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Projet cofinancé par le Fonds Européen de Développement Régional (FEDER)
Project cofinanced by the European Regional Development Fund (ERDF)

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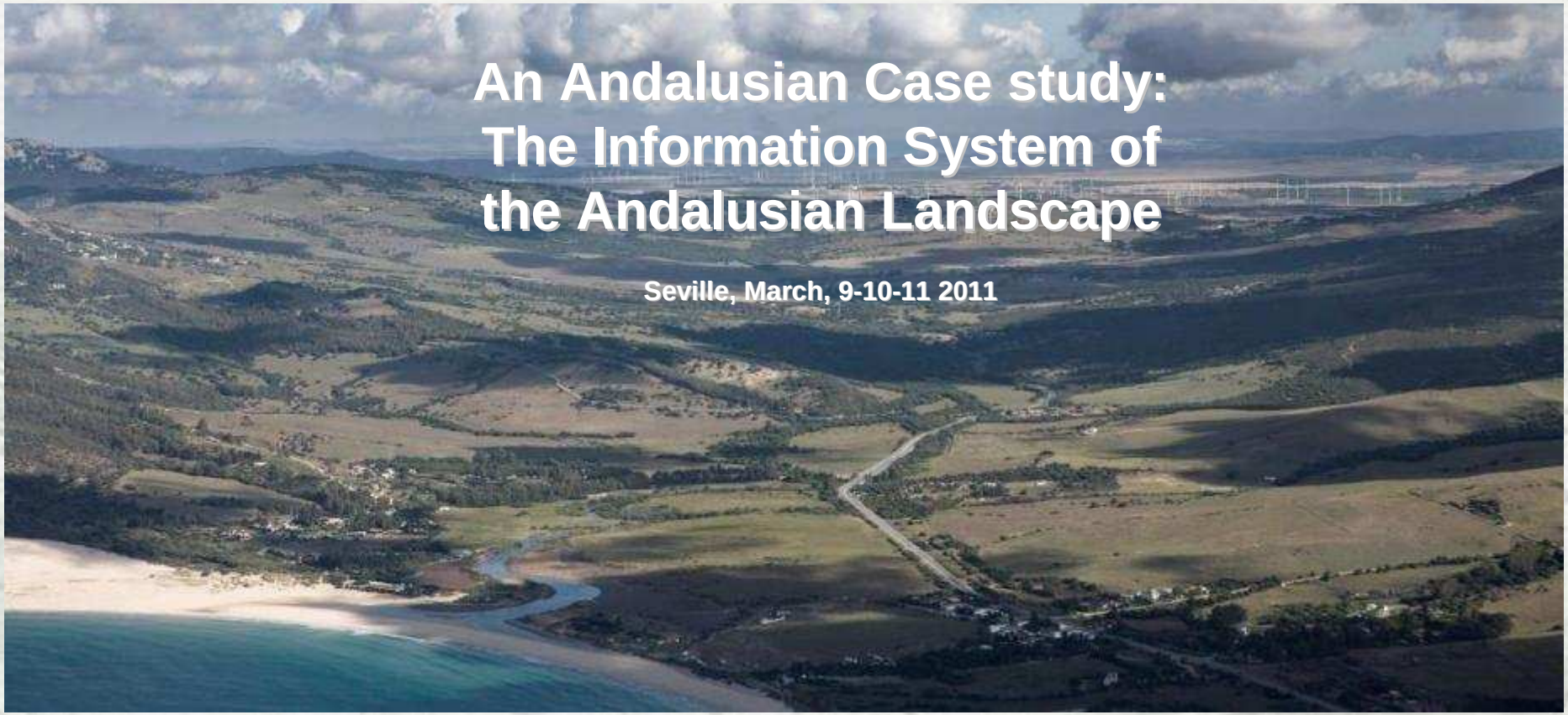

An Andalusian Case study: The Information System of the Andalusian Landscape

Seville, March, 9-10-11 2011

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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 characterization 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 characterization of landscape

THE PROBLEM

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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 diffusion tool.

