dispersion corridors (20 plant series) and the connection routes between natural spaces of interest (22 plant series).
 - ✓ Definition of the protection measures for reforestation.

13.- Maintenance

It has been estimated that maintenance should cost about 10% of total expenditure on planting and installation, starting five years after the planting or installation.

9 SCIENTIFIC BASIS OF THE ANDALUSIAN DROVERS' ROAD RECUPERATION AND PLANNING PROGRAMME

Mr. Antonio Gómez Sal

Professor of Ecology
University of Alcalá de Henares

Introduction

The Andalusian Regional Planning Programme (POTA) considers a Regional Protection System for natural and cultural resources of regional value to be a strategic action. One of the essential characteristics of such a system is to "integrate the protective elements in order to generate coherent, interconnected networks". The Regional Protection System (SPR), "an integrated system of ecological, cultural and recreational relationships within the region", sees drovers' roads as a linear system which has important functions to fulfil within the framework of the SPR's objectives.

In line with these objectives, the Andalusian Network of Drovers' Roads (RAVP) is made up of those trails whose recuperation is viable (a total of 24,087 kilometres). The Drovers' Road Recuperation and Planning Programme proposes three uses (traditional, tourist and ecological use), three levels of priority for action and a series of proposals for each specific case.

Basing itself on these documents and objectives, this paper aims to analyse, from the technical and scientific point of view, the Drovers' Road Recuperation and Planning Programme proposals, and to argue for possible modifications which would facilitate its applicability in coherence with the POTA and its Regional Protection System. Bearing in mind that the document is to be presented and debated at the International Conference on Drivers' Roads and Green Corridors, it has been organised into modules which cover the aspects we feel to be most critical and relevant.

Characterisation, inventory and cartography.

- The characteristics and possible uses of drovers' roads depend on the following factors: their effective or available width (the terms "effective" and "available" are preferred to the term "recoverable", since we understand that, from a legal point of view, all of the drovers' roads in the RAVP are recoverable), the type of cover (the degree of conservation of the soil, pasture and ligneous species), surroundings by which we do not mean only the immediate surroundings; the degree of nature conservation in a broad belt of land on either side of the trail determines its potential as an ecological corridor; the breadth and quality of the field of vision from the trail is a basic aspect for its use as an educational or tourist resource; and its heritage value (nature and culture) to the places connected by the trail.
- It is necessary to highlight the original configuration of the Andalusian Network of Drovers' Roads and its surprising length and complexity, even within the context of the national network of trails. These characteristics represent an added value of the Andalusian network. The distribution of the trails in Andalusia is not simply a result of the logic of animal migration. Itinerant grazing and the movement of animals between farmsteads and their transfer to livestock fairs were all certainly of great importance from their very beginnings, especially in certain parts of Cadiz and Seville. It is necessary to study the types of trail taking into account, together with their current physical characteristics, the aforementioned circumstances: the functional, historical and ecological relevance of each trail (what kind of

resource use system it belonged to, what type of territories it connected, and with what aim).

- As well as this, it is also necessary to have detailed information about the "ecological condition" of the trails, including the type of cover (vegetation, degree of erosion, soil conservation), singular cultural and natural elements, composition and quality of the grazing, etc. This inventory has already been partially carried out, but it remains to be completed in detail for those stretches where action is to be taken. This is essential in order to be able to decide what action is needed.
- Independently of the final use allocated to each stretch of the trails, the inventory, definition and demarcation of boundaries (which will contribute to the consolidation of the network as public property) must be carried out for the whole of the network. Information about the real and available width of all of the different sections of the network is especially relevant in order to be able to decide between different possible functions.

Nature conservation functions

- Livestock trails are territorial structures. They are linear, grid-like structures, and have a positive net effect on the maintenance of the natural value of the environment (biodiversity, soil, landscape).
- This role in the maintenance of natural value is not limited to a possible function as a vector or a means of transmission which contributes to propagation (dispersion of seeds and young animals), but also to its nature as a residual matrix which, in a large part of the territory, represents the only remnant of conserved nature. This characteristic is reinforced by the surprising density of the network in certain parts of Andalusia and by its coincidence with other natural elements (rivers, copses, woodland, etc.) The ecological functions derived from the grid pattern of the network (the mesh or weave of different elements which are capable of bringing natural quality and maturity to the territory) are an important differentiating characteristic in some areas, defining their singularity and difference from the rest of the territory of Andalusia.
- The contribution of the drivers' roads to the natural value of the territory depends more on their contrasting and ecotonal function (refuge, exchange, stock and production of seeds and young animals, unbroken or unploughed soil) than on their improbable role as "ecological corridors" which channel the movement of fauna (particularly endangered species) between protected spaces. It must be recognised that this latter objective is difficult to achieve through the integrated management of the territory, including spaces adjacent to those trails or stretches of trails which are devoted to this end and which will have to be few and well-selected, as well as being strategically significant to territorial management and conservation. The mountainous and marginal nature of many stretches of the network, which are to be found in little frequented areas of forest pastureland, located on the borders of municipal districts, could well favour their use as corridors. This use must be supported by efficient, determined joint management which includes other linear structures (rivers, longitudinal stretches of high wooded and hilly areas, wooded hillsides, copses and fragments of natural vegetation which accompany the trail over a wide area, the presence of hedges and steep slopes in agricultural areas).
- Although the existence of drivers' roads could be an important basis for the creation of an ecological corridor, the decision to devote a strip of land to this use, as well as the number and location of the ecological corridors which are needed in order to consolidate and make effective the Regional Protection System, must be independent of the drivers' roads and must be adopted in view of a series of more general criteria relating to the territory and conservation strategies. Due to the complexity of actions involving ecological technology which lead to the implementation of a functional ecological corridor, the allocation of a stretch of drivers' road to this objective must be based on prior studies to identify which are

the essential and most urgent corridors in the Regional Protection System. These actions, which involve a heavy investment in terms of money and management, should be limited to the basic and priority stretches. Studies of the function of the drovers' roads and the strips of land associated with them must include a wide variety of species as well as a wide variety of functional types of fauna as possible users, ensuring, for example, that in the case of predators, there is a sufficient supply of prey. Bird species must also be contemplated in these studies, since the function as a corridor does not always require a direct physical connection. The rabbit population, a key species due to its basic role in the food chains of Mediterranean forest and pastureland, must be a priority in the management of these corridors. In general, use as a corridor can be compatible with extensive farming and orderly tourist use. Well-managed grazing can help to encourage the rabbit population, since it increases the coverage of arable species and favours plant productivity. In those repopulating actions which require the temporary suspension of grazing, alternatives must be sought to the migration of animals and their feeding.

Traditional uses. Maintenance of the multifunctionality of the drovers' roads

- They are high-altitude strips of land, semi-domesticated, with a high proportion of pastureland with their original specific composition (there are abundant prairie ecotypes adapted to cyclical exploitation by herbivores) as a result of long-term use for livestock farming. The relationship of this land with more extensive livestock grazing models is also significant. In these models, the importance of autochthonous livestock breeds is especially relevant and important.
- The interest of the Andalusian Network of Drovers' Roads, from a heritage point of view, is the consequence of the distribution, width, plant cover and heritage value of the trails, whose maintenance depends largely on their use for extensive livestock farming. The drovers' roads are, in the main, pastureland which, together with the public grazing areas connected to them, sustained the herds during their migratory travels or pastureland belonging to nearby towns. The traditional uses are, in general, compatible with the new uses proposed by the Plan and, if well-managed (pasture, fertiliser, conservation of enclosed land which provides food for other species, especially game species, etc.) could represent a factor for the support and encouragement of these uses - conservation, tourism, education. Autochthonous livestock breeds (cattle, sheep, goats, pigs and equine species) related to the extensive systems have been the main support of the drovers' roads, and are of interest from the ecological, heritage, cultural and historical points of view, and offer obvious economic opportunities through quality products with a recognised, efficiently controlled label for their place of origin.
- Bearing in mind that grazing, both settled and migratory, on drovers' roads is the historical origin of their main values and characteristics, it should therefore also be one of the important tools in their management. Those which we have inherited as the last examples of the varied systems of extensive farming which used to be applied in the Andalusian countryside (itinerant livestock, local migration of different kinds of animal, etc.) should be documented in detail and strongly supported as exemplary promotional nuclei for possible renovated management models. It is almost impossible to reconstruct or invent new extensive farming systems without people who are trained, and familiarised with the work through tradition and experience, and who are willing to continue the tradition, with a minimum of support. It is essential to put an end to the myth of the trade of the herdsman as a backward, marginal occupation if we want to preserve the value and natural functionality of the drovers' roads, which will have obvious repercussions on conservation. We believe it is of special strategic importance to encourage settled and itinerant livestock farming, whose feed could be completed by using the varied mosaic of plants available.

Tourist and recreational use. Environmental education.

- Due to their linear structure and wide distribution throughout the territory, the drivers' roads are destined to carry out an important function as **green routes**, low-impact educational and tourist/recreational pathways. The selection of stretches of the network for this function should be based fundamentally on three aspects:
 1. Their context (singular natural, rural and cultural values, for example, wetlands, very old or very large trees, relevant plants or species, farming constructions and usage).
 2. The interest of the zones connected (traditional architecture, archaeology, valuable natural spaces, geological and geomorphologic aspects)
 3. Field of vision (the landscape covered). In order to enhance this last aspect, there should be a study of cultural landscape typologies.
- It is in the vicinity of the cities that drivers' roads can be subjected to a more intense and innovative transformation as regards their landscape, with reforestation which includes exotic species appropriate to the restoration undertaken. The connection of the trails with networks of peri-urban parks will link them to this type of landscape and activity (cycling, educational walks, etc.).
- Rambling or horse-riding on the trails is a particularly appropriate way to see extensive areas of Andalusia which have historically been depopulated (see document on Basis and Strategies of the POTA, page 96, figure 4.3) and which have to a large extent already been included under protection schemes. The Andalusian countryside, which is deforested and has ample fields of vision due to its agricultural uniformity, is a very appropriate space for reforestation actions on drivers' roads, which would promote the diversity of landscape.

Restoration of ecosystems, allocation of new uses

- The transit of agricultural vehicles should be regulated and limited, where appropriate, to zones already eroded by wheeled traffic. The overgrazing which causes soil erosion and the degradation of both soil and plant cover must be regulated, perhaps conditioning it to the achievement of agri-environmental objectives through agreement with the livestock farmers. In general, less livestock usage makes it possible to support non-arable plant recovery in certain areas of the drivers' roads.
- Ecological restoration should, in the first place, promote occupation by brambles and natural bush, analysing each case separately in accordance with broad ecological criteria, including multifunctionality, and avoiding simplistic viewpoints which might lead to uniformity (series of plants, rows of trees). As well as regional planning directives, specific restoration actions should be based on a factor model of some complexity which helps in the decision-taking process regarding the type of restoration to be undertaken, deciding in each individual situation in accordance with the ecological starting point (content, uses, physical factors) and the objectives laid down.
- In Andalusia, the term Green Corridor is applied to different types and scopes of action, such as the green belt in Seville, the Dos Bahías green corridor, and also the paradigmatic case of the Guadiamar Green Corridor. This type of action model could be defined as the co-ordinated implementation over a wide strip of land of ecological restoration objectives (which could include, if appropriate, the function of an ecological corridor) as well as social and economic development objectives. This model, which is extremely complex to apply, could be implemented in some of the actions on sections of trails earmarked for conservation functions.

Final considerations

- Bearing in mind that the uses proposed in the Drivers' Road Recuperation and Planning Programme are not incompatible, it would be appropriate to discuss whether it is necessary to rethink the priorities proposed for the actions (9,738 kilometres in the first stage). Perhaps limiting these to those sections about which there exists well-researched information upon which to base the strategies, particularly in the aforementioned case of conservation functions, or ecological corridors. This should be without prejudice to the necessary inventory actions and actions to define and delimit boundaries which should be undertaken as soon as possible for the entire network, with the aim of ascertaining the real width and contents for the different actions.

10 LECTURES

INAUGURAL SESSION

LINKAGES IN THE LANDSCAPE: NETWORKS, SECURITY AND RESILIENCE

Mr. Jamie Skinner

Director, Mediterranean Programme
The World Conservation Union - IUCN

For those of you who may not be familiar with the work of IUCN – the World Conservation Union, IUCN works for the sustainable use of natural resources in the context of sustainable development. For many years IUCN has also been involved in planning in protected areas to safeguard fauna and flora around the world and this has given the Union key insights into the relationships between wildlife and protected areas.

The kind of criteria that were used to create protected areas largely involved data on the distribution of key species, for example in Africa, the large fauna of the plains, or other key indicator species. This process led to hundreds of National Parks being created around the world with static borders and animals that often migrated beyond those artificial frontiers – sometimes spending months outside the very protected areas designed to protect them.

At about the same time as the challenges of connecting many of these areas were being recognised, the concept of “stepping stones” to support flyways of migratory water fowl was also strengthened and studied. And during the 1980s, IUCN realised that there was also a major challenge involved outside protected areas where nomadic people in many African grasslands were dependent on transient natural resources, often on a seasonal basis. The Union documented them in the West African Sahel around the time of the major 1984 drought.

For example, migrant fishermen on the floodplains of the Niger were moving seasonally over hundreds of kilometres, following the rhythm of the rising and falling seasonal floods, which in turn determined the distribution of their key target species. Seasonal nomads were also moving over 300 kilometres each year to seek pastures for some 2 million head of livestock, concentrated in the river floodplains during the 8 months of dry season and dispersing widely into the savannah during the 4 months of wet season.

Much of this strategy of movement is about risk aversion, and responding resiliently to highly variable and dynamic seasonal resources. It is also a strategy built over many centuries to utilise natural resources that are separated in space and time, yet allow pastoralists, or fishermen, to locate resources all the year round. It is clear that the carrying capacity of the area is dictated largely by the seasonal bottleneck when resources are scarcest and cattle may lose weight or even die. Movement helps take advantage of seasonal resources located in different areas at different times of year.

One official response to the great 1983-1985 drought in West Africa was a policy of sedentarisation where development policy was orientated to providing sedentary lifestyles with increased education and health facilities provided locally. Yet in many cases this led to reduced food security, less effective use of transient resources and heavy grazing pressure around village centres leading to soil degradation and erosion of vegetation cover.

I was in Africa for 3 years at this time, working for IUCN, and when I returned to live in the south of France, I found that my neighbour was also a transhumant pastoralist, taking several thousand sheep from the steppes of the Crau in Provence, up into the Alps along the French-Italian border.

As I shared this journey with him (by lorry), I found that many of the same principles applied – his production system was dependent on the availability of seasonal pastures some 250 km

apart. In the absence of either one, his security was reduced and his agricultural production compromised – by having two grazing areas he could take advantage of early, warm springs in the Alps, or later rainfall in Mediterranean Provence, and rarely does the fickle climate fail simultaneously in both places, giving him a precious margin for manoeuvre as he calculates which date to move his livestock to best advantage.

As a by-product of his system (but nevertheless a key one), extensively grazed areas are maintained in the mountains and on the plains, and this has numerous direct benefits for nature conservation that would disappear in the absence of this grazing activity, especially bird species that feed on insects dependent on sheep dung (many of which are listed in the European Habitats Directive) and uncommon flora that require short grass for their survival.

The conclusions I draw from both IUCN experiences and that of my neighbour is that spatial linkages promote resilience and reduce risk. They promote exchanges at both an ecological and cultural level, and they are richer and more dynamic than the sedentarised alternative. They also diversify habitats for species, which in the absence of anthropological impacts would be less biodiversity-rich.

Turning back to wildlife, the original motivation for the conservation of many wetlands around the world, especially in the Mediterranean, was the need to maintain a network of sites for migratory waterfowl. Scientists had established that ducks such as Teal, *Anas crecca*, breeding in Russia in the summer required a set of wetland stepping stones across Europe to allow them to reach, and to spend the winter in Coto Doñana, for example. This concept has since multiplied into the development of many interlinked networks whose primary purpose is to conserve the whole range of Europe's rich fauna and flora (e.g. Natura 2000, Emerald Network, etc.) while ensuring the conservation of a network of natural habitats to sustain migratory birds. The 1990s saw increasing importance given to studying and assessing linkages with a view to increasing the resilience of the protected areas network.

Linkage is expressed in the form of "connectivity" - the explicit assessment of what individual species need to ensure their survival during their whole annual cycle, as well as a deliberate effort to maintain the ecosystem processes on which they depend. This naturally expresses itself differently according to species or according to the underlying ecosystem processes - a snail is less mobile than a bird, and the extension of the range of some plant species can be measured in only metres per year. The same principle can be applied to people and their sustainable use of grazing resources.

One other great advance that gained increasing recognition in the 1990s was the need to maintain processes at river basin scale – i.e. to recognise the role of a stream and river in connecting mountains with the sea. This connectivity from the perspective of water can be disrupted by river infrastructure works, dams, dykes and channelling, and from the perspective of pollution, from the pollution source all the way downstream where it can affect ecosystem function (plant growth, invertebrates and fish) and cause an ecological disruption between the upstream and downstream areas.

In this sense the efforts of the Andalusian region to promote the development of a green corridor on the Guadamar are in the vanguard of international thinking, building on initiatives to develop institutions for the integrated management of river catchments, currently enshrined in EU legislation (Water Framework Directive).

IUCN remains convinced that assessing and supporting linkages, maintaining cultural and agricultural exchanges and seeking to maintain the integrity of the ecological processes that underpin them can only lead to improved resilience, and reduced risk to some of the great challenges of the next century, not least of which is climate change. This is equally the case for ecosystems and for people, and I wish you well in the next few days as you get to grips with developing an integrated perspective on promoting green corridors in Europe.

PROTECTED NATURAL SPACES IN ANDALUSIA AND THEIR CONNECTIVITY

Mr. Hermelindo Castro Nogueira

General Director of the Natural Protected Spaces Network and Environmental Services
Ministry of the Environment of the Andalusian Regional Government

1. The Andalusian Network of Protected Natural Spaces (RENPA)

For many years, the process leading to the declaration of natural spaces was a slow one, speeding up notably as from the eighties. The configuration of the Andalusian Network of Protected Natural Spaces (RENPA) has been moulded since then, going through different stages which have resulted, in the year 2001, in a network made up of over one hundred protected natural spaces with an organised administration structure and planning and management instruments. This makes it a complete, well-run network under suitable management which, most importantly, offers positive future prospects as regards the sustainable social and economic development of the best conserved natural areas of Andalusia.

And so, from the incipient array of protected spaces (Doñana and El Torcal) which existed in 1982, when powers were devolved from the General State Administration to the Autonomous Community of Andalusia, until 2002, we find that we have built up a network of spaces covering almost 1,600,000 hectares, or 18% of the territory of Andalusia.

The RENPA has two legislative bases for its protection formulae, namely, state Law 4/89 on the conservation of natural spaces and wild flora and fauna, and the regional government's Law 2/89 which approved the inventory of protected natural spaces in Andalusia and established additional measures for their protection. The Network is basically characterised by:

Its natural heritage: which is one of the most important in Europe both in absolute and relative terms, with 18% of the territory protected, and one of the highest biodiversity indices in Europe.

Public facilities: with a network of over 800 facilities for use by the public in natural areas.

Management experience: Andalusia has almost 20 years' accumulated experience in the management of protected natural spaces.

Planning: today, over 90% of protected natural spaces have their own planning or management schemes.

Sustainable development: to date, three Sustainable Development Plans have been approved, and Plans for 8 Natural Parks are currently being prepared.

The Network of Biosphere Reserves: UNESCO has recognised 7 Biosphere Reserves in Andalusia, out of the 20 that exist in Spain. These seven represent 63% of the total area of Spain's Reserves.

Wetland Inventory: the Andalusian Inventory includes 114 wetlands, and is the largest and most important in Spain, covering 40% of the surface area of all the RAMSAR wetlands in the country, with a surface area of 61,550 hectares.

Biodiversity: Andalusia has one of the highest indices of biodiversity of habitats and species of flora and fauna (56% of the Annex I species of Directive 43/92, with a total of 96 species, of which 24 are priority species).

Table 1: RENPA protection status

STATUS	DESCRIPTION
<u>National Parks:</u>	Those spaces which represent the main natural systems in Spain, whose conservation is in the national public interest (Law 4/89).
<u>Natural Parks:</u>	Areas scarcely altered by human activity whose conservation deserves preferential attention due to their outstanding landscape, fauna, flora or exceptional geomorphologic features, etc., and which also have educational or scientific value (Law 4/89).
<u>Natural Areas:</u>	These are usually fairly small spaces of exceptional natural value which deserve special protection. (Law 2/89).
<u>Nature Reserves:</u>	The aim of these spaces is to protect ecosystems, biological elements and communities which, due to their fragility or singularity, are of special value. (Law 4/89).
<u>Peri-urban Parks:</u>	These are natural spaces located close to urban areas, and are established in order to adapt them to the recreational needs of the local population. (Law 2/89).
<u>Privately-owned Nature Reserves:</u>	Those properties which, though not fulfilling the objective requirements of other protected statuses, deserve special protection, and whose owners apply to the environmental authorities for a privately-contracted protection regime in these areas. (Law 2/89).
<u>Natural Monuments:</u>	These are natural spaces or elements consisting basically of formations of singular beauty or rarity, and which deserve special protection. (Law 4/89).
<u>Protected Landscapes:</u>	Those specific places in natural surroundings which, due to their aesthetic or cultural value, deserve special protection. (Law 4/89).

The RENPA currently covers a surface area of 1,599,503.69 hectares, which is 18,33% of the territory of Andalusia. This area is distributed among 127 spaces of the following status:

Table nº 2: Structure of the RENPA

PROTECTION STATUS	NUMBER IN ANDALUSIA	SURFACE AREA (HECTARES)
National Parks	2	136,928.00
Natural Parks	23	1,378,368.55
Nature Reserves	28	14,417.64
Natural Areas	31	63,182.50
Privately-owned Nature Reserves	3	662.44
Peri-urban Parks	17	5,279.04
Natural Monuments	23	665.53

2. The connectivity of the Andalusian Network of Protected Natural Spaces

But the RENPA is not just the sum of protected spaces. It also includes the physical, administrative and socio-economic interconnections between them, and makes up an organised, functional structure which needs to be managed as a whole, since it is an integrated, unitary body which works for the rational organisation of a large part of the territory of Andalusia with the aim of preserving the natural and socio-economic systems, and the sustainable development of the areas covered.

The Network of Protected Natural Spaces in Andalusia is the sum of the natural spaces protected plus their physical, administrative and socio-economic interconnections. It is a mesh-like structure which gradually incorporates other spaces, which then become interconnected

with the others, taking advantage of existing structures. And so, if we project the maps of the Network of Protected Natural Spaces (National Parks, Natural Parks, Natural Areas, Nature Reserves, Natural Monuments, Peri-urban Parks) onto the map of the Natura 2000 Network (future Special Conservation Zones), and that of the Biosphere Reserve Network, and then we superimpose the map of the Drovers' Road Network and all of the rivers and waterways, we would obtain a system of interconnected spaces which make up a powerful tool for territorial planning, that is, a network of networks.

The aim is to achieve an organised, functional structure that can be managed as a single, integrated, solidary unit. In this way, in order to preserve the functionality of its systems, and the sustainable development of wide areas, the following actions are necessary:

- To organise rationally the natural spaces of Andalusia.
- To break the tendency towards local, isolated operation, which is the result of the initial management system in the natural spaces.
- To correct deficits and imbalances between different spaces.
- To equip the System with agile, homogeneous mechanisms and tools to offer a better response to the citizen.
- To co-ordinate actions carried out in each of the natural spaces in the Network, and to provide them with permanent information and services.

The interconnection of the RENPA as a solid structure with a wide, orderly territorial base therefore requires the following:

- Consolidation of the Natura 2000 Network through the declaration of Special Conservation Zones and Special Protection Areas for Birds.
- Consolidation of the regionalisation of Andalusia's natural spaces and its zonal operation.
- Restoration of rivers and waterways as active, functional fluvial corridors.
- Recuperation of the Andalusian Network of Drovers' Roads for its basic function as an ecological corridor.
- Consolidation of vital linking projects, such as the Green Corridor.
- Creation of the ecological corridor as an administrative means of territorial management.

THE GENERAL STATE ADMINISTRATION AND DROVERS' ROADS

Mr. José Manuel Mangas Navas

Head of the Forestry Assets and Heritage Service

Ministry of the Environment

When the current Spanish Constitution was promulgated in 1978, the legal and material situation of the most important elements of the rural public heritage, both local (communal) and general (coasts, rivers, drovers' roads), was frankly disheartening after almost two centuries of mutation, aggression and usurpation which had undermined its physical integrity under the aegis of regulations which did not protect public ownership, of political frivolity and administrative neglect. Perhaps it was for precisely these reasons that Article 132 of the Constitution addressed the matter of common land.

Of all common land, the condition of the network of drovers' roads was, if possible, even worse, perhaps due to the fact that it was very widely spread out, and therefore extremely vulnerable,. This was the result of a century of intrusion by private individuals (cultivation, construction) and administrative assignments (occupation, prevalence and change of designated use) to which traditional regulations were applied, with unfortunate results, and which could not be remedied with the legislation then in force.

Royal Decree 2876/1978, dated 3 November 1978, which approved the Regulations for the application of Law 22/1974 on Drovers' Roads, dated 27 June 1974, predates the Constitution by just two weeks, but neither its origin nor its effects (which were the result of the later stages of the period of unfettered development in Spain), nor its political and administrative framework sit easily in the new institutional order (as evidenced by a parliamentary question asked in the lower house of the Spanish parliament in January 1980), although it would be a basic reference point for many years to come, since at the time "the repeal or modification of the current Law on Drovers' Roads is not considered essential..." (ICONA-CEOTMA: "Basic study for the enhancement of the use of drovers' roads", 1981).

In this situation, and within the framework of the new administrative system of the country, the recently-created Autonomous Communities received their Statutes of Autonomy (the legislative instrument which devolved power to the regions) under which responsibility for the drovers' roads within their areas of jurisdiction were transferred, either exclusively (Basque Country, Catalonia, Andalusia, Valencia, Aragon, Navarre and, surprisingly, Galicia and the Balearic Islands. In the latter case, management of the drovers' roads lies with the Island Councils), or within the framework of responsibilities laid down in Article 148 of the Constitution (La Rioja, Murcia, Extremadura, Madrid and, no less surprisingly than in the previous case, Asturias, Cantabria and the Canary Islands). In contrast, the Statutes of Castilla-La Mancha (1982) and Castilla-León (1983), a lamentable counterpoint, were forgotten, a situation which was not even corrected in the review of the Statutes in 1994.

But this transfer of powers does not seem to be automatic (except in Navarre, where, in fact and in law, these powers have traditionally been exercised), since, on the enactment of the Statutes of Autonomy, the period 1980-85 saw the transfer, with some haste, of central government functions and services related to nature conservation. These functions and services included, in general, those concerned with the management and administration of drovers' roads, although the central government (through the National Institute for the Conservation of Nature, ICONA) reserved the right to intervene in the disposal of land declared to be surplus, either authorising or prohibiting its sale in the entire road network (as occurred in Catalonia, and later in Madrid), or exercising the power exclusively in the case of inter-regional drovers' roads, that is, those which cross the border from one Autonomous Community to another and which are therefore considered of public interest (Andalusia, Aragon, Castilla-León, Castilla-La Mancha,

Extremadura, Murcia, La Rioja Valencia). The exception is the Basque Country, where the central administration has not reserved any powers whatsoever. This, then, gives the three models of administrative responsibility for drovers' roads: one involving exclusive administration (Navarre and the Basque Country) and the other two with shared administration (Autonomous Communities - ICONA), which, to make things even more complicated, incorporate the errors and omissions detected in the profuse and interminable lists of drovers' roads included in the annexes which accompanied each of the Royal Decrees on the aforementioned transfers of powers.

And so this is how the drovers' roads, involved in the process of decentralisation, have suffered the blow of administrative paralysis, and a lack of protection which has been exploited by new and old usurpers to infringe even further the common land. After the conclusion of this decentralisation process, the ICONA carries out its functions within the narrow limits of its residual powers, that is, the unfortunate disposal of surplus land, a loss of assets which is hardly compensated in a few Autonomous Communities by the resumption of the classification of drovers' roads in those municipalities where the task is still pending.

This destructuring of the drovers' road network, the division of responsibilities and the exercise of responsibilities under obsolete legislation could lead to nothing other than the inevitable disappearance of livestock migration, and, consequently, the "death of transhumance", as forecast at the Symposium on Transhumance and the Livestock Culture held by the Pavilion of Extremadura at the 1992 Seville Universal Exposition.

Spurred on by the growing pressure of civil society, the central government began to consider a new draft Bill on Drovers' Roads. The central administration was pushed at that time by the simultaneous actions promoted by three associations: 1) the Foundation for Ecology and the Protection of the Environment (FEPMA), which was interested in the conservation and defence of the natural and cultural heritage of the drovers' roads, and undertook a host of activities for the study and dissemination of that heritage, and in collaboration with the ICONA, it carried out a study of livestock migration in the whole of Spain (*Cuadernos de la trashumancia* - "Notebooks on transhumance"); 2) the "Concejo de la Mesta", a council of livestock owners, which, through its EU-funded "PROYECTO 2001", undertook the Herculean task of carrying out long-distance livestock migrations, with an enormous media impact; 3) the Co-ordinator of Environmental Defence Organisations (CODA), which defended the drovers' roads within the institutional sphere.

The CODA, under an agreement adopted on 2 June 1992, submitted an application to the Ombudsman's office in which, after describing the situation of drovers' roads in Spain, requested that the Ombudsman "urge the national government to draft a new Law which, reversing the current law's tendency to sell off land, contemplates other uses which the society of today demands". This application, acknowledged by the Ombudsman on 17 June 1992, was accepted and information was gathered from the different Public Administrations and recommendations were made: the Ministry of Agriculture was advised to "adopt the necessary agreements in order to accelerate the process of drafting the Bill of the Basic Law on Drovers' Roads which is currently being studied", and the Autonomous Communities received a recommendation to "adopt such measures as are necessary in order to guarantee the conservation and efficient defence of drovers' roads, accelerate work on the classification, demarcation and signage of the roads, and exercising such legal instruments as provided for under current legislation to re-establish these assets to their original state where illegal occupation has occurred".

Number 51 of the Parliamentary Bulletin, published on 24 February 1993, processing the complaint, said: "consequently, we consider that the Ministry of Agriculture should adopt the measures necessary to accelerate the process of drafting the Bill of the Basic Law on Drovers' Roads which is currently being studied". Nº 26 of the Bulletin, dated 9 June 1994, referring to the same complaint, and after repeating the sentiments expressed above, concluded by saying: "We are awaiting the report requested from said Department".

Finally, the Drovers' Road Bill was approved by the Council of Ministers on 8 July 1994, and sent to the Congress for its parliamentary hearings.

And so, in accordance with the Constitution (Art. 149.1.23), and after the corresponding procedures, the current Law 3/1995, dated 23 March 1995, on Drovers' Roads (gazetted in the Official State Bulletin nº 71, on 24.3.95) was enacted. This Law, which has the status of basic law, states in its preamble that "the network of drovers' roads [**more than 100,000 kilometres** spread throughout mainland Spain] still provides a service to the national extensive livestock industry [**700,000 head of sheep, 100,000 cattle and others, migratory on either a national or local scale**], with a favourable repercussion on the exploitation of underused pastureland resources [**over 1,000,000 hectares of marginal land**], and on the preservation of autochthonous breeds [several of which are in danger of extinction]. Drovers' roads must also be considered true **ecological corridors** which are essential to migration, the geographical distribution and genetic exchange of wild species", as is recognised under Royal Decree 1997/1995, dated 7 December 1995, which establishes measures which help to guarantee **biodiversity** through the conservation of natural habitats and of wild flora and fauna (Article 7). "Finally, and in response to a growing social demand, drovers' roads could be an instrument to enhance the **contact of people with nature and for environmental planning**", as stated in the aforementioned preamble.

In accordance with the stipulations of Law 3/1995, drovers' roads are the public property of the Autonomous Communities (Art. 2), which are responsible for the management and administration of the trails in their respective regions (Art. 5), and which in principle, and unless there is an express change in their ownership or designated function (Art. 10), must guarantee the preferential right of passage of livestock, together with other compatible uses (Art. 16) and complementary uses (Art. 17). To this end, such actions as are deemed necessary may be taken, among which are the restitution of boundaries (Art. 8). All of which is without prejudice to the acknowledgement that some drovers' roads are of general public interest, since they pass through two or more Autonomous Communities or because they are connecting routes for transboundary livestock movements, all of which make up what is known as the National Drovers' Road Network (Art. 18).

It is precisely for the better safeguarding of this general interest that the aforementioned Law gives the General State Administration the following powers (currently through the Ministry of the Environment, in accordance with the provisions of Royal Decree 1415/2000, dated 21 July 2000, which defines its basic organisational structure):

- **Intervention**, in collaboration with the Autonomous Communities, in order to **guarantee** the integrity and adequate **conservation** of the public ownership of the drovers' roads (Art. 3.2).
- **Protection** of the **National Drovers' Road Network**, through the Report on the decisions and actions taken by the Autonomous Communities which affect the network (Art. 18.3)
- **Management** (custody and upkeep) of the **Archives of the Drovers' Roads**, by virtue of their formal recognition (Art. 18.5).

For their part, some Autonomous Communities, adapting themselves to the Basic Law (but a supplementary law in Navarre), have enacted their own legislation:

- Decree 143/1996, dated 1 October 1996, which establishes the regulations for Drovers' Roads in the Autonomous Community of Extremadura (Official Bulletin of Extremadura, 17.10.96); Decree 49/2000, dated 8 March 2000, which establishes the regulations for Drovers' Roads in the Autonomous Community of Extremadura (Official Bulletin of Extremadura, 14.3.00).
- Regional Law 19/1997, dated 15 December 1997, on Drovers' Roads in **Navarre** (Official Bulletin of Navarre, 24.12.97; Official State Bulletin, 10.2.98)
- Decree 3/1998, dated 9 January 1998, which approved the regulations governing Drovers' Roads in the Autonomous Community of La Rioja (Official Bulletin of La

Rioja, 22.1.98). Law 8/1998, dated 15 June 1998, on Drovers' Roads in the Autonomous Community of **Madrid** (Official Bulletin of Madrid, 23.6.98, Official State Bulletin, 28.8.98).

- Decree 155/1998, dated 21 July 1998, which approved the regulations governing Drovers' Roads in the Autonomous Community de **Andalusia** (Official Bulletin of Andalusia, 4.8.98).

Against this background, the Environment Commission of the Congress of Deputies (Lower House of Parliament) passed a Motion on 11 November 1998 which said: "The Congress of Deputies urges the Government to draw up, in collaboration with the Autonomous Communities, a National Plan for the Recuperation of Drovers' Roads which defines the National Drovers' Road Network and specifies the instruments to which inter-administration co-operation must adjust itself, as provided for under Article 3.2 of Law 3/1995 on Drovers' Roads".

Under the powers conferred by **Law 3/1995**, and in compliance with the request contained in the **Motion of 1998**, the Ministry of the Environment, through its Directorate General for Nature Conservation, has implemented a Plan, in collaboration with the **Autonomous Communities**, for the definition and recuperation of drovers' roads (especially those forming part of the National Network) whose most significant results to date have been the following actions:

- Studies for the definition of the National Network.
 - Cartographic digitalisation, on the basis of maps of the provinces (scale: 1/200,000) of the Drovers' Road Network in the Autonomous Communities of Castilla-León, Castilla-La Mancha, Extremadura and Madrid (1999 - 2000).
 - A collaboration agreement signed on 17 June 2000 between the Ministries of Agriculture, Fisheries and Food and of the Environment, on the one hand, and the Autonomous University of Madrid on the other, in order to carry out a study of the population of local or longer-distance migratory livestock and of the drovers' roads in northern Spain (Galicia, Asturias, Cantabria and the Basque Country). 2000-2001.
- Projects for the recuperation of drovers' roads:
 - Co-operation agreement signed on 18 March 1999 (Official State Bulletin, 14 April 99), extended in 2000 and modified in 2001, between the Ministry of the Environment, the General State Administration, and the Regional Ministry of Agriculture and Trade of the Regional Government of Extremadura, for the execution of the project for the definition and demarcation of boundaries and the signage of drovers' roads in the Badajoz-Cáceres corridor, with its prolongation from Badajoz to Valverde de Leganés and the Cáceres-Malpartida de Cáceres (Lavadero de Lanás in Barruecos) and Cáceres-Bis branches (Roman bridge at Salor).
 - Specific collaboration agreement, signed on 14 December 2000 (Official State Bulletin, 2 January 2001), between the Ministry of the Environment, the General State Administration, and the Regional Ministry of the Environment of the Regional Government of Castilla-León, for the execution of the project for the definition and demarcation of boundaries and the signage of the Real Soriana Occidental drovers' road in the Ayllón-Villacastín section in Segovia.
 - Specific collaboration agreement, signed on 27 November 2001 (Official State Bulletin, 18 February 2001.) between the Ministry of the Environment, the General State Administration, and the Regional Ministry of the Environment, Regional Planning and Housing of the Regional Government of Navarre, for the execution of the project for the definition and demarcation of boundaries and the signage of the Cañada Real de las Provincias drovers' road and the Pasada Principal on the River Ebro.

