

THE VISUAL LANDSCAPE: AN IMPORTANT AND POORLY CONSERVED RESOURCE¹

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Introduction

The Spanish term *paisaje* comes from the French *paysage*, as an extension of land seen from a particular location, although perhaps it does not reflect its meaning as clearly as in other languages. In English, *landscape*, etymologically combines the terms *land* and the Germanic verb *scapjan/schaff*, which literally means shaped lands or modeled lands in Spanish (HABER, 1995). This language reflects the idea that limited space has a natural history, but with human modelling, combining nature, culture and society in the temporo-spatial sense (URQUIJO-TORRES and BARRERA-BASSOLS, 2009). Despite this fusion, landscape is often considered to have two definitions, *Urlandschaft*, or natural landscape, i.e. the landscape that existed before major changes induced by humankind; and *Kulturlandschaft*, or cultural landscape, which refers to that which is created by human culture, and can be defined as part of a societal product, serving as the structure of social life and involving time and space - in permanent conflict - reformulation, and reproduction (JAMES & MARTÍN, 1981; SOJA, 1985; ORTEGA, 1998).

SAUER (1925) defined the cultural dimension as the force that models the visible features of the Earth's surface in delimited areas, thus the physical environment retains its central meaning as the medium through which human societies and their cultures interact.

The definitions of landscape have evolved, determining it and focusing it as an aesthetic value, as a resource and as a combination of physical, biological, ecological and human elements (see GONZÁLEZ, 1981; BENAYAS, 1992). Landscape can be identified as a set of interrelationships derived from the interaction between geomorphology, climate, flora, fauna, water, and anthropogenic changes (DUNN, 1974; MOPT, 1992).

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Therefore, to study landscape, we must examine its constituent elements (MUÑOZ-PEDREROS, 2004).

Landscape, as a complex of interrelationships, has different forms of perception (e.g. aural, visual, olfactory). GONZÁLEZ (1981) defines it as the multi-sensory perception of a system of ecological relationships. Thus, technical restrictions and scale mean we can only consider, for now, its visual values, and for this reason methods of establishing the visual quality of a landscape are being sought (e.g. PENNING-ROWSELL, 1973; DE-ARDEN, 1980; ZUBE *et al.*, 1982; DANIEL and VINING 1983; MUÑOZ-PEDREROS 2004; LOTHIAN 1999; DANIEL 2001; MUÑOZ-PEDREROS *et al.* 1993, 2000, 2012). We can, therefore, take landscape as a spatial and visual expression of the medium and consider it a natural resource, scarce and valuable. For more definitions see MATA (2008).

From the pristine landscape to the urban landscape

Landscapes can be classified as either natural or cultural; however, the naturalness or the level of naturalness may be debatable in a territory characterised by a wide gradient ranging from pristine landscapes to urban landscapes, and thus is a vague classification. Visual perception may vary in the terms used, so can be called visual quality in cities and scenic beauty in rural areas (KIVANÇ, 2013).

In natural landscapes, naturalness is defined as the degree of occupation in a territory of landscape units classified as natural (without human intervention), compared with landscape units with anthropogenic modifications. Natural landscapes have very few human constructions, and if they do have any, they are

disperse and do not monopolise them. Cultural landscapes, previously defined by SAUCHKIN (1946) as natural landscapes where the relationship between natural elements has been changed by human activity, are subdivided between: (a) rural cultural landscapes, where the original naturalness matrix has been mostly replaced by agro-silvo-pequarial (e.g. forest plantations, crops, livestock pastures) or mining activity, or transport and energy infrastructure. This includes landscapes which are affected by littering, tipping or contain waste plants. (b) urban cultural landscapes; landscapes with practically no naturalness, are artificial or constructed, and may include service or industrial sites.

Preferences for certain landscapes

Landscape evaluation can be defined as the comparative relationships between two or more landscapes in terms of assessment of visual quality (LAURIE, 1975), so landscapes cannot be defined in terms of their parts, but are integrated images, a construct of the mind and of feeling, where the object (landscape) and the observer become inseparable (LAURIE, 1975; TUAN, 1979; ARRIAZA, *et al.*, 2004).