LANDSCAPE STRATEGY

Environmental information

The landscape Informations Systems

Knowledge

CATALOG

Identification
characterization
qualification

- Existing information integration
- Landscape Map
- Identification landscapes methodology
- Generation of visibility multi-parameter model and classification of visual variables
- Integration of Social Research («Ecobarómetro»)

Monitoring

MONITORING

indicators
diachronic photos
historical photos

- New indicators
- Diachronic photographs from some points of large visual range
- Existing indicators integration
- Updating historical photographs

Diffusion

DIFFUSION

multimedia
publications
web 2.0
congres

- Augmented Reality (mobiles phones)
- New media tools for citizen participation
- Publications and existing products integration
- Interactive and accessible web

OBJECTIVE

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- First precedent of Landscape Information System
- Scale 1/100.000 (useful for recognition at regional level)
- First specific landscape mapping in Andalusia
- Hierachical Clasification 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

ANDALUSIAN LANDSCAPE MAP

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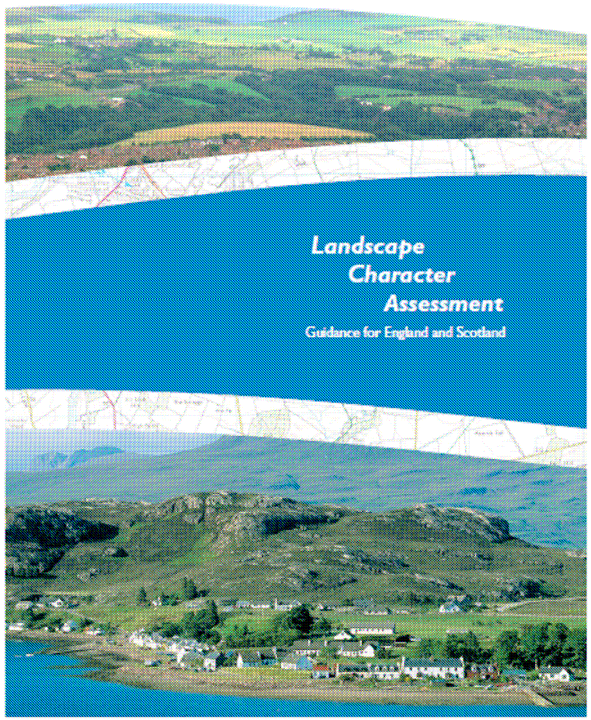
SCOTTISH NATURAL HERITAGE

The Countryside Agency



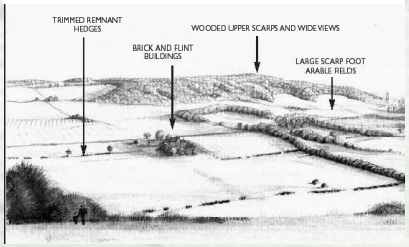
LANDSCAPE CHARACTER ASSESSMENT

Landscape Character Assessment as addressing both the characterization process, involving identifying, mapping, classifying and describing landscape character. It's a methodology produced by "The countryside Agency, UK, 2002.

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.

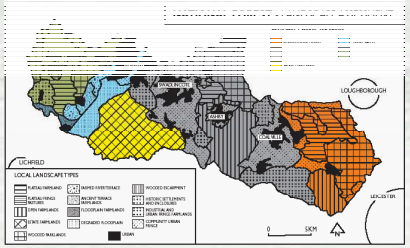
Principles.

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 "



Principles.

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.



Principles.

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.

CATALOG METHODOLOGY

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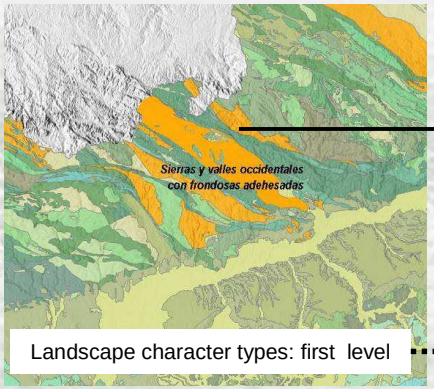
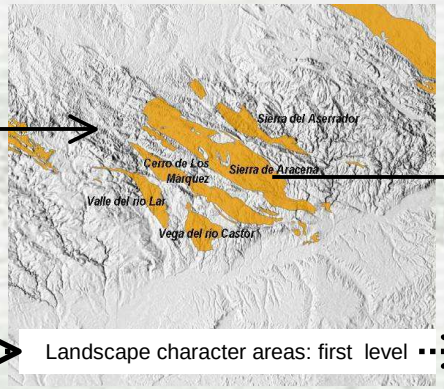
Principles.
4. Defines landscape character types and areas:
LANDSCAPE CHARACTER TYPES
- generic
- allow different landscapes to be compared
- have similar characteristics in different areas
- called by a descriptive name eg ‘open plateau top’.