(^{*}): This paper includes part of presentation of the same title given by the author at the Meeting on Livestock Migration, Drovers' Trails and Rural Development held in Logroño (La Rioja) in May 2001.

ANDALUSIAN DRIVERS' ROAD RECUPERATION AND PLANNING PROGRAMME

Mr. Manuel Requena García

Technical Secretary General

Ministry of the Environment of the Andalusian Regional Government

As Technical Secretary General of the Regional Ministry of the Environment, it gives me great pleasure to present the action we have taken to recover and prepare for use the drivers' roads in our Community, since they belong to all Andalusians.

Drivers' roads in Andalusia make up an enormous network of trails that goes beyond their original function, which has by today largely been abandoned, and become a valuable historical legacy which recalls bygone customs and lifestyles.

The Autonomous Community of Andalusia has the largest such network in Spain, with more than 30,000 kilometres, or 25% of the nation's total.

In 1984, the Regional Government of Andalusia assumed exclusive policy-making powers over drivers' roads. At first, these powers were exercised by the Andalusian Institute for Farming Reform (IARA) and later, since 1994, by the Regional Ministry of Environment. The latter transfer of policy-making powers took place almost simultaneously with the enactment of the Drivers' Road Act of 23 March 1995, which is currently in force.

This Act is the starting point for analysing the task undertaken by the Regional Government in the recovery and re-use of the important common land of the drivers' roads, since it represents a radical change from previous regulations.

The starting point is the statement that drivers' roads, beyond their livestock migration function, are a historical legacy of great value and their preservation must be guaranteed by the new functions and uses established for them under current regulations. Indeed, in the 21st century, this network plays a basic role for a modern society such as ours. Drivers' roads are an essential element in spatial planning, since they favour the landscape (especially in urban environments), enhance biodiversity by allowing genetic exchanges of species and they allow for environmentally-sound leisure activities.

Firstly, in 1996, the Regional Ministry of the Environment drafted the **Andalusian Drivers' Road Inventory**, whose ultimate purpose was to set up a computerised drivers' road database to facilitate actions aimed at their preservation and recovery.

"The database is made up of digital cartographic information on a scale of 1:50,000, which includes the course of drivers' roads and sites associated to them (rest and watering areas, pastures, etc.) and alpha-numeric information related to the different sections of drivers' road, which describes in detail the itineraries and other characteristics, in line with the provisions of the different Classification Projects"

This project provides an ideal tool for the performance of different analyses: visualisation, consultations, map entries and statistics.

The second crucial step undertaken by the Regional Ministry of the Environment was the **enactment by means of Executive Order 155/98, dated 21 July 1998, of the Drivers' Road Regulations of the Autonomous Community of Andalusia**. These start by acknowledging the reduction of the original functions of drivers' roads and updates their role within the current territorial and socio-economic framework. Furthermore, these regulations integrate them into spatial planning and organisation, as well as into environmental planning. In short, the

regulations govern their new, wider functions and provide for the mechanisms required to ensure their preservation and use.

The following step was the compilation of the **Documentary Archives on Drovers' Roads in Andalusia**, the essential cornerstone for knowledge and management of drovers' roads and for providing information to interested bodies and citizens. It includes a census of all drovers' roads as well as copies of all documents, maps and the prior history related to drovers' roads kept up to that moment at the Ministry of Environment, the National Historical Archives and the Archive of the Spanish Stockbreeders Association.

Furthermore, according to the First Additional Provision of the Drovers' Road Act, the urgent classification had to be undertaken of all those drovers' roads which had still not been classified. As a result, drovers' roads in 113 municipalities have been classified to date.

In parallel, the Regional Ministry of the Environment has undertaken the arduous task of the **Demarcation of drovers' roads**. So far, a total 1,085 km have been demarcated, and the demarcation of further 3,000 km has been started.

However, the decisive step in the work performed by the Regional Ministry of the Environment has been the drafting and implementation of the **Drovers' Road Recuperation and Planning Programme of the Autonomous Community of Andalusia**, approved by a Cabinet Agreement on 27 March 2000 (Official Bulletin of Andalusia, nº 7412001, dated 30 June).

In the period 1996-2000 (pending 2001 updates), 1,896,267,775 pesetas was invested. Likewise, investment of 4,177,179,872 pesetas is planned for the 2001-2003 period (pending information up to the year 2006).

The Drovers' Road Recuperation and Planning Programme of Andalusia

The region's Drovers' Road Recuperation and Planning Programme has become an essential planning instrument of the Regional Ministry of Environment.

- It defines the Andalusian Drovers' Road Network, which is the sum of drovers' roads whose availability is feasible and with a potential to host the uses defined in the Plan:
 - Traditional use (long and short range transient herding, itinerant herding and farm communications)
 - Tourist-recreational use (popular pilgrimages, horseback riding, hiking, bicycle tourism, etc.)
 - Environmental use (environmental corridors, biodiversity enhancement, etc.)
- It establishes a programme of actions required for the recovery and use of the Network, determining priority levels and budget estimates for each of the action and management levels foreseen.
- The expected implementation period is twenty years with a total investment of 33,936,721,000 pesetas.

The plan has been drafted by a multi-disciplinary team including biologists, geographers, engineers and lawyers, historian, among others, with the encouragement and guidance of the Drovers' Road Plan Office, which was set up for this purpose and which forms part of the Technical General Secretariat.

The Plan starts by considering drovers' roads from a three-fold approach:

Firstly, as a **spatial structuring element**, its integration into the Spatial Organisation Plan of Andalusia is based on its active participation in the structuring of the territory, and more specifically in:

- Facilitating the connection of the urban system with its surrounding natural resources.
- Preventing the occupation of rural natural spaces of special heritage interest.
- Favouring landscape diversification.

- Harmonising urban and rural activities in the territory.
- Contributing to urban planning in cities.
- Contributing to the configuration of the General System of Open Spaces.

Secondly, as an essential element in **environmental planning**. This role results in the establishment of environmental corridors among natural spaces which have been recognised by the Administration and which have their own management plans, as established by Directive 92/43 (Preservation of natural habitats and wild fauna and flora).

Finally, the role of drovers' roads in **rural development**, insofar as they discourage depopulation in degraded rural areas due to their high potential for the development of socio-economic activities, among them environmental tourism, valorising the cultural and historical heritage, promotion of hand-crafted products, etc.

The following stages have been followed in the drafting process of the Drovers' Road Recuperation and Planning Programme of the Autonomous Community of Andalusia:

- Firstly, **definition and characterisation of uses**.
- Second, **definition of the working methodology**, by means of the selection, appraisal and weighting of variables considered of interest for the different uses foreseen, as well as the procedures to be followed for field collection of the data necessary for the recovery, restoration and application of uses in the trails.
- In third place, the **Drovers' Road Inventory** stage was carried out. This consisted of placing all the information on maps (geo-referencing) in order to link it to the territory and thus integrate drovers' roads into spatial planning.
- Fourthly, we proceeded to **analyse the information and allocate uses**, establishing priority levels for each use.
- Afterwards, following the order of priority, **field data collection** was started, putting the information on a 1:10,000 scale map of Andalusia.
- Finally, **Action and Maintenance Plans** were drawn up, taking into account the use proposed for each drovers' road and its condition. Likewise, all measures proposed have undergone financial evaluation.

In short, by means of modern information techniques and using a powerful geographical information system, fed by other multi-sector and geo-referenced information sources, we now have a profound knowledge of drovers' roads in Andalusia, and of the territory they cross, allowing for an analysis of the functional potential of this extraordinary public road network.

After excluding all discontinuous sections of drovers' roads, as well as those overlapping with roads, railroads or reservoirs, or those within urban areas, there is a total of **24,015 kilometres** of drovers' roads, which will make up the **Andalusian Drovers' Road Network**.

This network has been broken down by the relative importance of each route or itinerary as follows:

Priority 1: 9,441 km
Priority 2: 7,957 km
Priority 3: 6,617 km

The **actions required** to prepare the Network for use are as follows:

Firstly, regardless of the type of use established, the **common actions** are: administrative actions, including classification, demarcation and recovery of the drovers' roads making up each route; and general actions, including signage, cleaning and landscape regeneration.

And secondly, **specific actions** are needed, depending upon the uses established for each route:

- In the case of *livestock routes*, we can mention the separation of the routes when their borders run along canals, roads or other infrastructure in order to prevent accidents; the restoration of livestock farming infrastructure such as drinking troughs, resting grounds, pens, etc.; the incorporation of specific elements to facilitate livestock transit; afforestation for areas of shade, etc.
- On *tourist-recreational routes*; the adaptation of the surface in order to allow for leisure activities such as hiking, cycling or horse-riding; construction of public facilities (bicycle parking areas, bicycle trails and rest areas); afforestation for landscape improvement and making drovers' roads more attractive as walking or riding itineraries, especially in urban environments.
- On *environmental routes*, plant restoration is important due to the function plants perform.

The action programme has been established in three stages, in line with the levels of importance defined for the Network. Thus, actions in the priority 1 Network will take place from 2001 to 2010, priority 2 in 2011 to 2015 network and priority 3 between 2016 and 2020.

A very important aspect we should underline is the integrated approach to the processes of recovery and use of drovers' roads, so that all trails being demarcated will be adapted to the actions proposed for them. The idea is to adapt the drovers' roads to their planned purposes as soon as possible, since this will help to ensure their preservation, as users have the greatest interest in denouncing any encroachment or activity detrimental to the functions established or promoted by the administration.

Focusing on the actions started in 1996, the most significant is the following:

- 1- Firstly, the establishment of a **Green Corridor connecting the Bay of Cadiz with the Bay of Algeciras** by means of twelve drovers' roads, with a total length of 85.7 km crossing the municipalities of Puerto Real, Medina Sidonia, Benalup and Los Barrios.

The Green Corridor crosses one of the largest, most important natural areas in the province of Cadiz, and it ends in the Campo de Gibraltar, another important urban area in the province.

The corridor fulfils a dual task: on the one hand, it serves as a territorial link between two protected natural spaces, the Bay of Cadiz Natural Park and the Los Alcornocales Natural Park, breaching the isolation of both protected spaces, thus favouring the genetic exchange of animal and plant species and therefore, biodiversity in both natural spaces. On the other hand, this axis should help to dynamise the economies of the municipalities it crosses. The historic and cultural heritage of these municipalities together with the different habitats and ecosystems make the Corridor an ideal scenario for environmentally-sound leisure activities and environmental education, without detriment to the stock breeding use existing in some sections of the Corridor.

Among the actions planned, we can highlight the following:

- The construction of a 35-kilometre cycle path
- The recovery of trails through the repair of the roadbed
- Levelling and compacting
- Reforestation in order to create shaded areas to favour transit on drovers' roads and to increase landscape value
- Placement of 178 signs of different types (starting, landmark, direction, identification and complementary signs)
- Creation of a recreation area in the Descansadero del Jaramillo, sealing of landfills, as well as the construction of gullies, footbridges and watering troughs.

- 2- Secondly, and as an example of the function of drovers' roads as spatial structuring elements, more specifically in the construction and structuring of Open Spaces in urban and metropolitan areas, we can highlight the establishment of the **Green Corridor of the Metropolitan Area of Seville**. The purpose is the creation of a green corridor using

drovers' roads to connect existing metropolitan parks, and the integration of planned parks in Seville and the nearby Aljarafe into the existing bicycle path network, without ignoring its function as a linear space for tourist and recreational use. The project includes landscape regeneration and the construction of a 61-kilometre cycle path, mainly on drovers' roads. However, in order to cross some large infrastructures such as the main Seville-Cadiz road, part of the green corridor has been moved to follow the bank of the River Guadaira.

The Plan entails an investment of 582,055,000 pesetas and foresees landscape regeneration covering 122 hectares.

The species selected are mostly indigenous, although, for certain sections close to towns and cities, typical decorative urban species have been selected for their greater colour, vigour and diversity. In the afforestation, endangered indigenous species have been used whenever possible in order to favour their preservation and raise public awareness of them.

The green corridor planned is included in the Spatial Development Plan and due to the intrinsic characteristics of the drovers' roads which form part of it and the environmental improvements proposed, it will be an optimal territorial element to meet the demand for landscaped and recreational areas in the metropolitan area of Seville.

- 3- A further action to be highlighted is the organisation and use of the drovers' roads of the Las Cañadas Park, located in the municipality of Puerto Real (Cadiz), which will open up 9 drovers' roads of great environmental importance, beauty and cultural value. It connects two very significant natural spaces, the Bahía de Cadiz Natural Park and the Natural Reserve of the Landlocked Water Basin of Puerto Real. Furthermore, they also link them to the Dos Bahías Green Corridor.

Planned investment is 144,363,086 pesetas.

- 4- The public route of the itinerary called "**Camino de los Neveros**" also deserves special mention. It is based on the drovers' road network located in the municipalities of Huetor Vega, Monachil and Güejar Sierra. Historically, this itinerary has linked the Granada basin and the Sierra Nevada mountain range to facilitate summer and winter grazing. In addition to the ethnographic interest of the route, which crosses protected areas of the Sierra Nevada National Park, it also has an important environmental value as a protected space.

Planned investment is 84,109,599 pesetas.

- 5- Likewise, 3 new projects have been started this year which evidence the role of drovers' roads in the configuration of Open Space Systems. These are the demarcation of several roads for the creation of a Open Space System on the North Western Coast of the province of Cadiz, on the Western coastline of Huelva and in the Urban Area of Granada, with total budgets of 26,609,836 pesetas, 53,010,842 pesetas and 64,135,089 pesetas, respectively.

- 6- Finally, under the **Recovery Plan for the drovers' road network of the surroundings of Doñana**, we can highlight:

- Creation of the Doñana-Sierra Norte Route, mainly for tourist-recreational use, which connects two of Andalusia's important ecosystems, the marshlands and the Mediterranean forest, with a total length of 126 kilometres.

Construction of a bicycle path in the Vereda del Camino del Loro, with a total length of 23.9 kilometres linking the town of Moguer with the Doñana Natural Park, where it connects to the Matalascañas-Mazagon bicycle path, thus creating a medium-range bicycle route through an area of high environmental and cultural value.

The demarcation of the following routes has started this year in preparation for their future use:

Livestock routes:

- "Cañada Real Conquense Route" (Jaen), with a budget allocation of 14,363,760 pesetas.

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- "Baños de la Encina-Río Rumbal Route " (Jaen), with a budget allocation of 2,012,003 pesetas.
- "Despeñaperros-Cañada Real de la Encina Alta Route" (Jaen), with a budget allocation of 7,823,115 pesetas.
- "Red principal de la Comarca Turístico-Minera Route" (Jaen),with a budget allocation of 14,051,890 pesetas.
- "Invernadero Sierra de Segura-Invernaderos Comarca del Condado Route" (Jaen), with a budget allocation of 18,409,220 pesetas.
- "Arjona-Arroyo de Ajona Route" (Jaen), with a budget allocation of 2,578,257 pesetas.
- "Estación de Vadollano (Linares)-Navas de San Juan Route" (Jaen), with a budget allocation of 7,979,737 pesetas.
- "Baños de la Encina-Río del Rumbal Route" (Jaen), with a budget allocation of 9,108,226 pesetas.
- "Alto Guadalquivir-provincia de Ciudad Real" (Jaen), a route for livestock and environmental use with a budget allocation of 22,545,673 pesetas.
- "Lugros-Guadix Route" (Granada), with a budget allocation of 8,409,448 pesetas.

Environmental routes:

- "Sierra de Cabrera-Sierra de Filabres Route" (Almería) with a budget allocation of 11,122,781 pesetas.
- "Haza del Alamo-Matarribazos Route" (Jaen), with a budget allocation of 771,066 pesetas.
- "Cañada Real de los Isleños Route" section linking it to the "Guadamar-Pinares de Aznalcázar Green Corridor" (Seville), with a budget allocation of 6,516,255 pesetas.

Tourist-recreational routes:

- "Parque de las Cañadas Route (Cadiz), with a budget allocation of 144,363,086 pesetas.
- "Camino de los Neveros" (Granada), with a budget allocation of 84,109,599 pesetas.
- "Zuheros-La Zagrilla Alta" (Cordoba), with a budget allocation of 2,698,734 pesetas.
- "Zuheros-Priego de Córdoba Route" (Cordoba), with a budget allocation of 11,646,321 pesetas.
- "Sierra de Huetor- Parque Nacional de Sierra Nevada Route" (Granada), with a budget allocation of 8,409,448 pesetas.
- "Sierra Nevada-Campo de Dalías Route" (Almeria), with a budget allocation of 12,240,963 pesetas.
- "Sierra de Aracena Route" (Huelva), with a budget allocation of 18,670,523 pesetas.
- "Sierra de Andújar (Jaen) Route", with a budget allocation of 7,441,597 pesetas.
- "Salida de Torres Route and North-South itinerary in the municipality" (Jaen), with a budget allocation of 5,212,733 pesetas.
- "Balneario de Marmolejo Route" (Jaen), with a budget allocation of 3,987,862 pesetas.
- "Linares-Baños, de la Encina Route" (Jaen), with a budget allocation of 8,421,816 pesetas.
- "Linares-Río Guadalimar Route" (Jaen), with a budget allocation of 4,305,123 pesetas.
- "Ronda-Jimena-Los Barrios Route" (Malaga-Cadiz), with a budget allocation of 30,246,088 pesetas.
- "Priego de Córdoba-Cartojal Route" (Cordoba-Malaga), with a budget allocation of 19,792,664 pesetas.

**SESSION 1: LEGAL AND SOCIAL ASPECTS OF THE OLD DROVERS'
ROADS**

THE LEGAL FRAMEWORK OF THE OLD DROVERS' ROADS

Mr. José Francisco Alenza García

Professor of Administrative Law

Public University of Navarre

I. Introduction

Current law defines the Old Drovers' Roads as "routes or itineraries along which livestock travels or has travelled" (Art. 1.2 of the Drovers' Roads Law).

This livestock transit had its origin in transhumance, or seasonal migration, whose objective was to complement the pasturelands of the place of origin with others available in distant regions. But in addition to the geographic features that make it possible to complement the pasturelands in different regions, transhumance requires the co-operation of political, legal, and economic factors, which ensure, among other things, the maintenance of the herdsmen's roadway system.

This herdsmen's roadway system has been protected under Spanish law since at least the 13th century. The historical evolution of the regulations governing drovers' roads has been characterised by continuity in the guardianship of the roads, the purposes for which they were used and, unfortunately, the inefficiency of the legal protection afforded to them. This continuity was broken with the 1995 Law on Drovers' Roads and the regional provisions related to the Law, which have created a new paradigm for the drovers' roads.

The present work is a short summary about the legal framework of the drover's roads in Spain. This Conference has got an international and multidisciplinary nature so I have put my attention in the most significant matters about the legal framework of the drover's roads (legal concept and their legal nature as public dominion, whereas their framework of use and protection). I have avoided going into, as much as I can, the procedural and organic aspects of this legal framework. In order to know these items I refer to the works which appear in the bibliographic note.

II. The New Legal Paradigm for the Old Drovers' Roads

The paradigm upon which the traditional regulations were based conceived the old drovers' roads as common land used for livestock transit which would provide economic profit when they were no longer necessary.

With the decline of long distance livestock migration, the only way of revitalising the drovers' roads was to find new functions which would raise the valuation of their usefulness. The 1995 Law on Drovers' Roads therefore redefined the roads on the basis of that plurality of public use and the regulation of those different uses.

The new legal paradigm of the old drovers' roads can be summarised in four points:

1. Functional diversity of drovers' roads and the correlative admission of their multiple uses
2. Drovers' roads are the common land of the Autonomous Communities
3. Drovers' roads are no longer "relaxed" common land, but become "super-reinforced" common land
4. The primary functions of drovers' roads are livestock transit and the ecological function.

In short, the old paradigm under which the old drovers' roads were used only for livestock and agricultural transit (or abandonment if they were no longer in use), which led to their disappearance, has been discarded. Now, though not used for the movement of livestock, they can be maintained thanks to other public functions assigned to them.

III. Regulatory Legislation

The new concept of the central government's Law on Drivers' Roads of 1995 has encouraged some Autonomous Communities to draw up their own provisions on the matter, which are, in chronological order:

- Regional Law 19/1997, passed on 15 December 1997, on drivers' roads in Navarre;
- Regulations governing drivers' roads in the Autonomous Community of La Rioja (Decree 3/1998, dated 9 January 1998);
- Law 8/1998, dated 15 June 1998, on drivers' roads in Madrid;
- Regulations governing drivers' roads in the Autonomous Community of Andalusia (Decree 155/1998, dated 21 July 1998), and
- Regulations governing drivers' roads in the Autonomous Community of Extremadura (passed under Decree 49/2000, dated 8 March 2000, which replaced the previous regulations under Decree 143/1996).

Together with this law, one must take into consideration the regional legislation that affects the protection or use of drivers' roads in some way (animal health legislation, traffic and roadway legislation; regulations on the circulation of motor vehicles in the countryside; urban legislation; legislation on natural spaces; hunting laws, land reorganisation legislation, etc.).

IV. Legal Concept of Drivers' Roads

Drivers' Roads are defined as "routes or itineraries along which livestock travels or has travelled" (Art. 1.2 of the Drivers' Road Law). But they are more than just roadways. Specifically, the different categories of drivers' road are:

"1. The term "drivers' road" generically refers to: livestock paths, ways and trails.

- a) "Cañadas" are those whose width does not exceed 75 metres.
- b) "Cordeles" are those whose width does not exceed 37.5 metres.
- c) "Veredas" are those whose width does not exceed 20 metres.

2. These distinctions are compatible with other customary terms ("azagadores", "cabañeras", "caminos ganaderos", "carreradas", "galianas", "ramales", "traviesas", ...) used both in Castilian and the other official Spanish languages.

3. Those watering places, rest areas and other places associated with livestock whose surface fulfils the criteria of the act classification of drivers' roads. Additionally, the width of the livestock paths will be determined by said classification act" (Art. 4, Drivers' Road Law).

V. Legal Nature and Functions of Drivers' Roads

There is no doubt that, legally speaking, drivers' roads are common land (public dominion), of which there are two basic types:

a) Common land (public dominion), which is the *property of the autonomous communities*. The Autonomous Communities are the owners of this common land. This autonomous ownership is not the direct consequence of the constitutional distribution of responsibilities and powers (Spanish Constitution, Art. 149.1.23). Responsibility in this field has been decentralised to a much greater extent than that specified in the Constitution.

Nevertheless, a National Drivers' Road Network has been created "which includes all those drivers' roads and other livestock trails which guarantee the continuity of said roads, provided that their itinerary crosses two or more Autonomous Communities, and also those drivers' roads which serve as links or connections for cross-border livestock movements". The central government retains some powers over these drivers' roads (such as the obligatory, non-

binding, prior report by the Ministry of Agriculture, Fisheries and Food in procedures involving a change in the permitted usage, expropriation or other processes which might affect the drovers' roads and the management of a Documentary Archive on the drovers' roads).

b) *Super-reinforced* common land. Drovers' roads are no longer subject to a relaxed system of common land management: not only do they have the typical characteristics common land (public dominion) (non-prescription, inalienability) but they also reinforce other systems of protection (such as the demarcation of drovers' roads, which now has sufficient legal effect to rectify contradictory registry situations).

The status of common land (public dominion) is based on the earmarking or reservation of the land to one or several public ends or purposes. Drovers' roads are common land insofar as they are reserved for a specific public use, which is manifested in the following functions:

1. Livestock transit and agrarian communication. Livestock transit was the origin of the drovers' roads and is still their main and most important use.
2. Ecological function. This function is carried out in various ways:
 - by the intrinsic ecological value of the drovers' road ecosystem;
 - by their suitability as an ecological corridor connecting natural enclaves;
 - by their ability to protect natural spaces;
 - for their landscape value; and
 - as nature classrooms for environmental education.
3. Leisure and recreation for the citizens.
4. Historical-cultural function: they are a testimony to the past and the culture of our country.

VI. Use of Drovers' Roads

The multiple functions assigned to drovers' roads allows many different activities to take place on them. Three types of usage can be distinguished, depending on the legal situation of these activities:

1. *General common uses* which are free and do not require authorisation:
 - a) Livestock transit along drovers' roads is a priority. It is open to all, and without cost.
 - b) Compatible uses (agrarian uses) are also free in general, though agrarian communications using motor vehicles and the cultivation of crops face some restrictions.
 - c) Complementary or leisure-recreational uses (walking, hiking, and horse-riding) do not require prior authorisation, though there could be temporary restrictions in certain cases (sensitive ecosystems, forest masses with a high fire risk, protected spaces, etc.).
2. *Special common uses*. These are compatible and complementary uses that require prior authorisation due to their special characteristics. Specifically they are the following:
 - a) Organised and collective complementary uses. When the recreational and sporting use of drovers' roads is collective or organised, the use of the roads is more intense, and is therefore considered to be a special use. This use is not free and open, but is subject to the permission of the competent authority and the payment of a fee.
 - b) Circulation of non-agricultural motor vehicles. Subject to prior authorisation that can only be given "in special circumstances and for specific and concrete uses" (Drovers' Road Law, Art. 16.1). This is generally a very minor use, due to regional legislation governing the use of motor vehicles in natural spaces.
3. *Private use*. This is the temporary occupation of drovers' roads and the use of the products left over from the old drovers' roads (the main use is granted to cattle). This private use requires prior adjudication by the Autonomous Community and is temporary, with a maximum duration of ten years. (Arts. 14 and 15, Drovers' Road Law).

VII. The Protection of Drovers' Roads

A) Permitted use and classification of drovers' roads

Historically, the regulation of drovers' roads has never made any reference to their specified, permitted use, or "*afectación*". The age-old existence of the roads, and their progressive fall into disuse made it unnecessary to create new drovers' roads. Applicable legislation, though, did contemplate the possibility of the creation, extension or reestablishment of drovers' roads. All of these operations would involve the reservation of the land concerned for public use as drovers' roads and for the other purposes inherent to such roads.

The relative unimportance of the reservation or earmarking of the land in this way is compensated by the importance of the *classification* of the drovers' roads, which is defined as the "administrative declaration by virtue of which the existence, width, route and other general physical characteristics of each drovers' road are determined" (Art. 7, Drovers' Road Law).

The classification has, historically, had very different purposes (classifying the roads as necessary or unnecessary; determining their direction, width and axis; determining the surplus land of the roads; resolving the modifications and permutations which arise during the classification procedure; and, since 1944, determining the existence and category of the drovers' roads). Today, with the distinction between necessary and unnecessary drovers' roads having fortunately been abolished, the classification has the primordial aim of determining the existence of the roads.

This does not mean that the classification creates the drovers' road. The roads pre-date the classification, but the classification is necessary in order to give substance to the reservation or earmarking of the land which is generically established by law for all drovers' roads. This is the real meaning of the classification today: to act as a concrete vehicle for the legal declaration of public rights over a specific terrain as common land. Or, to put it another way, the classification of a drovers' road is an express act which exclusively reserves land as common driving land.

The classification also determines "the width, route and other general physical characteristics of each drovers' road" (Art. 7, Drovers' Road Law) and also, where appropriate, the surface area or width of the watering places, rest areas, runs, folds or other parts of the system which do not have a legally predetermined width (Art. 4.3, Drovers' Road Law).

The aim of the classification, then, is to determine the existence and to lay down the general physical characteristics of each drovers' road. Demarcation deals with the specific characteristics, but may not alter the provisions of the classification.

B) Repeal of permitted use and modifications to the route of drovers' roads

Historically, the *repeal of the reservation* of land for use as drovers' roads has not specifically been regulated. Classification as an unnecessary drovers' road implied the repeal of the reservation. Today, when a drovers' road is subjected to the repeal of reservation procedure, there are some limits: the reservation can only be repealed if the land occupied by the drovers' road is not "adequate" or is not "appropriate for the uses" that led to its status (Art. 10.1, Drovers' Road Law). These limitations become absolute prohibitions under some regional legislation, in cases where the drovers' road in question have been declared of natural or cultural value (although this declaration is only an additional formal limit: in order to repeal the reservation of these drovers' roads, the declaration of natural or cultural value would first have to be rescinded).

As well as the express repeal of the reservation of the drovers' roads, there can also be an implicit repeal derived from the *modification of the route* of the roads. Such modification has two different aspects: firstly, it supposes the repeal of the reservation of the land occupied by the old

route, and secondly, at the same time, it implies the reservation for a specific purpose of the land of the new route.

Current legislation contemplates several different circumstances which justify the alteration of the route of a drivers' road, including one case where a route may be altered for general reasons ("in the public interest and, under exceptional circumstances and when the justification is demonstrated, in private interest"); and two specific cases where they may be altered due to new territorial planning requirements or the execution of public works (Arts. 11 to 13, Drivers' Road Law). An additional case also exists under sectoral legislation: the change of the route as a result of land reorganisation, that is, the consolidation of many scattered, fragmented plots of land into single plots. In all of these cases, the modification of the drivers' roads must, apart from following the procedures established for the purpose, guarantee the following conditions:

1. Maintenance of the surface area. The surface area of drivers' roads whose reservation is to be repealed must be equal to that of the new route.
2. Appropriateness of the itineraries and routes to the fulfilment of the functions performed by the original route of the drivers' road.
3. Continuity of the transit of livestock and of the other compatible and complementary uses.

C) Non-commercial nature of the drivers' roads

Current legislation stipulates the *inalienability* of the drivers' roads (that is, the impossibility of its disposal or sale as long as it preserves its status as common land) (Art. 3, Drivers' Road Law) and regulates the repeal of their reservation for their specific purpose. In accordance with the typical characteristics of common land, it is now recognised that "land whose reservation has been repealed or which is repealed in the future shall be the property of the Autonomous Communities, and the public or social interest shall prevail in their future use" (Art. 10. 2, Drivers' Road Law).

It also declares, without any exceptions whatsoever, the *non-prescription* of the drivers' roads (the usurpation of land cannot be legitimised through the passage of time) (Art. 2, Drivers' Road Law).

These two characteristics make the drivers' roads "*res extracommercium*", that is, goods which are "outside the commerce of men", and which can only come "inside" that commerce if, through the appropriate repeal of reservation procedure, they cease to be drivers' roads.

D) Administrative self-guardianship of drivers' roads

These powers of self-guardianship have been reinforced with the new regulations on drivers' roads. In particular, *demarcation*, which today has sufficient legal force to declare "the possession and public ownership in favour of the Autonomous Community" of the drivers' roads demarcated, "and inclusion in the Property Register shall not prevail against the public nature of the land demarcated". Furthermore, "the resolution approving the demarcation shall be sufficient title to rectify contradictory legal situations in the Registry as regards the demarcation" (Art. 8, Drivers' Road Law).

The *marking* of the drivers' roads is the administrative procedure by virtue of which, once the demarcation is approved, the limits of the drivers' road are determined and signposted permanently on the ground (Art. 9, Drivers' Road Law). This signage shall be effected by means of signposts or milestones, and when they mark drivers' roads which form part of the National Network, the fact must be indicated.

The *recuperation of the function* of the drivers' roads is the responsibility of the regional administrations. The regional authorities have the duty to act *ex - officio* to recover possession of the drivers' roads which have been wrongly occupied by third parties. This responsibility is regulated not under the Drivers' Road Law, but under the regional legislation on drivers' roads.

■
E) System of sanctions

The Drovers' Road Law classifies infringements into different categories: very serious, serious and minor, which prescribe in five years, three years and one year, respectively. The types of infringement carry fines in proportional amounts, which prescribe after three years, two years and one year, respectively (Art. 24, Drovers' Road Law). The seriousness of the infringement depends, generally, on the effect it has on the use of the drovers' roads, where the greater the obstruction of said use, the more serious the infringement.

■
Otherwise, the system of sanctions under the Drovers' Road Law follows the sanctioning principles of Administrative Law. As regards its application, it should be highlighted that the jurisprudential criterion applied is that before any sanction can be applied, the drovers' road which has been the object of intrusion must previously have been classified and demarcated. This circumstance is only required if the existence of the drovers' road or its limits are in doubt; if no doubts exist, or if this does not affect the certainty of the infringement, the prior classification and demarcation is not a requirement (STS, 8 October 1999).

F) Additional protection of drovers' roads for territorial, environmental or cultural reasons

Drovers' roads may receive further protection in addition to that afforded by their own regulations under other provisions relating to territorial or urban planning, environmental protection or the protection of the cultural heritage.

Territorial planning, insofar as it aims to co-ordinate all of the actions which have an effect on the territory, is fundamental to the conservation of the network of drovers' roads. *Urban planning*, though, affords even greater protection as it classifies the land of the drovers' roads as non-building land, since it fulfils the requirements for such classification. When they are not classified as non-building land, drovers' roads can retain their status within an area of building or non-building land if they remain dedicated to the functions for which they were intended. The chances that this happens depends on their integration into these classifications of land as elements of the general communications system or as elements of the general system of open spaces.

Drovers' roads may receive special protection under *environmental regulations* in at least two cases: when they cross protected natural spaces or when they themselves constitute protected spaces:

- a) When they cross protected natural spaces: drovers' roads are subject to the specific and stricter regulations of the natural space in question. This is stipulated under the 3rd Additional Provision of the Drovers' Road Law and has been confirmed by jurisprudence, when it was categorically stated that "the regulations of the Natural Park and of natural spaces have precedence and prevail over the general regulations of the drovers' roads" (STS, 11 November 1997).
- b) When the drovers' roads are considered natural spaces in their own right: in this case they are protected either through their classification as one of the different types of natural space defined under Law 4/1989 on the conservation of natural spaces and wild flora and fauna, or under regional legislation on natural spaces, or under the Habitats Directive (Directive 92/43/EEC, of the Council, on the conservation of natural habitats and wild flora and fauna). One of the objectives of the latter is the creation of a network of significant European natural spaces called the Natura 2000 Network. This network will include those spaces which are host to habitats of community interest, and in order to improve the ecological coherence of the network, "all those elements which, due to their linear or continuous structure, or due to their role as linking points, are essential for the migration, geographical distribution or genetic exchange between wild species" are eligible to join. These conditions are fully met by the drovers' roads, as acknowledged under Article 7 of Royal Decree 1997/1995, dated 7

December 1995, which establishes measures to contribute to biodiversity through the conservation of natural habitats and wild flora and fauna.

The *cultural* relevance of the drovers' roads has given rise to the proposal to include them in Spain's Historical Heritage through their classification as an Historical Complex, in the same way as was the Pilgrim's Route to Santiago. This classification should only apply to those drovers' roads (or stretches of them) which are perfectly identified and in which there is an authentic, important element of historical and cultural interest.

VIII. Final Remarks

In the long process of deterioration that the old drovers' roads have suffered since the 18th century, legislation must bear a large share of the responsibility. The new regulations have set the basis for the preservation of this unique part of our environmental and cultural heritage.

To ensure that these regulations do not lapse into the chronic inefficiency seen in the past is the task, firstly, of the competent authorities (the regional administration and also the central government, in the case of the drovers' roads which form part of the National Network) which are responsible for their effective enforcement and, especially, they must develop all of the potential of the new regulations, disseminating the values and functions of the drovers' roads and encouraging the varied new ways of using and exploiting this common land.

But users will also be responsible for the maintenance of the old drovers' roads and, above all, the owners of adjacent land, who should make sure that the land occupied by the roads, even though not used for agriculture, and even if it is not used for livestock migration, fulfils its ecological and cultural functions. The infrequency of use for livestock, or the complete lack of such use, does not suppose, as has been the case in the past, that the drovers' roads are unnecessary. When the neighbouring farmers are aware of the importance of these roads, we can be confident that this common land and the ecological and cultural functions it fulfils will finally be respected by the ploughs.