Various authors propose that preferences for certain landscapes have an evolutionary explanation by associating aesthetic inclinations with certain environmental features that would increase the individual's survivability (e.g. APPLETON, 1981; KAPLAN and KAPLAN, 1982; GONZÁLEZ, 1981). This is supported by those who defend the

idea of the universality of aesthetic preferences, i.e. that humans generally prefer certain landscapes (e.g. KAPLAN, 1976). JACQUES contradicts this idea (1980), proposing that cultural and idiosyncratic aspects are key in the individual appreciation of a landscape. A middle-ground position would seem the most attractive - at least for the moment - that is to say, human beings seem to have a general preference for certain landscapes, recognising a Darwinian substrate associated with survival, but these “innate preferences” would be culturally influenced (MUÑOZ-PEDREROS, 2004).

Several authors in many different countries have documented the landscape preferences of local inhabitants. ORMAETXEA and LUCIO (1992) in Spain; WILLIAMS and CARY (2001) in Australia; PONTALTI *et al.* (2004) in Brazil, who studied the farmers’ landscape preferences, on a gradient from urban to natural areas, noting a greater preference for natural and urban landscapes, but not for rural and “own” landscapes, to which were accustomed.

As mentioned earlier, differences can be marked by culture. For example, LE LAY *et al.* (2008) studied the perception of coastal landscapes in ten countries, using photographs and survey responses of 2,250 students. Their results show that perceptions differ between nationalities, which reflects different cultural contexts. Thus, the presence of tree trunks in the riverbed and banks of was perceived by Germans, Swedes and Americans as a natural element, whereas Chinese, Russians and Indians perceived this as disorderly or ill-maintained. But, despite these cultural differences, there is a general preference for landscapes that contain certain components such as vegetative cover, bodies of water, irregular shapes, and low levels of artificial interference, among others.

HERTZOG (1988) investigated the connection between certain environmental categories (urban and rural) and six predictor variables: mystique; physical danger; social danger; shade; naturalness; and vertical depth; documenting that the key preferences were mystique, as a positive predictor, and social danger, as a negative predictor, which were conclusive in the preferences. That is to say, mystique can be appreciated, but threat cannot (GOMEZ and RIESCO, 2010). Even when there is unanimity regarding the preference for certain components of a landscape (e.g. vegetation, water, irregular shapes), certain more specific characteristics of the landscape may vary according to age and sex. For example landscaped scenery, controlled and gentle, is preferred by children and seniors (e.g. >40 years), however landscapes perceived as dangerous, aggressive, wild and intimidating (e.g. waterfalls, jungles, and rivers with rapids) are preferred by young people (e.g. >15 and <30). This has been documented in Spain by BENAYAS (1992) and in Chile by MUÑOZ-PEDREROS *et al.* (1993).

The love of water and plants

Water is always a structural element that determines not only the landscape, but also social practices (GONOT, 2004; FROLOVA, 2007). No wonder then that landscapes that include water are generally preferred. MUÑOZ-PEDREROS *et al.* (2012) document a high appraisal of wetland landscapes in the south of Chile, which may be explained by the existing widespread consensus which prefers landscapes with masses of

green, well-developed (especially arboreal) vegetation and bodies of water (especially clean and in motion). This is consistent with results found in a nearby area of study, in the same watershed, by MUÑOZ-PEDREROS *et al.* (1993), in that the best-appreciated landscape units were native forests associated with water bodies. This high appreciation of water and vegetative components coincides with results documented by QUEIJEIRO (1989) in similar landscapes in Spain. Therefore, the role accomplished by the presence of vegetation at the bank of a body of water is important in a landscape, due to the synergic effect its appreciation carries.

With regards to preferences for the colour that some landscapes contain, this is not entirely clear. Although in a broader context (e.g. not just landscapes), EYSENCK (1941) and BALL (1965) explored these predilections and it would seem that there is a preference for the colour blue around the world (PASTOREAU, 2001). This has not been applied to landscapes with sufficient rigour, but the blue of the sky and water is seemingly preferred in landscapes. Forest landscapes take central place in landscape aesthetics, both as a subject of theoretical discussion and as topic choice for empirical work (KELLERT and WILSON, 1993; ULRICH, 1993; ROLSTON, 1998). HAN (2003) showed this via a study in the six principal terrestrial biomes (desert, tundra, grassland, coniferous forest, deciduous forest, and Rainforest), establishing that those with highest valuation were coniferous forests and tundras, whereas this with lowest valuation were grasslands and deserts. But this has its nuances; FALK and BALLING (2010), in a study with inhabitants of the Nigerian forest belt, showed photographs of five biomes: tropical rainforest, deciduous forest, coniferous forest, savanna, and desert. The subjects mostly chose savanna as the most desirable place to live. For this reason, they speculate that human beings have an innate preference for this type of landscape, which is thereafter modified by experience and acculturation. However, studying a landscape's beauty is not the same as studying the ideal landscape to live in.

