Information System of Andalusian Landscape

Workshop on environmental and landscape assessment
Seville, 12th-16th December 2016
“Pablo de Olavide” University
LANDSCAPE AND RES:

- Case Study:
  Andalusian Landscape Information System
LANDSCAPE AND RES: National Government

LAW 42/2007 OF DECEMBER 13 - NATURAL HERITAGE AND BIODIVERSITY

It establishes the **basic legal framework** for preservation, sustained use, enhancement and restoration of **natural heritage and the Spanish biodiversity**.

It does not provide **definition** for full territory but for the “espacios naturales protegidos”, (**protected natural areas**), and among them the **protected landscapes**: areas that the public administration considers worth of a special protection under rules attending to their natural and cultural value.

All of it in accordance with “Convenio del Consejo de Europa”
LAW 16/1985 OF 25 JUNE - SPANISH HISTORICAL HERITAGE

This law regards historic heritage with some references to landscape.

It sets the preservation commitment, the promotion measures and penalties and fines.

It establishes heritage protection instruments and their procedures.

It establishes and defines the protection instrument (BIC “bien de interes cultural), with the following categories: monument, historical garden, historical heritage, historical point and archaeological area:

“(..)relations with the surrounding area, along with the protection of geographical and nature surrounding areas as well as the “parajes pintorescos” under regulation on “espacios naturales protegidos”.
ROYAL DECREE LAW 2 / 2008, 20 JUNE - REVISED LAND LAW

It establishes social economic and environmental rights and duties of citizens about land and real state.

It establishes landscape values eligible for protection of a specific area by attending to cultural, environmental, territorial and urban or landscape rules.

For rural soil it limits the use of areas with environmental classification, or cultural, historic, archaeological, scientific and landscape value under the current regulation.
LANDSCAPE AND RES: Regional Government


It sets **plans for the territorial management of Andalusia**:

“Plan de ordenación del territorio de Andalusia (POTA),
“Planes de ordenacion del territorio de ámbito subregional (POTS);

Its legal characteristics, objectives and contents, validity, review and changes as well as instruments for administrative coordination.

It establishes the **geographical location of activities and uses of land**, along with the **economic development and nature and heritage protection**.
Law 7 / 2002 of 17 December - Urban Planning of Andalusia

The law regulates the urban activity and the regime of the use of land, including the subsoil and the air in the Andalusian Region.

One of the objective of the “general plans of urban planning” (planes generales de ordenacion urbanistica-PGOU”, is to establish solutions that could ensure the preservation of the land with nature value, historical, cultural, landscape or any other values subject of a control, in accordance with this law and the urban planning legislation.
LANDSCAPE AND RES: Regional Government

- LAW 14/2007 OF NOVEMBER 26, HISTORICAL HERITAGE OF ANDALUSIA
LAW 7 / 2007 OF 9 JULY, THE INTEGRATED MANAGEMENT OF ENVIRONMENTAL QUALITY

In art. 21, this law include as one of its aims the (integrated environmental authorisation) “autorizacion ambiental integrada”, for the efficient use of landscape and territory.

It also refers to the “impacto ambiental” assessment, (environmental impact assessment), including:

- the environmental inventory and descriptions of ecological interactions i.e.: the landscape.
- Identification of the environmental impact in land, water, air and landscape.

It sets and regulates instruments that allows us to acknowledge possible effects on the environment and the quality of life by some specific plans, programmes, works and activities projects.
LAW 7 / 2007 OF 9 JULY, - INTEGRATED MANAGEMENT OF ENVIRONMENTAL QUALITY

This environmental management law points a new integrated point of view that involves changes in a triple dimension.

- About the environmental incidence of industrial installations: commitment to reduce pollution transference from one ecosystem to another.
- An administrative simplification of procedures for a unique resolution: the integrated environmental authorisation.
- Regarding the authorisation; establishes the eligible levels of polluting substances, in accordance with the best techniques in the market for a minor environmental impact and establishes the integrated environmental authorisation.
Case study:
The Information System of the Andalusian Landscape
The conventional mapping techniques (2 dimensions) is not enough to the properly management of the landscape as a specific resource. **Three- Dimensional treatment, multiscale aproach, and perspective** based on single or multiple point of views are questions that have to be considered in landscape studies.

Conventional tools used for the identification and characterisation of landscape only take into account **a limited number of spatial variables**.