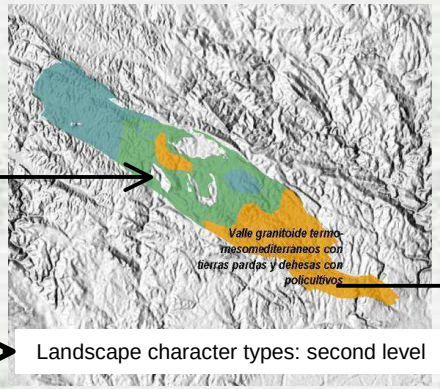
LANDSCAPE CHARACTER AREAS
- unique
- geographically/space specific
- have individual identity but share generic character with other areas of same type
- called by a specific place name eg ‘Marlborough Downs’

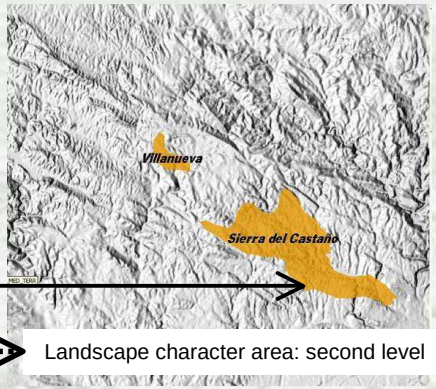
Principles.
5. Recognition of the need to involve stakeholders in LCA

- adding their understanding of the landscape to the process stakeholders may include communities of interest and communities of place.









Landscape character types: first level → Landscape character areas: first level → Landscape character types: second level → Landscape character area: second level

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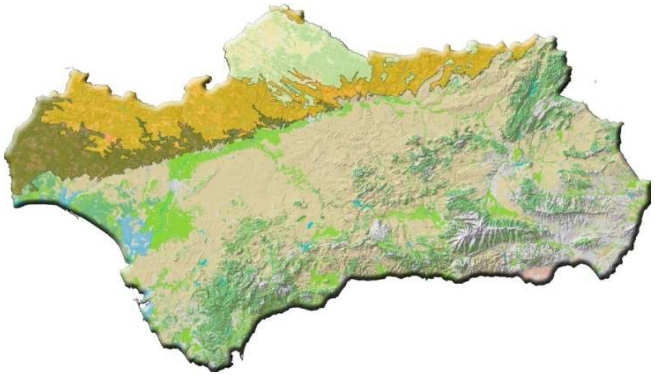
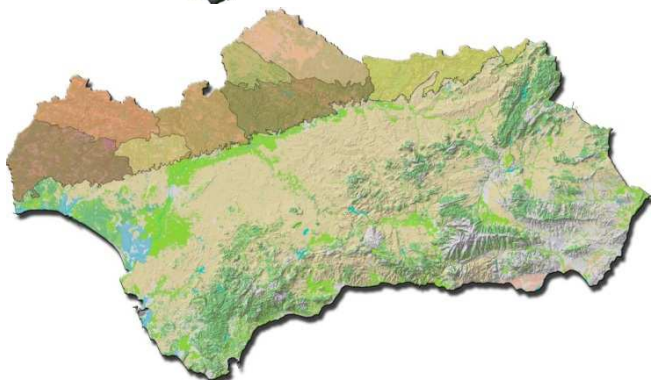
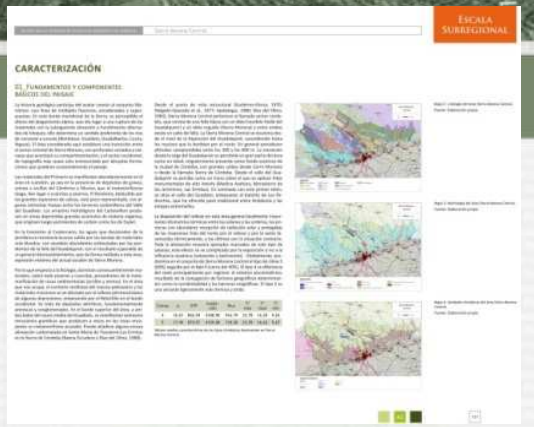
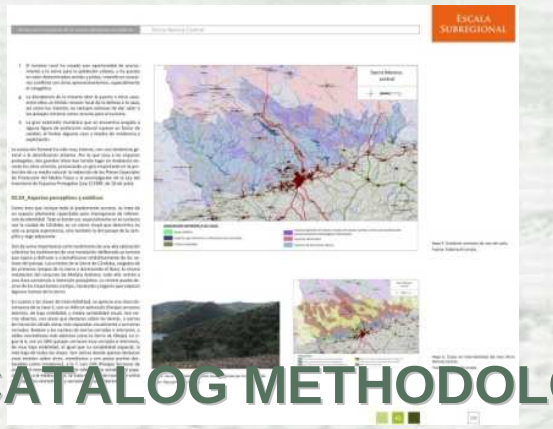
Landscape character types of «Sierra Morena». Sub-regional scale.