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DROVERS' ROADS AND FARMERS: AN INSOLUBLE CONFLICT?

Mr. Vicente Pérez García de Prado

Technical Secretary General
ASAJA Andalusia

We must start by understanding that the conflict between crop farmers and the administration over drovers' roads is no more than a sectoral aspect of the wider clash between property owners (urban, rural, industrial) and the public powers which, due to the specific idiosyncrasies of rural property and the particular strictness of the administration with farmers, has ended up degenerating into a more serious conflict.

Likewise, we understand that this stormy relationship is simply an updated, modernised version of the old disagreement between crop farmers and migratory livestock farmers which led to the well-known attempt by the crop farmers to fence in the farmland. This desire was reflected in Article 388 of Spanish Civil Law, and attained the status of constitutional law in the 1812 Constitution, and was a gloss by the Professor of Civil Law, Ángel López y López, in his masterly essay "On the origin and historical significance of Article 388 of Civil Law (subject matter relating to Cadiz in a note on the history of constitutionalism and codification)". This old conflict, fortunately, disappeared from our countryside decades ago, and today, crop farmers and livestock farmers are two different expressions of the same business reality.

Having reached this point, we are not going to deny that some farmers may have invaded the land of the drovers' roads, and that in certain cases, that encroachment may have been in bad faith, and so we must accept our share of the blame.

However, once we determine the responsibility of the farmer in the problem, we must also ask if he is the only guilty party in the situation, or whether he has been, to some extent, a victim of the circumstances.

From our point of view, the Public Administration is, to a large degree, responsible for the problems which have arisen, since the Administration has created the problems, but has not been able to solve them.

Firstly, the Administration has been responsible for the legislative quagmire affecting drovers' roads for decades.

The drovers' roads were private land with public right of passage until, in the 20th century, they were classified as common land. Nevertheless, this classification as common land, which the Supreme Court called "artificial", was effected without bearing in mind the rights acquired prior to that declaration as common property, as in the case of the so-called "immemorial prescriptions" prior to the 1889 Code of Civil Law.

This lack of legislative definition has had its effect. It encouraged the occupation of drovers' roads during the complex struggle against pests in the 1960s in the countryside of provinces such as Seville and Cadiz, where roads were sold, rented, buried under dozens of public works or simply abandoned. It is surprising, then, to see the zeal with which this artificial public property is now conserved, a public property which was for decades forgotten by everyone, not just by the State. And it is no less surprising to see just how variable that zeal is when dealing with the alleged rural encroacher (who has had to bear the brunt of the whole problem) or the alleged urban encroacher (for whom a solution is always found, which is generally popular and always right).

Another fact which underlies our "accusation" that the Administration is the creator of the problems is the matter of the classifications, which are enormously significant administrative acts, and which have been taken lightly by the public authorities, as can be seen from several different aspects:

1. Firstly, it is too often the case that the classification is made without taking into account the geographical conditioning factors affecting the drovers' road which is to be catalogued and characterised. During the 1950s and 60s, when the immense majority of the drovers' roads were classified in Andalusia, the classification was very often carried out from the desk of a civil servant in Madrid, setting some quite astonishing records, such as the classification of the entire 6,000 kilometres, or 25,000 hectares, of the province of Seville in just eighteen months, and all with the resources available in the 1950s.

This lack of knowledge of the land produced classifications which were quite absurd, such as "La Vereda del Término" in Castilblanco de los Arroyos, some stretches of which are quite impossible to travel without the help of mountaineering equipment and only by putting the life of the traveller in grave danger, or the Cañada Real from Carmona to Los Palacios, which has a river in it, which is not even mentioned. There are other cases, such as fords on rivers which are absolutely impossible to cross. The list of geographical contradictions is interminable, but obviously, we cannot abuse here the patience of the audience or the reader.

2. If the geographical errors are striking, the historical contradictions would be downright laughable if it weren't for the fact that they affect the property, the industry, in short, the lives of thousands of Andalusian and Spanish farmers. Starting from the basis that the classifications in Andalusia made during the aforementioned years lack any documentary basis whatsoever (a problem to which we will return later), and that they were decided in offices hundreds of kilometres away from the land affected, we find ourselves before such scandalous cases as those I shall now describe:

- Historical maps show that simple country lanes and footpaths have today been declared drovers' roads, without any evidence of their prior existence.
- The royal paths created during the Age of Enlightenment, mainly in the times of Charles III and Charles IV, whose expropriation and construction files are on record in the historical archives of the nation, were, as if by magic, turned into royal drovers' roads, perhaps because their names in Spanish, *Camino Real* and *Cañada Real*, have identical initials.
- The measures, denominations and criteria of the Castilian Mesta (council) were applied in areas where they never had any jurisdiction, such as in the old Kingdom of Seville or the properties of the all powerful Count of Niebla, the Duke of Osuna, or the Houses of Medinaceli and Medina Sidonia. The same happened with the historical Council of Carters which has been eaten up by the drovers' roads. To top it all, when someone with extraordinary knowledge of the matter, such as Professor Corzo Sánchez of the University of Seville, demonstrates such absurdities, he is dismissed with a simple comment of disagreement by civil servants who know have absolutely no idea what they are talking about.
- Sales made during the process of the sell-off of Church lands or during the settlement of land are ignored, giving rise to flagrant injustices in some of our towns, although these are slowly being corrected.
- Such absolutely fundamental documents as the sentences of municipal Common Land Judges are ignored and dismissed without the slightest historical or legal examination.
- This leads to truly ridiculous situations, such as the conversion of the historic "Vereda de la Armada" into a Royal Drovers' Road, thus producing the striking situation of locating it inside the cloister of a 13th century convent, or curious paradoxes such as the Almohad town walls of Utrera in the province of Seville being within the land of a royal drovers' road, or the very typical olive groves of Andalusia sometimes being situated on a drovers' road crossing a farm that was founded during the Muslim period, or even converted from a farm dating back to Roman times.

3. But if all this I have mentioned is serious, more serious still is the fact that, though the regional administration is fully aware of the facts, it refuses to review the classifications, despite the absurd situations they entail. This refusal is all the more scandalous when the Regional Government of Andalusia bases its justification for the seizure of land from farmers on classifications of the Franco regime which, as I have already said, lack any documentary basis, are badly done, ill founded and, above all, carried out without regard for the rights of neighbouring landowners who were not, in any case, notified. This abuse and trampling of the rights of the farmers reaches such an extreme that the immense majority of the classification texts were never gazetted in the Official State Bulletin, and were executed by means of brief orders published in the "Announcements" section of other official gazettes.

4. For the farmers to understand the process of classification and demarcation of the drovers' roads, it would have been better to explain to them what the classification and demarcation were being carried out for. The perception is that these processes are certainly somewhat capricious, and this is probably the fault of the practice, now abandoned, of demarcating entire districts, without rhyme nor reason, leaving both urban and rural property owners, and the regional administration itself, at the mercy of the more or less electoral whim of local councils. The ecological criteria, which will be questioned by some of the speakers at these meetings, are no more convincing either, and neither are recreational, sporting or festive criteria, since these transmit the clear message that the leisure of the urbanites takes precedence over the work, the property and the economy of the rural population.

5. The attitude of some of our regional politicians in recent years has hardly helped either. This attitude, now thankfully abandoned, led to cries, and I quote, of "We are going to tread on the corns of Andalusia's landlords", recalling the worst kind of agrarian reform, and the enthusiastic demarcation of drovers' roads. The day that we understand that the classification, demarcation and marking of drovers' roads affects all of the landowners, but most seriously the small and medium-sized farmers, we will then understand that the practice is uneconomic and anti-social.

To sum up, let us ask what the readers would think and how they would react if the Administration came tomorrow and said that the house they had bought with so much sweat and toil, or which had been passed from generation to generation in the family, as demonstrated in the title deeds, cadasters and land registries, were not theirs, and came into their house planting stakes and trying to take away the corridor or the bathroom of a house they had always considered their own, all justified by their ecological, recreational and sporting criteria.

How can crop or livestock farmers be convinced of the benefits of processes that have trampled their constitutional rights, that lack any historical or even geographical basis, which have been put into practice on a whim, and which endanger their property, and consequently, their precarious economy?

We farmers do not perceive a demand to justify the this process that is being carried out with the drovers' roads, neither do we understand how the Regional Government of Andalusia can be prepared to invest such large amounts of money in drovers' roads, and yet not invest in the repair of the widespread network of impassable roads in Andalusia, which are also the responsibility of that same Regional Government of Andalusia.

For all of these reasons, we believe that it will be difficult to convince the farmer of the benefits of this process. We in the ASAJA would like to offer several ideas that we believe would facilitate the debate and help to find solutions to the conflict:

- The demagogic attitudes we have mentioned must be avoided at all costs.
- There is a lack of communication with the affected parties. If we exclude the explanations given by the professional agricultural organisations to their members and sympathisers, the only news received by the farmers are cold notifications, unless an official who visits the works on the ground takes the trouble to offer information to the

people. The owners must be told what is being done, why it is being done and what for, because we at the ASAJA and all those we represent cannot see the alleged social demand for the recuperation of the drovers' roads. Just the contrary, in fact. We see the proposed expenditure as disproportionate from the environmental, as well as the sporting or recreational point of view.

- Social and economic criteria should be introduced into the process of classification and demarcation. No-one can expect people in the rural world to understand the problem if demarcation is going to mean the loss of employment and wealth, neither of which is too abundant in the countryside. These factors are being timidly introduced by our Administration, but as far as we are concerned, so minutely that they will not solve any of the problems.
- It is indecent that the Regional Ministry should accept classifications made during the dictatorship, with the resources of the dictatorship, without historical or geographical foundation. We believe that the ideal solution would be to reclassify all of the drovers' roads in our region, given what has happened in the past, but at the very least, reclassify all those drovers' roads where the owners can present documents which raise serious doubts about the accuracy of the classification.
- The Administration should respect acquired rights, such as in the case of the "immemorial prescriptions", purchases from the State through adjudication, sell-off or settlement, or simple acquisitive prescription, as has repeatedly been recognised by the Spanish Supreme Court.

In any case, we do wish to acknowledge that with the present environmental administration in Andalusia, things appear to be changing. We no longer have to face demagoguery or high-sounding phrases that make our hair stand on end. We are being offered solutions such as permutations of land or changes to the route of the drovers' roads which, although they appear insufficient to us, do show evidence of a different way of doing things and which have undeniably resolved some situations. A drovers' road plan is being established which, though we may like it to a greater or lesser degree, obviously clarifies the situation and lays down certain ground rules which are more palpable and comprehensible. We still need more co-ordination, more dialogue, more information and more courage when it comes to the dismantling of small farms for which permutations or route changes serve no purpose, reducing, if necessary, the drovers' roads and selling surplus land at social prices to avoid at all costs the loss of wealth and, above all, employment.

DYNAMIC ELEMENTS OF THE RURAL ENVIRONMENT: THE EXPERIENCE OF TURIHAB

Ms. Cristina Calheiros e Menezes

TURIHAB (Portugal)

I am going to speak to you about two developments in European Tourism. These are two associations called **Europe of Traditions** (Europa Traditionae Consortium) and **Villages of Tradition**. The first of these associations, brings together England (Wolsey Lodges), France (Château Accueil), Ireland (Hidden Ireland), the Netherlands (Erfgoed Logies) and Portugal (Solares de Portugal), and the second has partners from Portugal (Minho), Italy (Campania), the Netherlands (Gröningen, Flevoland and Drenthe), Spain (Galicia) and Sweden (Dalarna).

Both these associations share a common foundation and philosophy that is:

“The best hospitality a guest can enjoy is at the home of his or her host”.

But all of this goes back to the early 1980s, when Portugal was undergoing rapid change, not only preparing for our successful entry into the European Community, but also recognising, perhaps belatedly, the invaluable resources that we had for developing a quality accommodation product, a product located primarily in the attractive rural areas of our country.

Our essential premise was that we had many fine houses set in attractive landscapes where, at that time, there was little if any suitable tourist accommodation.

Even more importantly we believed that the natural hospitality of the owners of these houses and of all people living in these communities provided a human resource which matched and might even exceed the potential of individual houses.

Consequently with some help, initially from the Portuguese Government and later from the European Union, a scheme was introduced which assisted owners of suitable properties to renovate and refurbish their houses and gardens and subsequently to make this **“Turismo de Habitação”** family-style accommodation available to discerning visitors keen to experience the warm hospitality and gastronomy of the “real” Portugal.

We took a great care to ensure that renovations were carried out properly so that architectural, furnishing and decorative features were in keeping with the history and heritage of the houses.

Along with the owners, we were able to create an association called **TURIHAB** in the small town of Ponte de Lima (Vale do Lima) in the Minho region of Portugal. The members of this association have worked together since 1983 to establish Turismo de Habitação as an identifiable type of accommodation in Portugal, offering hospitality to a wide range of international visitors as well as to many people in Portugal keen to enjoy a holiday in these surroundings.

With this in mind, in 1992 the members of **TURIHAB** successfully launched **“Solares de Portugal”** to market this distinctive style of accommodation throughout the country. The name “Solares” is used in Portugal to describe spacious family houses, which is a good description of many of our properties. In addition we felt it expressed the warmth of Portugal and of the Portuguese people.

Over the last decade, we inevitably became aware of like-minded groups of homeowners in other countries of the European Union. Initially, we worked with associations in England, Ireland and France and more recently we have welcomed partners from the Netherlands. In 1996 with the support of the Regional Co-ordinating Committee of Northern Portugal we were able to inaugurate **Europa Traditionae Consortium – Europe of Traditions**.

The aims and objectives of the Consortium are: to offer a personal style of hospitality in homes of character; to preserve and help visitors to enjoy the heritage and culture of the country and the region, as reflected in the architecture, food and wine, and:

- To promote a unique product - quality accommodation in private homes
- To improve marketing skills and brochure distribution
- To facilitate the exchange of ideas and networking
- To promote tourism to Europe, and particularly from Japan, America and Australia
- To lobby on behalf of members in relation to EU legislation
- To work towards the conservation and development of the culture and heritage of member countries.

Our work in rural tourism was introduced through the rural development programme of the European Union and we have successfully implemented two LEADER programmes enabling us to improve and add to our stock of accommodation and to introduce appropriate tourist attractions, extending the concept of accommodation in traditional locations by developing units in typical villages.

These are small rural villages suffering depopulation, deforestation, declining agriculture, large-scale emigration and unemployment. The Villages have been revitalised with the financial help of the LEADER Programme and Tourism has been seen as the motor for rural development. This intervention aimed to create a tourist offer named "**Turismo de Aldeia**" *Village Tourism*, based on tourist accommodation in old, rural houses, which have been renewed for this specific purpose.

Two main lines of action have been considered: the consolidation of the existing tourist offer in Rural Areas (Turismo de Habitação), promoting its image and innovation countrywide, and the creation of a new tourist product in mountain areas - **Turismo de Aldeia**. As regards the former, seasonality has been reduced through the creation of new entertainment, sports (horse-riding and golf) and cultural facilities. In the case of the latter, we have tried to promote the use of the association in order to achieve integrated management and a high-quality tourist product, "**Turismo de Aldeia**".

A "pilot project", Villages of Tradition meant to organise activities related to typical products and tourism in a rural territory with a sustainable and integrated development strategy. This kind of strategy is based on the promotion of these products in order to increase the overall demand by stimulating and awakening the tourist's curiosity about the resources of the territory.

Therefore several objectives are sought jointly through transnational co-operation, including:

- The promotion of quality tourism in traditional villages in different areas
- The evaluation of the endogenous cultural and natural potential of the regions in order to make them available to the tourist demand
- Financial support for the publication of booklets promoting and developing the product's image and the "Villages of Tradition" label
- The transfer of know-how, exchange of ideas and experiences in order to contribute to the operation of the network
- The promotion of traditional local products, namely food products and handicrafts, in line with the common criteria of the different economic agents
- The exchange of this perspective of social and economic development with other countries of the EU which share common objectives
- The valorisation, consolidation and promotion of the local culture and the improvement of the population's self-esteem, bringing about new attitudes and new cultural values in a positive way

Therefore Tourism in Rural Areas as a motor for development should be supported and should benefit from strategies and rules which allow, on the one hand, economic growth and

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development, and on the other hand, the preservation of the environment, heritage, nature, culture and traditions, promoting the capacity for organisation and participation, the growth of international co-operation and the exchange and protection of socio-cultural identities.

In conclusion, let me say that our success has been the result of our determination, a lot of hard work and a commitment and belief in the value and importance of our heritage and environment, and a desire to treasure this while sharing it with our tourist guests, and in a similar way in transnational co-operation with our partners, who quickly become our friends.

THE SOCIAL FUNCTION OF DROVERS' ROADS

Mr. Juan Clavero Salvador

Co-ordinator of Ecologists in Action-Andalusia

Drovers' roads have had great economic, historic, social and ecological importance in our country. A large part of the economic and political hegemony of Spain in the early modern age was based on thriving livestock migration. But, in addition, along these routes millions of head of livestock have moved between the *dehesa* pastures in the south and the mountains in the centre and north of the peninsula, favouring the dispersion of seeds that today make up the pasturelands characteristic of these areas. The drovers' road system has strengthened the survival of a system of forests, undergrowth and pastureland of great importance as elements of landscape diversification, and as a nexus connecting forest areas, thus impeding the isolation of populations of flora and fauna. It has functioned, before such things were even heard of, as a system of true ecological corridors.

History of encroachment

Different pieces of drovers' road legislation define these routes as common land, which are not subject to prescription or alienation. Their appropriation cannot be alleged on the basis of the length of time they have been occupied nor does this legitimise the usurpers. But despite these facts, the truth is that the majority of the Andalusian old drovers' roads have today been usurped. The extent of this loss of public land can be envisaged if we bear in mind that we are dealing with a network of 33,000 km and 112,600 hectares.

How is it possible that, despite their important legal support, they have been invaded in such a way? The reasons stem from the loss of functionality (what is not of any use must receive a new use, a maxim that has historically been applied to the demand for land in Andalusia), from the picaresque, from the lack of awareness of the value of what is "public" and from the connivance of the different administrations, from the municipal to the judicial and those responsible for the management of drovers' roads. But the worst of all is the attitude both in society and in the administration that, since this public land was not being used, it was destined to disappear.

The illegal occupation of drovers' roads has taken place in many ways. Mostly, it has been caused by the fencing off of farms and drovers' roads by large landowners. But the roads have also been invaded by people who have too few resources to build a house, plant gardens or breed livestock. The use of drovers' roads as "free" land to build housing or infrastructure (highways, canals, reservoirs, etc.) has had a more serious effect, since it is irreversible, even though it has affected a smaller surface area.

Ecological organisations, aware of the importance and of the varied ecological and social functions of this land, began a campaign in the mid-1980s to recuperate the livestock trails. Misunderstood at the beginning by a large part of the rural population and even by the administration, the spectacular actions that were staged (peaceful sit-ins and fence cutting on the land held by well-known people who were usurping the drovers' roads) brought society's attention to these historical routes. What for many was a lost, though romantic, battle came to be backed by a growing demand in favour of the recuperation of the drovers' roads.

These actions caused many problems for the members of ecological associations: endless lawsuits brought by the usurpers, arrests, and trials, accusations of trespass and damage through the cutting of fences and breaking of locks. Despite all this, we were absolved when the Courts decided that (Judgement 126/92 of the Magistrates Court of Cazalla de la Sierra, Seville) *"The intention of the accused, those responsible or their accomplices cannot be considered criminal or wilful damage, since they were not guided by the exclusive desire to cause damage or for personal gratification, but simply to gain access to an old drovers' road, roads which are*

open to public use, carrying signs for the ecological groups to which they belong,” determining that the conduct of the owner “impeding access of the citizens to the public way that crosses his farm could constitute an offence of coercion, which requires a summons for testimony for the investigation.”

In Judgement 99/92 of the Provincial Court of Seville, these legal principles are ratified since it is considered that those involved in cutting the fence that closed off the drovers' road “*did not commit an ... offence*” since their only intention was “*to go along the Royal Drovers' Road as might any citizen, since it is public property... and that the action lacks the illegality necessary for it to be punishable, since the action was intended to secure a right of which the community had been deprived, indicating the trail as a Royal Drovers' Road, making good the failure of the Administration...*”. Dozens of sentences like these consolidate the right of citizens to travel along so many usurped drovers' roads, and raise the social awareness of the need to recuperate them. It remains a sad paradox that all the prosecutions have been brought against the citizens who have opened up usurped drovers' roads, and the usurpers have never been prosecuted or sentenced.

The Regional Ministry of the Environment, overcoming their initial indecisiveness, began the first demarcations and marking that, contrary to the opinion of some politicians and technicians, turned out to be totally feasible and very often much less problematical than initially foreseen. The most important conflicts have been caused by large landowners, organised by ASAJA, who have tried to mobilise the farmers against the demarcation, using the false argument that “they want to rob us of our lands”.

The activities of Ecologists in Action have not been limited just to suing and opening up usurped drovers' roads. Conscious of the necessity to give them new functions to prevent them from being abandoned and usurped again, we have backed projects for the recuperation of the environment, compatible with their ancestral use as livestock trails.

New uses for old trails

The old drovers' roads have a natural, historic and ethnological value of utmost importance, and constitute a public heritage of enormous ecological, landscape, tourist-recreational and rural development potential. These new complementary uses are included in the Drovers' Road Law and the Regulations of the Andalusian Autonomous Community.

The new drovers' road legislation is proving to be an adequate framework to guarantee the recuperation of the old drovers' roads and assigning them new uses. This new legislation reflects practically all of the proposals that the ecological associations have been making to give these old trails new functions. The ecological organisations have been pioneers in the conversion of the old drovers' roads into hiking trails and ecological corridors.

The first project to equip trails for hiking activities was carried out by CEPA (now part of Ecologists in Action) in 1990, designing an 88-kilometre Long Distance Footpath (GR-41) in El Cordel de las Buherbas, from the station of Castillo de las Guardas to Barrancos, in the mountains of Seville and Huelva.

Raising the local population's awareness and valuation of drovers' roads is basic to their conservation and recuperation. Ecologists in Action have carried out different publicity campaigns about the value of the old drovers' roads. Currently we are running one in the Los Vélez area of Almería with the aim of ascertaining the current state of the drovers' road and encouraging its social use, since it will only be possible to maintain the right of passage if we denounce the illegal obstacles and take the necessary steps to recuperate this valuable public land so that it continues to be, as it was yesterday and always will be, a common heritage that can be used both for transhumance and for local cultural and educational activities. These old drovers' roads can contribute to the improvement of the quality of life of the rural population in

these depressed regions, and to conserve landscapes that are in a process of deterioration and customs that are in danger of being forgotten and disappearing.

Ecologists in Action have also been pioneers in projects for the recuperation of drovers' roads to give them complementary uses as ecological corridors. It is increasingly evident that nature conservation policy cannot be based only on the creation of isolated natural spaces surrounded by very degraded territory. There is a need to create a network of ecological corridors, belts of nature that connect areas of ecological value, and that can themselves be habitats for the characteristic species of flora and fauna of each zone. The corridors constitute reservoirs of biodiversity that, in the future, can make up centres for recolonisation by native flora and fauna. Ecological corridors also introduce an important element of diversification into the landscape and help to defragment the territory.

The Dos Bahías Green Corridor was the initiative of Ecologists in Action. Its objective is the recuperation of the complex of drovers' roads between the Bay of Cadiz and the Bay of Algeciras. This Corridor has a total length of 90 kilometres between the towns of Puerto Real and Los Barrios. This ambitious project is being carried out through an agreement with the Regional Ministry of the Environment, the Cadiz Provincial Council and the Town Councils of Puerto Real, Medina Sidonia, Benalup-Casas Viejas and Los Barrios, and has several objectives:

- To recuperate a complex of old drovers' roads in danger of disappearing, strengthening their traditional livestock use.
- To provide the roads with alternative uses in line with recent legislation, opening them up as ecological corridors, for nature-related tourist activities, research activities and environmental education.
- To diversify the landscape, especially in the most degraded zones of meadows and fields, through the regeneration of areas of autochthonous forest.
- The conservation and enhancement of biodiversity, with the recuperation of native vegetation and the creation of new habitats for the characteristic fauna of these ecosystems.
- To promote the socio-economic development of the towns of the area, with the new attraction that these corridors will suppose for responsible, ecological tourism.
- To increase the social value of these historic rural routes, which form part of our natural and cultural heritage, by increasing public use.

This long distance route will allow us to cross the entire province in four steps, beginning in the Bay of Cadiz Natural Park on the shores of the Atlantic and ending in the Palmones Marsh Natural Park on the shores of the Mediterranean. This route passes through a variety of ecosystems, from the coastal pines to the fields of wild olive trees, riverbank forests, inland lagoons, the Alcornocales Natural Park, and the coastal marshes of the Palmones River, facing Africa.

Ecologists in Action hopes to convert this project into a pilot experience that can be extended to other drovers' roads, and thus create a network of linear spaces of high ecological and social value, giving new functions to these historic routes which deserve far better than to be usurped and destroyed, or a slow death through indifference or neglect.

To strengthen extensive, ecological livestock farming of native species, to create green corridors than unite natural spaces and urban areas, to diversify the landscape and restore the characteristic ecosystems of each area, to maintain footpaths, to encourage public participation... All of these would undoubtedly help to consolidate social support for this

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ambitious project to recuperate thousands of kilometres of old drovers' roads that cross the territory of Andalusia.

ROUND TABLE DEBATE: SOCIAL ASPECTS OF DROVERS' ROADS

Ms. Montserrat Moyano Moyano

Co-ordinator of the Union of Small Farmers Andalusia (UPA)

The rehabilitation of Old Drovers' Roads in Andalusia involves the recuperation of many kilometres of routes which have lost their original use as livestock trails, but have nevertheless continued to be employed as farming land.

At UPA-Andalucía, we feel that although the Regional Ministry of the Environment should certainly be congratulated for having embarked on such an ambitious project, attention should be drawn to the conflict which has been created among the farming community as a result.

Firstly, the UPA considers that it is necessary to add "agrarian use" to the other uses which are established in the Drovers' Road Plan so as to prevent it from being rejected outright by the farmers. Although it has been said that farmers oppose the demarcation of old drovers' roads, they do not do so systematically.

The origin of the conflict lies in the lack of information from the administrative bodies, which have only provided official certifications of demarcations. This creates much uncertainty (as farmers understand that they will be unable to use the land which to them is a right that they have been entitled to for many years).

Secondly, the UPA is of the opinion that the classifications that have been taken as a reference point do not reflect the reality of the situation. There are other documents and maps prior to 1955 – the date which has been used to carry out most of the classifications.

Finally, we would like to highlight the unequal treatment meted out to persons and companies, whereby in some instances the demarcation of Drovers' Roads occupied by private companies does not affect them in the same way as individuals, which tends to add to the farmers' discontent.

Having outlined the aspects that the UPA considers are the most important causes of conflict, all that remains is to look for ways of resolving them.

Something that adds to the difficulty of finding solutions to the conflict is the fact that there are a great number of small and medium-sized farms which are only affected by one section of the demarcations. This makes the effort to find solutions an even more arduous task. Among the various possible solutions we propose the following:

- Increasing the information given by the Administration about demarcation actions.
- Giving priority to the demarcations in those Natural Parks which comply with the three usage criteria (ecological, recreational-tourist and livestock farming) laid down in the Drovers' Road Plan.
- Carrying out specific studies to find solutions for areas in which land is used purely for farming.
- Establishing administrative concessions for the use and exploitation of the resources included in the Drovers' Roads.
- Allowing the drovers' roads to be used for agrarian purposes by making them coincide whenever possible with paths and streams.

UPA-Andalucía considers that both the Administration and the farmers' associations should make an effort to find solutions to the problem. Old drovers' roads should remain as common land although they could continue to be used by farmers just as they have been for many years.

Ms. Luisa Lara Rosales

Representative of the Andalusian Farmer's Coordinating Committee (COAG)

Andalusia has a special relevance in Spain in terms of the number of drovers' roads and the area they cover, as they account for approximately a quarter of the national total.

From COAG's point of view, we value the Regional Ministry of the Environment's Drovers' Road Plan very positively, as we all know that these roads were created at a particular time when the long distance moving of livestock was of considerable importance. Nowadays, technological advances have introduced new ways of farming, such as supplementary feed for livestock, which means that the movement of animals has become a small-scale activity and mainly involves only short distances.

These changes have also had an effect on drovers' roads, since as a result of the overall decline of long-distance livestock movement and the increase in population, and the consequent need to occupy territory, most of them have either been taken for other uses, have been reduced in size, or are impassable, etc.

This situation creates conflicts between farmers, local authorities with urban development interests, etc., over the use of the drovers' roads.

Having said this, it is important to point out that the various problems and positions (which, it needs to be said, should be analysed separately as each situation is different and therefore will not necessarily have the same solution) can be seen from two basic points of view:

- a) Livestock farmers – As far as livestock farming is concerned, drovers' roads are mostly used today by small ruminants, herds of goats and sheep (especially the latter), which tend to use them on a daily basis whereas cattle are more frequently kept in farm buildings and require less movement, which generally just involves moving them to a different grazing area.

Today the most frequent livestock movement patterns include: what is known as "transterminant" movements (in which animals are moved over short distances usually without leaving the municipality where they are based) and those known as "*cuneteros*" or "*pitarreros*" (herds which are not based in a particular area and graze on the edges of roads). Although livestock migrations proper (those which involve journeys of sometimes over 400 km in search of food) are rare today, there are still some examples:

- Livestock farmers from Los Corrales (Seville) > Median-Sidonia, Benalup, Paterna and Arcos de la Frontera (Cadiz)
- Ronda (Málaga) > Arcos and Jerez de la Frontera (Cadiz)
- Granada (Sierra Nevada- Marquesado-Las Alpujarras) > Sierra Morena.

Among the diverse problems on the routes, we would highlight the following:

- Reduction in size - although it is not necessary for the trails to be as wide as they once were, they need to be broad enough to pass without problems.
- Resting and watering places – the majority no longer exist or their size has been greatly reduced, so that livestock can no longer use them.
- Some routes are physically barred by padlocked gates.

- b) Crop farmers – some use the trails as entrance roads to their land whilst others use them as productive land. Here again there are different situations:

- There are farmers who are aware that they are occupying drover's roads, and accept that when livestock pass they are going to make use of the land.
- Others are not sure where the roads go and don't know whether their farms cover the routes or not. This tends to be the case where it is rare for livestock to pass.
- There are some farmers whose deeds contain details of drover's roads crossing their land. (this is as a result of old ministerial orders by which some drovers' roads which were considered to be too wide and excess land sold off).

For all these reasons this plan to restore the drover's roads is absolutely vital.

Mr. Manuel Rodríguez Pascual

Researcher

Experimental Agricultural Station (CSIC-León)

Andalusia has a broad network of drover's roads covering more than 30,000 kilometres. These link a wide range of areas of great agricultural, ecological and natural value. These routes are currently used for the movement of various types and amounts of livestock from different places of origin. Thus, the wintering area of the eastern Sierra Morena, which comprises parts of Jaen and Cordoba, is the central meeting point for many migrating herds of animals. Some cover *long distances*, coming from the Montes Universales in the Iberico Mountain range in the provinces of Teruel, Cuenca and Guadalajara, some *medium distances*, from the Sierra Nevada, and some *short distances*, from the mountains of Alcaráz (Albacete), and Cazorla and Segura (Jaén). These seasonal movements of different autochthonous species and breeds, including wild bulls, generate economic activity and are important in shaping and conserving both the landscape and agrarian activity.

These different types of livestock droving, which includes movement between farms and to cattle markets, need to be studied and analysed in full so as not to lose the various systems that bring life to the trails and make them function. Furthermore, the farmers and herdsmen who are the real users of these systems should be fully supported so that their culture and knowledge (of the environment, of the animals and the use of the land) do not disappear. To this end, there needs to be a major improvement in the infrastructure (shelters, signage, delimitation), the wintering areas (decent accommodation, animal pens, better rental arrangements, etc.) and in general, the living and working conditions of the drovers. This includes giving the job the dignity it deserves whilst recognising the social importance of the work and its impact on the environment.

Ms. María Teresa García Rodríguez

General Co-ordinator of the Technical General Secretariat

Ministry of the Environment of the Andalusian Regional Government

Environmental Protection of Green Corridors

The question that we would like to bring to the Table is whether the drover's roads which are considered to be green corridors should be subject to more rigorous controls to enhance their level of environmental protection.

The concept of Green Corridor is expressly defined in the Stated Purpose of Law 3/1995 which establishes that drovers' roads are to be considered as green corridors which are essential for the migration, geographical distribution and genetic exchange of wild species whilst serving as an instrument for structuring the environment and enhancing man's interaction with nature.

This is established in the law, and reiterates what was already established in Council Directive 92/43/EEC, dated 21 May 1992, concerning the conservation of natural habitats and wild fauna and flora (Habitats Directive).

Therefore, the green corridors can be seen as areas of medium to high ecological value which connect places of great ecological value in a continuous, functional structure, thereby creating continuity whilst aiding the migration and spread of different species. The environmental value of the corridors should thus be linked to a specific protection system in order to guarantee their maintenance and protection.

The question is whether applying some of the existing protection instruments would be sufficient or whether it would be necessary to adopt methods more appropriate to this particular issue.

Independently of the fact that both national and regional legislation may provide protection instruments which could be applied to green corridors, some of the Autonomous Communities have already created specific categories for protected spaces which take special account of the drover's roads. Amongst others, these include Castilla-Leon, Valencia and Extremadura.

It is worth pointing out that the establishment of the "green corridor" as a new specific instrument for the protection of a particular area would give the corridors the status of "protected natural spaces", thus providing them with the means for their planning, management and development in accordance with the function they are to fulfil, and also integrating them into the network of protected natural areas.

In accordance with current regulations, the methods for planning and managing protected areas are to be given priority over the rest of the planning instruments. In this respect, the Drovers' Road Law (3/1995), in its third additional provision, establishes the prevalence of the Natural Resources Plan and the Plan for the use and management of drovers' roads or sections of livestock trails which are located in specific protected natural areas.

Finally, it should be noted that the Habitats Directive, in order to guarantee the conservation of natural habitats and species whilst enhancing the ecological dimension of the Natura 2000 Network, plans to set up a linked ecological network comprising continuous, linear elements (rivers, riverbanks or boundaries), and other areas (ponds and thickets) which in their role as connection points, are of great importance for the migration, geographical distribution and genetic exchange of wild flora and fauna. This would structure the drovers' roads, amongst the other linear elements mentioned above, as green corridors which fulfil these functions.

These green corridors would be given the status of Sites of Community Interest (SCIs) and Special Conservation Areas (SCAs), and would form part of the Natura 2000 Network, thereby being subject to the protection rules that the Directive itself establishes for the Network. Thus their protection will be guaranteed once the mechanisms established by the Directive are put into effect.

CONCLUSIONS OF THE ROUND TABLE DEBATE

1. Current legislation on drovers' roads allows their recuperation and re-use. In this respect, information and dissemination tasks should be stepped up, as should the recuperation and valorisation of the Andalusian network of drovers' roads in order to attain the maximum possible involvement of the stakeholders and thus fulfil the stated objectives.
2. The Drovers' Road Plan is valued positively as a useful instrument for the recuperation and assignation of uses.
3. Meeting such as this one are a clear demonstration that, through dialogue, consensual formulas can be found, which, taking into account the existing social realities, can lead to the recuperation of the network of drovers' road, and avoid the conflicts which could hinder the carrying out of the Plan.
4. There is an urgent need to carry out studies concerning the ecological significance of the trails (soils, fertility, nutrient cycles, micro-organisms in the soil, plants, invertebrates and their ecological importance, propagation, etc.) which could be of interest for the protection of migratory birds and endangered species. In this respect, it should be pointed out that the continuation of the movement of livestock is basic to the ecology and landscape of the drovers' road network.

**SESSION 2: MULTIPLE FUNCTIONS OF DROVERS' ROADS AND GREEN
CORRIDORS**

NEW PERSPECTIVES OF THE COMMON AGRICULTURAL POLICY

Ms. Ángela Heerens

Administrator DG Agriculture

European Commission

Where is the common agricultural policy heading?

This is a perfectly legitimate question, especially after a decade in which the European agricultural sector has experienced a number of crises:

- crisis in production, with persistent surpluses;
- international crisis, with the pressure of increasing criticism;
- financial crisis, as a result of the excessive cost of the CAP to the EU budget;
- health crisis, with diseases affecting livestock: mad cows and foot and mouth disease.
- identity crisis for farmers in modern society, as their activity, frequently regarded as harmful for the environment, does not meet consumers' new demands which focus more on product quality than quantity.