In Chile, MUÑOZ-PEDREROS and LARRAÍN (2002), determined that along a transect of 550 km in the South of Chile, the top-rated landscapes were adult native forests. This preference is consistent with studies in other territories such as estuarial wetland areas, areas of wetlands in the intermediate depression, and in the Andes (MUÑOZ-PEDREROS *et al.*, 1993; 2012 and 2015).

These preferences for wooded landscapes may have different motivations. KOSHAKA and FLITNER (2004) found significant differences between survey respondents from Japan and Germany attributable to the different discursive practices of forestry organizations in these countries, as the perception is associated with production in Japan, but to mystique and romance in Germany.

Another factor that may cause variability in how forests are appreciated is the perception of danger and fear. HERZOG and KUTZLI (2002) found that visibility and access for walking are the two determining factors, which is why forested landscapes of high visibility and easy access are highly valued, while those of low visibility and poor access generate fear and are poorly valued. Poor access is a good predictor for the sensation of danger or a trap. But this should not be construed as evidence that fear is the inverse of preference, as it depends on the context, for if there is no threat, concealment may be

comforting. However, within the context of danger, hiding can reinforce fear (WARD and TRAVLOU 2009).

Despite the consensus on the importance of vegetative cover on landscape valuation, PATSFALL *et al.* (1984) studied its influence in relation to the distance of the vegetation in a landscape (foreground, background and scenic background) and location in the composition of the scene (left, centre, or right of the landscape), concluding that the amount of vegetation in the background, and central vegetation in the scenic background, were relevant and impacted on a higher valuation. Accordingly, MUÑOZ-PEDREROS *et al.* (1993) show that values decline as density of the arboreal vegetation cover in landscapes in the south of Chile; for example, moving from dense native forest to meadows with small isolated forest fragments.

The importance and destruction of archetypal landscapes

People are linked with the landscape in a profound way, a feature which is universal and ancient; therefore landscapes play a major role in the creation of territorial identities. A landscape is marked by the experiences and aspirations of its inhabitants; they are landscapes with meanings. In fact, we may understand landscape not only in its physical dimension, but also as a system of signs and symbols, in a way that not only reflects culture, but is actually part of its make-up and is the expression of an ideology (LASH and URRY, 1994). For decades, the crucial role that human perception plays in the formation of images in the real medium has been explored, and its impact on individual and collective behaviour (FRÉMONT, 1976; BAILLY, 1977). Also, we have delved beyond perception, in the concept of place or landscape as the centre of meaning, personal identification and the focus of emotional bonding (e.g. TUAN, 1977; BUTTIMER and SEAMON, 1980). Postmodernism then studied it for its strong interest in the spatiality of emotions, feeling and affection, with a growing interest in the emotional interactions between people and the landscape. They are *landscapes of emotion* and the *poetics of affection* (see SOJA, 1989; DAVIDSON *et al.*, 2005; NOGUÉ, 2008, 2009).

According to Jung, archetypes are forms or collective images of human beings that arise as constituent elements of myths and as indigenous and individual products of unconscious origin. These are patterns in the formation of symbols that are repeated throughout history and cultures, and seek to express psychic energies through them. These archetypes represent the past; that which has been inherited, in the framework of collective history. In this context, landscape is a concept with a remarkable communicative dimension and citizens feel part of a landscape, consciously or unconsciously, thus establishing a strong communication. This feeling is ancient and universal, and although globalisation greatly affects the “local”, a territorial culture still exists. This is part of the local identity, because landscape plays a relevant role in the formation, consolidation and maintenance processes of these territorial identities (NOGUÉ, 2007). The high valuation of natural landscapes that contain forests can be explained because they are archetypal landscapes, evoking notions of deep time. HAN (2003, 2007) makes reference to *psychological relics* from our evolutionary past, since these preferences can be explained

by the critical phases of human evolution having taken place in forests rather than grass, meadow or savanna environments.