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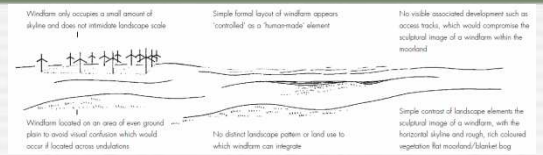
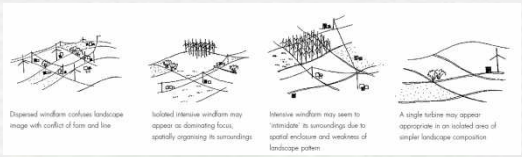
The landscape characterization of our territory is the basic study that will allow us establish landscape integration measures to prevent the alteration of the character.

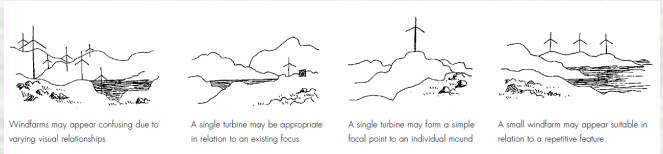
Gently undulating moorland



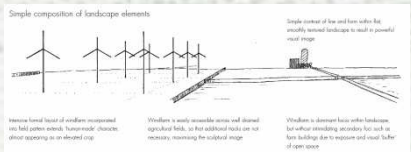
Intensive flat agricoltural land



Mountain landscape



Extensive agriculture



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

CATALOG USEFULNESS EXAMPLE

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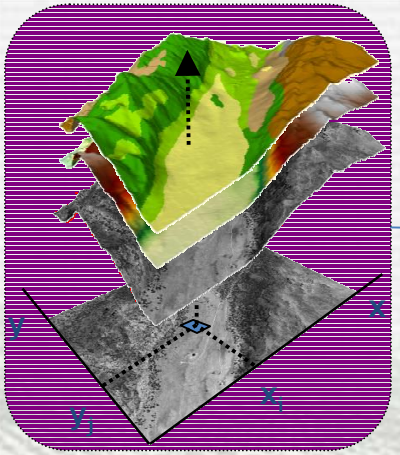
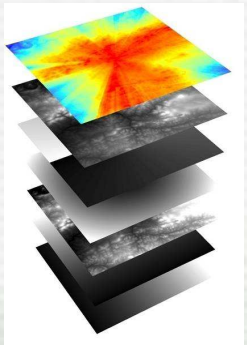
THEORY



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

PARAMETERS

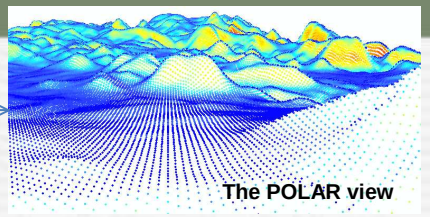


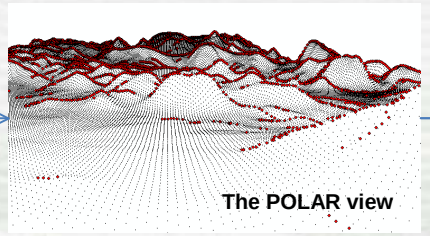
SLOPE
ASPECT
COORDINATES X,Y,Z
DISTANCE
AZIMUTH
ALTITUDE
INTERVISIBILITY,
VISUAL PROJECTION
HORIZONT POINT
ADDITIONAL HEIGHT

FID	x	y	z	slp	asp	d	az	al	hch	hor	ivis	rvis
0	232710	4183790	460.350006	14.971813	177.602385	13574.69705	312.551931	0.867557	-4.836949	1	0.172161	-9999
1	232710	4183810	465.450012	13.490663	177.222635	13588.230201	312.614055	0.888192	-5.156064	1	0.155331	-9999
2	232710	4183830	470.049988	11.630769	178.399228	13601.779295	312.676055	0.90668	-4.717698	1	0.129907	-9999
3	232710	4183850	473.670013	9.709006	181.109284	13615.344285	312.737932	0.921007	-3.750259	1	0.101491	-9999
4	232710	4183870	476.820007	8.171239	183.943364	13628.925123	312.799686	0.933328	-2.903867	1	0.079042	-9999
5	232710	4183890	479.470001	6.591408	183.690309	13642.521761	312.861316	0.943524	-2.228646	1	0.062162	-9999
6	232710	4183910	481.470001	4.721741	177.224148	13656.134153	312.922824	0.950973	-1.754901	1	0.047066	-9999
7	232710	4183930	482.720001	2.644058	155.620262	13669.762251	312.984209	0.955263	-1.22233	1	0.027201	-9999

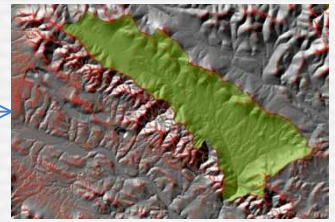
Data matrix of variables of visual relationship among each point of view and all the points around it, into a 10 kilometers radius circle.