Following these crises we now have to face a series of specific challenges:

Firstly, the expansion of the European Union: will it be possible for the CAP to continue to work when the Union is made up of 25 or more member states, instead of 15?

Secondly, the trade negotiations within the World Trade Organisation are going to be resumed: what will be the position of agricultural Europe? What are our strengths and weaknesses? In the process of liberalisation of trade, what should be preserved to safeguard the European agricultural model?

Finally, the challenge from citizens and consumers, who wish to be provided with more information on the quality and safety of products, their place of origin, and even the production method, which needs to be more in tune with the environment.

After the crises and with the new challenges which face us, the question is whether we need to move towards a new reform of the CAP.

Since its creation in the 60s, the CAP has mostly succeeded in fulfilling its objectives. In order to adapt themselves, the member states, through the Council of Ministers, had to undertake a series of reforms, some more profound than others, depending on their respective situations. Some of the reforms involved radical changes in policy, such as:

- the introduction of milk quotas in 1984;
- the shift from subsidies per hectare to the compulsory set-aside of arable land in 1992;
- the limitation of expenditure to 40 billion euros and the generalisation of measures for rural development – the “second” pillar of the CAP - with the adopting of Agenda 2000 in Berlin in March 1999.

And what of today? Is the CAP sufficiently developed to meet consumer expectations and to respond to citizens' concerns, including those of the 14 million people who work in the agricultural sector?

Following the initiative of Commissioner Fischler, these questions were examined and discussed by the Members of the Commission at the beginning of the present year but it was concluded that a reform is neither possible nor necessary before the year 2006. This does not mean however that the Commission is going to stop putting forward proposals, and later we shall discuss what their intentions on this matter are.

It is not possible to carry out true reforms as they would need to be backed by financial resources and the financial framework agreed in Berlin is not scheduled to be discussed until one of the new candidate countries actually joins the Union. Furthermore, it would be very difficult to carry out a full review of the agricultural policy without taking into account the opinion and influence of the candidates in the decision making. Therefore, extensive agricultural reform will not be possible before Poland, Hungary and other countries finally join.

Reform is not necessarily desirable, either. In effect, the fundamental principals have already been laid down in the Agenda 2000 which defines the *European agricultural model*, declaring:

* We need a competitive agricultural sector which can meet the demands of the world market without excessive subsidies, as these are reaching unacceptable levels;

- We need to guarantee a reasonable standard of living and stable income for the agricultural community;
- We want to introduce production methods which are non-hazardous and environmentally sound and allow us to provide consumers with the high quality products that they demand.
- We propose an agriculture which is rich in diversity and traditions and is not only aimed at producing, but also at preserving the charm of our landscape and keeping our rural areas active, thereby both maintaining and generating employment.
- We need a simpler agricultural policy which is easier to understand. Thus, a clear dividing line must be drawn between common decisions and those which are incumbent upon individual member states.
- We want an agricultural policy which clearly demonstrates that the public funding it requires is justified by the services that society in general expects from its farmers.

All these objectives are still as valid as they were two years ago and will continue to be so in the future. The Agenda 2000 took an important step forward in defining the economic, social and environmental functions and objectives of the CAP.

The Agenda 2000 supports both sustainable farming and rural development:

- As far as the economic dimension is concerned, improving the market balance and competitiveness involves continuing to exchange the price guarantee system for one of direct aid. In the past, 90% of EU agricultural expenditure was assigned to financing purchases included in the intervention framework and to exports of surpluses. In a few years time this figure will have fallen to only 20%, whilst direct payments will have increased by the same proportion. These direct payments, which are not dependent on the volume of production, mean that farmers tend to make decisions according to market conditions, rather than available subsidies, which is certainly an improvement. Gradually, the intervention mechanism will become an insurance mechanism, protecting the farmer from sudden shocks in the market. Apart from the CMOs, the rural development programmes include various measures for improving the competitiveness of agriculture in the EU (such as investment aid, measures to improve marketing and production, training, etc.)
- Looking at the social dimension, direct aid (which can be partially transferred by the member states to use in rural development) can be used to compensate for the problems in the agricultural sector that are linked to the fall in guaranteed prices. On the other hand, rural development schemes require specific measures to enhance the social viability of both rural areas and the agricultural sector. In this respect, it is important to encourage the diversification of farmers' sources of income.
- As regards to the environmental dimension, agri-environmental measures were consolidated as a compulsory requirement for rural development. These provisions envisage paying farmers who, by signing a contract, commit themselves to maintaining environmental standards at a level that is above the basic "good farming practices". The member states also have the power to sanction non-compliance with environmental regulations by reducing the amount of direct payments. The measures for rural

development, such as markets policy, include a wide range of environmental clauses and minimum standards.

However, we cannot consider sustainable agriculture to be a concept that is already completely defined. "Continuity" is not a static idea. On the contrary, it is a concept which is progressively and permanently under construction and therefore, a great deal of progress is still required. Although the essential elements are already reflected in the texts, a minimum period of implementation is necessary before we can see the fruits of the work. The Commission defined four different areas in which it is necessary to act as quickly as possible: agricultural markets, rural development, quality of food and the environment.

We will look at each in turn:

- Firstly, with regard to the evolution of the market, the current situation is reasonably favourable. Thanks to the reforms, the downward trend in the consumption of cereals for feeding animals was reversed and the current annual tonnage of cereals used for manufacturing animal feed is up by 25 million in comparison with 1992. However, there is one significant exception: the beef market. Here we face a dramatic imbalance and although the ending of the crisis is expected to take a long time, there are some signs of improvement. We have to point out that BSE and foot and mouth disease are to blame, and not Agenda 2000, since markets were reasonably balanced before the diseases struck. In most of the other sectors, intervention stocks fell to low or non-existent levels. The current euro exchange rate against the dollar has a lot to do with this, but this could well change. Even with favourable exchange rates for exports, problems could arise for secondary cereals such as rye as well as for dairy and meat-based products.
- Secondly, the wider question of rural development, and the diversification of sources of income, the incorporation of a local added value produce to the food chain and support for rural tourism. Here we can say that we are going in the right direction. However, we have to point out that rural development only accounts for 10% of the overall agricultural budget and this perhaps represents one of the most serious imbalances between society's expectations and the real situation.
- Thirdly, the quality of food, which covers numerous areas, both subjective and objective. The quality valuation of products is often more associated with the perception or awareness about potential risks than with scientific evidence. This is particularly true in the area of new technologies such as Genetically Modified foodstuffs. Although it would be impossible for Brussels to try to define exactly what "quality" is or should be, we can establish rules so that consumers have access to more information about what they eat. We can also offer other incentives to encourage production methods which meet consumers' expectations. Real competitiveness is no longer related only to low-cost production but more and more to quality, added value, and compliance with a series of requirements which have to do with the environment and animal welfare. To farmers, responding to market farces means producing so as to meet consumer demand and generally paying more attention to the market.
- Fourthly and finally, the environment. Agriculture is still too closely associated with water pollution, depletion of resources, the greenhouse effect, the destruction of natural habitats and of biodiversity. As with the quality of food, the protection of the environment requires the establishment of a set of rules. In this respect, until now, it has not been the lack of strategy, but the failure to apply the necessary measures, which leaves most to be desired. In the range of measures for rural development, it can be seen that agri-environmental initiatives are broadly supported by farmers, ecologists and public opinion. Therefore, the budget allocated to this positive element of the CAP continues to be far too low: the CAP is frequently – and quite rightly - criticised for assigning too much funding to policies concerning the market and not enough to the protection of the environment and agrarian landscapes.

All of this provides us with the general outline for the future policy of the Commission and I imagine that in this respect I will surprise no-one. What remains to be seen is in which specific areas action is going to be taken.

During the next few years, the activities of the Commission in the agricultural field will be concentrated on three main areas:

- the review of Agenda 2000 in the medium term, that is, in 2002
- the trade negotiations within the framework of the WTO
- the expansion of the Union.

1 – The 2002 review:

During the second half of 2002, the Commission should provide the information requested by the Berlin European Council, concerning:

- Agricultural costs: to check that they are within the maximum limit of 40.5 billion euros;
- Cereals: to examine the question of the last reduction in the intervention price for cereals, since the decision was taken in Berlin to reduce the price by 15% rather than the 20% which the Commission judged necessary to guarantee wheat and barley exports without refunds. It's true that with this reduction, exports currently have a zero refund, but it must be recognised that this is largely due to the parity between the dollar and the euro.
- Oil-seed products: to examine the situation in the sector before bringing the funding to the same level as for cereals, which will allow the complete elimination of the hectare reductions imposed by the "Blair House" limits which was an outcome of the 1989-91 panels.
- Milk quotas: with the aim of eliminating them after 2006.
- Finally, and most importantly, beef. In this sector, it will be necessary to continue with efforts to restore the equilibrium which has been badly affected by the various crises. This is not a question of carrying out reforms, but of administering the situation within the framework of objectives established in Agenda 2000. In order to achieve this, it will perhaps be necessary to open the difficult debate on the ways in which farmers can be supported: whether subsidies should be paid per head or per hectare. In all events, subsidies granted to livestock farmers under the CMO should never be aimed at artificially encouraging the intensification of production.

Finally, one of the gaps in agricultural policies that clearly demands attention is that of reinforcing the second pillar of the CAP. Rural development policy in many areas provides the instruments – independently of production – which yield the expected sustainable results. The demand for biological products needs to be encouraged by marketing actions. It should be possible for farmers to be given premiums when they commit themselves to standards in environmental and animal care terms that are above the level of good farming practices. To this end, the Commission will find a way of shifting budgetary resources – and eventually measures – from the heading of "markets" to that of "rural development", within the framework of deepening the reforms by setting up, for example, a specific mechanism to modulate the subsidies.

2 – Trade negotiations within the WTO framework:

In the last multilateral negotiation a compromise was reached for the "continuation of the reform process" in accordance with "the long-term objective of progressive and substantial reductions of support and protection which would lead to a fundamental reform" as established in the terms of article 20 of the agreement on agriculture in the Uruguay Round.

The Agenda 2000 reforms, based on support mechanisms such as direct payments linked to production limitation mechanisms or to rural development projects, allow financial planning and, more importantly, the progressive elimination of the support that causes the greatest distortions to trade. This reinforced our position in the WTO considerably.

This process contrasts with the development of the other agricultural giant: the United States of America. In the past few years, aid has increased enormously without paying much attention to the commitments undertaken within the WTO framework, causing, as a result, serious

distortions to trade. In this respect, the American position has weakened and this would in part explain their lack of enthusiasm for seriously resuming negotiations in Seattle in 1999.

What is the Union's position? The European Commission outlined the main elements on the basis of the fact that the Agenda 2000 agreement determined the "essential elements of the European Union's position in the future multilateral trade negotiations of the WTO". Consequently,

- All economic and trade sectors should take part in the multilateral negotiation, not only the agricultural sector;
- The blue box should be maintained. The decision by the EU to shift from price support to a direct payment system is an important step towards the reduction of trade distortions on a world scale and should be recognised by all the member states involved in this organisation;
- The green box should be reinforced. The multi-functionality which characterises European agricultural models should be recognised for the role it plays in the economy, the environment, society and in the conservation of the countryside;
- All forms of export support, such as credits for example, and not only refunds, should be taken into consideration. If, and only if, this were to come about, the EU is prepared to negotiate reductions of subsidised exports (it should be remembered that in the Uruguay Round reductions of 21% in volume and 36% in budget were agreed, hence the interest in making non-subsidised exports a reality);
- The peace clause should be renewed;
- Some non-commercial aspects concerning the social conditions of farming production, protection of the environment and animal welfare should be taken into consideration;
- Finally, it should be possible for all the member countries of the WTO to take advantage of the expansion of world commerce. However, special, differential treatment granted to developing countries, and especially less advanced countries, should continue.

The WTO conference, held on November 9, was attended by the 142 existing member states and China, which has just joined. After five days of negotiations and text adaptations, an agreement was reached and a new round of world trade negotiations was announced. Let us hope that the position arrived at can be maintained and that results that are positive for everyone can be attained.

3 – The expansion of the Union.

As far as the expansion of the Union is concerned, we are all aware that negotiations in the field of agriculture are not going to be easy.

All the candidate countries will have to overcome various obstacles which sometimes are specific to one country in particular or in other cases shared by all of them. The main areas that need to be addressed concern the following:

- property rights;
- setting up honest, efficient administrations to manage EU funds;
- improving the health and condition of livestock and conforming to the animal health regulations,
- improving the sectors which depend on agriculture;
- tackling employment problems which are specific to rural areas
- improving the protection of the environment;
- the role and level of direct payments in arable crops, in particular.

The objectives of Agenda 2000 are geared to solving the problems posed by the agricultural systems of the candidate countries. Basically, even if these countries had not applied to join the Union, sooner or later they would have had to focus on some or most of these objectives in order to solve the commercial and international problems which they would anyway have had to address.

Certain CAP changes, which are already under way, will make the integration of the member states easier – for instance, simplification. The CAP is a complex system whose administration and implementation require sophisticated administrative structures. Doing all we can to simplify it will make the task of the candidate countries easier, especially for small farmers.

As far as agricultural markets are concerned, the Commission does not expect serious new problems to arise which affect their management. Agenda 2000 already allowed price levels to start to converge. The negative impact of the new members was grossly exaggerated, whereas the potential market represented by the 100 million consumers from the candidate countries has been somewhat overlooked.

The priority for most candidate countries is to undertake a serious restructuring of their agricultural systems. This requirement was clearly conveyed to all the candidates. This is the reason why any initiative aimed at strengthening our rural development policies is also to the benefit of all the candidates, and it is in this respect that public authorities can provide support for investment in farms, the food processing industry, marketing companies, training, etc.

It is evident that this long term work can be initiated without having to wait for the new countries to join. Thus, the Directorate-General for Agriculture is organising a system of pre-accession, the SAPARD programmes. These are rural development programmes aimed at the candidate countries, with a budget of over 500 million euros per year.

The most difficult question is that of direct payments and in particular the 17 billion euros that are assigned to arable crops. Payments per hectare of cereals, as they are organised today, seem inappropriate to the current situation of the candidate countries, in which the priority, as we have stated, is re-structuring. The Commission had already mentioned this question when Agenda 2000 was drafted, suggesting not making the full payments to the farmers of the future member states which would be free to replace them with additional structural measures during a transitional period. This economic-based reasoning is in conflict with the political realism in the sense that it is difficult to justify the establishing of a two-level CAP for the medium term. The European Union does not have a definite position on this matter which continues to be a key element in negotiations.

In conclusion, I would say that the CAP is an “old” policy, a community model which, at the Commission’s initiative, has been modernised to meet the challenges of the new century: promoting sustainable agriculture, rural development and the European agricultural model.

We are living through a very interesting historical period. The events that are scheduled for the near future (a medium-term review, a round of trade negotiations, expansion of the Union) should demonstrate, if this were still necessary, that the “new” agricultural policy is the right one for Europe.

SEASONAL LIVESTOCK MIGRATION AND ECOSYSTEM CONSERVATION IN SPAIN

Mr. Jesús Garzón Heydt

President

Concejo de Mestas Association

Introduction

The ecological impact of seasonal livestock migration in Spain has never received the recognition it deserves, despite the far-reaching implications it has for the conservation of some of the country's most valuable ecosystems. The effects of extensive grazing on land was admirably summarised by Montserrat (1975) in just one sentence: "Animals farm by brushing through the grasses, their hooves work the land, and they leave their manure where they will, for us to do with it as we wish".

Over recent decades, many researchers have studied extensive livestock farming land use and its effects on vegetation and ecosystems in central and southern Spain, including Casado et al. (1988), Gómez Sal & de Miguel (1987), Gómez Sal et al. (1992), Gómez Sal (1993), González Bernáldez (1991), Llorca & Ruiz (1987), Pineda et al (1981), Ruiz & Ruiz (1986), Sterling et al. (1983). However, for logical reasons, this and other similar work has been carried out focussing on present-day livestock practices. Although these may seem traditional enough, they do in fact differ fundamentally from land use prevailing in the Spanish countryside just a hundred years ago.

The railways and drovers' roads¹

The second half of the 19th Century witnessed an important occurrence which brought far-reaching socio-economic change and also affected extensive livestock farming which had hitherto been unchanged since time immemorial. This great change was the immediate result of the building of the railway network, completed in Spain in 1896 with the opening of the last two sections of the Béjar- Salamanca- Astorga line. In the space of a few decades, trains had almost completely taken over from the only previous forms of land transport available: on foot, mule or horse, ox and cart or horse-drawn carriages. For the first time ever it was possible to transport passengers, merchandise or, in the case that interests us here, livestock, wool, animal-feed and forage quickly and cheaply. The tendency was for livestock farms to abandon transhumance as they were now able to buy in the feed necessary to keep livestock on their own farms the whole year round. The herds and flocks that continued with their seasonal migration did so in conditions far removed from the traditional ones, as the long journeys lasting weeks and even months along the drovers' roads were replaced by journeys in train, lasting little over a day (Fribourg, 1910). From the mid-20th century, road transport in lorries became generalised which meant that the drovers' roads from the pastures to the train stations were not used, reducing even more the time taken to transport animals and with it signalling the almost complete abandonment of the drovers' roads.

However, in the mountains animals are not put out to graze until the end of June, when the weather has improved and the last of the snow has melted. The immediate result was that many flocks that traditionally left the pastures in the south at the end of April or beginning of May to be sheared in the northern plains and then continue their journey into the mountains, now found that they did not need to migrate, while those that did were now sheared in the south, putting back their journey to the mountains to the second half of June. The burden on the land from the

¹ Drovers' roads are traditionally known as '*cañadas*' –75 m. wide -; '*cordes*' –37.5 m wide- and '*veredas*' –20 m wide- (Law 3/1995, 23 March)

livestock that previously migrated and now remained on the *dehesas* (semi-wild grassland broken by holm oaks and cork oaks) all year, together with the migrating flocks that delayed their departure four or five weeks during the critical time from mid-May to mid-June, had a very negative impact on the regeneration processes of most of the ecosystems in south-west Spain.

Over the last hundred years hardly any new trees have grown in the *dehesas* of the south, which is why the magnificent holm-oak woods which we now admire, and which in autumn feed the herds of Iberian pigs, are "fossils" which will inevitably disappear without trace if traditional seasonal migration or alternative measures are not re-established. A region such as La Serena, previously famous for receiving one hundred thousand migrant sheep during the winter, now suffers the pressure of six hundred thousand sheep all year round, causing serious erosion and the irreversible destruction of pastureland. Over two centuries ago, Jovellanos (1795) warned of this very danger: "it is wise to respect transhumance, and ensure that what is left of our famous transhumant flock does not perish; which would be the case were it suddenly to be denied the drovers' roads, *cañadas*, *veredas* or *cordeles*, and resting places, which it has enjoyed from time immemorial. Were this to happen, the rich grazing offered in alternate seasons by Extremadura and the snow-capped peaks would go to waste. The benefits arising from the rich summer pastures in the high grounds, and the lush grazing of the southern *dehesas* would suffer as would the livestock, without the alternation between the summer and winter pastures, which taught Spaniards about nature and politics".

The present situation has been publicly criticised by Gómez Sal (1993): "Both in some *dehesas* in Extremadura and in some hill areas, an impossible burden is being put on land, partly due to the policy of subsidies, which is seriously affecting the quality of the pasture and destroying and eroding the topsoil. Feeding a large number of sheep throughout the year on the *dehesas*, "supplemented" with commercial animal feed is a practice which in a short period of time may destroy pastureland which was balanced and rich in species which gave these wooded lands their fame, leading to their progressive degradation into nitrate-saturated grassland of little interest".

The importance of seasonal livestock migration in spring

The dry season normally starts in southern Spain between the end of April and mid-May. This is when the grasses in the pastures go to seed and the annual plants are re-sown, thus guaranteeing the survival of an extraordinary diversity of plants, with one of the highest known concentrations in the world, which may exceed forty different species per square metre of land (Marañón, 1985). This is also the time when shoots from holm-oaks and cork oaks begin to grow, protected by the grasses. These shoots may come from the roots or from acorns that germinated the previous November or December, but which do not start to develop above ground until mid-Spring. For the majority of the species of fauna, the months of May and June are crucial for the completion of their reproductive processes, both for invertebrates, such as spiders, ants, butterflies, beetles or grasshoppers, and for large and small vertebrates. The larvae of toads and frogs, newts and salamanders strive to complete their metamorphosis in a dramatic race against the clock before the livestock drinks² or the heat evaporates the water in ponds and streams in only a few days. Lizards of different types and snakes hunt in amongst the increasingly dry vegetation, where young rabbits, hares, foxes, roe or red-deer search for cover.

The birds are in the middle of their reproductive period, with many species nesting in the grass or fallow land such as woodlarks, crested larks and calandra larks, quail and partridges, little and great bustards, and hen harriers. Table 1 shows the reproductive calendar of the most

² Estimating daily consumption of between four and five litres per sheep per day, a flock of 1,000 sheep drinks more than half a million litres of water between June and September, besides muddying and contaminating the watering places with their hooves and dung, increasing the biological demand for oxygen at the expense of the aquatic fauna.

sensitive species, where it can be seen that, if livestock were to leave pastures before June, the birds' reproduction would be unaffected. If not, their nests and their young could be destroyed, by which time there would be no chance of new hatches to replace them.

It is easy to see the immense importance of transhumance for the vast majority of these species. Between two and five million head of livestock were driven north each year from May to November. They were mainly sheep, but also included goats and cattle, horses, pigs, and even turkeys following the discovery of America. For six or seven months a year, the southern *dehesas* were practically deserted, allowing wild fauna and flora to reproduce and prosper without the pressure of livestock, dogs and shepherds, in an area of more than three million hectares in Extremadura, Castilla-La Mancha and Andalusia.

SPECIES	LAYING	HATCHING	FIRST FLIGHT
Great Bustard	April-June	May-July	June-August
Little Bustard	May-June	June-July	July-August
Sandgrouse	May-August	June-August	July-September
Hazel Grouse	June-August	July-September	August-October
Stone Curlew	April-June	May-July	June-August
Pratincole	April-June	May-June	June-July
Harriers	April-May	May-June	June-July

TABLE 1. MAIN BIRDS NESTING ON OPEN GROUND

Foreign travellers at the end of the 19th Century were unable to hide their astonishment and admiration at this apparently unspoilt wilderness: "No other country in Europe is so taken by Nature, a nature unsoiled by the hand of man, untamed and splendid in its wilderness, enveloped in its primitive, wild robes" (Chapman and Buck, 1893). It is no coincidence that most of those areas are currently considered to be of maximum interest for the conservation of biodiversity in Europe: for example, the eight provinces of the south-west (Huelva, Seville, Córdoba, Jaén, Ciudad Real, Toledo, Cáceres and Badajoz) have between them 2,300 hectares of Sites of Community Interest (SCI) of the Natura 2000 Network, much of which is pasture and woodland where transhumant flocks used to spend the winter months.

Repercussions of the disappearance of transhumance

The most important negative consequences of flocks, dogs and shepherds remaining on pasture land in the south during the critical period at the end of Spring are as follows:

- a) Over-grazing of pasture, affecting its regeneration and the conservation of topsoil which is unprotected against the sun and wind, summer storms and the autumn rains.
- b) Destruction of holm oak and cork oak shoots that are not normally eaten when there is green grass around, but which are heavily grazed when the grass withers at the end of Spring.
- c) Pollution and draining of the water from the ponds where livestock drink, affecting the survival of aquatic fauna.
- d) Lack of cover and food for the terrestrial fauna, from invertebrates to large vertebrates, which disappears when the pasture is exhausted by the livestock.
- e) Damage caused by livestock, dogs and shepherds to the reproductive processes of the most sensitive species, and the trampling of eggs and young in nests on the ground.

In the mountain pastures, despite seeming contradictory to the above, it is the absence of the migratory flocks during the summer that has negative consequences (Rodríguez & Gómez, 1992), since the circumstances are very different:

- 1) Livestock grazes up to the natural edge of the forest, without affecting the trees, and therefore contributes to the conservation of the pastures, controlling the proliferation of brush and scrub, such as heather, gorse and laburnum, thereby promoting biodiversity and helping prevent the spread of forest fires.
- 2) The terrestrial fauna has already completed its reproductive processes when the flocks arrive at the end of June, and therefore the main species such as the red partridge, hares, chamois and roe deer can easily avoid the areas grazed by livestock. In the mountains, the daily grazing starts fairly late in the morning to avoid the morning dew, so the wild animals have enough time for grazing without having to compete with the livestock, thus benefiting from better quality grass and even the salt-licks left by the shepherds which the chamois like to lick at dawn.
- 3) The most sensitive wild species, such as bears, grouse, vultures and golden eagles find a greater amount of food due to the proliferation of berries, insects, carrion and prey respectively.
- 4) The aquatic fauna is aided by the small dams made by the shepherds in the streams for their livestock to drink, and that stop streams from drying out in dry summers. They help numerous aquatic invertebrates to survive, amphibian larvae and even endemic mammals of great interest such as the Iberian desman. In these cold oligotrophic waters, the nutrients left by the livestock in the form of dust and dung activate the biological richness, the opposite to what happens in the south, with warm eutrophic water, in which the same nutrients may even lead to toxic and anaerobic processes. These mountain water holes are also used by the terrestrial fauna, and they are especially important for species unable to travel very far, such as, for example, partridges with young chicks.
- 5) In the high mountain areas, the fertilisation provided by the livestock on the ground is of great importance³, as the erosion process and washing away of nutrients by the snow, wind and rain is very intense, and this is compensated by the flocks climbing up the hills each morning to rest on the hilltops, thus fertilising the land against the pull of gravity. The build up of dung in the sheepfolds is also often taken advantage of by the neighbouring villagers, who take it away in carts or tractors to fertilise their plots and hillside crops, thus contributing to high quality organic farming.
- 6) For the mountain villages, the arrival of the migratory flocks represents an important source of income, both for the letting of the grazing land for an approximate price of 2 to 5 Euros per head for sheep, goats or pig, and the not insignificant amount spent by the herdsmen in shops and bars during the summer. The sale of lambs and goats, the purchase of feed and other products for livestock, the rent of accommodation, the contribution to local fiestas, employment for herdsmen or helpers, and many other aspects all play an important role in the regeneration of the economy in these regions which are seriously affected by depopulation, an ageing population and abandonment. Transhumance also has positive ecological repercussions, as it maintains the traditional ecosystems of these valleys, with fruit trees, stone walls, vegetable gardens, meadows and old buildings.
- 7) The village inhabitants also appreciate the presence of the herdsmen due to the protection that their mastiffs give to their plots and hillside crops, as they scare away the deer and wild boar which would otherwise feed on them. They are thus forced into the forests, where their

³ Estimating 30 Kg. of dung per sheep over 100 days in the mountains, each flock of 1,000 head would leave 30,000 Kg. of top quality fertiliser on the hills, besides that accumulated in the sheepfolds during the night.

population can be more easily controlled by the wolves, thereby also diminishing the wolves' pressure on local livestock. There are also longstanding beliefs in the villages that the presence of the transhumant flocks stops plagues of mice and voles, the understanding being that as the migratory flocks eat all the grass, the rodents then lack sufficient food to survive the winter under the snow.

The drovers' roads as natural corridors

The abandonment of livestock migration brings with it the disappearance of the network of drovers' roads, which as a result of disuse have been progressively encroached upon by neighbouring landowners, roads, buildings, urban development and landfills, or they become overgrown with brush and scrub, making them impassable for livestock. This also affects the many species of wild fauna and flora that use the drovers' roads to move between the low and high ground, or for their migrations between the north and south of the Peninsula. The interesting subject of the transfer of seeds and invertebrates by livestock along the drovers' roads has not been studied sufficiently (Beinlich & Plachter, 1995) but there is no doubt as to the importance of drovers' roads as natural corridors linking the ecosystems of northern and southern Spain (Gómez Sal, 1993; Ruiz & Ruiz, 1986).

The interruption of these genetic exchanges produces the isolation of populations and their subsequent extinction, as has already occurred with a species as emblematic as the Iberian wolf, which has died out over the last decade in Andalusia, Extremadura and in Castilla-León south of the River Duero. The oldest known reference to the link between the wild fauna and the drovers' roads and seasonal livestock migration refers to this very species: "when the livestock comes down from the mountains of León to Extremadura, the herdsmen see the wolves following them and they swear to this as some of them are marked in such a way that they can identify them, and they can be seen in one place in the summer and in another in the winter." (Martínez Espinar, 1664).

The drovers' roads also provide extraordinary strips of biodiversity, as many local and migratory species find refuge and feeding there (Gómez Sal, 1993; Martín, 1998; Ruiz & Ruiz, 1986; Rusek, 1992; Smith & Ellmund, 1993). As they consist of land that is never worked or treated with chemical fertilisers or pesticides, several plant and animal species have managed to survive in these enclaves, while they have been wiped out by intensive agriculture elsewhere. Present-day crop production creates mainly single-species deserts, while the drovers' roads provide oases of refuge for a plethora of species and allow many others to feed there; species that, while occupying a wide area, would disappear without the existence of the drovers' roads.

Corn bunting, woodlark, tufted lark, crested lark, calandra lark, quail, partridge, little bustard, great bustard, stone curlew, shrikes, kestrel, harrier, storks, swallows and many other birds that need a carnivorous diet permanently or when rearing their chicks, come here to hunt grasshoppers, beetles, butterflies, caterpillars, flies, ants, spiders, snails, amphibians and small mammals of which there are great numbers on the drovers' roads. Also common are the lizards and snakes, kites, buzzards and weasels, and with the arrival of darkness, owls, nightjars and bats. The hares and rabbits also find, apart from shelter and food, a certain amount of protection as the drovers' roads are safe areas for them, where hunting with firearms is illegal.

The strips of the drovers' roads which subtly break the monotony of fields of crops, or zigzag through forests and thick brush, consist of a thick bed of vegetation with a great variety of grasses and plants, and with dispersed thickets, shrubs and small trees: thyme and broom, hawthorn, clumps of brambles, wild roses and kermes oak, with patches where thistles, foxgloves and nettles sprout between the stones. These are the hedgerows that Alejandro Casona described poetically: "from Extremadura to León, the hedgerows and thorns comb the wool of the merino flocks as they pass". This combing through the scrub picks up seeds which are then transported great distances in the sheep's fleeces, and many more are dispersed by their hooves or in their dung, having been eaten. This also increases their capacity for germination. That is how seeds of Spanish clover travelled all the way to Australia, transported

by the merino sheep that were exported there in the 19th Century, as the French and English pillaged Spain's best flocks following the Napoleonic wars.

However, it is not just animals that transfer seeds and fertility along the drovers' roads. Much is also contributed by the hundreds of thousands of migratory birds, coming from remote, far-off places but which use these natural corridors each spring and autumn to rest and feed on their migratory journey between the north and south of the peninsula. The drovers' roads thereby fulfil a dual role, since they facilitate the migration of small woodland birds, such as goldcrests, robins, warblers and blackcaps over moorland and cereal-producing farmland, giving them cover and food in the scrub and thickets. In turn, they allow the passage of birds that favour open ground such as wagtails, wheatears, skylarks, lapwing, grey plover or even cranes and great bustards, through the wide areas covered with woodland or thick scrub, as they can rest and feed in the pastureland, especially in the resting places, where the drovers' roads widen out. These stretches of pasture between woodland or thick areas of scrub and brush provide ecotones, with very favourable border effects for biodiversity, and they are also efficient fire-breaks, with the added advantages of being cheaper than heavy machinery and not producing problems of erosion or scarring the landscape.

The origins of livestock migration

The fundamental importance that livestock migration has had for the conservation of Iberian ecosystems indicates a very early adaptation of wild fauna and flora to the seasonal migration of flocks, long before man started to domesticate the first animal species (Cabo, 1994). Although transhumance in Spain has traditionally been studied as an activity originating in medieval times, and was then consolidated following the Christian reconquest of the south-west of the peninsula (Bishko, 1986), a comparative study of the evolution of climate, vegetation, fauna and human cultures through history allows us to date the origins of present-day transhumance at the beginning of the Neolithic period (Garzón, 1992).

Twenty million years ago, the mountain ranges and general geographical appearance of the Iberian peninsula were similar to the present-day, with evergreen vegetation (holm oak, wild olive, laurel) in the south and deciduous (oak, beech, birch) in the north, "with large open landscapes and roving gregarious herbivores" (López, 1989). These flocks grazed, browsed, fertilised and migrated just as the present-day flocks do, adapting to the orography and climate depending on the changing requirements of the seasons. It is worth recalling, for example, that over the last million years, when our predecessors at Atapuerca and their descendants had an ever increasing effect on their surroundings by burning and hunting (Arsuaga, 1999; Carbonell et al, 1998; Schüle, 1992), there have been at least twenty consecutive climatic swings, successive period of cooling and warming, with a corresponding effect on vegetation, with swings in terms of rainfall, and ice-ages followed by warmer periods (Blanco et al, 1997).

A mere 15,000 years ago, men from Altamira could still reach northern Europe, following the reindeer, antelopes and musk ox from the Cantabrian coast to Ireland and Scotland. The last ice-age started to recede at that time, with the climate becoming progressively milder to the point when present-day values were reached 5,000 years ago. During this period, the sea level rose 110 metres due to the melting of the ice, flooding the coastal shelf at the rate of one metre every hundred years (Garcin, 1994) which led to a considerable reduction in the extent of the pasture land. The herbivores also had to adapt to heat and drought, resorting to the pasture and water of the highlands in the summer, and returning with the first autumn snows to the sheltered lowland valleys.

Present-day knowledge of the transition from the Palaeolithic to the Neolithic period in the Iberian Peninsula confirms the ancient roots of transhumance, linked to the seasonal movements of wild fauna. Twelve thousand years ago, the climatic change that had commenced 3,000 years earlier led to the first clear cultural differences between the sedentary population of the coastal regions and the nomads on the plains: "wandering over wide areas" and "in search of the arctic fauna" (Jordá, 1967). These seasonal movements of hunters

following herds were without doubt the origins of Iberian transhumance. The domestication of herbivores must have been very similar to that still practised by the Lapps with their herds of reindeer. The rudimentary handling of livestock started over 100,000 years ago (Valverde, 1990, Vilá, 1999) with the help of wolves, tamed for hunting and to guard the villages, with the herds steadily growing accustomed to man through their provision of salt, shelter or food.

The climate and sea-level became settled within present-day parameters 5,000 years ago, and the transhumant shepherds were regular visitors of the summits of the Cantabrian Hills, leaving behind them dolmens and passing on their knowledge of livestock, agriculture and pottery to the villagers of the north. The Palaeolithic age passed, but the trails continued to spread until all the regions of the Peninsula were linked together, and this has continued to the present-day providing us with the living legacy of the transhumant culture. The main routes taken by the flocks have the common characteristic of following the eternal spring, moving between regions where the average monthly temperature of the coldest month (January) does not drop below + 6° C to spend the winter, and those where the average of the hottest month (July) does not exceed + 17° C to spend the summer.

The archaeological sites of the Bronze and Iron Ages confirm the close link between the inhabitants of those periods and the present-day drovers' roads (Sierra & San Miguel, 1991). This had been suspected more than a century before by Paredes Guillén (1888), who linked the granite sculptures of bulls and boar found throughout the centre and west of the Peninsula with the old herdsmen's trails. Also of great significance on this point is Untermann's (1961) analysis of Iberian place names which indicates the great linguistic unity in pre-Roman times of the transhumant area covering Castilla, León and Portugal, as distinct from the Ebro Valley, Eastern Spain and the Guadalquivir, that have their own ecological conditions and also their own livestock migrations, unconnected with the Castilian network. Many of the autochthonous breeds kept by the Celtiberian people, described more than 2,000 years ago by Greek and Roman geographers, still survive in many regions of Spain and Portugal, providing a cultural and applied heritage of immense interest.

Recovering transhumance

One of the greatest difficulties for conserving transhumance is to convince our politicians that herdsmen still exist, that they are people with their rights just like any other citizen, and that shepherding is a necessary and respectable job that requires the drovers' roads for the transfer of livestock, be it over short, medium or long distances. It is possible that this may be even more vital in the near future, when the effects of climate change, the progressive rise in transport and animal feed costs, and the European consumer's demand for better quality meat and production processes may give traditional transhumance renewed importance. The preparations are already under way in several Spanish Regional Governments, such as Aragón, Castilla-León, Castilla-La Mancha and Extremadura, for the marketing of transhumant lambs and other products. That is why it is even more regrettable that most public investment in roads, motorways, footpaths, land reorganisation, irrigation, forestry plantations, recreational areas, bicycle lanes, etc., continues to be made at the expense of destroying the inalienable heritage of the herdsmen, which is subject to neither prescription nor embargo, their drovers' roads, which are protected under Law 3/1995.