Contemporary contemplation of the real landscape is marked by an archetypal landscape (ROGER, 1997) transmitted from generation to generation via diverse routes (e.g. oral transmission, paintings, drawings, photographs, mass media). One example is the archetypal English landscape, bucolic, picturesque, ordered, humanized, green and with deciduous woodland, which constructs the ideal of beauty for its citizens; here, landscape is conceived almost as an old antiquity. MATLESS (1998) shows that this landscape is the essence of Englishness, and a similar phenomenon has been found in France: NORA (1984); LUGINBÜHL (1989); BERQUE (1990, 1995) and ROGER (1997), and in regions of Spain: NOGUÉ and VICENTE (2004). In Chile, there is great diversity in the landscapes, shaped by their widely-varying climates, geodiversity, ecosystem diversity and ongoing human processes. This has generated landscapes that have been the setting of different human settlements and which can be considered archetypal landscapes. For example, the Andean peoples and their agricultural surrounding; the valleys with scattered populations in the central North; the flat rural landscapes of the midland zone, with criss-cross groves set before a mountains background; and the formation of parks in the intermediate depression - lacustrine landscapes with volcanoes and snow-capped mountain ranges; the rolling hills with crops and native woods in the South. In the extreme south, native forests are crossed by rivers and the Patagonian steppes, with sheep pines and scattered farmhouses at the end of the world. This is a macro level, but the landscapes mostly firmly-anchored in our subconscious are at a micro level, at ground level, that human groups interacted with for many years and even remained in our subconscious as part of the imprint of childhood memories.

The loss of this type of landscape creates a chasm between the archetypal landscape and an increasingly homogeneous and banal real landscape, especially in sub-urban and tourist areas (NOGUÉ and SAN EUGENIO DE VELA, 2011). In Chile, this clash between archetypal ideas of central Chilean landscape (meadows and crops, criss-cross groves) and fruit industry constructions is constantly noted, as is the destruction of archetypal countryside of the south, traditionally dotted with native copses, now invaded by extensive plantations of eucalyptus and pine.

The standardisation and homogenisation of landscapes has serious repercussions on the loss of local communities identification, as landscapes are destroyed or altered. We should put more attention on aesthetics, including visual aesthetics, since it is an important part of most people's everyday lives. However, many professions that could (and should) be advocating public policies to protect (and improve) visual landscapes are, on the contrary, timid or even critics when it comes to valuing and analysing the aesthetics of the landscape, let alone participating in progressive landscape policies (BENEDIKTSSON, 2007). This clearly refractory attitude of professionals and researchers is often due to simple ignorance or fear in the face of what are considered to be supposedly subjective techniques about the methods and procedures that, for more than 30 years, have been refined in the evaluation of the visual landscape, so there should no longer be any excuses or fears in addressing the management of landscapes in a serious and res-

possible manner (see ZUBE *et al.*, 1982; DANIEL and VINING, 1983; BOLÓS, 1992; MUÑOZ-PEDREROS, 2004).

That landscape has no market value is no impediment to its inclusion (see WILLIS and GAROD, 1993; BERGIN and PRICE, 1994; OUESLATI, 2011). The importance of landscape for a locality is such that public and private organisations should launch actions that allow the environmental impact that certain plans or projects have on landscape to be controlled, especially when it comes to making decisions on proposals of industrial or public facilities (e.g. roads, sewerage systems etc.). In Latin America, the use of wild public spaces for recreation is expanding, due to the increase in leisure time and rises in the standards of living of at least one segment of the population. The average citizen is, for various reasons, increasingly internalising a sort of “environmental awareness” which results in a new valorisation of natural areas and their ecosystems. This explains the growing citizen resistance to losing areas of high touristic, scenic and recreational value.

Threats to landscape as a resource

Human beings created landscape, but at the same time, the latter models the former emotionally and physically. Severe changes in the landscape of Latin America have mainly occurred due to human intervention, especially the process of human settlements, agro-silvo-pequarial and forestry activity. Rural landscape differs from other types of landscape because a human activity, which is basically agricultural crops, livestock and forest plantations with exotic species, takes place in the territory it occupies. Therefore, such an active human presence does not occur in more natural types of landscape such as mountains, jungles, etc., although there is still a gradient of naturalness in these agro-ecosystems. But, ultimately, anthropogenic activities have transformed the landscape as a result of the use of natural resources and the introduction of exogenous elements to the natural landscape (cf. NOHL, 2001; AYUGA, 2001).