RESULTS





PRODUCTS (examples)



Summatory viewshed (from all of points of view).

INTERVISIBILITY MODEL

VISIBILITY

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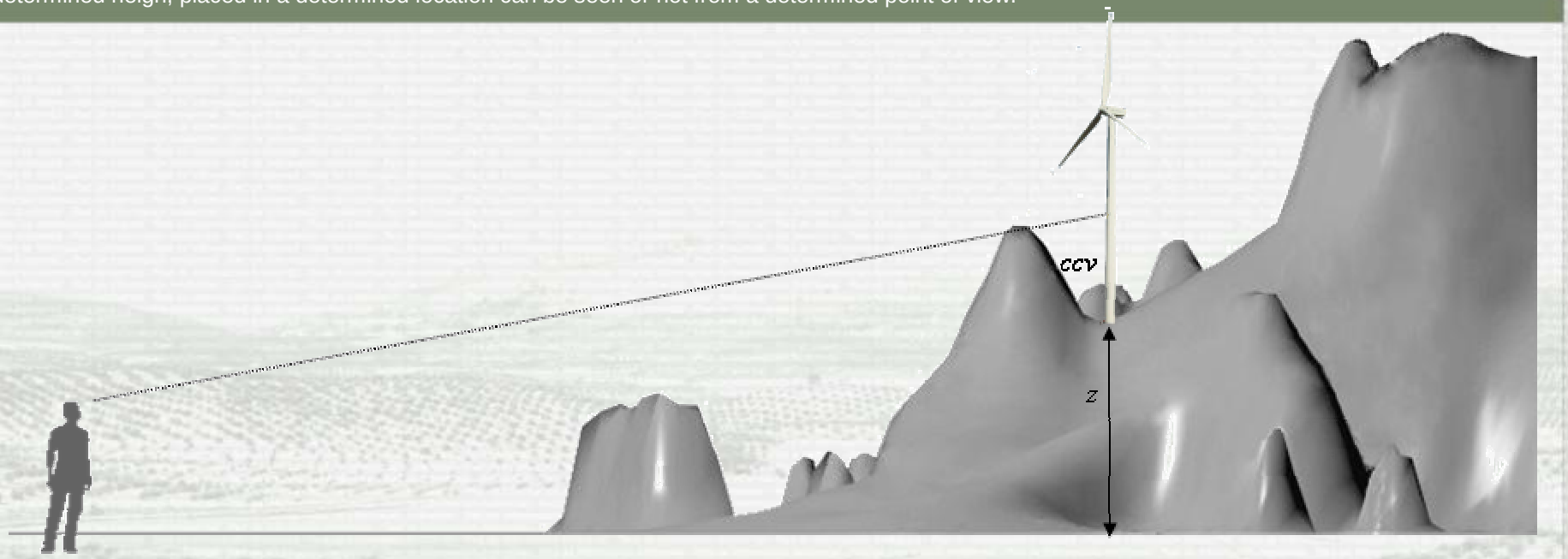
Additional height (one of the variables considered by the visibility model) is useful in visual impact assessment, because it tell us if an object, with a determined heigh, placed in a determined location can be seen or not from a determined point of view.



VISIBILITY

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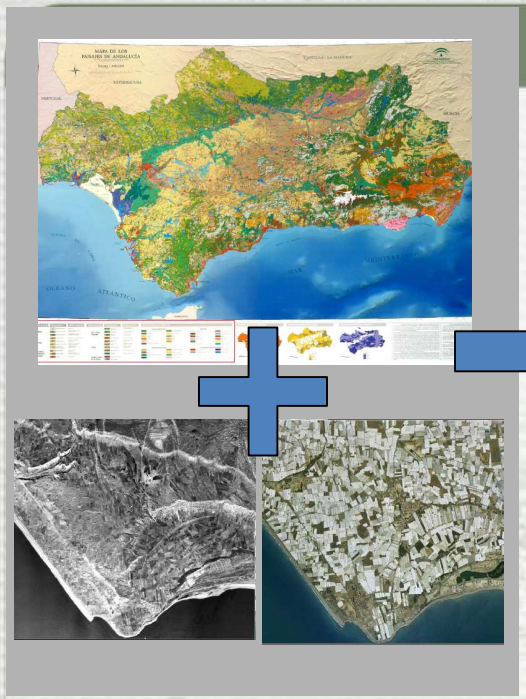
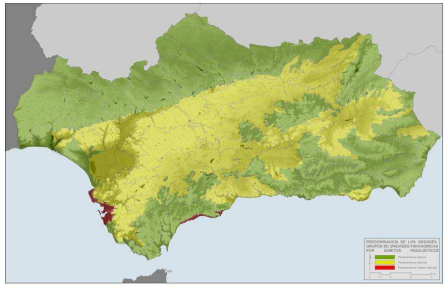
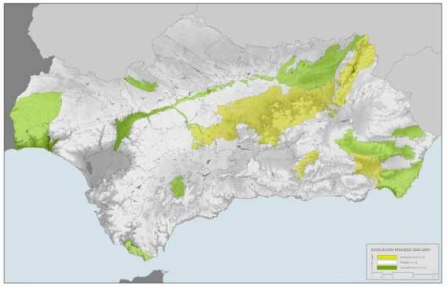
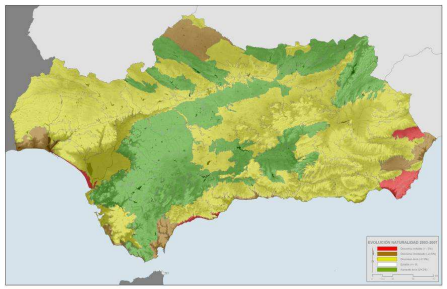