Among specialists and researchers, there is also a widespread sense of resignation at the abandonment of the drovers' roads, with aspirations generally limited solely to the upkeep of narrow paths for educational, cultural or recreational purposes. In the Symposium on Transhumance and Livestock Culture held in Seville during the Universal Exposition of 1992, "the demise of transhumance" was certified, on the basis of four fundamental factors:

- 1) The impossibility of moving long distances with livestock due to the irreversible destruction of many sections of the drovers' roads, along with watering and resting places, folds, inns and shelters for the herdsmen.

- 2) The social conflict that would be caused if flocks tried to pass through fields of crops, roads, city streets and housing developments that have occupied the drovers' roads following more than half a century of abandonment.
- 3) The lack of herdsmen, as most of the old transhumant herdsmen have retired, and there is no interest among young people for a trade that lacks social prestige.
- 4) The unsuitability of livestock for long journeys. This is because in recent years livestock have been selected for their meat production, and in many cases the animals now weigh double that of the old transhumant breeds. This would make it virtually impossible for them to withstand a prolonged journey along the drovers' roads.

While recognising the logic of these arguments, it is hard to remain unmoved by the slow death of an ancient culture of such ecological, cultural and social importance, which has deeply impregnated the history of Spain, from ancient times to the present-day. We have therefore decided to look at the practicality of recovering transhumance given present-day conditions, and travelling along the main drovers' roads of the Mesta with large flocks. We want the project to be viable in economic and social terms for the farmers who wish to migrate with their livestock, bearing in mind that the traditional flocks consisted of a thousand sheep with five shepherds. However, the critical point in terms of flock profitability is currently numbered at 700 – 800 sheep per shepherd, and as on the drovers' roads at least three shepherds are needed, one with the flock leaders and one on each flank to avoid damage to neighbouring crops and controlling the livestock at all times with the help of their sheepdogs, the optimum flock size for present-day livestock migration would be from 2,000 to 3,000 head; in other words, three flocks with their respective shepherds.

For long journeys lasting more than one week –about 150 km- another assistant is needed, as a spare-hand and to drive the support vehicle, help in the assembling of sheepfolds and tents, tend sick animals or help with the driving of the animals when needed. We are therefore looking at a team of four shepherds, but handling twice the number of animals that they would have done traditionally. For this reason, it is essential for the traditional width of the drovers' roads to be respected, with their resting and watering places, shelters and other facilities, as the viability and profitability of future livestock migration will depend to a great extent on the movement of large flocks and herds that must be able to graze along the drovers' roads with the minimum number of farm-hands.

The results of our first experience of transhumance in 1993 were very satisfactory. Some 2,600 merino sheep belonging to Cesáreo Rey travelled 1,000 km along the Vía de la Plata (The Silver Route), between Valverde de Mérida (Badajoz) and Porto de Sanabria (Zamora). The drovers' roads were, as expected, in a bad state, but the livestock was able to travel with varying degrees of difficulty. The local authorities collaborated at all times, facilitating the passage of the livestock through towns and cities, while the Civil Guard took care of road-crossing. The sheep, with the ewes in lamb and some weighing over 70 kg, stood up to the journey despite arduous conditions, as they travelled north during the heat of July and came back south continually drenched as they endured the wettest month of October on record. The shepherds established a great team of young enthusiasts and no problems arose with farmers along the route. The most gratifying aspect of all the journey was seeing the enormous interest that it produced in the inhabitants along the route and their collective memories of the herding culture, bringing back the smallest of details related to the drovers' roads and the passage of the livestock after 50 years of neglect.

In May 1994, we again departed with Cesáreo and his flock from Valverde de Mérida to travel west to east through Leon to the mountain passes of Luriana and El Mostajal near Portilla de la Reina, on the border between Leon and Cantabria. We thereby discovered the town of Prioro, which together with Tejerina and Remolina are absolute treasures of transhumant culture, as most of the shepherds and farm managers who drove the old flocks to Extremadura and La Mancha came from these towns. Many of them are still alive, and along with the rest of the inhabitants each year on the last Sunday in June they organise a great herding *fiesta* to welcome our flocks. In Prioro, we decided that autumn to return to Extremadura via Madrid so

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that the city's inhabitants, and in particular the politicians, should see livestock migration first hand. It also coincided with the debate in Parliament on the draft for the new Law on Drovers' Roads. The passage of the flock through the capital was seen by thousands of enthusiastic people, as there is a large population of people from rural areas living in Madrid. They accompanied the flock and the shepherds on the big day along the Calle Mayor, Sol, Cibeles and the Puerta de Alcalá, where the milestones delimiting the drovers' road are still conserved. From that year, one of our flocks passes through Madrid each autumn on the last Sunday of October in one of the capital's most popular fiestas.

In 1995, during a bad drought year in Extremadura, another three farmers decided to migrate with their livestock following the example of Cesáreo, and we headed north with them to Portilla de la Reina, Redipollos, Orallo de Laciana and Porto de Sanabria. Since then, due to an almost complete lack of support from the authorities, we have had difficulty in keeping just one or two flocks migrating on the drovers' roads each year, as can be seen in Table 2. In total, we have travelled along more than 20,000 km of drovers' roads over the past nine years, with 20 flocks, 34,000 sheep and 30 different shepherds, using 20 mountain passes in Leon, Zamora and Asturias.

YEAR	FARM	PASS	HEAD	Km
1993	Valverde de Mérida	Porto de Sanabria	2600	1000
1994	Valverde de Mérida	Portilla de la Reina	2400	1200
1995	Valverde de Mérida	Portilla de la Reina	2500	1200
	Torrejón el Rubio	Porto de Sanabria	2200	1000
	Almendralejo	Redipollos	1800	600
	Salvatierra	Orallo	2000	500
1996	Torrejón el Rubio	Valverde de la Sierra	2200	1200
1997	Torrejón el Rubio	Valverde de la Sierra	2200	1200
1998	Torrejón el Rubio	Valverde de la Sierra	2200	1200
	Madrigalejo	La Cueta de Babia	1400	1200
1999	Torrejón el Rubio	Valverde de la Sierra	2200	1200
	Serradilla	Posada de Valdeón	1200	600
	La Nava	Saliencia	1000	500
2000	Torrejón el Rubio	Valverde de la Sierra	1200	1200
	Serradilla	Valverde de la Sierra	1000	1200
	Serradilla	Posada de Valdeón	1000	1300
	Brozas	Vadillo de la Sierra	1000	1000
2001	Torrejón el Rubio	Porto de Sanabria	1200	600
	Serradilla	Porto de Sanabria	1000	600
	Trujillo	Vadillo de la Sierra	1000	900
	Madrigalejo	Burón	1200	1000

TABLE 2. LIVESTOCK MIGRATIONS FROM 1993 TO 2001

The future of transhumance in Spain depends to a great extent on the Administrations complying with their obligations, by protecting the traditional width of the drovers' roads, and restoring and recovering them where necessary, putting up signposts so that shepherds do not mistake the route and involuntarily cause damage to farmers' land. They must also provide clean, well-looked after watering places every 10 km so that the livestock may drink at least once a day, and build passes at different levels on roads, railways and motorways so that the livestock and wild fauna may cross safely. Shelters or huts are also needed for the farmers and their families to be able to live decently, both on the journeys on the drovers' roads and during their stay in the summer pastures and in the winter.

In parallel, a concerted effort should be made to train young herdsmen and women, providing them with a diploma that certifies and recognises the essential knowledge needed to exercise a trade of such responsibility. The social, cultural and environmental benefits of livestock migration should also be adequately valued, compensating farmers for the additional effort that driving their livestock along drovers' roads involves, expenses for living away from their usual residence, increased demand for qualified personnel, the increase in risks of every type during the journeys, and the fact that they miss the two most profitable lambing times (for August and Christmas lamb), and the positive economic and social repercussions that are generated along the trails and at the destinations, creating a large number of jobs. The Royal Decree of 12.01.2001 on the promotion of Agri-Environmental Measures, already contemplates substantial financial assistance for those farmers who abandon their normal grazing at least during the months of July, August and September, but so far no Autonomous Community has applied this measure.

On the multiple use of the drovers' roads

In recent years, the use of the drovers' roads for recreational purposes such as walking, cycling or horse-riding has grown rapidly and these types of activities may, in the near future, represent a socio-economic resource of great importance for the towns, villages and businesses located on them. The massive number of people using other similar routes, such as the Pilgrim's Road to Santiago, shows the recreational, cultural and tourist potential of the drovers' roads which could become the focus of development for many areas currently suffering from recession and abandonment. The first pilgrim routes to Santiago were in fact opened up by the Mozarabs, the Christians living in Moorish Spain. From southern cities such as Seville, Cordoba and Toledo they set out on the pilgrimage to the tomb of the Apostle St James, using the drovers' roads as they went, mainly the Vía de la Plata (Silver Route) and sections of the eastern and western Leon and western Soria trails. It was the international fame of these pilgrimages, also spread by Arab chroniclers, which in later years was to attract north Europeans by sea and by the better-known French Route.

However, we must be aware of the potential problems that could be caused by mismanagement of the drovers' roads. Livestock travels along the drovers' roads on only a very few days each year, and there is the risk that the complementary uses might prevail over the priority use, and create obstacles, something that is already occurring with the planting of small trees, the creation of recreational areas with benches, tables and swings, or the asphaltting of large sections for bicycle lanes. The drovers' roads are first and foremost pasture land, and they need to be grazed regularly. Livestock cuts the grass with its teeth, it fertilises the ground with its dung and it picks up seeds and organic matter from the ground in its hooves. People engaged in recreational activities should use the edges of the trails without interfering with the grazing, which has to be encouraged to ensure both the conservation of the drovers' roads and the connection between the main ecosystems of the Iberian peninsula.

Article 1.3 of the Drovers' Roads Law states that they may be made available to compatible and complementary uses, while giving priority to the passage of livestock and other rural uses, based on sustainable development and respect of the environment, landscape and the natural and cultural heritage. Article 17.1 considers complementary uses of the drovers' roads to be walking, hiking, horse-riding and other forms of recreational transport on non-motorised vehicles, as long as they respect the priority of the passage of livestock. These compatible or complementary activities do however cause obvious problems for livestock and for other users of the drovers' roads that should not be ignored. Livestock moves along the drovers' road grazing peacefully, spread out right across the road. Having people walking, running, walking dogs, or with children playing football, causes continuous problems to the shepherds and livestock, and may even make it difficult to control the animals.

Even well-meaning actions, such as feeding or stroking dogs, especially if they are puppies, may make them drop behind or get lost, or they may be run over when crossing roads alone. Livestock can also be dangerous for other passers-by. One might recall the misfortunes of Don

Quixote, when he is run over by herds of bulls and pigs, or when he is stoned by shepherds for improper behaviour on the drovers' roads. It is not surprising that mastiffs whose purpose is to keep strangers away from the flock, start barking at cyclists, people on horseback or out walking their own dogs, thereby causing alarm and concern. The problems may be even more serious if, instead of a peaceful flock of sheep or goats with a few mastiffs, the walkers or sportspersons, or even whole families with parasols, the granny, tables and chairs, etc., are confronted by a fiery herd of cattle bred for the production of fighting bulls. This may cause situations of real danger for people who scare easily or are not careful. That is why it is vital to guarantee a minimum level of understanding and knowledge for the users of the drovers' roads, so that they will respect the instructions of the herdsmen and let livestock have the right of way, and also ensure that they know how to react in situations that involve a certain amount of danger, be it real or imaginary.

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ECOLOGICAL FUNCTIONS OF DROVERS' ROADS

Mr. Antonio Gómez Sal

Professor of Ecology.
University of Alcalá de Henares

1. Drovers' roads as an essential part of Iberian nature

A number of factors limit the different livestock farming modes in Spain, and these are at the root of the dense network of drovers' roads in the country, which has traditionally facilitated the use of distant pastureland as a complementary food supply. Among these factors are the generalised Mediterranean climate (with very dry summers which parches the herbaceous species in the wintering areas), the east-west direction of the main mountain ranges (which causes significant differences between the amount of sunlight and rainfall received on the north and south faces, with the consequent difference in the period of maximum plant production in the two areas), and the marked continental nature of large areas of mountain and plains in the northern half of the peninsula, isolated from the moderating effect of the ocean, with long, hard winters which limit production in the pastureland to a period of no more than five months.

If these basic reasons related to the physical characteristics of the peninsula determined the configuration of the network of drovers' roads, then the intimate, significant interrelationship between the roads and Iberian nature can come as no surprise. It is at the same time one of the reasons for the network's most outstanding values (original types of biodiversity, a stimulus to herbaceous productivity in land used for extensive farming) and one of its most original attributes. In the south-western provinces of Spain, the benign winter and early spring climate, with generous fronts bringing rainfall in from the Atlantic, gives rise to a highly productive period for the vegetation. The brusque ending of this period forces the substantial herbivore population that can live off that vegetation to seek sustenance in very varied areas, from the high mountains of the Betica ranges to the pasturelands of the Cantabrian mountains.

As happens on the savannah, the variations of primary productivity, typical of Mediterranean ecosystems require the movement of herbivores, especially grazing ungulates and fruit and seed-eating birds, towards areas which produce at different times of the year. These areas are often located in the mountainous area on the periphery of the Mediterranean climate zone, with a gradual transition to Atlantic or high-mountain environments. The paths created by these ungulates during their movements are an intrinsic feature of Mediterranean ecosystems, as are the pasturelands which are intensively exploited, fertilised and trampled. This pastureland has specialised plant species which are able to respond to the pressures and demands of the herbivores, and are highly productive. This higher rate of renovation is propitiated by the manure they receive and by the elimination of other competing types of vegetation.

When we examine the matter of the sustainable use of resources (Gómez Sal, 2001a), we see that traditional agricultural systems undertook the transformation of nature in what we may call an organic manner, that is, imitating the way in which the ecosystem works in each different territory, adapting to its limitations and maintaining the essential ecological processes in order to avoid the degradation of the system as a whole. Among those processes, the role of herbivores in the ecosystem and their interaction with the vegetation (elimination of biomass, recuperation of the fertility of the soil and preventing the build-up of combustible necromass, encouragement of plant biodiversity) is what interests us most in this paper. The significant activity of grazing animals and their ability to migrate over long distances in search of food can be seen on very different scales, and this is evident when we analyse the ecological functions of the drovers' roads.

We can see, therefore, that human action on nature, which creates and maintains the resources, has used the processes of natural herbivore grazing. This human action has significantly increased the area grazed by the herbivores and the consequences of the grazing, giving rise to a varied collection of sylvopastoral systems. This is perhaps the most common type of humanised ecosystem to be found in Spain (Curtis & Bignal, 1990). The network of drovers' roads allows different areas which are productive at different times to be connected and to be routinely exploited, both at local and at regional scale. For these farming models, the drovers' roads represent something similar to the circulation of the blood, that is, the channels by which the pulse of extensive livestock farming beat, adapted to the characteristics and diversity of the territory. The fact that these systems were so widespread in the Iberian Peninsula was the reason for the wealth of autochthonous breeds of livestock, for the diversity of plant species on the pastureland and for the variety of agricultural landscape (González Bernaldez, 1991a; Gómez Sal 2001b). Together with this, as another consequence of these farming models, due to their stimulation of primary production and the diversification of habitats, the territory of the Iberian Peninsula preserved the varied, vigorous populations of wild flora and fauna, both herbivores and predators, which had already impressed foreign naturalists (Chapman & Buck, 1910).

On the basis of this background, when we analyse the role of the drovers' roads in nature conservation, the first question we must address is that we are analysing more of a potential than a satisfactory situation in its current form. The decline of extensive livestock farming due to improvisation and the absence of coherent policies, the crisis and virtual disappearance of many adapted livestock breeds and the lack of support to the professionals in the field, especially transhumant herders (see Gómez Sal & Rodríguez Pascual, 1992; Rodríguez Pascual, 2001) is one of the causes of the reduction in the numbers of wild grazing herbivores, which used to take advantage of the pastureland created by livestock. We have published conclusive data on the favourable relationship between the chamois (*Rupicapra rupicapra*) population and grazing of Merino sheep in the mountains of León (Rebollo & Gómez Sal, 1996) and we also have reliable evidence that the same is the case of the synergies between large and medium-sized herbivores to be seen in the relationship between the rabbit population and sheep farming (Gómez Sal et al. 1999), which we are still currently researching. Predators, including some highly-endangered species of Iberian fauna (Iberian lynx, imperial eagle) depend on these wild herbivores.

Bearing in mind the current decline in the use of the network of drovers' roads, it is fair to say that the network is more a heritage which offers great potential for use as an instrument for the conservation of nature than a network that today has a clearly positive impact on this policy. Its importance will vary with the territory and the type of landscape, depending on the density of the network and on the specific conservation problems in each of those spaces. A prerequisite for the development of a conservation policy, which is necessary also to evaluate the efficiency of the actions taken and investment made, is clearly to identify the objective to be achieved, that is, what kind of nature we want, and with what content. The question is relevant in all cases, but especially so since it involves the functions of a natural element which is so closely related to human activities, such as the use of drovers' roads, whose capacity to support the ecological processes associated with them depends on their remaining as pastureland. This does not exclude flexibility in their management or development of other complementary uses on the drovers' roads, but without abandoning their essential, deep-rooted function as livestock paths.

2. Ecological functions and natural value

The first type of function derives from the **territorial structure** of the network: the drovers' roads are a mesh or grid of linear ecosystems which differ in terms of maturity and productivity from their surrounding areas. Due to its great length and enormous surface area, the physical importance of the network is unquestionable in quantitative terms (see Mangas, 1992, Gómez Sal, 1993). The Drovers' Road Law and its associated regional legislation recognises this situation and is thus the most immediate justification for the inventory, classification and

demarcation programmes which are essential in order to carry out any subsequent action for the improvement of the network's values and content. In the Autonomous Community of Andalusia, the drovers' road network is rightly considered an element which lends structure to the territory, since it forms part of the Regional Protection System, an "integrated system of cultural, ecological and recreational relationships within the territory" (COPT, 1999). At the conference which gave rise to this publication, several ideas were presented about the appropriate criteria for the recuperation of the drovers' roads in Andalusia (Gómez Sal, 1991c)

Biodiversity and ecological complexity

Taken as a whole, the network of drovers' roads is a very large surface area whose characteristics, in comparison with those of a large part of the territory surrounding them, have remained unchanged for years. In contrast with this surrounding land, which has been subjected to different cycles of cultivation, reforestation or changes of use, the livestock roads are an element of stability. Since the soil is covered with a structured pastureland, not only do they prevent erosion by wind and rain, but they also favour the increased complexity which is promoted by living organisms. They create a break in the landscape which helps to buffer the effects of the physical transfer of matter, acting as a barrier to the dispersion of water, matter and propagules.

The existence of drovers' roads with pastureland and natural ligneous vegetation occupying soil which has never been tilled, together with the important added factor of grazing, with large herbivores and their dung, are all appropriate conditions for a fauna which is particularly rich in insects and other invertebrates, both in aerial habitats and in the soil. In extensive agriculture regions, where hardly any natural vegetation remains, the soil, steep slopes and stony areas of the drovers' roads are refuge areas for small mammals, mustelines, reptiles and different groups of invertebrates. They are important both to species which occupy a small area, such as amphibians, reptiles and small mammals, and others with much larger living spaces, like birds or larger mammals, but which use the drovers' road habitats for specific purposes, at essential moments of their life cycles or at certain times of the year.

The drovers' roads are valuable not just as a habitat for nesting or for the rearing of the more mobile species of birds or mammals. They also have an important role as a feeding area. This fact is especially relevant in the case of steppe-dwelling birds, for which insects are essential in the rearing season as a complement to their mainly seed or grain-based diet (Gómez Sal, 1993; Garzón, 2001)

The drovers' roads are a contrasting factor, or ecotone, with the area surrounding or connected to the roads such as copses, riverbanks or similar natural areas accessible from them. The proximity to and coincidence with fragments of ecosystems which differ in their maturity, structure and productivity facilitates their use by a wide variety of animal species which can thus obtain the resources they need on a more continuous basis and organise their activities (rearing, refuge, feeding), by exploiting the different areas as and when they need them. The result is a significant boost of biological diversity.

Drovers' roads frequently have the added value of areas which are intermittently flooded. The existence of some areas which have been turned into more or less permanent reservoirs for watering the livestock, together with the typical aquatic vegetation and fauna, encourages the dispersion of amphibians. These are of great natural value due to their being scattered and isolated.

For the more fragile plant and animal populations, especially soil-dwelling fauna, a relevant characteristic of a good part of the network of drovers' roads is that they have never been chemically fertilised or treated with biocides, herbicides or insecticides. They therefore represent an increasingly rare situation - nature which has never been contaminated. This is logically of great interest for the purpose of research into wild populations associated with agricultural areas, as regards weeds, pests and their predators, which might find their habitat-refuge in the

drovers' roads. This knowledge is basic for the design of integrated methods of control, such as biological pest control, and for this reason increasing attention is being paid in scientific literature to the role of margins between cultivated plots, such as steep banks, hedgerows, etc. The drovers' roads are an outstanding example of this type of linear structure in the landscape.

Extensive livestock farming and conservation

The logic of the route and the ecological significance of the drovers' roads is closely connected to livestock farming. The drovers' roads are basically pastureland which is laid out in strips between zones devoted to other uses. The normal situation of the vegetation on a drovers' road is a fairly continuous covering of grass that provides food for the herds and flocks during transhumance (long-distance migration) or transterminance (short-distance migration) on the roads or during local movements, known as *careos*, of the animals from villages lying near the roads.

When the drovers' road passes through areas of scrub or woodland, the grass that has been fertilised by the sheep dung stands out as a strip of more open vegetation. Due to its greater productivity, not just of grass, but also of the seeds, fruit, animals and plant species typical of open, fertilised spaces, the drovers' road supplies resources which are exploited by the forest fauna.

The methods used for the transport of livestock have changed considerably, but this does not invalidate the basic climatic and topographical factors that made transhumance a model of adapted farming that is essential to the good management of a large part of Spain's pastureland, and which cannot be substituted. In many cases, the future use of the drovers' roads will not be related to livestock farming, but we should not forget that thanks to their existence, the landscape of the *dehesas* was conserved and the creation of mountain pastureland, passes and hillside meadows was facilitated. In both cases, there are positive repercussions on the diversity of species and habitats. They are outstanding examples of ecosystems with an intermediate level of maturity in successional terms, maintained through human management and which have an important conservation value.

Today, there are numerous obstacles to the transit of livestock and the joint exploitation of different areas of pastureland which are far apart. These obstacles are related to health controls in the different autonomous communities, problems with rail transport, administrative indifference when it comes to finding solutions to the problem of stability in the rent of pastureland which would allow its exploitation to be programmed, and competition from new, more speculative forms of livestock farming which are subsidised and less labour intensive, but whose destructive effects on pastureland are not valued. The result is that in wintering areas, precisely when production is at its lowest, livestock loads which have been respected for centuries are being exceeded, with disastrous consequences in terms of the loss of resources and heritage.

The change of the use of drovers' roads or the encouragement of their role in nature conservation should respect their inherent livestock farming role, using the appropriate species and breeds. As has already been indicated, the drovers' roads fulfil one of their main ecological functions by sustaining a wealth of pastureland systems unequalled in all our neighbouring countries and which is unanimously acclaimed as a model of conservation and sustainable use (McCracken & Bignal, 1994; Gómez Sal, 2001b). They form part of a single pattern of pastoral landscapes which includes the *dehesas* and the different types of Spanish steppe and mountain pastures (González Bernáldez, 1991b). All of these systems can be improved and updated, but this should be done while preserving the strategic role of the drovers' roads in maintaining resources. There is no doubt that in both economic and ecological terms, it is more profitable to support those areas that still keep the traditional herding practices than to try to reintroduce them as a conservationist management action where they have long since disappeared. Going beyond all of the problems of conservation and the functions of the drovers' roads, it is that

heritage of landscapes and extensive resources that are today most seriously threatened, due to the changes in land use.

The raising of awareness among the institutions, authorities and the public at large about the importance of the network of drovers' roads and their enhancement in order to meet the challenges of the conservation of humanised nature is just one aspect of the policy of support for extensive use, that is, ecological livestock farming, which is now almost an essential requirement due to the imperatives of common European policy. Drovers' roads are an essential element of a general strategy that focuses on nature conservation in an integrated manner, including the territories which lie outside the officially protected spaces.

Another aspect which should be highlighted is their contribution to the **scenic or visual value of the landscape**. Drovers' roads enhance the beauty of the countryside, bringing a different colouring and texture to the otherwise monotonous landscape of the plains. The route of the drovers' roads, their layout in relation to geomorphology and human habitats, follows its own logic, which sometimes heightens its impact on the landscape.

Although, as we have commented, drovers' roads represent an important factor for the diversification of the landscape, since they contrast with the surrounding countryside, this function could be increased significantly through appropriate management. On the cereal-growing plains, they are amenable strips which in many cases also have shrub and tree species. When the drovers' road crosses areas which have been seriously deforested as a result of exclusively crop-farming activity, the restoration of autochthonous plant species could be appropriate, with brambles, undergrowth and trees, copses and small patches of diverse vegetation, which are preferable to linear plantations, all of which will favour the diversity of habitats.

3. Importance of drovers' roads in protection networks

In conservation biology, an "ecological corridor" is a wide strip of land made up of highly mature ecosystems which connect larger areas which would otherwise be isolated and whose natural characteristics and value for conservation purposes are superior to those of the land immediately surrounding the corridor. Although the role of these corridors for the movement of fauna and their usefulness for the recuperation of endangered species has been questioned due to the lack of conclusive data (Hobbs, 1992), it is generally accepted that their repercussion is positive since they facilitate the connectivity of the territory and the dispersion of young animals and propagules.

Acting jointly with other longitudinal elements, the scattered, isolated, though better conserved drovers' roads allow us to design a weave of hypothetical "corridors" which would connect spaces (in many cases, protected areas) within a "matrix" of more altered areas including more or less intensive farming areas and industrial, urban and degraded areas or those devoted to extractive primary industries.

It appears reasonable that in the case of the drovers' roads, this role could be favoured or increased significantly through appropriate management. Bearing in mind their nature as continuous strips with all of the aforementioned positive effects, their use as pastureland is an essential condition for them to continue to fulfil their role as an ecotone within the landscape and to conserve the semi-natural habitats that are scarce in the surrounding land. This main function could be compatible with forestry use and the restoration or creation of habitats which are adequate for the dispersion of certain species. By combining both types of intervention, their role as grids of mature nature and as a reserve of diversity would be reinforced, and progress would be made towards their function as corridors. The programming and design of the drovers' roads in order for them to fulfil this role should be done selectively in those cases where it is more necessary, considering the synergetic effect of the other aforementioned elements that favour maturity (riversides, copses, hedgerows, areas of undergrowth, etc). The design of corridors and the restoration of ecosystems for this purpose should bear in mind the

requirements of a large number of species that make up the ecological network of target species (the most vulnerable or most endangered, those which justify the establishment of the corridor), the prey and the resources they consume, the predators and the causes of mortality.

Areas of bush. Their connection with isolated, peripheral and depopulated zones

The reasons underlying the route of livestock trails are the result of a compromise between different requirements related to the physical environment, physiological rhythms and the behaviour of animals and the avoidance, as far as possible, of the best agricultural land. The essential objective was to ensure feed for the livestock, stopping at the rest areas, waterholes and pastures, but interfering as little as possible with the more permanent uses of the territory. The result is that, in general terms, the drovers' roads choose routes through little frequented moorland and they try to avoid as far as possible passing through towns. In relation to the municipal districts, the drovers' roads tend to pass through the peripheral areas, woods and areas of common pasture where they can guarantee feed for the animals, and thus avoid cultivated land. It is clear that their function as corridors will be reinforced by the fact that a large part of the route of the drovers' roads runs through highland areas well away from the most populated zones.

When we analyse the relationship over the whole network of drovers' roads (Gómez Sal & Rodríguez Merino, 1996) between coverage and the use of land adjoining the drovers' roads with their inclusion in any of the protected categories, the close association between use as *dehesa*, meadows or pastureland and Special Protection Areas for Birds (SPABs) stands out. The stretches of drovers' road with good coverage also coincide with SPAB areas. These positive conservation situations in the drovers' roads which fall within SPABs are even superior to those seen in areas with a higher level of protection (National and Natural Parks), indicating that the uses which maintain the coverage of grass in the drovers' roads coincide with areas which are rich in bird diversity, independently of their belonging to a strictly protected area. The relationship between communities of birds living in open environments, perhaps the most original of all Iberian fauna, and pastureland appears to be based more on a functional relationship than simply to geographical coincidence. Together with the other positive relationships mentioned, this reaffirms the fact that extensive grazing and the drovers' roads, independently of their inclusion in protected spaces, have a very positive influence, through the functions mentioned herein, in maintaining a general tone of natural quality in the whole of the territory.

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THE POTENTIAL FOR EUROPEAN TOURISM: A NEW FRAMEWORK FOR CO-OPERATION

Mr. José Manuel Servert Martín

Tourism Unit/DG Enterprise

European Commission

1. Introduction

I would like to begin by congratulating the Regional Government of Andalusia for organising this international congress and for inviting the European Commission to present the new framework for the tourism sector, approved barely some weeks ago.

2. Identification and valorisation of natural and cultural areas. The European Union perspective

I feel that it would be fair to say than when we refer to tourism in areas of natural and cultural importance we are talking about a kind of tourism that should respect standards of quality and sustainability which are even higher than for the sector in general.

Tourism in farming areas and green corridors should take advantage of the opportunity to be at the forefront of a truly sustainable model of development which combines all three dimensions in a single plan of action: environmental, economic, and socio-cultural.

In this sense, the activities of the European Commission in terms of tourism in farming areas and green corridors is part of its overall strategy for the development of sustainable tourism, which is the theme of this paper.

3. Tourism in the European Union

We find ourselves at the crossroads of the next European Council summit in Barcelona, the first one in which the fifteen member states must start to report on progress achieved annually in all economic sectors, concerning the integration of policies for sustainability.

It is also an opportunity for tourism to get itself on the right track, leaving behind the obsolete models which only seek short term profit, and turning towards comprehensive, lasting benefits for local communities, in accordance with the capacity of each tourist destination.

Tourism is one of a range of objectives for the Union, most of which are economic. It can act as a cohesive factor and as a means of integrating women and young people into the labour market.

These tasks require us to make a new effort to define the framework for European tourism over the next few years.

We are perhaps at an opportune moment to do so. As from next year the single currency will be introduced in twelve countries, and this will undoubtedly increase the attraction of Europe as a tourist destination.

Last week the Commission adopted the Communication which outlines the new framework of co-operation for tourism in Europe, a document which will be discussed at the next meeting of the Council of Ministers on 26 November.

4. The importance of tourism in Europe

Without wishing to go into too many details, the following figures give some idea of the potential and importance of tourism to the 15 member states:

- There are 2,000,000 companies working in tourism in Europe, mainly small and medium-sized enterprises.
- It accounts for 5% of GDP and European employment.
- In the hotel and restaurant sector alone, some 100,000 new jobs have been created every year for the last decade.
- More than 80% of European tourism is based on families or individuals.
- 1/8 of the European family budget goes on tourism.
- 3 of every 4 European tourists travel within the Union.
- European tourism has grown at 3% per annum for the last decade.
- The volume of European tourism will double in the next 20 to 25 years.

5. New working framework

The Communication approved last week proposes close collaboration between the Commission, the member states, the tourist industry, and the other stakeholders in the sector. This objective has been the basis of our work in the area of "tourism and employment" since the beginning of 1998. Without going into details here, the Commission has been working in five main areas: access to information, training, quality, sustainability and, more specifically, environmental protection, and finally, the impact of the new information and communication technologies.

Establishing a working framework in these five areas and their respective working groups was the first step in giving a new approach to collaboration between the participants. Each one of the working groups has drawn up a specific report and these have been used by the Commission as the basis of its Communication.

The common conclusions from the groups are:

- We need to make a special effort to analyse the economic aspects and the part that tourism plays in the European economy as a whole. We need to know more about tourist destinations and demand, about the organisation of the operators in the sector and their inter-dependence, and about good practice codes.
- Quality is fundamental in the sector. We need evaluation tools and indicators on a European scale, which can be used voluntarily. Similarly, it is essential to improve and guarantee the quality of training schemes.
- We need to help the sector and its companies to adapt to the evolution of the market and to accelerate the rate at which both tourist companies and public authorities change over to using the new technologies.
- We should promote above all, a type of tourism which fully respects the environment, and which combines logical economic and socio-cultural concerns with the preservation of natural values. This must be achieved through the development and implementation

of appropriate management tools and mechanisms to monitor tourist development and contribute to job creation whilst encouraging local development on a permanent basis.

6. Strategic focus

Development processes must always follow the following criteria:

- They must all follow the open co-ordination method, which will allow the tourism stakeholders to adopt a co-operative approach.
- They should be based, wherever possible, on existing methods and structures, improving them and making them more coherent rather than creating new ones.
- They must scrupulously respect the principle of subsidiarity by which the responsibilities assigned to the various stakeholders are shared.
- They must generate added value since they will be integrated into a co-operative framework which encourages and enhances actions on a Community-wide scale.

The Commission plans to publicise this approach for the first time in the area of tourism, as a means of contributing to sustainable development and employment, in its outline report which will be presented at the Barcelona Summit in March 2002.

7. Proposed measures

We shall now take the opportunity to look at the measures proposed by the above-mentioned Communication:

7.1 The integration of tourism into Community policies and activities which affect it either directly or indirectly.

Given that numerous Community policies and measures affect the tourism stakeholders and directly influence their activities, it is vital to analyse and monitor the effect of these measures. As the measures follow the subsidiarity principle, the Commission and the member states have to organise themselves effectively and increase their interaction.

7.2 Integration will reinforce the consolidation of a more co-operative approach between all takeholders in the tourism sector through a more open system of co-ordination.

Either at the initiative of the Commission or at the request of the Member states, the Consultative Committee on tourism – whose function is to facilitate the exchange of information, consultation and, when appropriate, co-operation – will be able to widen its role and functions in order to debate all the community projects and proposals on policies which affect tourism.

As well as the participation of the representatives of the Commission's services, this debate could be furthered by learning from the advice and experience of all the stakeholders in the sector.

The earliest possible participation by both public and private agents and civil society in general in the defining phases and the debate on the proposals for tourism will help to improve those proposals, whilst making their application quicker and the monitoring processes easier.

7.3 Encourage an improved interface with the professionals in the sector and other stakeholders through the organisation of an annual forum on European Tourism.

The structure and content of such a forum would be based on proposals and preparatory work which would allow the professionals to put forward and discuss priority matters. It would bring

together high-level professionals, the general public and European, national and regional authorities in charge of tourism. The debates will focus on just one or two key issues.

The Commission will contribute to the launching of this measure by organising the first forum in close co-operation with the other agents. Following this, the continuation of the project will be the responsibility of professionals in the tourism sector working alongside Community organisations and Member states. Thus, the forum can only work if there is a firm commitment from the professionals in the sector.

7.4 Reinforcing the interaction with destinations and their representatives.

Starting from the concept that the destination is the place where the fundamental essence and image of the tourist activity is based, the melting pot where the interaction between the public and private agents takes place, and where almost all the small and medium-sized enterprises in the sector can be found, it is therefore essential to encourage contact through collaborative networks, especially when transnational or inter-regional elements are involved.

In this way, we could contribute to improving the management and promotion of tourist destinations, valorise tourism potential and exploit heritage in a reasonable manner, and also develop local tourism which generates employment and competitive companies, increase support for small and medium-sized enterprises, tackle problems of security and improve access to services and their quality.

The Commission's role will be limited to providing the initial stimulus needed to create networks and collaboration agreements. This will be carried out in close co-operation with the Member states on the understanding that the public and private agents and associations take part of the responsibility.

The non-economic aid of the Commission, the national and regional authorities, and the agents of the private sector and the associations will help the initiatives of the interested parties. These initiatives will be financed by the contributions of network members, through collaboration agreements or by the beneficiaries. The financial instruments assigned to the corresponding Community policies can be used in specific start-up projects or in those that meet European policy priorities.