Difficulties to consider the temporal dimension of the landscape

**Lack of a specific methodology and terminology** for the study and characterisation of landscape
The "Information System of the Andalusian Landscape" identifies, characterizes, qualifies and follows the dynamics of development of the Andalusian countryside.

This is the instrument that the administration will use to manage Andalusian landscapes.

The aim is to know and, therefore, to lead and regulate the changes that occur in it, so they were respectful with his "character" and, finally, to become a dissemination tool.
• First precedent of Landscape Information System
• Scale 1/100,000 (useful for recognition at regional level)
• First specific landscape mapping in Andalusia
• Hierarchical Classification System (5 Categories, 19 Areas, 85 Fields, (x 35) Physiognomic Units)
• Map is the base for monitoring indicators development
• Need to improve tools more properly for management
**LANDSCAPE CHARACTER ASSESSMENT**

Landscape character assessment (LCA) is the process of identifying and:
- explaining the unique combination of elements and features that make landscapes distinctive
- describing variation in landscape character and using this information to manage landscape change.

### Principles.

1. **Focuses on landscape character:**
   “defined as a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. Particular combinations of geology, landform, soils, vegetation, land use, field patterns and human settlement create character”

2. **Characterization is the central tool:**
   Concerned with identifying areas of distinctive character, classifying and mapping them and mapping their character – concentrating on the differences between areas.

3. **Can operate as a hierarchy:**
   - with work at different scales ‘nesting’ together
   - the smaller the scale the greater the level of detail needed.

**National / regional scale:** identifies broad patterns of variation in character, typically at 1:250,000 scale

**Local authority scale:** identifies variation in character at a finer grain, usually at 1:25,000 – 1:50,000 scale

**Local scale:** deals with small scale variation eg within a parish, at 1:10,000 scale.
**Principles.**
4. Defines landscape character types and areas:
   **LANDSCAPE CHARACTER TYPES**
   - generic
   - allow different landscapes to be compared
   - have similar characteristics in different areas
   - called by a descriptive name e.g. ‘open plateau top’.

   **LANDSCAPE CHARACTER AREAS**
   - unique
   - geographically/space specific
   - have individual identity but share generic character with other areas of same type
   - called by a specific place name e.g. ‘Marlborough Downs’

5. Recognition of the need to involve stakeholders in LCA
   - adding their understanding of the landscape to the process
   - stakeholders may include communities of interest and communities of place.
Landscape character types of «Sierra Morena». Sub-regional scale.

Landscape character area of «Sierra Morena». Sub-regional scale.

CATALOG METHODOLOGY
The landscape characterization of our territory is the basic study that will allow us establish landscape integration measures to prevent the alteration of the character.

Gently undulating moorland

Intensive flat agricultural land

Mountain landscape

Extensive agriculture

Some example.
(Landscape strategy and assessment guidance for wind energy development within Caithness and Sutherland).
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THEORY

PARAMETERS

RESULTS

PRODUCTS

Data matrix of variables of visual relationship among each point of view and all the points around it, into a 10 kilometers radius circle.

Mathematic Characterization of visual relationships among all point of the land: Modelization

SLOPE
ASPECT
COORDINATES X,Y,Z
DISTANCE
AZIMUTH
ALTITUDE
INTERVISIBILITY,
VISUAL PROJECTION
HORIZONT POINT
ADDITIONAL HEIGHT

Summatory viewshed (from all of points of view).

INTERVISIBILITY MODEL

(examples)
Additional height (one of the variables considered by the visibility model) is useful in visual impact assessment, because it tells us if an object, with a determined height, placed in a determined location can be seen or not from a determined point of view.
The Wealth index refers to the number of different types of physiognomic units present in a particular area (a greater wealth more types). It is a quantitative indicator.

The diversity index - through Shannon’s formula - is the rate at which physiognomic units are distributed. The most diverse areas are those with the highest number of physiognomic units (wealth) and at the same time, present a more balanced distribution within its territory.

Finally, the natural index measured by proportion, the weight that natural type of physiognomic units, in relation to the total surface area.
Case study: The Information System of the Andalusian Landscape

- Program of Photographs from Geodesical Trig-Point (high visibility): seasonal and short-term monitoring
- Updating historical photographs: middle and long-term monitoring
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- Specific Metadating for Photos with landscape interest
- More than 30,000 landscape metadated photos in the Ministry of Environment Photo-Library
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