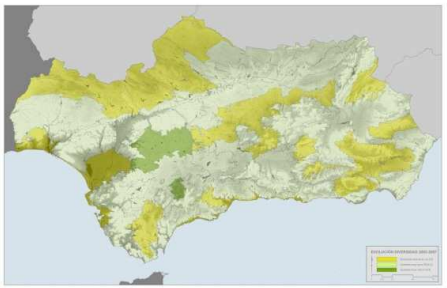
PHYISIOGNOMIC EVOLUTION



WEALTH EVOLUTION



NATURALITY EVOLUTION



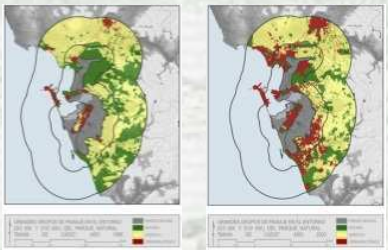
DIVERSITY EVOLUTION

Definition

The **Wealth index** refers to the number of different types of physiognomic units present in a particular area (a greater wealth more types). 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.



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- Program of Photographs from Geodesical Trig-Point (high visibility): seasonal and short-term monitoring
- Updating historical photographs: middle and long-term monitoring

PHOTO LIBRARY

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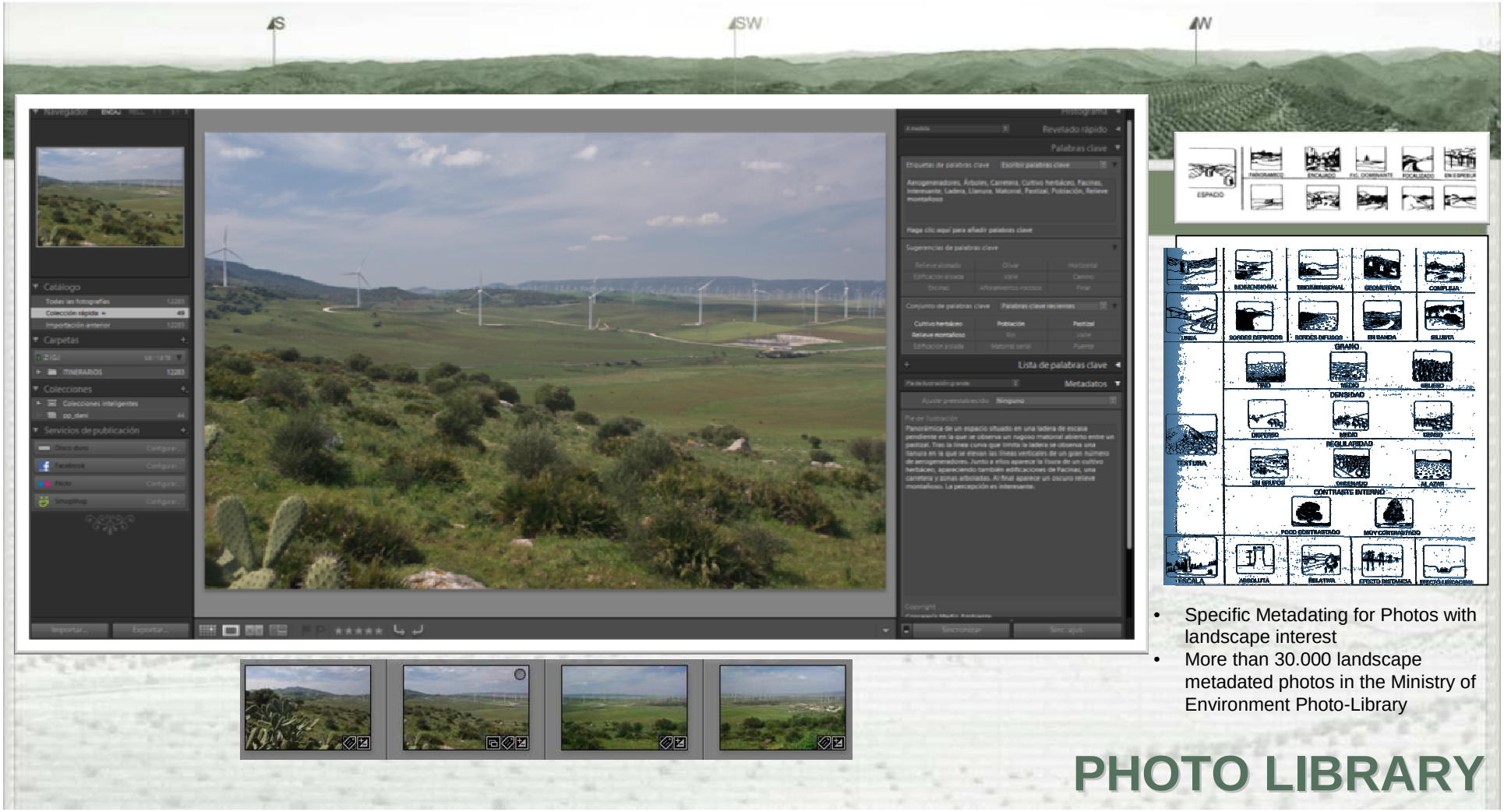