7.5 Making use of the existing specialised support centres in order to analyse and increase knowledge of the tourist sector

The majority of member states have national or regional organisations or specialised centres in the tourist sector which offer the basic support and infrastructure needed by the various agents in the sector, and particularly the destinations, in order to cover their requirements and to evaluate and measure the evolution of the industry.

Everything suggests that the existing Community structures and instruments are sufficient to offer the support needed to apply the various recommendations of the working groups.

The voluntary interconnection of the functions and services which are useful to the stakeholders of the sector will confer a significant added value on a Community-wide scale.

This will also allow:

- Easier and more generalised access of local or regional centres to information available in Europe concerning tourism, as well as direct access to the top European experts on each subject, and
- The possibility of generating special interest in matters of Community or European importance, and of simplifying co-ordination, with the aim of improving the knowledge

which is needed by both public and private stakeholders to promote sustainable, good quality, competitive European tourism.

The approach will be based on the open, voluntary participation of the centres. In the first phase the member states will designate the centres which have the required specialisation. When appropriate, the Commission will select the supranational or international centres which are qualified in the field.

In general, interconnection will not involve additional costs. If needed, additional sources will be found at a national, regional and local level, among public and private agents. The Commission will be able further to support and promote the measure with non-financial assistance. When appropriate, and at the initiative of the directly affected parties, the measure can benefit from the financial instruments available under the different Community policies.

A control and co-ordination body will be set up for the network services, in which the interested parties and representatives in charge of specific functions can take part. This body will be the responsibility of the authorities which are currently in control of the centres.

7.6 Facilitating access by the agents to Community instruments

The aim is to put the Community instruments – be they financial or of other kinds – to good use in benefiting the tourist sector. The achievement of this aim requires: providing tourism stakeholders with better information about these instruments, particularly by periodical updates of the Internet resource guide to Community measures aimed at helping companies and tourist destinations; and learning from past experience so as better to contribute to the formulation of priorities for future programmes.

In order to ensure the good use of the instruments, the main actions have to be undertaken by the member states and their local administrative bodies in co-ordination with professionals in the sector at all levels. Of the Community instruments, special attention will be paid to the Community structural funds and the research and development framework programme, particularly given its financial importance and its significance in the implementation of specific projects in many areas.

For example, the member states could set up working groups or seminars in order to facilitate access by the tourist sector to these instruments and to encourage dialogue with the regions and agents participating in the projects for their own benefit. This will also allow all agents, the Commission included, to draw conclusions which will help to establish future priorities and provisions.

7.7 Tourism Satellite Accounts (TSA) and statistics

Statistical information, as it currently exists in Europe, is quantitatively and qualitatively insufficient to meet the needs of the stakeholders in the tourist sector, since it does not accurately reflect the volume and repercussion of the tourism sector on the economy.

In co-ordination and with the support of public and private stakeholders, the Commission and the member states will make the necessary effort to implement the Tourism Satellite Account (TSA).

7.8 Promoting sustainable development in Europe through the definition and implementation of the European Agenda 21 on tourism

It is becoming increasingly urgent for Europe to establish the strategic guidelines and necessary measures for the implementation of a sustainable development model for tourism. The application of sustainable development principles to destinations and the various sub-sectors of the tourist industry adds value to the image of these destinations.

The European Agenda 21 for Tourism will tackle various important aspects, in particular: the protection of natural resources, the integration of environmental problems and poverty into tourist policies, the improvement of the participation of stakeholders, the social responsibility of companies, and the better monitoring of policy application. This will be within the framework of the EU strategy for sustainable development.

7.9 Drafting manuals on the harmonisation of criteria for the accessibility of places and tourist infrastructure by disabled people (particularly with a view to the European Year of Disabled Persons in 2003), and the definition of areas for professionalisation in the tourism sector (including basic professionalisation, creation of an innovative environment, advice to agents, the search for adapted solutions and the provision of support and training for their application. The manuals will be at the disposal of the specialised local and regional centres so as to help them to introduce innovations in their own professional field).

7.10 Establishment and distribution of measuring and evaluation methods and tools: indicators and benchmarking

In order better to understand the operation and structures of the tourism sector and to address its main problems it is necessary to improve our understanding through indicators and benchmarking methods. An example would be the staggering of holiday times, something which has caused many problems and directly affects the labour market, training, the quality of services, the competitiveness of companies and sustainable development. The use of new technology could, amongst other things, contribute to improving the way in which tourist infrastructure is used, and therefore reduce the negative consequences of over concentration.

8. Conclusion

I would like finally to conclude by drawing your attention to an issue that in my opinion is especially relevant: the economic opportunities presented by tourism, in all its different shapes and forms, are spectacular, especially in Spain and particularly in Andalusia.

However, just as all the conditions exist to take full advantage of the potential, so too there are many areas, which if not well managed, could lead us to commit once again the errors of the past, the era of unfettered development of the 1960s and '70s, which unfortunately, in a slightly different way, has been seen once more in recent years.

It is time to invest in sustainability, to change the models of tourist consumption and encourage education and awareness, without which we will continue to follow the same old model of imposed directives which do not have the real support of the people.

Allow me to finish by paraphrasing a maxim: tourism must either be sustainable, or it will cease to exist.

ENVIRONMENTAL EDUCATION PROGRAMME AND PARTICIPATION IN DRIVERS' ROADS

Mr. Francisco Oñate Ruiz

Head of the Social Initiatives and Involvement Service
General Directorate of Environmental Education
Ministry of the Environment of the Andalusian Regional Government

1. Introduction: the Environmental Education scenario

"Most people are very quick to think of doing great things, but then arrive too late"
Aphorism

The obvious lack of timing implicit in the above reflection, with its fatalistic, resigned approach reflects a certain vision of the human condition which is often true and can be seen at its worst in the relationship between human beings and the environment.

The environmental crisis, one of the key problems for society in the 21st century, is a globally recognised problem and is seen as a priority for intervention by most of the world's governments. Nevertheless, the worsening of negative impacts on the environment is a constant and we have still not found the right way to modify the momentum of development and redirect it towards worldwide sustainability.

Environmental education can add the human element so that, together with new technologies, efficient use of resources, solidarity between countries, the promotion of equality and the improvement of the rights of society, it becomes possible to achieve a balanced, sound relationship with the environment.

As far as environmental education is concerned, the main instrument of intervention identified in the White Paper on Environmental Education in Spain (1999):

- Constitutes a system of thought and action with an international scope. The idea can be traced back to the 18th century with the writings of Rousseau ("Nature is our first teacher") and in the '70s it began to gain momentum with the growth of environmental awareness of the destruction of nature and pollution.
- Is a process of gradually acquiring new concepts about the dynamics and functioning of the environment and the implementation of new approaches for the study and interpretation of the planet and our attitudes towards it.
- Faces the challenge of encouraging a new type of relationship between human beings and their environment, based on respect for natural processes, the rational use of resources, equality and solidarity between societies and sustainability in their development.
- Proposes a commitment to education for action, intervention and the participation of society in solving environmental problems.

2. Origins of the environmental education programmes for Drivers' Roads in Andalusia

The environmental education programmes promoted by the Regional Government of Andalusia began with the creation of the Environmental Agency (1984), which was subsequently upgraded to become the Regional Ministry of the Environment (1994). Under this, the General Directorate for Environmental Education was set up as a specific department in the year 2000, charged with the responsibility for promoting environmental education, dissemination, awareness, participation and environmental voluntary work.

As far as Drovers' Roads are concerned, the environmental education programmes are developed and structured according to three main processes:

- The assumption of environmental responsibilities by the Regional Ministry of the Environment (1994) which gave rise to the need for public information and awareness
- The enactment of the Drovers' Roads Law (1995) and the creation of a digital inventory (1996), which provides a new action and information framework.
- The Decree which approved the Drovers' Road Regulations (1998). This led to the creation of a Documentary Archive and the Drovers' Road Recuperation and Planning Programme which encourages actions for public participation and information.

The promotion of traditional uses (maintaining movement and improving access to rural enclaves), recreational and tourist activities (focusing on rural and cultural tourism) and ecological functions (such as biodiversity and potential green corridors) help make it possible to implement various measures for informing and educating the general public, and more specifically, for the people most directly affected.

3. Objectives

The objectives are based on the following premises:

- Understanding the environmental role of drovers' roads in the past, present, and future.
- Promoting a new set of educational, cultural and recreational uses which can enhance the heritage value of the drovers' roads whilst guaranteeing their preservation for future generations
- Helping to recuperate the historical, natural and cultural legacy of drovers' roads in Andalusia
- Gaining a deeper knowledge of the relationship between local inhabitants and the roads, and the corresponding environmental problems.
- Promoting the participation of the various social sectors in their recuperation: the education system, voluntary workers, associations, and society in general.

4. Methodology and Scope for action

The Drovers' Road Environmental Education Programme is structured into three areas of action which are defined by the General Directorate for Environmental Education:

- Environmental Education Programme
- Information and Communication Programme
- Environmental Voluntary Work Programme

The activities included in the programmes are based on: discovery and identification, uses, management problems and the protection of drovers' roads.

The contents deal with the following points:

- The rational use of natural resources
- The concept of the drovers' road
- The drovers' road as an open system, interrelated with the surrounding area and which promotes economic, recreational, and cultural activities
- Management, legislation and activities related to drovers' roads
- Use and management plans
- Environmental impact on drovers' roads

The Drovers' Road Environmental Education Programme is conceived in its first stage as a pilot action plan for drovers' roads which have been subjected to demarcation and improvement, with the aim of being able to identify at this initial phase the positive and negative aspects of the educational programme.

Four areas have been selected for intervention:

- **The Dos Bahías Green Corridor**
This connects the Bay of Cadiz with the Bay of Algeciras via twelve drovers' roads over a length of 85 Km. It passes through areas of great natural value from cork forests to marshlands, sand dunes and beaches, and has an important historical and cultural relevance.
- **Doñana Area**
Part of this area forms the Doñana-Sierra Norte de Sevilla route, which connects the two ecosystems, marshlands and Mediterranean forest, over 126 Km. Another space is the 23.9-kilometre Camino del Loro bicycle route which passes through a number of municipalities and forest areas, following various pathways.
- **Camino de los Neveros**
Connects the valley of Granada with Sierra Nevada, an area of great ecological and ethnographic value which stretches through winter and summer grazing fields and includes the drovers' road network of the municipalities of Huétor Vega, Monachil and Güejar Sierra.
- **The Green Corridor of the Seville Metropolitan Area**
This route interconnects the metropolitan parks and the system of drovers' roads between Seville and the Aljarafe area. It is integrated with the network of existing and planned bicycle lanes in the city and stretches along parts of the banks of the River Guadaira.

5. Information and Communication Programme

This programme consists of designing and producing documents, elements and images containing information for the identification of drovers' roads.

5.1. Logo competition

Competition open to everybody and publicised through all the local councils in Andalusia to design a logo for the drovers' roads programme in Andalusia.

5.2. Printing of information leaflet

Mass printing of leaflets for the whole population containing information about all relevant aspects of drovers' roads.

5.3. Making a poster and a jigsaw

Photograph and jigsaw of interesting images.

5.4. Creating a video and CD-ROM

Containing images with general information, maps and a database.

6. Environmental Education Programme

Including two different areas of action: the education system and the local population.

The first involves the implementation of the Aldea Programme with the collaboration of the Regional Ministry of Education and Science. The programme, aimed at primary and secondary schools and adult education centres, has been in operation since 1990. The second area addresses associations and groups of young people, ecologists, neighbours, consumers, hunters, fishermen, etc., as well as the people living in the municipalities which are most directly affected.

This first phase includes the following initiatives:

6.1. Campaign "Getting to know our drovers' roads".

Aimed at learning about the most emblematic drovers' roads in the area, by taking a route along them and studying their most important features: flora, fauna, cultural aspects, functions,... Specific documents and maps will be published.

6.2. Design of educational routes.

A type of route-following activity supported by documents with information about the natural, ecological, and cultural values. The routes can be made on foot, by bike or on horseback.

6.3. Training courses.

Aimed at school teachers and organised in the Teachers Centres in Andalusia. They include an average of 30 hours of tuition with practical activities which are actually carried out on a drivers' road.

6.4. Participative reforestation

Included in the yearly campaign "Look after your forest", promoted by the Regional Ministry of the Environment, this programme would involve specific actions, in collaboration with the forestry workforce and various associations, which are aimed at reforesting areas with tree species supplied by the nurseries owned by the administration.

6.5. Campaign "Look after your drivers' road"

This foresees school group visits to their nearest drivers' road in order to take an inventory of its condition, signage, information and to note any urgent actions that need to be undertaken, etc. The aim is for the students to make a diagnosis of the drivers' roads.

6.6. Twinning of schools

This includes cultural and recreational excursions between centres based in municipalities which are connected by common drivers' roads. The aim is to cover a route every year in order to promote closer links between schools and activity programmes.

A considerable number of the activities included in the first stage (which are aimed at schools and education centres) are likewise applicable to the rest of the population.

7. Environmental Voluntary Work Programme

The environmental voluntary workforce consists of individuals or associations who, freely and altruistically, dedicate some of their free time to unpaid work looking after the environment.

The main lines of action in the area of drivers' roads focus on the implementation of Local Projects through the granting of annual subsidies for Voluntary Environmental Activities (Orders dated 7/6/2000 and 10/5/2001 of the Regional Ministry of the Environment), as well as Environmental Volunteer Work Camps (Orders dated 11 /5/99 and 10/5/2001 of the Regional Ministry of the Environment).

The actions focus mainly on the following:

- Restoration and reforestation of landscapes
- Design of itineraries and signage of paths
- Maintenance and cleaning of routes and paths
- Ethnological and architectural rehabilitation

Under the last two calls for proposals for these activities, the projects listed below were undertaken.

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7.1. Environmental Voluntary Work Projects for the year 2000

ORGANISATION	PROJECT NAME	ACTION
Andarax Ecology Group (Almería)	Signage and rehabilitation of the La Puente pathway	Creation of a network of pathways, recuperation of path, signage of abandoned mines, signage of access to Tajo Cuchillo for climbers, showing flora, fauna and Roman remains
La Sagra Youth Ecological Association (Granada)	Rehabilitation of the GR-7 pathway	Repair and replacement of milestones in disrepair
Alborán Youth Ecological Association (Granada)	Signage of the Garnatilla-Jolúcar pathway	Carpentry workshop, assembly and display of information panels and signage
Metrópolis Youth Association (Huelva)	Identification of interesting elements on the Molinos de Agua Route	Signage of paths, identification of sites of interest, publishing of guide, forum and walk covering the route with the locals
Camino Abierto Association (Seville)	Network of itineraries in the Sierra de San Pablo	Reconciling recreational use of the area with conservation; promoting ecotourism; preserving itineraries; teaching material
Alcarayón Ecological Association (Seville)	Connecting with the Guadiamar river	Ecological valuation, study and restoration of hedgerows.
El Kiriko Ecological Education Association	Camas Green Action	Cleaning degraded areas, information and guide in parks, signage of botanical itineraries

7.2. Environmental Voluntary Work Projects for the year 2001

ORGANISATION	PROJECT NAME	ACTIONS
Agaden (Cadiz)	Rehabilitation and improvement of the Caño Zurraque area	Cleaning and rehabilitating shelters, water accesses, planted areas and monitoring of bird population
Metrópolis Youth Association (Huelva)	Network of pathways and visitors' centre	Repairing paths of the Arroyo Molinos de León area; information guide; equipping premises to house the visitors' centre
El Kiriko Ecological Education Association (Seville)	La Atalaya	Creating environmental education material, reforesting paths in the Cerro Santa Brígida area; carrying out campaign in education centres
Cocolubis Socio-cultural Association (Seville)	Rehabilitation and interpretation of the "Los Castañares" pathway	Cleaning and installing signage with cultural, botanical and wildlife information of the path
ASIN Ecological and Cultural	Identification and signage of	Information posters and

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Association (Seville)	the botanical itinerary	leaflets covering area from Fábrica de El Pedroso station to Molino de Arriba
Network of Volunteers Sierra de Huétor National Park (Granada)	Rehabilitation, signage and creating information material about the drivers' road which links the National Parks of Sierra Huétor and Sierra Nevada	Documentation, signage, reforestation, cleaning and information material

Finally, it is worth mentioning that Andalusia is currently in the process of drafting the Andalusian Strategy for Environmental Education. This process in which all the sectors involved in environmental education will participate, will be completed by the end of 2002 and will include the guidelines which the region aims to follow in the next five year period.

The results of the above mentioned process will serve as an essential reference point for the Environmental Education Programme on Andalusian Drivers' Roads.

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ROUND TABLE DEBATE: MULTIPLE USES OF DROVERS' ROADS

Mr. Carlos Sánchez de las Heras

Head of Research and Dissemination Service

General Directorate of Cultural Heritage

Ministry of Culture of the Andalusian Regional Government

Historical routes and drovers' roads. The Via Augusta

The natural corridors leading towards the Mediterranean coast through the wider river valleys, such as the main passes between the Sierra Morena and the inland plains, have been known and used since prehistoric times and although they were necessary for the transportation of minerals, their origins were in the movement of livestock

The *Vía Augusta* was one of the most important communication networks of the western Mediterranean, linking Baetica with Rome via *Tarraconensis* and *Galia*. This route was a roadway of "the first order" and covered 1,500 km from the Pyrenees to Cadiz. Its role, whose scale can be seen in the bridges that are still preserved, such as that in Cordoba, was initially military and administrative control and only later did this change to communications and the organisation of trade.

This historical importance of these routes has meant that now various initiatives to safeguard this common heritage have been established in a number of Mediterranean countries. The actions undertaken are aimed at valorising old roads in different and complementary ways. The projects aim to identify routes whilst protecting and, above all, enhancing their cultural, environmental and tourist value.

In order for each region to gain a better knowledge of both the actions which are being undertaken and their specific problems, it is important to create a network of co-participants who exchange information and experience. This network will help the pilot projects already in existence, mobilise the regions to work on this heritage, and, in the long term, establish a common basis in order to put into operation joint actions at a Mediterranean-wide level.

The "*Vía Augusta in Baetica*" exhibition is the central initiative in the activities scheduled for Andalusia under the European project: "*Roman Roads in the Mediterranean: Creation of a network of partners and valorisation of an exceptional common heritage*"

With the aim of fulfilling the objectives of the Interreg II C – Western Mediterranean and the Latin Alps, common actions were proposed with the rest of the partners resulting in experiences in France, Spain, Italy and Greece which focus on projects to valorise certain heritage sites. Thanks to the funding provided by this European initiative, these have been integrated into an overall strategy for territorial improvement.

On the other hand, the growing demand in modern society for recreational and tourist activities based on the enjoyment of nature, the increase of free time for leisure activities, and the search for a better quality of life, mean that more people make use of natural areas. In this sense, the experiences and projects developed around the *Vía Augusta* by the regions of Valencia and Catalonia demonstrate a willingness in the Mediterranean area to valorise the heritage represented by the Roman roads. Both regions, through their respective Regional Environment Ministries, have developed actions to valorise routes which can be recuperated for recreational, tourist, and cultural activities by means of promoting cyclo-tourism, walking and horse-riding. Efforts have also been made for the improvement and signage of ancient roads such as the *Vía Augusta*.

A common Internet portal has also been set up which includes information about all the roads included in the project in the different languages, with links to other specific websites in the regions concerned. The address is www.viaeromanae.org

The Valencia region has completed the first stage of the recuperation of the Vía Augusta, 80% of which coincides with drivers' roads. They have invested 350 million of the total 470 million peseta budget, 40 million of which has been financed by Interreg through the Roman Roads Project.

Mr. Fernando Molina Vázquez

Head of Co-ordination and Management Services of RENPA
Ministry of the Environment of the Andalusian Regional Government

The Andalusian Network of Protected Natural Spaces (RENPA), has established itself after a precarious beginning in 1982 – when the organisation took over from the central government – to become, 20 years later a dense network covering more than 1,600,000 hectares, some 18% of Andalusia. The network comprises 127 protected natural areas.

RENPA is a solid, well-structured network covering a wide area. Its interconnection involves the following:

- Consolidation of the Natura 2000 Network through the Special Protection Areas (SPAs) and the Special Protection Areas for Birds (SPABs).
- Consolidation of the regionalisation of natural areas in Andalusia and their zonal operation by integrating RENPA into territorial systems.
- Restoring rivers and riversides as active, functional elements which can serve as a link between the natural areas in the region.
- Recuperation of the Andalusian Network of Drivers' Roads based on their role as ecological corridors, providing them with functional elements and restoring the natural value of their ecosystems.
- Consolidation of essential natural links such as the Green Corridor or the Dos Bahías Corridor.
- Characterisation and inventories of woodlands and hedgerows as breaks in impoverished agricultural landscapes and as linking elements of the RENPA.
- Creation of the green corridor concept as an administrative tool for territorial management which is more suitable for the management of these natural areas.
- Promotion of locally-based projects and the sustainable development of international programmes such as the MaB, with the Biosphere Reserves
- The approval of the Natura 2000 Network and its implementation in the Autonomous Region involves the protection of over 2.5 million hectares and the connection of a large number of natural areas, the recuperation of rivers and riversides, which is currently under way, and the consolidation of the Network of Drivers' Roads of the Autonomous Region through the implementation of the Drivers' Road Plan.

This physical and administrative interconnection of the elements of RENPA is implemented by co-ordinating them in accordance with the following principles:

- Shaping an administrative structure which oversees the Network, solving the existing deficiencies in information, equipment, services, facilities and actions.
- Encouraging public participation in the processes of management and administration of the spaces, providing support to their representative bodies.
- Consolidating the achievements attained in the different areas, and allowing the rest of the network to take advantage of them.
- Co-ordinating the work of the various Administrative Centres involved in the RENPA, both those that are under the Regional Ministry's control and those that are not.
- Promoting models of sustainable development within the Network to improve the quality of rural life

- Administrating the Network through various regional units, in order to reduce costs and improve the services provided to the public.

Mr. Fernando Mora-Figueroa Silos

Co-ordinator of the General Directorate for Environmental Management
Ministry of the Environment of the Andalusian Regional Government

In the integrated, multifunctional management models which are today proposed for the administration of natural areas, drovers' roads can and should play an essential role, whether in their own right or as part of other linear structures and forested areas interspersed with farming land.

In a brief analysis of the role that drovers' roads play in the context of the management of natural areas, we should firstly refer to their original function, that is to say, the movement of livestock. Although long-distance migrations have almost disappeared, drovers' roads continue to play an important role in many areas in the local movement of livestock from one farm to another. If, as everything seems to suggest, future European Union livestock subsidies are directed towards ecological produce and autochthonous breeds, it is to be expected that there will be an increase in extensive farming and therefore drovers' roads will once again come into use.

Apart from this essential aspect, we must also highlight the role of drovers' roads together with hedgerows, riverbanks and forested areas as elements which link the various "islands" which our natural areas have become with the passing of time. The conservation philosophy of the 1970s and '80s based on the protection of sanctuaries has evolved into an integrated policy of conservation which looks at areas as a whole. A key part of this model are the interconnections between the best conserved areas.

On the other hand, in a rural landscape as heavily influenced by man as our own, drovers' roads should play an important role, along with other initiatives, in breaking up and diversifying large cultivated areas, especially when they have lost their tree cover, thereby forming mosaics and restoring hedgerows and similar boundary structures, which have nowadays been lost.

Finally, we should not forget to mention the importance of drovers' roads in satisfying the growing public demand for leisure activities in contact with nature. The large resting places and the different types of drovers' road form a network of public land which can be used for walking, horse riding and other similar activities. But we should not forget that these activities must be compatible with the essential function of the drovers' roads, that is, the movement of livestock. Therefore, appropriate measures should be adopted to ensure that this can be done without jeopardising public safety, especially in the cases when dangerous livestock, such as fighting bulls, are being moved, which is quite a common occurrence in this area.

In conclusion, it can be said that drovers' roads play an essential part in the management of natural areas in aspects that concern livestock, ecology, landscape and social matters, and that this role will undoubtedly be enhanced in the future.

CONCLUSIONS OF THE ROUND TABLE DEBATE

1. Drovers' roads perform a series of functions of considerable territorial significance and their role should be preserved and brought to wider public attention so that the many goods and services which they offer society are fully recognised. These functions include: livestock farming, history and culture, education, the economy, etc., and they need to be mutually compatible whilst fitting into the landscape.
2. Drovers' roads provide an important service to extensive livestock farming herds, whether static, or for long or short-distance migration, and they play an important role in the preservation of autochthonous breeds. The experience and knowledge gained through the use of these systems could contribute to solutions and ideas for the new common European agriculture, with the introduction of production mechanisms which are independent of the international animal feed markets and expensive imported technology. They also help in the production of high quality foodstuffs, the market for which is expanding.
3. We should recognise that the system of livestock trails has environmental values which are important in themselves. The fact that they have not been farmed for centuries means that the land is richer and more diverse than the majority of the agricultural areas that they cross, turning them into strips of high natural value and biodiversity. In the same way they can contribute significantly to the linking of areas of natural interest, and help in the conservation of natural habitats and wild fauna and flora.
4. Due to the fact that the drovers' roads can be found all over Andalusia, and because of their long history, they represent an important asset in the valorisation of the historical and artistic heritage of rural areas. The recuperation of these routes implies the rediscovery and, consequently, the conservation of remains, monuments, ethnographic heritage, especially that related to livestock farming, etc. In this sense the importance of the non-material heritage should be emphasised - traditions, customs, trades, etc.
5. Environmental education is a very valuable resource for enhancing knowledge about every aspect of the drovers' roads whilst at the same time helping to achieve effective participation in their conservation and maintenance by all the different social agents. Thus it is of great interest to carry out dissemination and awareness-raising campaigns aimed both at the public in general, farmers and other users.
6. With integrated management, the drovers' roads and their historical, cultural and socio-economic values can actively contribute to dynamising the economy in rural areas. In order to achieve this, it is necessary to involve local development agents at all stages, with dialogue and participation being the basic tools. Furthermore, it is necessary to create instruments for the management, monitoring and measurement of tourist development (indicators and benchmarking tools), which allow us to rationalise and successfully complete any actions undertaken on drovers' roads.
7. The wide range of new functions described allow us to consider these linear structures as a resource of exceptional value for sustainable rural development, as they can be used for a large number of activities which are fundamentally in contact with nature.

**SESSION 3: DROVERS' ROADS AND GREEN CORRIDORS IN
TERRITORIAL ORGANISATION**

PRESENTATION OF THE REVER MED PROJECT - INTERREG III B MEDOC PROGRAMME

Mr. Joaquín Jiménez Otero

President of the European Greenways Association

Objective of the REVER MED project

The objective of REVER Med is the creation of a European Green Network for the Western Mediterranean Area, which completes the Green Network already initiated for the Metropolitan Area of the Northeast of Europe (REVER AMNO/ Interreg II C project). This would include over 10,000 kilometres of motor vehicle-free itineraries, from the south of Portugal to the south of Italy.

The Network will be made up of Greenways (abandoned railways, service roads...) and Drivers' Roads (livestock trails) as the principal elements, in addition to rural and forestry routes and local low density traffic roads as linking elements.

REVER Med will be developed basically on Greenways that, according to the Lille Declaration, are:

"Autonomous ways of communication reserved for non-motorised movements, developed in a framework of integrated development that values the environment and the quality of life, complying with the sufficient conditions of width, slope and surface quality to guarantee a convenient and safe use for all users regardless of their physical capacity".

Background: the REVER AMNO project

Project under the Interreg II C Programme for the creation of a Green Network (REVER) in the countries of the Metropolitan Area of the Northeast of Europe (AMNO) which should be finished by December 2001.

The international co-ordination of members in Ireland, the United Kingdom, France, Belgium, Luxembourg, the Netherlands and Germany is being carried out by the European Association of Greenways (AEVV).

The project leader is the Walloon Region of Belgium, where a 1,000-kilometre network of Greenways already exists, based on abandoned railways and service roads.

REVER AMNO, co-ordinated by the AEVV, has demonstrated that the isolated initiatives that exist in a considerable number of regions could be brought together and interconnected in order, eventually, to form a network. Although it has not been possible to turn this concept into a concrete, international reality, certain results have been achieved and experience has been gained in the selection of itineraries and the performance of projects which can reconcile diverse interests and initiatives.

Initiatives with existing Greenways in the MEDOC area

These are the current initiatives in the MEDOC area, around which REVER MED will be constructed:

1. In Spain, the Spanish Railways Foundation has been carrying out over the last few years a programme called "Greenways" whose objective is the reuse of abandoned railway lines. Under this programme, 1,000 km of Greenways have been created, winning the United Nations Habitat good practices award. Equally, in Andalusia, an ambitious project is being

carried out to recuperate old Drivers' Roads, which incorporate Greenways on many of their stretches, with great possibilities of interconnection between them.

2. In Italy, a feasibility study has been undertaken of the recuperation of disused railway lines, in collaboration with the Italian Railways System. The Italian Federation of Friends of the Bicycle, based on the "Eurovelo" concept, is promoting the creation of a large national network made up of 10 cycle-tourism routes. On a local level, several projects are being designed on a smaller scale, destined for non-motorised traffic and the development of Greenways.
3. In France, The national "Véloroutes et Voies Vertes" Scheme was approved towards the end of 1998, involving a network of more than 8,000 kilometres. Equally, there have been numerous regional and local initiatives (by means of the State/Regional contracts plan) completing the Scheme starting with the main structural routes.
4. In Portugal, a study of abandoned railways has been carried out at national level and there exists an interest in developing a Greenway Network starting at the border with Spain marked by the Guadiana River and the use of the two abandoned railway lines, one between Torre da Gadanha and Montemor-o-Novo and the other between Mora and Évora.

Levels of action for the development of a network

Recuperation of the infrastructure

The objective is to improve ease of use, accessibility and continuity on the pathways, concentrating action on the quality of the surface, protection and facilities of the path, illumination in tunnels, etc.

To achieve basic safety through the restrictions on motorised traffic

Services to the user

This deals with making the Network attractive to the public in general, making it possible to enjoy all of the available facilities, such as:

- restaurants, accommodation,
- hire and repair of bicycles, attention to horses, etc.
- centres offering environmental information, ethnographic museums, industrial archaeology,
- revalorisation of the natural and cultural heritage.

Information

- unique for each path in the Network
- joint, general information for the entire Network
- supporting and complementing this information through databases on Internet about each one of the pathways integrated in the Network.

Content of the project

Exchange of Experiences:

- The organisation of a Conference will be the occasion to disseminate the concept of Greenways, to present the objectives of the network and the intermediate results of the project, to permit the diffusion of policies and good practices in the matter.
- The organisation of four thematic round-tables on the revalorisation of the cultural heritage and tourist development, the intermodality of Railways/Greenways, the recuperation of pathways through canals and Drivers' Roads for the development of rural zones and the problems associated with this recuperation, the ecological value of Greenways and their integration into ecological networks, the application of SIG and new computer technologies for the promotion of Greenways, and the comparison of laws in the different countries dealing with the legal status of property and the management of the network.

Design of a Master Plan:

In order to address the creation of the REVER network in the MEDOC area, it is necessary to draw up a Master Plan of the area, which will allow the establishment of priorities, the choice of connecting sections, the definition of criteria for their selection, etc. This Plan will cover the entire MEDOC area, and the actions will consist principally of mapping operations which will be useful for the visualisation of the structure of the REVER network to be developed.

Feasibility Studies:

There will be feasibility studies of a number of specific long distance itineraries that guarantee the continuity of the Network, in each of the regions involved and between those regions.

Pilot Projects

There are pilot projects for two types of action: firstly, for selected sections in each region depending on their relationship with policies and strategies used to promote them and for their contribution to the continuity of the Network. These studies involve a pre-project leading to a constructed project. Secondly, ad-hoc actions will be carried out to promote and re-evaluate existing itineraries.

Both actions will be carried out using a common methodological base that will be defined throughout the process.

Dissemination of the results

This will be carried out through:

- the regular publication of an information magazine
- the dissemination of strategic and technical documents
- the promotion of the Network with informative documents and photographic material on the itineraries and the cultural and landscape heritage.
- the preparation and permanent updating of the REVER Med Database, compatible with the existing REVER AMNO Database.
- intensive use of the Internet, and other technological tools, such as web-gis and web-mapping.

Project members

At present the following organisations in Portugal, Spain, France and Italy are members of the project:

Regional Government of Andalusia (project leader)	Conseil Regional Rhône-Alpes
Región de Murcia	Comissao de Coordinaçao da Regiao do Alentejo
Generalitat Valenciana	Rede Ferroviária Nacional
Diputación General de Aragón	Associazione Italiana Greenways
Diputación de Alicante	Regione Lombardia
Govern de les Illes Balears	Regione Liguria
Turisme de Catalunya	Regione Sicilia
Diputación de Jaén	Regione Emilia-Romagna
Diputació de Girona	Università degli Studi di Milano
Confederación Hidrográfica del Júcar	Provincia di Modena
Diputación de Córdoba	Provincia di Torino
Consell Comarcal de la Terra Alta	Comune di Milano
Mancomunidad de Municipios Beturia	Comune di Roma
Ministère de l'Aménagement du Territoire et de l'Environnement	Parco Regionale della Valle del Lambro
Ministère de la Jeunesse et des Sports	GAL Valle Alcantara
Voies Navigables de France	

The international co-ordination of the above will be carried out by the European Greenways Association

Scope of the network

The Master Plan is based on the entire MEDOC area, regardless of the fact that some regions do not participate in the project. Therefore, thick lines have been used to indicate the paths that pass through member regions and thin lines for regions that are not members.

The kilometres by region and country appear in the different charts. (See figure 1)

Total budget

The total budget for REVER Med is €2,997,025 distributed among regions and countries as follows:

ANDALUCÍA	518,861 €
MURCIA.....	135,480 €
VALENCIA	247,900 €
BALEARIC ISLANDS.....	43,238 €
ARAGÓN	206,103 €
CATALONIA.....	221,957 €
Total SPAIN	1,373,541 €
Total ITALY	662,150 €
Total FRANCE	687,491 €
Total PORTUGAL	273,843 €
TOTAL ITINERARIES REVER	2,997,025 €

Coherence of the REVER MED project with the European perspective of territorial planning

As regards the COHERENCE of the REVER/Mediterranean Project with the European Perspective of Territorial Planning (PEOT), its relationship to the THIRD AXIS "Responsible Management of Heritage and Sustainable Development". We believe that the creation of the REVER/MED Network, as a complex of non-motorised itineraries covering the MEDOC Western Mediterranean Arc, brings great transversality to the regions involved.

A priority of this axis is the promotion of local development based on the endogenous values of the territories involved and the revalorisation of the natural and cultural heritage, in line with the strategies of the PEOT in the field of sustainable spatial development, balanced management of the natural and cultural heritage, and accessibility. The aims are:

- To revalorise unused infrastructure and heritage, recuperating its potential as a means of communication and its status as public property.
- To promote sustainable mobility through non-motorised transport, whether for leisure or need, with long and short-distance routes between both small and large centres of economic and tourist activity (cultural and natural).
- To promote a more dispersed, environmentally-sound tourism alternative, helping to alleviate traffic in congested areas that are reaching their saturation limit.
- To improving general mobility, alleviating the congestion on main roads, improving air quality and the environment in general.