At the same time, the city has turned its gaze towards these spaces and demands that inhabitants of rural areas conserve traditional landscapes which constitute cultural heritage, a heritage that is now beginning to be valued by the population (GARCÍA, 1998; HANLEY *et al.* 2009). The landscape is a resource that must be protected from negative aesthetic contamination to diversify the use that can be made of it. According to GARCÍA (1998) in the analysis of rural landscapes, a multifunctional and multi-sectoral approach would constitute a new economic dimension wherein, alongside traditional activities, other ways of using natural and human resources appear (e.g. rural tourism, nature sports). However, the various actions on the landscape affect both its content and its form, reducing its capacity for the development of other activities (FERNÁNDEZ and GUZMÁN, 2004).

When landscapes are negatively impacted, replaced by others of lower quality or are directly destroyed, we are in the presence of a *landscape conflict*. Currently, the relationship between landscape and economic development is cause for debate, about how society must harmonise landscape preservation and at the same time how it should be used.

Various authors have studied agro-ecosystem landscapes from roads or highways. AGUILÓ (1984) studied landscape to establish sections of road with scenic interest in Spain, using a direct method and mapping to determine homogeneous areas. So did MUÑOZ-PEDREROS and LARRAÍN (2002) in the south of Chile and OTERO *et al.* (2006) in Spain. On the other hand, SAYADI *et al.* (2004) used mixed methods of combined analysis and contingent valuation in order to study, firstly, the relative importance of the agrarian component as a utility function derived from the enjoyment of the landscapes in Las Alpujarras (Granada, Spain) and secondly, how willing respondents would be to pay to enjoy said landscapes. ARRIAZA *et al.* (2004) used a method of direct evaluation and indirect to analyse components in Andalusian landscapes (Spain) and found that visual quality varies, for example, with the landscape's degree of desertification, the percentage of vegetation cover, the amount of water and the presence of mountains, colour and contrast. In another area, MARTÍN (2001) reviewed the negative impact of infrastructure such as telephone antennae.

Forestry activity with monoculture plantations of exotic species on a large scale has had a strong negative impact on landscape, which has already been documented by several authors (e.g. PALMER and SENA, 1993; PÂQUET and BÉLANGER, 1997; MUÑOZ-PEDREROS and LARRAÍN, 2002). PÂQUET and BÉLANGER (1997) found correlation between the effect of two kinds of forest management and their subsequent visual impact, using groups of users of the area and establishing tolerance thresholds by use. In Chile, MUÑOZ-PEDREROS, *et al.* (1993, 2012) show that values decline as density of the arboreal vegetation cover in landscapes in the south of Chile; for example, moving from dense native forest to meadows with small isolated forest fragments. The same is found by MUÑOZ-PEDREROS and LARRAÍN (2002), in a transect of Chile's main highway, revealing the low scenic quality of forest plantations at their different stages of growth (see also GAYOSO, 1995; 1999). While it is true that forestry activity is a key industry in Chile's national economy, it is, on the other hand, one of the economic activities that has most altered the landscape over the last 80 years. If we consider that tourism also generates significant revenue for the national and regional economy, a loss of landscape, in this context, may in turn cause considerable losses in national income. So, we may discuss a landscape-tourism binomial, since the interaction between the two is clear. The establishment of tourist activity is largely based on the attraction exerted by a certain landscape, which in turn becomes a consumer good thanks to said tourist activity (GROS, 2002).

With respect to renewable energy sources, many countries try to replace their energy matrix of fossil and/or nuclear fuels with renewable energy (e.g. solar, wind), which are usually located in populated territories, meaning this visibility decreases their scenic quality (WUSTANHAGEN *et al.* 2007). This is because the best sites for wind turbines are often in places of high visual exposure, such as atop hills or in coastal areas (FROLOVA, 2010). This has generated strong opposition in European countries like Germany and France, classing them as monoculture of wind landscape. This citizen resistance has become the principal obstacle to the development of solar and wind power. On the other hand, citizens who agree with renewable energy sources change their opinion when they are installed

close-by (FROLOVA and PEREZ, 2011). LOTHIAN (2008) measured the effects of wind farms in the south of Australia using simulation (landscapes with and without wind farms) and observed that when presented with a wind farm, the landscapes with highest quality ratings suffered a reduction in quality, while the landscapes with lowest quality ratings increased their quality with the presence of the farm.