- Specific Metadating for Photos with landscape interest
- More than 30.000 landscape metadated photos in the Ministry of Environment Photo-Library

PHOTO LIBRARY

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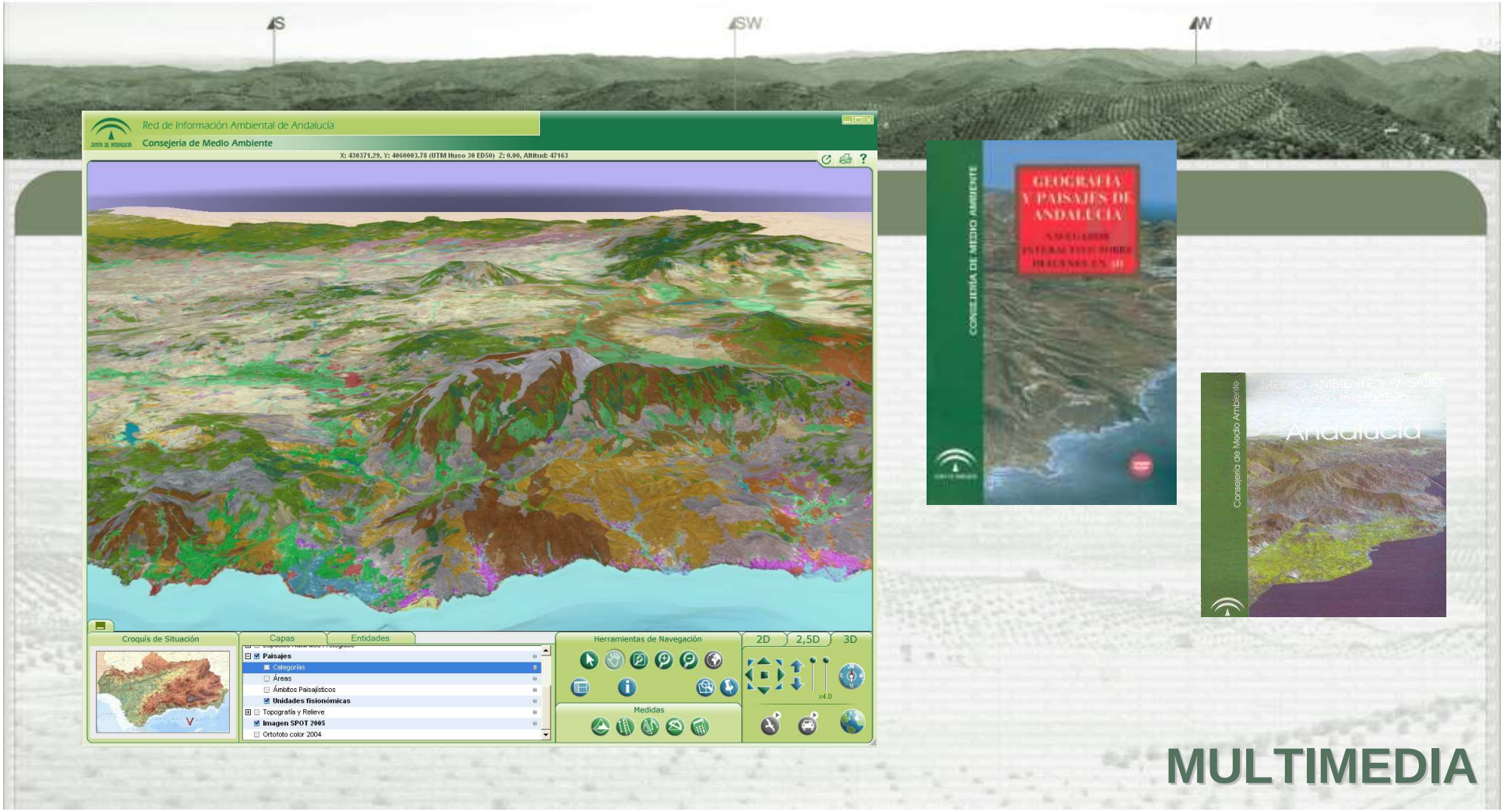