International Conference on Drivers' Roads and Green Corridors

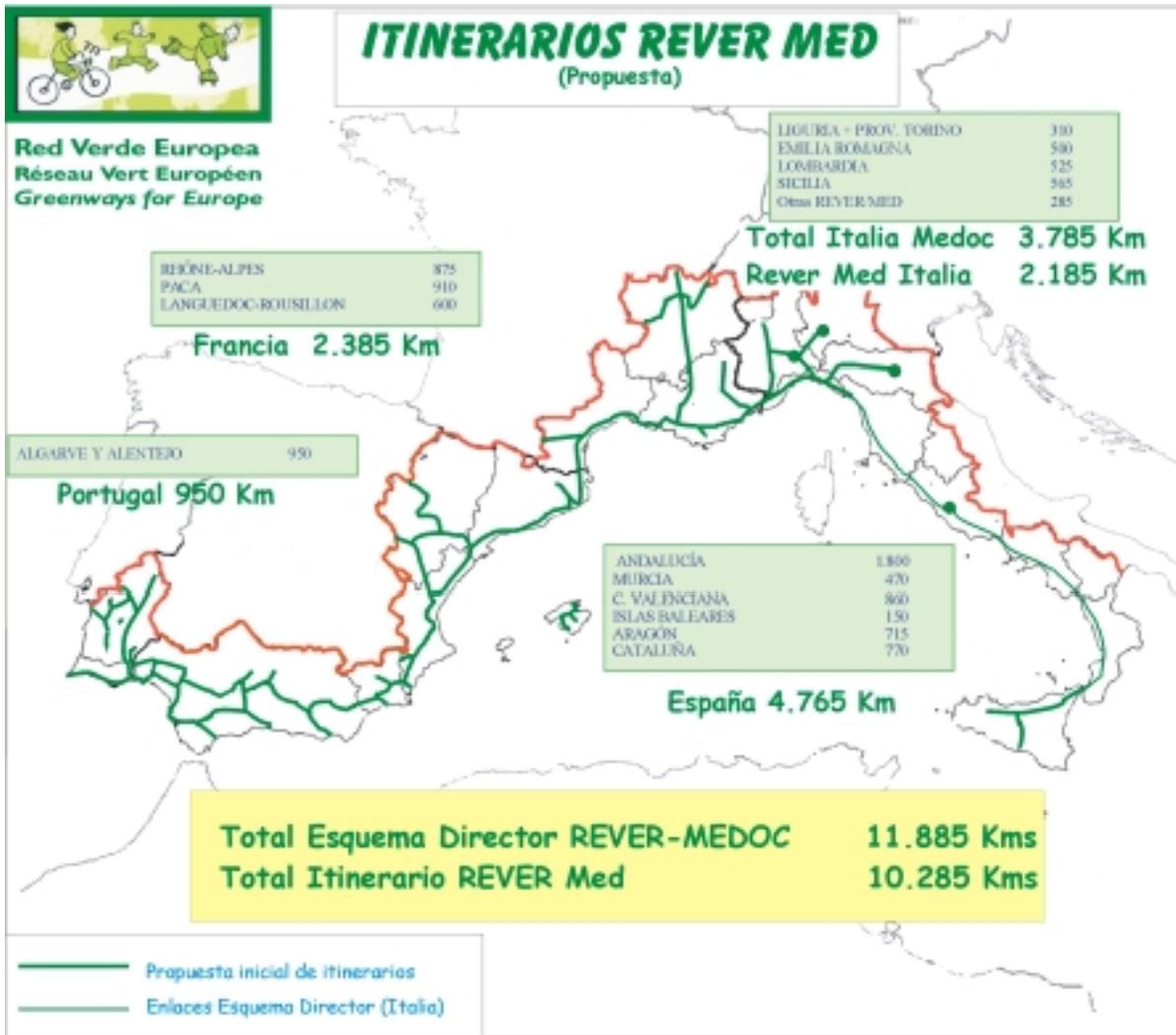
Chiclana de la Frontera 21-24 November 2001

- To create a network that connects the coastal zones with inland and mountainous regions, encouraging the revitalisation of the natural endogenous resources.
- To revalorise urban zones with structural deficiencies, such as industrial areas or zones in crisis.

And at the same time obtaining effects that are equally beneficial to the rest of the areas of interest:

- To facilitate a more balanced, polycentric system of cities, and a new relationship between Country and City, creating dynamic, attractive, competitive cities and a diversification and optimisation of rural areas.
- To favour more effective, sustainable use and greater equality of access to infrastructure, promoting intermodality between public transport, the bicycle and, especially, the railway, and the dissemination of knowledge and information about the transport system, sustainable mobility and innovation in transport.

It is also complementary to a large number of structural actions and strategies at Community level (such as those included in the Fifth Environment Programme of the Union, the Charter of Sustainable European Cities or the Framework Directive on Air Quality), at national level (such as those programmes mentioned in Spain and France) and at regional level (the Andalusian Drivers' Road Plan). It is the extension southwards of the REVER/North Project, jointly funded by the Interreg IIC AMNO programme, the seed of a great European Green Network, backed by the European Commission, whose benefits have been explained in the Good Practice Guide of the Greenways of Europe, edited in collaboration with the DG of the Environment, and in the Lille Declaration, approved in September 2000.



RECUPERATION AND RE-ESTABLISHMENT OF DROVERS' ROADS IN CHICLANA DE LA FRONTERA

Mr. José María Román Guerrero

Deputy Mayor and Environment Delegate

Chiclana de la Frontera Town Council

Until the early sixties, Chiclana de la Frontera was a medium-sized Andalusian town with an agricultural economy. The primary sector was based fundamentally on the cultivation of grapes for wine, with a certain amount of vegetable production. The rolling hills surrounding the town favoured the levelling of the land after being freed from the mortmains of the 19th century. Among this cultivated land and zones of Mediterranean forest, there is a dense network of old drovers' roads that are practically lost among the different farms.

The main problems faced by the old drovers' roads within the municipal area of Chiclana are:

- Total or partial disappearance of the roads as a result of their isolation, but principally from being asphalted, incorporated into the highway system, and the encroachment of their margins (Buscavidas path, Vejer path, Nápoles path, Fontanar path, Fuente Amarga path and Carboneros path).
- Urban pressure in areas closest to the town or rural land which has been built up (Asomada path, Taraje path, Fuente Amarga path).
- Generally deficient state of conservation, except in frequently used sections and dumping of rubble and waste at different points.

The agricultural and livestock transit functions having disappeared, the Chiclana Town Council suggested the objective of demarcating and restoring the trails to offer them as an additional facility for our residents and visitors, thus recuperating a heritage of some 450 hectares and over 150 kilometres in length. Their use as a tourist attraction is also to be enhanced, with environmentally-sound activities that help to diversify the town tourist attractions, which are based mainly on sun, the beach and golf.

There are many objectives, among them:

- The recuperation and re-establishment of this important public heritage
- To educate and inform about the different drovers' roads in the area
- To offer a complementary form of tourism
- To promote sporting activities, such as hiking, horse-riding, etc.
- To integrate the local network into other networks on a larger scale (provincial or regional).

These objectives have been pursued in different environmental projects such as the Los Marchantes path, a 14-kilometre drovers' road which is undoubtedly the most important in the town. The project is being carried out in the specialised Los Marchantes school, with a budget of 120 million Spanish pesetas and a total of 40 students. They have planted autochthonous tree species (wild olive trees, Judas trees and cork oaks), cleared the underbrush, recuperated constructed elements (rest areas, wells) and restored other rest areas for recreational use.

Signing a framework agreement with the Andalusian Regional Government's Environmental Ministry in 1998 has permitted investment of more than 137 million Spanish pesetas for the demarcation and signage of a total of twelve drovers' roads, which is leading to specific actions in some of these pathways.

With these operations, the dream of many neighbours and visitors will come true, and they will be able to use and enjoy these spaces, ride bikes or horses, or simply stroll, as our brochures say, from the residential zones of the beach or the town centre to the Cadiz Bay Natural Park. This is a place where the Town Council has made available 1.2 million square metres of land belonging to the city for public facilities in the Cadiz Bay Public Space Network, as well as the recent acquisition of another million square metres of pine grove and natural estuaries for

similar use. Another option is to pay a visit to the La Paja Lake Nature Reserve (owned by the town), the Jely and Montellano lakes and the last coastal cork oaks in Camila or the Urban Park of Pinar de la Barrosa, 100 hectares of pine trees and junipers on the Barrosa beach.

In just a few years' time, there will be a complete communication system of rural paths and old drovers' roads linking the main places of environmental interest in the municipality, and even allowing the possibility of holding motocross and mountain bike competitions. In short, we mean to increase the recreational and ecological use of these public paths, which in other times were used for livestock transport.

The work done to date consists of:

- The construction of a nature classroom in the proximity of the Cadiz and Fuente Amarga drovers' roads
- Effecting 8 of the 12 planned demarcations, some of which already have their final approval
- Planting more than 2,000 specimens of holm oaks, cork oaks, wild olive trees, Judas trees, mulberry trees and nettle-trees, in addition to 7,500 shrubs
- Incorporation by means of urban management of new roads and sections of the networks of paths
- Repair of the roads and passage of the Cueva
- Design of a new town plan with a triple footpath network connecting the Cadiz Bay Natural Park, urban parallel greenways to the main route and old drovers' roads and rural paths in the rest of the city limits; connecting the metropolitan area with the Cañadas de Puerto Real Park and with the Greenway of the Cadiz and Algeciras Bays.

Within two or three years, we hope to have concluded the majority of the planned works and that the cattle paths will be available for use. It will be time to harvest what we have sown; we will have fun!

**ROUND TABLE DEBATE: DROVERS' ROADS AND GREEN CORRIDORS IN
TERRITORIAL ORGANISATION**

Mr. Daniel Zarza Ballugera

Head Lecturer in Urban Planning
Polytechnic University of Madrid

I think that it is no exaggeration to say that drovers' roads are perhaps one of the oldest territorial planning elements we know.

In the remotest origins of humanity, groups of hunters and gatherers closely followed the organised movements of the huge herds of herbivores that crossed the territory in search of water and pastures, following a clear network of paths. They attacked these herds with primitive weapons at certain strategic spots, such as mountain passes or watering places, where they were easier to hunt.

To avoid being seen or smelled, they found ideal refuges to take shelter and to store their arms and tools as they hungrily waited for the ideal moment to attack. They thus created the first camps, perhaps protected by primitive structures made with the hide and bone of those very animals which, having been observed a thousand times down to the last detail, ended up being converted into totemic representations, giving rise for the first time to art, religion and writing, the very first expressions of culture.

The later mosaic which arose from the division of the territory between different tribes following different totemic animals is complementary to the network of movement in that hostile environment that, little by little, would be transformed into a territory that was culturally organised by the hand of man, with the domestication of animals for livestock farming and the sedentary lifestyle of crop farmers, ever since the first seeds germinated in the first pens or runs built by the nomads.

This is why those powerful diagonal paths that cross the Iberian peninsula from north-east to south-west, from the highlands to the lowlands, from the summer to the winter season, creating a first, complex mesh of movements of man and animal which would be consolidated in the Middle Ages in La Mesta and the Royal Drovers' Roads, are the first great economic (droving) spatial expression of an order of kingdoms which united politically to form a nation. And it is truly a miracle that all this enormous heritage has survived down the ages, albeit in impoverished form, to our days.

When, once a year, thousands of sheep occupy the modern, flamboyant Castellana Avenue, an old drovers' road that is now the north-south axis of Madrid, they are reminding us, with their bleating, their aroma and their dung, that today our motorways, high-speed trains, telephone and digital networks are all the modern-day descendants of those first corridors, closely interwoven with nature, without damaging it or neglecting it, like a profound lesson to be given for the future.

At the beginning of the twentieth century, the modern discipline of territorial and regional planning, of which we still have relatively little experience in this country, based its fundamental concepts on the recuperation of the natural, ecological roots of the territory. Olmstead, in his evaluation of the virgin landscapes of North America, proposed expansion from the industrial cities of the north-east by means of parkway routes, the origin of the modern freeways, and the protection of natural reserves in the form of National Parks. This complex mesh of ecology and culture, city and country, all brought together in this new intermediate, suburban landscape would be the basis of a modern concept of territorial planning, as the architecture of contemporary landscapes, which would go back to the roots. It would take the (today) civilised human animals, living in the slight, fragile layer of the biosphere, back to nature which sustains us and allows us to survive and to renaturalise ourselves.

And without leaving too far behind our first roots of Mediterranean modernity, the enlightened walks that did so much to unite city and country as a basis for democratic leisure, the boulevards that resulted from the cry of "ruralise the city, urbanise the country" of Ildefonso Cerda, our first great urban planner, and Arturo Soria's Linear City, are not too far removed from this concept of territorial planning that is increasingly necessary and increasingly urgent in our country. Perhaps now that in our cities and in the country we are demanding more strongly that our landscapes and territories be more carefully conserved and planned, the time has come to start to travel once more along the old drovers' roads, today's paths to a greener and more ecological future.

This international conference organised by the Regional Government of Andalusia here in Chiclana, in the province of Cadiz, to which I have had the privilege of being invited, allows us to glimpse an optimistic future for this enlightened landscape, criss-crossed with age-old pathways.

Mr. Manuel Calvo Salazar

Department of Ecology

University of Seville

The network of drovers' roads, despite its importance as a linking element between more or less isolated areas of outstanding natural importance, can also be adapted and used for purposes which are vital to today's society.

It should be underlined that the network of drovers' roads has been created with criteria that are very different from those used for any other of today's communications networks. The network of drovers' roads "respects" the relief of the terrain on its route, turning, ascending and descending with the land. Likewise, it connects the system of human settlements, towns, cities and villages, bringing them together and fostering relations between them.

The network, in short, offers the real possibility of travelling across the territory in a different manner from that to which we are accustomed, since in itself it becomes an object of knowledge, it becomes the ultimate reason for the journey. We recover the concept of distance as speed once more comes down to a human scale. We therefore leave behind the current view of the territory separating the starting and finishing point of our journey as "empty" and that we must cross it as quickly as possible.

The network of drovers' roads therefore becomes an alternative to that other network, the network of highways, which has been built up on criteria of urgency, where speed is of the essence.

The potential offered by this communications network can clearly be seen if we bear in mind that, in the 21st century, there exists a real option of crossing Andalusia from one extreme to the other with no serious interruption by the road network and using animal traction, bicycle or simply on foot. This potential, although difficult to evaluate in exact terms, is unquestionable, and examples of the intelligent exploitation of such a resource already exist in other parts of Spain and of Europe, such as the Pilgrim's Route to Santiago, the Loire Route or the descent of the Rhine.

This extensive network of paths, independent of the highways, "made" of the land, which it hardly alters at all in physical terms, is the ideal setting for the citizen to take a different approach to the countryside, on a scale appropriate to his or her perceptions. In this network, the senses of hearing, smell and touch, as well as the profound landscapes once more take on their true importance, as our close-up contact with nature become critical.

For all of these reasons, it is use by the general public that brings meaning to the recuperation of this communications network. This use by the public has an essential, irreplaceable function in the territory, which could be summarised in the following four points:

1. Re-establishing the links of affection and of identity of the rural population with the landscape through intimate knowledge.
2. Facilitating the access of the citizens to Protected Natural Spaces without using the network of highways.
3. Making it possible to travel throughout the entire region of Andalusia without interruption, through the main environmental systems, structuring the territory through an existing network of common land, creating human corridors (in the most positive meaning of the word).
4. Accessing and travelling through the countryside, allowing the public to get to know it as the place which provides the material which meets the majority of our needs. This can help to change the attitude of people towards their own territory, where they live and which provides them with the resources and the essential services they need to subsist.

CONCLUSIONS OF THE ROUND TABLE DEBATE

1. In Andalusia's territorial planning, the drivers' roads are considered linear elements for the structuring and integration of protected natural spaces between themselves and with other spaces of cultural or natural value. This function as a structuring element is carried out through the drivers' roads and also with other linear elements identified for the purpose in supramunicipal planning schemes on different scales (watercourses, rural pathways, riverbanks, abandoned railways, etc.). In the more urbanised environments (especially metropolitan areas), territorial plans include the creation of a system of open spaces made up of extensive, linear elements which have to fulfil a dual purpose: to structure the urban, natural, rural and environmental space, and to improve the quality of life of the citizens with leisure and recreational facilities. These systems of open spaces are structured internally by means of linear components such as the drivers' roads, which are essential for the cohesion of these systems.
2. It is necessary to promote co-operation between public and private institutions and administrations in order to valorise the network of green corridors within which the drivers' roads, disused railways, rural pathways and riverbanks constitute a continuous network covering the territory, as a complementary alternative to the network of motor transport.
3. On a local scale, it is essential that town councils promote the construction of a network of open spaces. In this respect, urban planning should facilitate mechanisms to allow the exploitation of these resources, seeking also interconnection between open spaces, recreational spaces, urban green areas, and other areas of environmental or cultural interest.

**SESSION 4: RESTORATION AND MANAGEMENT CRITERIA FOR
DROVERS' ROADS AND GREEN CORRIDORS**

FROM RAVEL TO REVER: INTEGRATION OF A REGIONAL NETWORK INTO A EUROPEAN GREEN NETWORK

Mr. Albert Simon

President, Chemins du Rail
Belgium

Before giving my presentation "From RAVeL¹ to REVER²", or rather, "From Chemins du Rail to REVER³" (since I am the President of Chemins du Rail and not a political representative of the RAVeL project, which is a project of the Walloon government), I would like, very briefly, to tell you something about our association's activities.

We organise events such as "*Le Beau Vélo du Ravel*"⁴ in collaboration with the national radio and television service (RTBF). This is a series of 12 bicycle excursions along different stretches of the RAVeL network, with music and a televised report. These excursions are held every Saturday from July to September. *Le Beau Vélo du Ravel* has brought together over 1,500 people on each of its stages.

"2001 Torches": for the 2000-2001 New Year's Eve celebrations, also in collaboration with national radio and television (RTBF), 3,000 people took part in a bicycle ride along Line 38 of the RAVeL network, illuminated by 2,000 torches, to the sound of music and with tasting sessions of local products, ending with a dinner and show. The 2,001st torch was lit by Joaquín Jiménez, President of the European Association of Greenways (AEVV). It ended with a spectacular firework display and festivities.

We also organise guided excursions and discovery trips along greenways, especially for schools. Incidentally, schoolchildren really love discover the heritage and language of the railways, to measure the distance between rails, the railway signs....

In some cases, this type of excursion can lead the politicians to take specific measures. For example, three months after a trip we organised in the east of Belgium, one town undertook rehabilitation work on a 7-kilometre stretch of disused railway line.

After an excursion and the General Assembly held in February 2001, we committed ourselves to the creation of a new transfrontier project between Chemins du Rail, Germany (Rhine Palatinate region), Luxembourg and Belgium.

We carried out inventories of the railway heritage, studies for the rehabilitation of disused lines, promotion tools and permanent circuits or tours for non-motorised users. We have just published the "Dictionary of Small Railway Heritage" in order to raise the awareness of the public authorities and associations of the problem of its conservation.

We have also published a series of guides of old disused rail routes, aimed at non-motorised users. In the year 2000, we published a guide with 24 excursions specially selected for skaters.

-
1. Autonómico Network of slow roads
 2. European green network
 3. Frn de Railways Roads to the European Green Network
 4. "The nice bicycle of Ravel"

We also have a document centre whose catalogue will shortly be available on our website: www.Cheminsdurail.be

After this brief description of the activities of Chemins du Rail, let us now go on to my presentation.

The Walloon region, the French-speaking part of Belgium, is a very small region which can be crossed from one end to the other in half an hour. Namur, the region's capital, is less than 40 kilometres from the French border, and less than 100 km. from Germany and Luxembourg. This is why, when Chemins du Rail was created, we were already thinking in terms of action at European level.

Nevertheless, due to our history, we are used to working on a national, and even in a regional basis. This is why some projects, such as the "greenways" project, are perceived differently in different countries.

Let us take the case of Belgium. The situation varies in the different regions. In the north, there are initiatives promoted by the Flemish provinces, whereas in the Brussels or Walloon regions, projects have been developed on the basis of old railway lines or towpaths.

In the Walloon region, the RAVeL Programme (Autonomous Slow Line Network), set up in 1995, has the aim of providing a network for non-motorised transport, made up of disused railways lines and towpaths. Today, the network has a total of 900 kilometres of greenways and will eventually cover 1,600 kilometres. It currently consists of the transversal RAVeL 1 route, which crosses the entire Walloon region, and the vertical axes RAVeL 2, 3 and 4. We are currently studying the creation of two further vertical routes, RAVeL 5 and 6.

The project comes under the auspices of two ministers:

- Michel Forêt: Minister of the Environment and Territorial Planning, who is responsible for planning and the studies.
- Michel Daerden: Minister of Public Works, who is responsible for the execution of the works.

Current allocated budgets (€5 million for the old railway lines and €2.5 million for towpaths) allow us to adapt some 40 kilometres per year. The political authorities do not appear too willing to set up financial partnerships or to allocate additional resources. For this reason, Chemins du Rail has decided to create, together with the municipalities and associations, a "preRAVeL" that will guarantee safe intersections with railways without unduly onerous adaptation.

In Spain, as you know, the Spanish Railways Foundation has a Greenway programme that will transform 7,000 kilometres of disused railway lines.

In Luxembourg, the "cycle-route" network currently covers 400 kilometres and will be expanded to 800 km. within five years, of which 80 % corresponds to old railway lines.

In the United Kingdom, Sustrans and the British government have also developed a network of "cycle-routes" which should cover 15,000 kilometres by the year 2005.

In Germany, several states, such as the Rhine Palatinate region, have constructed hundreds of kilometres of greenways, mainly on the routes of old railway lines or river towpaths.

In France, the departments are responsible for several different initiatives. But for several years, a national programme of "cycle-routes" and greenways are being established with the support of the central government.

In the Czech Republic, associations like Oziveni or the Central European Greenways are working on different bicycle routes, such as the Prague to Vienna Route, the Moravian Wine Route or the Amber Route between the Baltic and the Adriatic.

These different initiatives are generally known to the people who work in the field in their different countries. However, the general public is still surprised when they hear of its existence.

Laws may differ substantially from one country to another. In France and the United Kingdom, for example, it is illegal to travel by bicycle on the service roads alongside navigable waterways, whereas in Belgium these are open to cyclists. Technical aspects also differ: signage, intersections with roadways, surfaces, etc.

The institutional situation can also vary from country to country. In some places, non-motorised traffic is the responsibility of national agencies, whereas in others it falls within the competence of the regional, provincial or municipal authorities. Territorial planning is a state or regional function, and the European Union has no direct powers in the field.

To conclude, there exists a European network with great potential. In our small country, perhaps more so than in other countries, we believe it is essential for us to open up to external contacts and co-operation.

This is why, in May 1997, Chemins du Rail organised the "First European Meetings of Railway Paths and Non-motorised Traffic in the Val-Dieu Abbey in Belgium. We invited as many partners as possible to join us in creating the European Greenways Association.

The dream quickly came true. The AEVV was founded in Namur in January 1998 with substantial financial support from the Walloon government. Joaquín Jiménez became President of the Association, and Christophe Lacroix, a member of the Walloon government, the Secretary. Anne-Catherine Louette, the Director, is responsible for the management of the AEVV, which shares offices, also in Namur, with Chemins du Rail.

It is a shame that Anne-Catherine is not here today, as she would have explained the work of the AEVV much better than I can.

The first challenges facing the new association were:

- To operate at European level,
- To be known to the European authorities,
- To promote the concept of greenways among its members,
- To carry out an inventory of actions and projects in Europe,
- To develop arguments to persuade local and national authorities.

The AEVV therefore has a role as an interface between its members and the European Union, especially the European Commission. It informs its members of possible European funding for greenway projects and handles their co-ordination.

The AEVV also keeps politicians, engineers and user organisations informed in order to encourage them to create a network of greenways as a transport, mobility and environmental management tool and as a territorial planning policy. The AEVV encourages the exchange of experiences and practices between countries and regions wishing to carry out similar initiatives. Today, it has 30 members in 8 different countries.

Among its achievements is the "Good Practice Guide" supported by the European Commission, with the following contents:

- What is a Greenway?
- Who are the stakeholders in the Greenways?
- How to carry out a Greenway development strategy

Another important achievement is REVER, or the European Green Network. The project is to conclude towards the end of 2001. It began in January 2000 with 5 countries: Belgium, France, Ireland, Luxembourg and the United Kingdom.

This project is structured around 8 areas of action:

- Demarcation of the boundaries of the greenways in the north-eastern metropolitan area.
- Organisation of 4 thematic round tables
- Organisation of an international conference to be held in Lille in September 2000
- Study of long-distance routes on greenways.
- Study of transnational signage on greenways.
- Pilot studies based on common methodology
- Creation of a database of European greenways, to be available on the Internet.

The REVER project aims to achieve three objectives:

- The exchange of experiences and best practices between the members.
- The definition of a master plan for European greenways and conditions for its implementation.
- The promotion of national greenway movements.

We can already measure the benefits of the REVER project. The Lille Conference in September 2000 allowed us to adopt a common definition of the term "greenway" in order to avoid any possible confusion and to have a common vocabulary accepted by the public authorities, engineers and the wider public.

The characteristics of greenways are often the subject of debate: should it have a minimum width of 2 metres? Or a maximum gradient of 3%? Should its necessarily be surfaced?

And so, in line with the Lille Declaration adopted by the members of Rever and the AEVV, a greenway is "a communication route reserved exclusively for non-motorised journeys, developed in an integrated manner which enhances both the environment and quality of life of the surrounding area. These routes should meet satisfactory standards of width, gradient, and surface condition to ensure that they are both user-friendly and low -risk for users of all abilities".

The global budget for the REVER project currently stands at €1.8 million, of which 1 million has been provided by the European Union, specifically, from ERDF funds.

The advantages we perceive in our participation in this type of European project are:

- Harmonisation of criteria for the definition of greenways, guaranteeing minimum service levels to users throughout Europe.
- Co-ordination of networks, especially at border crossings, thus guaranteeing coherence.
- The exchange of information which can lead to emulation between countries and which might stimulate initiatives from other members.

As an example, after the Lille Conference, the authorities in France decided to allow cyclists to use towpaths (under certain circumstances).

Mr. Joaquín Jiménez had the opportunity to present a similar programme similar covering southern Europe, with France, Italy, Portugal and Spain which should get under way from now to the end of the year. This will be a new opportunity for the development of the European Green Network. I wish him the best of luck with this project.

But going beyond these two programmes, this network should, in our opinion, open up as soon as possible to new members in central Europe, such as the Czech Republic, Hungary, Poland and Slovakia.

THE EXPERIENCE OF THE NORTH SEA CYCLE ROUTE: GENERAL FACTS

Mr. Chris Heymans

Lead Consultant on the North Sea Cycle Route

The North Sea Cycle Route is an ambitious project that has opened up 6,000 kilometres to bicycle lovers across seven northern European countries (Germany, the Netherlands, Denmark, Norway, Sweden, Scotland and England).

The itinerary passes through the most interesting and varied landscapes of the North Sea - clifftops, beaches, highlands, lowlands - through towns and cities, in a well structured circular route, with no danger of getting lost.

General Facts

- 6 languages
- 67 local authorities (LAs, level below central/federal government)
 - England: 20
 - Scotland: 14
 - Germany: 14
 - Norway: 7
 - Denmark: 6
 - Netherlands: 4
 - Sweden: 2
- 3 year project (1998-2001)
 - €770,000
- 20 cities over 100,000
 - Hamburg: 1.7 million
 - Edinburgh & Gothenburg: 0.5 million
- 8 million people live along the route
- 3 international ferries connect the route
 - England-Netherlands (4h)
 - Denmark-Sweden (4h)
 - Norway-Scotland (12h)
- 12 other international ferries can shorten the route
- 18 - 31 local ferries (from 2 minutes to 8 hours)
- 15 major bridges

History

- 1995 June: idea presented at Directoria
- 1996 September: expert team set up within North Sea Commission Culture & Tourism Group
- 1997 June: project plan presented at Directoria
- 1998
 - March: Interreg IIC application lodged
 - May: Interreg IIC application approved
 - September: inaugural project meeting
- 2001
 - May 5: Launch Event in Hamburg
 - June 23: Launch Event in Aberdeen
 - May 5 – June 23: 2 Opening Tours
 - Hamburg – Netherlands – Aberdeen
 - Hamburg – Scandinavia – Aberdeen

Management

- Lead Partner: Rogaland, Norway
- 65 partners from 7 countries
- IMG (International Management Group)
 - 2 partners from each country = 14 members
 - 2 meetings per year = 7 meetings (one per country)
 - Chaired by Lead Partner
- NMGs (National Management Groups)
 - co-ordination of partners within each country
- Secretariat (Stavanger, Rogaland)
 - 1 full-time position shared between 3 officers
 - Additional secretarial, accounting and auditing functions

Funding

- 50% Interreg IIC North Sea Programme (€385,000)
- remaining 50% divided between countries per km (as estimated by each country)
 - international distribution determined by each NMG
 - either per km
 - or equal contributions
- *no infrastructure funded by project*

Output

- Logo
- Newsletter (4 issues)
- Planning map (70•100 cm)
- Web site (www.northsea-cycle.com – 6 languages)
- Signs (Germany only)
- Plaques (information boards)
- Monitoring methodology (usage & benefits)
- LAUNCH Events (in Hamburg and Aberdeen)
- OPENING Tours (from Hamburg to Aberdeen)
- *No advertising funded by project*

Internal Tasks

- Field survey
 - Autumn 1998
 - “Unbiased” report, freely available
- Route alignment
 - No alternative routes or loose ends
- Except winter alternatives to summer-only routes
 - Determined by LAs in consultation with NMG
 - Occasionally in consultation with IMG
 - In some cases influenced by field survey
- Compilation of information from LAs
- Distribution of Newsletter via NMGs

Side Effects

- New / updated / improved facilities
 - Cycle routes
 - Sections, junctions, alignment
 - Signage
 - Maps & guides

- Public awareness
 - Press coverage – initiated by LAs, tourist boards etc.
 - Local advertising
- Government awareness
 - Every LA along the route is now aware of NSCR
 - Regarded as “flagship project” of Interreg IIC North Sea Programme

Plans

- Interreg IIIB

Maintenance

- Ratings
- Upgrading
- Marketing (awareness)
- Monitoring

RESTORATION AND MANAGEMENT CRITERIA FOR THE GUADAMAR GREEN CORRIDOR

Mr. Javier Serrano Aguilar

General Secretary of Egmasa

The Guadiamar River basin has a surface of nearly 1,300 Km², receiving, along its 82-kilometre length and its 320 metre drop, an average of an estimated 209 Hm³/year of water from the upper reaches of the Aznalcázar river. Even so, its hydrology is characterised by year on year irregularity, very typical in Mediterranean river basins. In this sense, very rainy years, which can leave more than 300 Hm³, are followed by drier years with less than 50 Hm³. At the same time, in the same year, as a consequence of the variability of the rainfall, the input varies from 13 Hm³ in the winter months (January to March) to less than 3 Hm³ in the summer (June to October).

The Guadiamar River is one of the few river systems in our region with virtually no hydrological regulation. Despite this, it is a river which has traditionally had to deal with intense human activity: elimination of old channels, mining activity, dumping, agriculture, gravel pits, installation of transversal and lateral barriers, etc. As a consequence, even before the accident, this was a river in an advanced state of degradation, which has been exacerbated by the mine disaster.

The Green Corridor ecological restoration project aims to bring the Guadiamar back to the dynamic conditions it would have had if its ecological processes had not been affected by the intense agricultural activity of the last few decades, nor by the impact of the mining spill. For this, it is necessary to recuperate and/or conserve natural hydrogeomorphological and biogeochemical processes that determine the organisation and functioning of the river's ecosystems, that is to say, its ecological integrity.

Given this focus, the project does not try to enhance any specific element, such as aquatic waterfowl. Just the opposite, the aim is to manage the combination of biophysical relationships that define both the operation of its ecosystems and their development over time, including the capacity to respond to the stress generated by disturbances of either natural or human origin.

As a consequence, it is accepted that the natural disturbances faced by the Guadiamar ecosystem (periods of flooding, drought, etc.), far from destabilising the system, form part of its operation. For this, it is fundamental that it functions as an open hydrological system with the intensity, frequency and amplitude of natural disturbances that cause seasonal and year by year variability, and in this way it develops its capacity for self-design. Admittedly, fluvial systems possess a great capacity to return to their dynamic state of reference after the effects of a natural or man-made disturbance. From this perspective, the Green Corridor Strategy involves passive restoration procedures that imply, basically, the elimination of the most important factors of tension that impede or hinder its natural recuperation

The Guadiamar restoration programme contemplates two primary areas of action: the flood plain and lower reaches of the Guadiamar affected by the pyrite sludge, and the Entremuros marsh area, which was affected by the retention of acid waters from the mine spill.

With respect to the flood plain area, the action is aimed at the recuperation of the dynamic balance of the river system or the capacity to persist within a range of biophysical reference conditions. Within this context, the most important actions are those related to:

- The restoration of the geomorphologic system which sustains the Guadiamar river corridor, based on its ecodynamic operation. In this sense, the recuperation of the processes of river dynamics is very important (the balance between erosion, transport and sedimentation), as it tries to reconstitute its morphological structure. Due to this, no intervention is planned in what is called the "free space", where the river can define its

basin without restrictions, recuperating its length and profile, and acquiring its characteristic attributes of sinuosity, heterogeneity, and connectivity.

- The restoration of the continuity of the Guadiamar river corridor as an ecological system with a morphological line, where longitudinal and lateral flows of material and energy occur. Due to this, it is considered essential to eliminate all those transversal barriers or elements that interrupt the continuity of the river basin.
- The restoration of the system of natural disturbances, as a fundamental basis for the maintenance of the ecological functions of the fluvial corridor.

The actions carried out so far involve a planted surface area of approximately 1,700 hectares, representing about 25,500 days' labour, both direct and indirect.

After last winter's intense rains, the river has clearly demonstrated its torrential character, which has allowed the definition of the actions necessary in the most ecodynamic zone, and the opening a process of scientific debate about the basis of possible restoration, centred fundamentally in the basins and in the zone closest to the mine.

As regards the restoration of the Entremuros marsh, since the initiation of the Green Corridor Project, this zone situated within the Doñana Natural Park was converted into a priority area within the ecological restoration project of the zone affected by the spill. To establish a reference framework corresponding to the low level of human alterations in the zone, the starting point used was the situation existing in the 1950s, a decade when the transformation of the marsh into a irrigation zone was initiated in line with the provisions of the Almonte Marsh Plan, and the most important alterations of the river began. The section of the Brazo de la Torre that has not been transformed, which is situated downriver from Entremuros (offshoot of the Matochal), has also been used as a reference.

The project has consisted of the restoration of the geomorphologic, hydrological and ecological operation of this space, based on a highly detailed characterisation of the components that define the system. This detailed characterisation has served as a guide for the different stages of the actions taken, from the design of earth moving operations to the preparation of the monitoring plan, designed to assess the effectiveness of the measures carried out by examining the multiple variables of the natural system.

APPRAISAL OF THE SOCIO-ECONOMIC BENEFITS OF GREEN CORRIDORS. THE EXPERIENCE OF THE RUTA DEL CARRILET (GIRONA)

Mr. Xavier Corominas i Mainegre

Advisor for the Greenways of Girona (Spain)

1-The appraisal of a Greenway, local involvement and users

Interaction between the administration and users permitted the birth of our Greenway. The disappearance of the train allowed some local councils to convert old sections of narrow-gauge railway track into places for the citizens to take a stroll.

The development of bicycle technology led to the "invention" of the BTT, in California, which in a few years became a world-wide phenomenon. As a result, more than 80% of bicycle sales in the world were BTT bikes.

The initiation by the Ministry of Public Works and the Environment of a programme to recuperate natural trails, greenways or corridors won the backing of the municipal powers. In our case, by means of a project of the Provincial Delegation, they opened up more than 50 kilometres of Greenway.

2-The Greenways - substitutes for the train?

I have already said on some occasions (Greenway Economic Agents Seminar, Olot, October 2001) that the existence of the Greenways should not be an obstacle to the defence of the recuperation of the railways, which does not necessarily mean the re-use of old sections of track. Nowadays, new trains cannot use the old routes used by steam trains, and therefore the re-introduction of the train does not have to use the old route. Another case is the extension of highways, which, without a second thought, have occupied and occupy old tracks, causing enormous difficulties as regards continuity.

3- Consensus

Who takes the lead in initiatives for the development of these processes? The largest local council?

The most powerful Administration? Who establishes the conditions? The most effective answer is political and social consensus: it should be done by agreement. The development of the unification proposal of the Greenways of Girona, which I call the "Pacte del Ferro" (Iron Pact), was reached in a meeting where town councils, the Delegation, including 3 different political parties, the ruling party and the opposition and citizen groups. The objective was to unify the three Greenways, always with the clear involvement of the local councils. This is a strategic matter that supposes the creation of new infrastructure, and therefore the involvement of the local council has always been decisive.

4- Overcoming connection difficulties on the ground

The interruption of the old sections by new sections of roadway and the sale of railway land, in particular, have created enormous difficulties in connecting the entire route, an indispensable element to be able to have a coherent proposal. The weapon that we used in the search for alternatives was imagination, starting from the basis that there would have to be continuity or there would be no route. The decision was made to opt for a surface of "Sauló" sand with granite which is natural in character, although it can be more difficult to maintain. But at this time, when there are a multitude of rural routes being covered with asphalt or concrete, having a natural route available is an advantage.