Landscape management

Any national policy for landscape management should have at least three objectives: (a) conserve, restore, and value the relevant landscapes in the country, whether due to their high aesthetic value, or because they are archetypal or cultural landscapes for the local populations; (b) incorporate and consider the landscape variable in plans for territorial management or planning, to conserve and/or enhance the scenic quality of natural, rural, peri-urban and urban spaces; (c) coordinate public services, giving them the power of actions and policies involving the use, handling and/or management of the landscape, defining methodologies and procedures for the assessment, handling and management of the landscape throughout the national territory, aiming to minimise the negative impacts on these, restoring those that have been destroyed and conserving relevant landscapes. To implement the objectives of a landscape policy, it is necessary to move forward on some lines of action, such as: (a) finance landscape research at the national level, for example in regional cadastres, identification of archetypal landscapes at the national, regional and community level; (b) develop national landscape catalogues; (c) establish a programme to monitor the conservation state of landscapes at the national level; (d) promote a programme to mitigate negative impacts on the landscape at the national level and (e) educate about the importance of landscape for citizens through an environmental and landscape education programme.

National landscape catalogues aim to inventory and analyse the landscape units in each territory, classifying and assessing both natural and cultural landscapes. Regarding the latter, it is important to define which are the landscapes that can be considered characteristic, from the 20th to the 21st Century. ROGER (2009) reveals society's inability to identify the landscapes she produces and a paradoxical search for a romantic past or a nature presented incorrectly as pristine. Thus agro-ecosystems, forest plantations, highways, and industrial parks are ignored as landscapes, yet these will be recognised as ours by future societies. Society has never taken the scenic legacy seriously, perhaps because it has never planned what type of landscapes she wants to enjoy and bequeath. The catalogue must incorporate all the territory's landscapes, considering at least three variables (modified MUÑOZ, 2012): (a) quality of the landscape, (b) cultural value and (c) visibility.

Once we have the catalogue, the landscape monitoring indicators are established, which could be: the richness of landscapes, the scenic naturalness, and landscape evaluation. The richness of the landscape is the total number of different scenic units (UP, in Spanish) that exist in a given territory. The naturalness index estimates the proportion of natural UPs in relation to the total UPs in a territory, thus, this indicator may be re-

levant for estimating trends in scenic changes in relation to the human modification of the landscapes.

Finally, the evaluation of scenic quality of each landscape unit obtained from the catalogue of landscapes, allows us to obtain a territory's average value and its standard deviation, which enables us to measure the increase or decrease of this quality in a given territory. HAINES-YOUNG and POTSCHIN (2005) propose indicators that shall provide sustainability to the different uses of territory (see CASSATELLA and PEANO, 2011).

The restoration of the landscape is the set of methods and tools which aim for the visual perception of a space to be similar or evolutionarily consistent with how it was composed before being altered by human activity. In this way, they are mechanisms aimed at stopping the loss of value of a landscape unit(s), and restore it to its original condition, ensuring its persistence over time. Examples of landscape restoration are not abundant, SKLENIČKA and KAŠPAROVÁ (2008) documented their experiences in recuperating landscapes in territories affected by mining in Central Europe, for which they used the methods of visual diagrams and 3D visualisation, and included citizen participation.

References

- AGUILÓ, M. "Identificación de tramos de la carretera con interés paisajístico". *Revista de Obras Públicas* n. 131, p. 3.225: 329-344, 1984.
- APPLETON, J. ed. *The aesthetics of landscape*. Proceedings of a Symposium held in The University of Hull. Rural Planning Service. U.K., 1981.
- ARRIAZA, M. CAÑAS-ORTEGA, J. F.; CAÑAS-MADUEÑO J.; RUIZ-AVILES, P. "Assessing the visual quality of rural landscapes". *Landscape and Urban Planning* n. 69, p.115-125, 2004.
- AYUGA, F. *Gestión sostenible de paisajes rurales. Técnicas e ingeniería*. Editorial Mundi-Prensa. Madrid, España, 2001.
- BAILLY, A. *La perception de l'espace urbain: les concepts, les méthodes d'étude, leur utilisation dans la recherche géographique*. CRU, Paris. 264 pp, 1977.
- BALL, V. "The Aesthetics of Color: A Review of fifty Years of Experimentation". *The Journal of Aesthetics and Art Criticism* v. 23, n. 4, p. 441-452, 1965.
- BENAYAS, J. *Paisaje y Educación Ambiental, evaluación de cambios de actitudes hacia el entorno*. Monografías de la Secretaría de Estado para las Políticas del Agua y el Medio Ambiente. Ministerio de Obras Públicas y Transportes, Madrid, 1992.
- BENEDIKTSSON, K. "Scenophobia, geography and the aesthetic politics of landscape". *Geografiska Annaler: Series B, Human Geography* v. 89, n. 3, 203-217, 2007.
- BERGIN, J.; PRICE, C. "The travel cost method and landscape quality". *Landscape Research* n. 19, p. 21-23, 1994.
- BERQUE, A. *Les raisons du paysage*. Hazan. Paris, 1995.