MULTIMEDIA

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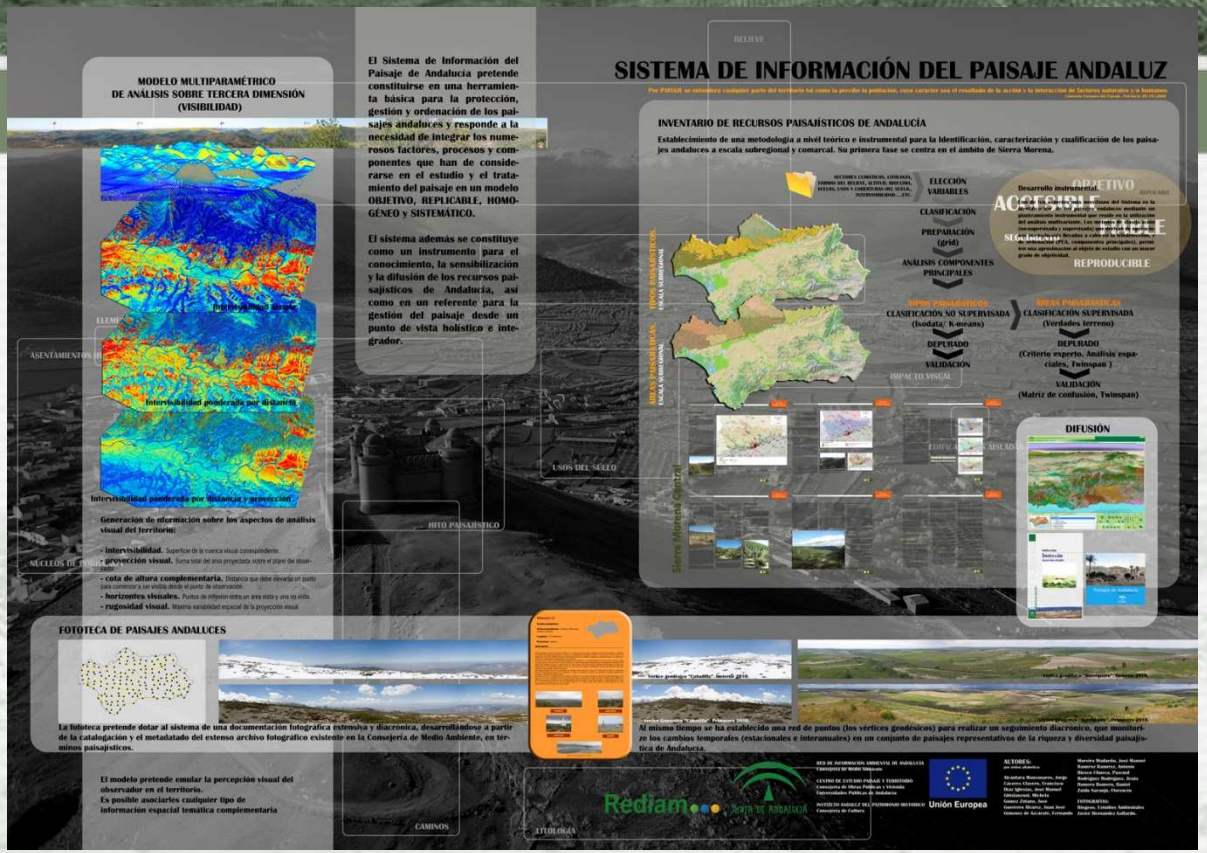

DIFFUSION