5- Social benefits

The start-up of the Ruta del Carrilet Greenway, has, socially, meant great benefits for all the citizens and the community:

- a) Healthier citizens; we are encouraging people to walk more or to pedal slowly. There are a large number of heart patients who walk daily along the route.
- b) We have created an infrastructure that allows people to get exercise in a sustainable manner, cyclists, and athletes are among the main users. Families can ride together safely.
- c) We have reconstructed an infrastructure which is also a communication route between towns and cities. We are going to motivate its use by schoolchildren to promote "intermodality" in transport.

6- A factor for economic growth

The potential for Active Tourism is a reality that can be felt. The sale of weekend stays, with accommodation included, is starting to be a reality, as are the rehabilitation of old stations as restaurants, hostels, or the integration of BTT Centres with our Greenways, the growth in the number of bicycle rental businesses, and demand at horse-riding centres for alternative routes. Maintenance tasks are carried out by social economy companies.

All of the above involve new work initiatives, and package tours will shortly be available from national and international travel agents. Interaction with Natural Spaces has great potential for the future.

The large number of users (over one thousand users per day on the three routes on weekends and holidays from the month of October) encourages us to work even harder to increase the socio-economic impulse of our routes.

7- Weaknesses

The need for high quality maintenance is essential for a coherent project, and this is currently one of the weak points of our Greenway. The objective is for users to be able to enter at any point of the route without encountering any difficulties, to be able to travel in any direction, knowing that they are safe, that they are not lost, and that there are rest areas nearby. This requires very good signs, continuous maintenance, cleaning, pruning, clearing and the repair of damage caused by vandalism. In our view, this should be the responsibility of an external organisation.

Another point not covered at the moment is policing on the routes. In Catalonia, the regional police (Mossos d' Esquadra) are responsible for this, but we have not so far obtained their agreement to create a special cycle group to carry out their functions on the greenway. This results in a certain lack of control in some places, such as the motorcycle path, horse path or vandalism suffered by the facilities on the route.

8- Urban Plans

I welcome the efforts made by the Andalusian Regional Government to define the legal framework of the Drivers' Roads. This is a definitive, forward-looking question, and in our case we could use it as an example. It is necessary to define a legal-urban framework of the Greenway so that the global project is not always under threat from possible outside interference, such as a town plan or a new highway.

To a lesser extent, aggressions to the section by adjacent neighbours, water run-off, etc., should be constantly monitored.

We should bear in mind that on certain sections of the Route, drinking water supplies run along a service section.

9- Conclusion

The implementation of the greenways in Girona has brought social benefits, as a result of the number of users who utilise them. Healthier citizens, sustainable sport, a new communication route. It is also a source of new economic activities, and a clear promotion of Active Tourism. This has been achieved through political and social consensus, which has led to the creation of a unified route with one Consortium, with the participation of the Delegation.

The challenges for the future are to ensure adequate maintenance, and the implementation of better technologies, such as real time measurement of users, both people and bicycles, and interactive information panels. The Girona Greenway is already a reality, and it encourages the development of other green corridors in our region.

**MANAGEMENT MODELS AND COMPATIBILITY OF USES IN TRANSHUMANCE SYSTEMS:
A EUROPEAN PERSPECTIVE**

R.G.H.Bunce and M.Pérez-Soba

ALTERRA The Netherlands

Introduction

For many centuries, transhumance was an integral feature of many European regions because of the need to balance the production cycle of grasslands with the distribution of animals. However, as agriculture has become progressively industrialised, so the linkage between fodder production and animals has become de-coupled. Modern transport and the internationalisation of trade have meant that regions no longer need to be self-sufficient. The subsidies to agriculture in the European Union (EU) have further distorted the traditional patterns. It is widely recognised that transhumance systems are under threat, and support mechanisms are required to maintain ancient traditions. Agri-environmental schemes represent a potential source of revenue, but compared with production support within the Common Agricultural Policy (CAP), the money is so limited that they have had little overall effect. Furthermore transhumance systems have not actually been specifically targeted, although organic farming in Austria has indirectly been beneficial.

Already some countries have seen the virtual disappearance of traditional transhumance, such as Norway and Sweden, and in others, such as Great Britain, it has been greatly curtailed. In contrast, Spain still has a wide variety of active systems, although many are now threatened. It is therefore imperative to identify the viable systems and their characteristics in order to determine planning systems and support mechanisms to maintain them.

This paper first defines the principal characteristics associated with such systems, before describing some case studies to illustrate the value of the Spanish situation. Some suggestions are made as to how a classification of management could be used to create models, which could then assist in understanding the critical factors necessary for the maintenance of transhumance. Finally, it is emphasised that much still remains to be established about the links between transhumance and biodiversity, and that the true value of the practice needs to be determined quantitatively.

Definition

Although there is much local knowledge about transhumance, there seems to be no agreed definition. Similarly, there is no overview of such systems and their links to biodiversity and landscape, and their function as corridors. There is however extensive literature in Spain emphasising the ecological and cultural value of transhumance and the associated *cañadas*. A suggested definition is:

Agrarian systems involving displacement of grazing animals between different locations, either altitudinally or latitudinally.

These systems usually, at least at during one period of the year, occupy open land dominated by mainly native species, i.e. semi-natural vegetation; hence their importance for biodiversity. This definition would allow the animals to utilise enclosed land, that is, fields that have been subjected to agricultural intensification at one stage of the year. The links to biodiversity may not necessarily therefore be present at all stages of transhumance. A system view is essential because otherwise appropriate planning measures cannot be developed. Using this definition, transhumance systems have the following characteristics:

- Long history
- Significant linked landscapes, involving both aesthetic and cultural factors
- Rural development including employment, distinctive products and tourism/recreation opportunities
- Biodiversity, including emblematic species, habitats, genetic stock, livestock breeds and corridors.

The cultural values are often irreplaceable, although, as in part of Norway, the landscape structure remains to some extent even after the practice has disappeared. It is also important that transhumance is usually still present in remote rural areas suffering from marginalisation, although in parts of Andalusia this is not always so because the *cañadas* maybe adjacent to towns, as in the case of Cádiz.

Transhumance provides a unique contribution to rural identity, and has an international repercussion, as shown by the picture of the sheep in Madrid in the November issue of the British newspaper "The Guardian".

The current interest of the EU in livestock systems is shown in two projects:

- ELPEN, a fully-funded project to develop a tool for assessing the environmental and social impact of livestock policy
- PASTORAL, a concerted action to assess the extent of extensive livestock systems in Europe and their links to nature conservation and social values.

Cases studies

1. Sheep grazing in the Lake District (north-west England). There is a sharp boundary between the inbye, i.e. enclosed land, which has been improved in agricultural terms, and the outbye, which is the open vegetation extending from the mountain wall to the summits. The sheep traditionally were put out onto the open land in spring after lambing and were then gathered in the autumn. The inbye land in the valleys was too limited to support the number of sheep, so they were moved, usually about 20-30 kilometres to lowland pastures to overwinter. This practice continued, probably in a somewhat reduced form, until the foot and mouth epidemic in 2001. Whether it will continue is open to debate. Whilst this transhumance system still continued in almost its traditional form, its link with biodiversity was weak because the lowland fields have lost many species because of high nitrogen inputs. In addition, the open hill land has been overgrazed, especially following the sheep meat regime introduced under the Common Agricultural Policy in 1976. However, in contrast, many of the traditional landscape features, such as walls, have been maintained by grants and by the policies of landowners.
2. Dairy farming in Karinthia (southern Austria). The traditional system involved housing the cattle in winter, early grazing on lowland pastures in the spring, before transfer to the high pastures in early summer. These practices still remain although not to their previous extent, and mainly not with traditional breeds. The grazing patterns of the modern animals differ from those in the past and have indirect effects on the sward composition, e.g. the heavier breeds cannot graze on steep banks. Another indirect effect is the decline of the *Larchenweise*, the wooded meadows of the mid slopes, which have now largely returned to forest. Support is given to farmers for maintaining some steep hay meadows and the agri-environment measure for organic farming has helped to maintain transhumance practices. The landscapes remain well tended in appearance and have helped maintain a strong tourist industry on which the economy largely depends. There is, therefore, a strong synergistic effect between transhumance and the landscape. Biodiversity also remains high on the mid and upper pastures, although the valley floors are poor in species.
3. Cereal-sheep farming systems in Castilla-La Mancha (Spanish central plains). This sheep farming system is an example of open grazing hard-working operations typical of most Mediterranean countries. About three million *Manchega* breeding ewes use natural

resources. The commonest system consists of shepherding the flocks with seasonally variable grazing time, with ewes stalled overnight near village sheepfolds. Most pasturelands lack fences and other grazing facilities. Year-long feeding schemes are unable to rely exclusively on scarce, seasonally distributed natural pastures and stubble, due to the sub-Mediterranean climate, with hot dry summers and relatively cold winters. The relatively small average farm size (40 hectares in 1994) combined with the climatic constraints, obliges pastoralism to rely on rented land. The agricultural land of each municipality is divided into several units. Each unit is large enough to maintain one sizeable sheep flock, including patches of annual legumes, cereal stubble, fallow land, natural pastures, and shrub-vegetation, not dissimilar to the steppes of eastern Europe (*eriales*). Each landowner has a parcel within the unit, receives a per-hectare grazing fee paid by the landless pastoralists who rent part of the unit. This traditional land tenure system has two main consequences for the grazers. Firstly, the landless tenants must regularly herd the flocks from sheepfolds near the village to often distant units. Secondly, as they are not owners of the land, grazers have little or no incentive to promote changes in the crop rotation or to improve grazing quality. Furthermore, there is limited interest in the sustainable use of natural resources. Pastoralism is thus a secondary option of land use for those who own the land but not the flocks.

4. Sheep, cattle and horses in Picos de Europa (north-west Spain). The system here is similar to that in Austria but with more local variations and it includes both sheep and horses. Traditional breeds have now almost disappeared and most grasslands near the villages have been converted to virtual monocultures and over the last five years have been used for silage production. The complex mosaics of landscape elements have remained almost unchanged however, but the lopping and topping of trees is in decline. Some of the high pastures are overgrazed and steep banks are now turning into scrub as they are not cut, burnt or grazed as before. Overall the biodiversity is still exceptional, but there are concerns about the ageing population and the maintenance of traditional practices, which are still in place, despite the lack of support mechanisms.

Driving forces

The case studies demonstrate that there is little in common, not only in the characteristics of transhumance, but also to the status of the systems in the landscape and their contribution to diversity. The composition of the vegetation and landscape in these areas is the result of the indirect effect of transhumance systems, and even without detailed study, demonstrates that they do not necessarily produce diversity. Rather, it is the traditional management of grassland, without the addition of inorganic nitrogen or slurry, or herbicides, that is the essential element for maintaining diversity. Therefore, the primary controlling factors, often termed driving forces, are what actually determine the composition of the vegetation rather than the transhumance itself.

These driving forces may be summarised as follows:

1. Vegetation

- In grasslands, the primary factor is the nitrogen level, whether from inorganic fertiliser or sprayed slurry i.e. liquid effluent stored in tanks. Traditional farmyard manure applied at reasonable levels is compatible with high biodiversity.
- The inherent ecological character of the site is a primary factor determining composition. The soil type is most important but climate, altitude, drainage and slope are also key factors.
- Grazing regimes are also important, as well as the type and breed of animal.
- Cutting regimes, especially time of year, and whether silage is the fodder conservation method.
- The history of the site is important in terms of the continuity of management and the use of traditional methods.

2. Landscape

- The overall status of the site in relation to the gradient of agricultural intensity, especially field size and boundaries.
- The regional character including social factors and national differences.
- The history of the site in terms of the establishment of distinctive landscape elements, such as walls and trees.
- The inherent ecological character of the region - western Atlantic landscapes are open, whereas many alpine areas have complex mosaics of shrubs and patches of trees.

3. Socio-economic

Social and cultural factors are at least as important as the previous categories and also need definition and description.

The assessment of the interaction between the driving forces, the vegetation and the landscape factors could be determined quite rapidly by using the Pressure State Response Model (DPSIR). Initially these relationships could be determined by expert judgement to identify the principle linkages but some further research would be needed to quantify these relationships.

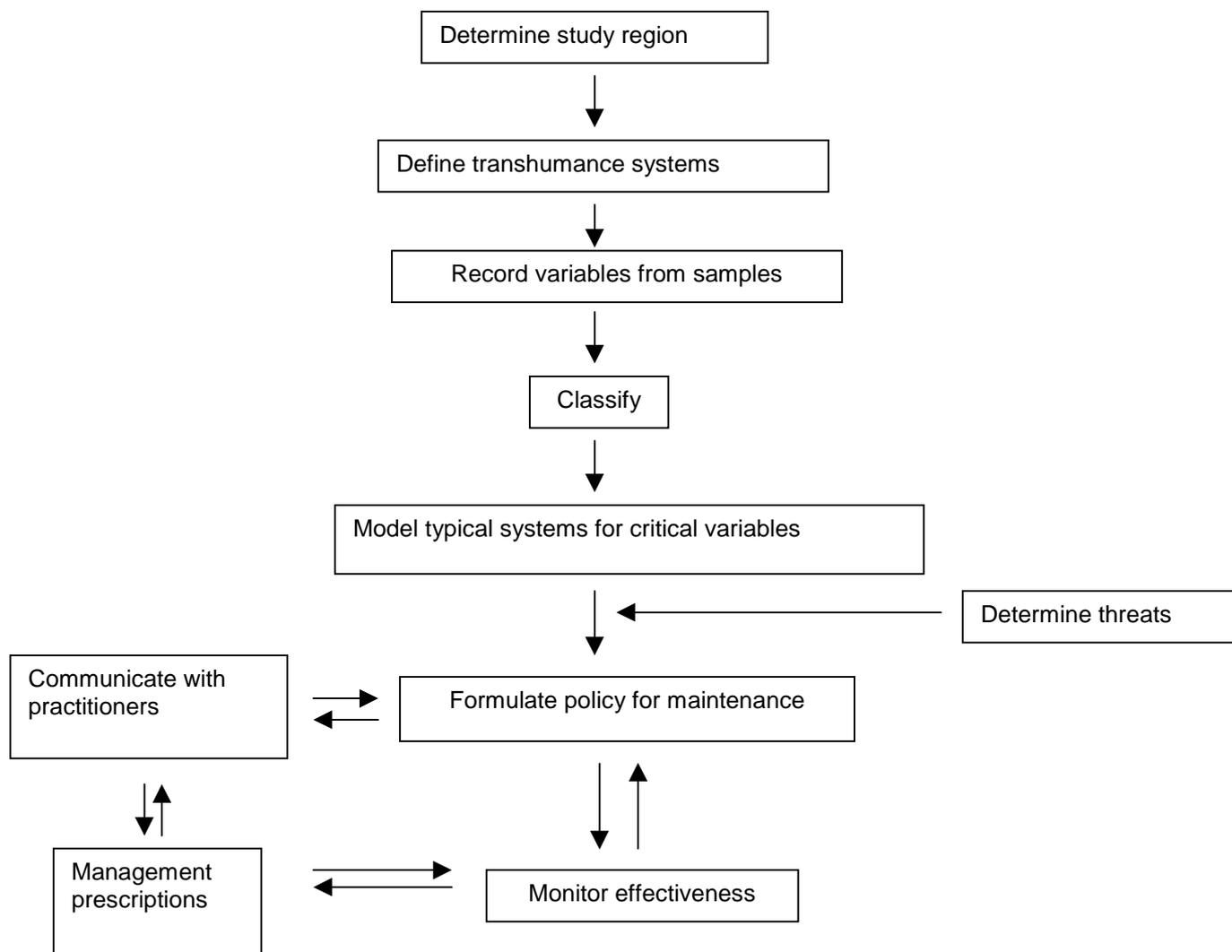
Classification of management models

Within both the ELPEN and PASTORAL projects there has been discussion about creating typologies, or classifications, to provide a framework for modelling impacts. These typologies have so far been based on simple agricultural variables, but an adequate classification of transhumance systems requires more elaborate data. A suggested list is given below:

1. Livestock type and breed, both the type of animal and the breed
2. The number of livestock units
3. The area of land utilised at all stages of the transhumance process
4. The extent of altitudinal movement
5. The distance of latitudinal movement
6. The method of movement, i.e. by foot, lorry or train
7. The climate regimes involved at the different locations
8. The soil types, in that they affect productivity
9. The landscape structure, including the size of the parcels of land used by the animals, the type of boundaries and the presence of small biotopes
10. Cultural factors including herding practice and duration of residence at the different locations
11. The number of locations
12. The presence and type of corridors, e.g. different types of drivers' road, *cañadas*, etc.

This data should be collected from individual systems and subjected to statistical analyses to determine the critical variables. The structure of such a procedure is shown below.

It is necessary also to follow a structured pathway in the evaluation process, as follows:



Conclusions

The main conclusion is that transhumance alone does not necessarily deliver diversity, it is rather the indirect effects that are important and especially the maintenance of traditional grazing practices. There is not necessarily a direct link between various important factors associated with transhumance, for example, traditional transhumance may have continued but vegetation used by the animals may have low biodiversity at some stages in the cycle. On the other hand, a fully functional traditional transhumance system will probably have high biodiversity and landscape value. It will also be linked through history to significant contributions to rural development, and often involve high value agricultural products. As emphasised in the conference papers, the corridors that link the transhumance areas also have important connotations both for biodiversity and recreation.

National and regional perspectives are required to appreciate the significance of the status of transhumance and can provide a major stimulus for developing an appropriate maintenance infrastructure. Policy support mechanisms need to be realistic and build on the experience now available from agri-environmental schemes elsewhere in Europe. The reform of the CAP represents a major opportunity to design appropriate policy perspectives that redirect money

from overproduction to the maintenance of this unique cultural heritage. Such policies need to be set in the context of the local actors and be realistic in the way they involve landowners and practitioners.

References

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**ROUND TABLE DEBATE: THE ANDALUSIAN DROVERS' ROAD
RECUPERATION AND PLANNING PROGRAMME**

Mr. Francisco J. Salazar Rodríguez

Managing Director of the La Sierra Greenway

The Andalusian Drivers' Road Recuperation and Planning Programme is a great project that is the result of an enormous human, technical and political effort. But we must, above all, highlight the high degree of consensus which has been achieved after innumerable contacts and debates. This consensus has involved the Public Administrations, Trade Unions, Associations and other citizens groups in different fields: ecology, agriculture, business, tourism, etc.

As regards the Greenways, it should be underlined that they are completely complementary to drivers' roads. We are talking about establishing interconnections, of setting up linear structures and routes, and creating networks. We are also talking of offering public spaces and services involving a triple scenario: environmental and educational, recreational and sporting, and tourism and socio-economic development. This, obviously, is in addition to the function of the infrastructure as a communication route and for livestock.

Today, the activities of these three scenarios are complementary on most of Andalusia's greenways, and this makes their use and maintenance more profitable.

There is no doubt that the Andalusian Drivers' Road Recuperation and Planning Programme is multidisciplinary, and there should be no doubts either about its potential in terms its many possible uses.

We must, at all times, remain aware that the great difficulty of this type of project is the maintenance of the infrastructure and the heritage in general, once the routes have been demarcated and rehabilitated (here we should remember the experiences of the Greenways).

Mr. Miguel Simón Mata

Co-ordinator of the Action Plan for the Conservation of the Iberian Lynx
Ministry of the Environment of the Andalusian Regional Government

Some endangered species of fauna, especially mammals, have suffered marked reductions in their areas of geographical distribution, since there is no communication route between the different nuclei of their population. One of the species most seriously affected by this isolation of the population is the Iberian lynx.

The populations of the Iberian lynx (*Lynx pardinus*) is today limited to just two areas: Doñana and its surrounds and the Sierra de Andújar and Cardeña-Montoro mountain ranges. The Regional Ministry of the Environment has already brought into operation a Drivers' Road Recuperation Programme with the aim of giving the roads recreational, livestock farming or conservation uses. Within this latter use, a series of corridors have been designed to communicate the Doñana population with the well-conserved areas of the Sierra Morena in the provinces of Huelva and Seville and other areas that will allow the expansion of the populations in the Sierra de Andújar and Cardeña-Montoro mountains towards the eastern Sierra Morena mountains.

The Regional Ministry of the Environment has also set up an Action Plan for the Conservation of the Iberian lynx in Andalusia whose aim is the recuperation of the rabbit population, which is the basic prey of the lynx, and the creation or improvement of corridors for dispersion through the establishment of islands of forest, favourable habitats and the minimisation of possible threats which might prevent such expansion.

The extensive network of drovers' roads in Andalusia can therefore play a very important role in the conservation of certain endangered mammals, and should not be seen simply as an opportunity for public use (rambling, open-air activities, etc.).

Mr. Miguel Ángel López González

Vice-President of the Andalusian Mountaineering Federation.

Co-ordinator for Andalusia of the F.A.M. Nature Committee

"... footpaths are culture. Footpaths are tourism. Footpaths are sport..." (José María Nasarre)

The Drovers' Road Law 3/1995, dated 23 March 1995, considers rambling or hiking to be a complementary use: *" Walking, rambling, horse-riding and other means of recreational, non-motorised transport shall be considered complementary uses, provided that priority is given to the movement of livestock."*

Among other benefits, rambling improves our physical and mental health by means of an sporting activity which is adaptable to the abilities of the individual. It also has the aim of enabling people once more to enjoy landscapes and to come into contact with traditional lifestyles, and to turn the footpath once again into a meeting place, a place for exchange, where individualism can be overcome. It is a place which, throughout history, has scrupulously respected the environment through which it runs.

When we understand this, we will understand the relationship between drovers' roads and footpaths, since in order to achieve the objectives, we must necessarily address the matter of the recuperation of our roadway heritage, enriching it and generating elements that are typical of footpaths: signs, guides, shelters, etc.

Twenty-five years ago, the Spanish Mountaineering Federation edited the first of what was to be a series of manuals on signage, and since then we have managed (with no little effort) to reach a total of over 25,000 kilometres in all Spain of signposted, standardised footpaths. Of this total, some 5,000 kilometres are in Andalusia. Today, the 3rd State Footpath Plan is under way.

And since this signage is international and is used all over the world, it is absurd for these signs to exist (and to be understood by anyone from any country) and for us then to use numerous different models, which would inevitably cause confusion. Any other type of information that the promoter wishes to supply to the user can be added to these signs.

Therefore, it is essential to unify criteria when using signage, whether it be on footpaths, drovers' roads or any other place of passage.

And we propose that it should be these signs that we use, signs that have been used now for over 50 years since they were first seen in Europe, that are in use and are understood (being perfectly standardised and regulated) throughout the entire European Union.

CONCLUSIONS OF THE ROUND TABLE DEBATE

1. Linear territorial elements (rivers, valleys, hedgerows, drovers' roads, etc.) can have a determining function in connecting biocentres and contributing to the defragmentation of the territory. The problems of connection between areas in Spain with lynx populations have demonstrated the importance of establishing corridors between them, and have become a model of how to address the problem of maintaining one of Europe's emblematic species in Spain, which is facing a host of problems on a local scale.
2. Drovers' roads can be a basic factor for sustainable economic growth. To this end, the itineraries defined in the Andalusian Drovers' Road Recuperation and Planning Programme, services which are adapted to them, adequate maintenance and priority and access criteria are all fundamental. Promotion, monitoring and management should form part of all decisions taken in the process. This will allow the growth of active tourism and, in this case, improvements for local groups. Consensus and agreement are the best practices for progress towards the objectives laid down.
3. Green Corridors are being created on disused transport routes so that the population can use them for leisure. It is, however, difficult to reach agreement on putting them to use, and so it is therefore necessary to achieve maximum social support.
4. The extrapolation of recuperation, management and maintenance models from other active linear systems internationally, and especially in the area of the European Union, could be of great use in opening up the Andalusian Drovers' Road Network. Here, management models for tourist-recreational routes with educational components are of special relevance, as are ecological routes and links between natural spaces.
5. The wealth of Spain's agricultural heritage and biodiversity is very often undervalued locally. Initiatives, such as the UNESCO initiative to encourage the maintenance of cultural heritage, could help to support the identification of many sites of interest in Spain.

CLOSING SESSION

SIXTH ENVIRONMENTAL ACTION PROGRAMME

Ms. Pia Bucella

Inter-institutional Matters
Environment D.G. European Commission

The Sixth Environmental Action Programme sets out a strategic approach at European level for four persistent, intractable problems: climate change, nature and biodiversity, environment and health, and resources and waste. The approach is based on de-coupling economic growth from environmental degradation and establishes the environmental quality goals necessary for sustainable development.

It does not invent targets for media attention, but is an action programme aimed at achieving results rather than on hitting the headlines. Consequently, there are no detailed timetables, but a commitment to prepare actions by the end of 2006. Policy-making will be based on best science and will take an inclusive approach, embracing industry.

Legislation remains important, especially the implementation of existing measures, but it is not the only way. It will need to be supplemented by encouraging innovation in industry and government, correcting the market so that prices reflect environmental costs, mobilising consumers, purchasers and citizens, and making better and more sustainable use of the land and sea.

Environment policy alone cannot solve all the problems: other sectors must take responsibility in developing an integrated approach. In this way, the Sixth Programme matches the declaration of Heads of State and Government at the Gothenburg European Council, which called for the development of sectoral strategies, and for sustainability impact assessments.

Climate change

Human activity is fuelling climate change. The IPCC has established that there is a need to reduce greenhouse gas emissions by 70%, for which ratification and implementation of the Kyoto Protocol is a first step. These reductions must be achieved using cost effective solutions, but society will also have to adapt. Measures directed at the transport, energy, industry and construction sectors will offer the opportunity to make most progress. Fiscal measures should include a Community framework for energy taxation; environmental agreements to reduce emissions can be pursued with industry; and climate change will be a major theme for Community research and development.

Nature and biodiversity

The Community should protect and conserve its most valuable areas, as it proposes with Natura 2000, and extend this protection to the wider countryside - agriculture, landscapes, forests. New emphasis will be placed on the marine environment and on soil protection and agricultural and fisheries policies should contribute to maintaining biodiversity.

Environment, health and quality of life

As regards the relationship between health and environment, we still need to know more. Quality standards, for air and water for example, need to be updated especially for vulnerable groups, such as children and the elderly. We also need to increase our knowledge of chemicals and pesticides with a view to limiting or replacing the most dangerous substances. New measures to cut noise and a new focus on the urban environment, would also be a real response to citizens' concerns.

Waste and resources

A strategy on resource management will need to emphasise an integrated product policy and recycling strategy. New waste streams are appearing continually and will need to be addressed. Sustainable product design can stimulate re-use and waste can be controlled through awareness-raising, and the use of targets and indicators.

International

Just as for internal Community policies, environmental concerns will be integrated into the Union's external policies. The Community will seek to play a leading role in the relevant international conventions and agreements, such as the Kyoto Protocol. The Community will seek a more environmentally-sound world trade system, for example through sustainability impact assessment of trade agreements, and cross-border co-operation with neighbouring countries.

Implementing the programme must also take account of the needs of candidate countries, through supporting the protection of environmental assets in these countries, assisting capacity-building in their environmental authorities, and raising awareness among the public and of EU businesses that prosperity and environmental protection are mutually compatible.

In conclusion, the new policy approach will be based on a detailed analysis of trends, options, cost effectiveness, and participation. The programme will promote systematic evaluation of the impacts of new policies, and the review and evaluation of the effectiveness of existing measures. It is hoped the programme will be agreed formally by Parliament and Council by the spring of 2002, to run for 10 years

GENERAL CONCLUSIONS OF THE CONFERENCE AND CLOSING SESSIONS

Ms. Fuensanta Covés Botella

Regional Minister of the Environment of the Andalusian Regional Government

It is a great pleasure to be here today, at this closing session of the International Conference on Drovers' Roads and Green Corridors, where we have had the opportunity to divulge the ambitious programme for the recuperation and re-use of drovers' roads that has been designed by the Government of our Autonomous Community.

Since the creation in 1994 of the Regional Ministry of the Environment, one of the priority objectives of the Andalusian environmental administration has been the valorisation of this common land.

These meetings which come to an end today have served not only to make known not only the Andalusian experience in the field of drovers' roads, but also others from Spain and different parts of the EU. We have also had the opportunity to hear different points of view and opinions on how to address a subject which, let us say, still arouses strong opposition in certain sectors.

Without prejudging any of the positions expressed here, all of which are legitimate, I think it is only right and fair to acknowledge that the Andalusian Regional Government has taken the rigorous legal and technical approach that the scale of the matter deserves. Proof of this is the opportunity afforded by these meetings to debate numerous aspects of the drovers' roads, such as their history, legal status, social, cultural, ecological and urban planning value, etc. You can rest assured that the recommendations, opinions and suggestions expressed here will be taken into account and incorporated into the policy of the Regional Ministry in the application of its programmes for green corridors and drovers' roads in the future.

Without any pretence at a detailed review of all of the actions taken in this field by the Regional Ministry of the Environment, I should like to highlight some of the more significant landmarks, such as the approval, in July 1998, of the Drovers' Road Regulations for the Autonomous Community of Andalusia and the approval of the Andalusian Drovers' Road Recuperation and Planning Programme.

The importance of the former lies in the legal guarantees it offers citizens in the whole process of the definition of this common land - classification and demarcation, and the latter's, in that it is the technical document which establishes the policy guidelines to be followed in the coming years, as was explained on the first day of this Conference.

And why, some will ask, all this effort? Why create tension in the relationship between the environmental authorities and private citizens in order to recuperate a network of roads which today, for the most part, sees virtually no livestock transit? Why are the environmental authorities now interested in recovering this heritage?

The gradual disappearance of transhumance, the appearance of new means of livestock transport, in short, the lack of use of the drovers' roads have led to their deterioration and abandonment. And that is without mention of the usurpation of many types suffered by the roads, whether for the construction of infrastructure, or for agricultural use by the owners of adjacent land.

In Andalusia, our Drovers' Road Regulations have been a faithful reflection of the new dimension of the drovers' roads, which are being given their true legal and social value as part of a progressive environmental policy.

The basis of the policy for the recuperation and re-use of this heritage is perfectly expressed in the preamble to the Andalusian Drovers' Road Regulations, which have the simple effect of laying down in by-laws the philosophical and conceptual principles that have been formed over recent decades with regard to the protection and maintenance of biodiversity, the growing consumer demand for "nature", the diversification of the landscape, etc...

The importance of the livestock farming sector in our region has meant that the social and cultural importance of drovers' roads in Andalusia is more palpable than in other parts of Spain.

The drovers' roads are physical witnesses to the way the territory was used and exploited. Even though the roads have largely lost their original function (livestock transit), the new definition given to them under the legislation means that they are destined to play a leading role in raising the quality of living of the citizens through their valuable function in structuring the territory and through their environmental value.

The new legal framework brings this common land a dimension which allows it, on the one hand, to satisfy the current social demand for leisure activities in contact with nature, and on the other hand, to act as true ecological corridors that will allow the free movement of the rich, diverse wildlife of the our region.

This latter aspect is of vital importance in an Autonomous Community such as ours, where in the last ten years we have made great efforts to protect the most valuable parts of our natural heritage. As a result, over 1,700,000 hectares of land are currently protected under one of the different environmental protection instruments.

In line with the current trend promoted by the European Union, in order to avoid the "island effect" of protected spaces which are not interrelated among themselves, we must progress towards the creation of a network of ecological corridors which connect our Parks, Reserves and Natural Spaces, in short, a network which gives them the functionality they need for efficient conservation and to encourage the emblematic fauna and habitats of our Region. The network of drovers' roads is an ideal element to achieve this objective.

Another leading role played by the drovers' roads, this time related to the structuring of the territory, is to contribute towards the reencounter of the city dweller with surrounding nature. The quality of life in our cities is under serious threat as a consequence of a town planning model based on speculation. This has produced an imbalance between urban and rural spaces. Recent years have seen the appearance of a new town planning model at the outskirts of the cities which attempts to re-establish that balance. These are the residential suburbs of single-family dwellings. This new model does represent, undoubtedly, a "naturalisation" of urban space. But it is not without negative effects. In order to minimise its impact, it is necessary to adopt a series of measures which propitiate its integration into the environment. Among these measures, we believe that it is fundamental to articulate these new urban expansion areas by connecting them with natural spaces such as forests, agricultural areas, rural paths and drovers' roads, all of which are elements which must be integrated into the city as buffer zones which separate the different urban spaces.

There are many more conceptual, technical and conservationist reasons which can be offered to justify the actions taken to recover this common land. But I should like to highlight an ideological reason, and that is precisely its status as common land. We are dealing with property which belongs to all Andalusians. The misappropriation of this land by private individuals supposes no more than the defrauding of all Andalusian society. As the property of all, it is the right of all the citizens to enjoy it. Therefore, regardless of the decline of its use for livestock farming, independently of the new uses to which it might be put, the recuperation of this land by the Administration is an unavoidable obligation. To continue to allow the exclusive use of this land by just a few would be a dereliction of duty by those of who are responsible for safeguarding this common heritage.

The public authorities exist in order to oversee the interests of all of the citizens. It is this essential duty that legitimises the actions of the Regional Ministry of the Environment for the recuperation, planning and enjoyment of this heritage by all. I am not unaware of the social realities which must be addressed through legal means and through the examination of individual cases, as we are in fact doing at the Regional Ministry. To act without bearing in mind this reality would only lead to unnecessary tension, which could even have a negative effect on the achievement of the objectives laid down: the implementation and re-use of a true network of drovers' roads in Andalusia which fulfils the social function of organising the territory and the environmental functions which this linear infrastructure is destined to cover. And in the achievement of this objective, the Local Administration has a fundamental role to play, based on the conviction that the recuperation, defence and valorisation of this public heritage will contribute to the improvement of the quality of life of the population. I should like to invite all of the stakeholders and the parties involved to seek the best formulas to achieve the objectives we have set, through dialogue and consensus, at all times within the law, and always bearing in mind that this land is public property.

I shall finish by saying that these meetings have made it even more evident, if possible, that the drovers' roads, which many people believed to be in decline, represent not just a very important and inalienable part of the public heritage of Andalusia, but that by devoting them to compatible and complementary uses, they are destined, in the 21st century, to satisfy the social needs currently demanded by Andalusian society.

11. THE SANCTI PETRI DECLARATION

- 1.- The Spanish Drovers' Road Network is part of the public heritage and is unique for its size and for its ecological, historical and cultural value, and it should be preserved for future generations.
- 2.- The extraordinary size and the singular configuration of the network is the result of physical and cultural factors: the complexity of the territory of the Iberian Peninsula, the Mediterranean climate and human activity down the ages, especially the production of wool and its regulatory bodies.
- 3.- The Drovers' Roads still provide an important service in support of extensive non-migrational, transhumant or transterminant livestock farming, and has a favourable impact on the conservation of autochthonous breeds, generating high-quality food products. All of this activity is integrated in autonomous productive systems.
- 4.- The Network performs functions which are essential for the conservation of nature, such as the maintenance of diverse, productive pastureland; it provides contrast and ecotones with respect to adjacent areas and has a very positive repercussion on the value and quality of the landscape. Some stretches of the network, managed jointly with other natural elements, can constitute ecological corridors which ensure connectivity between protected spaces.
- 5.- Drovers' Roads can meet the growing social demand for leisure activities and bring nature and rural culture closer to the citizen, since they pass through diverse landscapes in the greater part of Spain's geography.
- 6.- The natural and cultural values of the Drovers' Roads are an important resource for environmental education, highly suitable for awareness-raising and informative campaigns aimed at both the general public and specifically at those social sectors most closely associated with their use and enjoyment.
- 7.- This array of new uses converts the Drovers' Road Network into a multifunctional structure which, together with its associated and connected elements, could be an extraordinarily useful instrument for sustainable rural development policies.
- 8.- The design of an advanced territorial planning policy can find valuable support in the Drovers' Road Network for the consolidation of regional protection systems, collaborating in the creation of coherent, interconnected networks. The integration of certain drovers' roads in urban planning will allow cities to be connected to rural and peri-urban spaces.
- 9.- Administrative actions affecting the Drovers' Roads must ensure the involvement of the local population through citizen participation, achieving the widest possible public awareness and consensus.
- 10.- It is essential to culminate the legislative process affecting drovers' roads, and demand its application with determined political will. Human and material resources must be provided to this end, and the different Public Administrations and European policy must be closely co-ordinated.

We urge the public powers to apply to the Council of Europe for the declaration of the Drovers' Roads as the "Natural and Cultural Heritage of Europe".

Sancti Petri, 23 November 2001
International Conference on Drovers' Roads and Green Corridors