- BERQUE, A. **Médiance. De milieux en paysages.** Reclus, Montpellier, 1990.
- BOLÓS, M. **Manual de ciencia del paisaje.** Teoría métodos y aplicaciones. Colección de Geografía. Ediciones Masson S.A. Barcelona, 1992.
- BUTTNER, A.; SEAMON, D. eds. **The Human Experience of Space and Place.** Croom Helm, London, 1980.
- CASSATELLA, C.; PEANO, A. eds. **Landscape indicators: assessing and monitoring landscape quality.** Springer Dordrecht, 2011.
- DANIEL, T. C. "Whither scenic beauty? Visual landscape quality assessment in the 21st century". **Landscape and Urban Planning** v. 1-4, n. 54, p. 267-281, 2001.
- DANIEL, T. C.; VINNING, J. "Methodological issues in the assessment of landscape quality". In ALTMAN, I.; WOHLWIL, J. F. (eds.). **Behavior and natural environment.** Freeman; Company, New York, New York, USA, 1983.
- DAVIDSON, J.; L. BONDI; SMITH, M. **Emotional Geographies.** Ashgate, Aldershot, 2005.
- DEARDEN, P. "A statistical technique for the evaluation of the visual quality of the landscape for land-use planning purposes". **Journal of Environmental Management** n. 10, p. 51-68, 1980
- DUNN, M. C. **Landscape evaluation techniques: an appraisal and review of the literature.** Centre for Urban and Regional Studies, University of Birmingham, Birmingham, United Kingdom, 1974.
- EYSENCK, H. J. "A Critical and Experimental Study of Colour Preferences". **The American Journal of Psychology** v. 53, n. 3, 385-394, 1941.
- FALK J. H.; BALLING J. D. "Evolutionary Influence on Human Landscape Preference". **Environment and Behavior** n. 42, p. 479-493, 2010.
- FERNÁNDEZ, G.; GUZMÁN, A. "La importancia de los estudios de paisaje para la ordenación y planificación del turismo: estudio de caso en Argentina". **Revista Caminos de Geografía** v. 1, n. 13, p. 1-18, 2004.
- FRÉMONT, A. **La région, espace vécu.** PUF, Paris, 1976.
- FROLOVA, M. "El estudio de los paisajes del agua en una cuenca vertiente: Propuesta metodológica". **Revista de Estudios Regionales** 83: 21-47, 2007.
- FROLOVA, M. "Los paisaje de la energía eólica: su percepción social y gestión en España". **Nimbus** n. 25-26, p. 93-110, 2010.
- FROLOVA, M.; PÉREZ, B. **New landscape concerns in the development of renewable energy projects in South-West Spain.** In: ROCA, Z.; P. CLAVAL; AGNEW, J., (eds.). **Landscapes, Identities and Development: Europe and Beyond:** 389-401. Ashgate Publishing, Farnham, 2011.

GARCÍA, L. **Criterios de diseño para la integración de las construcciones rurales en el paisaje.** Tesis Doctoral. Universidad Politécnica De Madrid. España: 17-418. Texto Completo Online: <Http://Cum.Unex.Es/Profesores/Lgmoruno/00.Principal/Miweb/10.Criterios.Html>, 1998.

GAYOSO, J. **Impacto ambiental de las prácticas de cosecha forestal y construcción de caminos en bosques nativos siempreverdes de la X Región de Chile.** Serie Monografías de Explotación Forestal N° 6. FAO. Roma, 1995.

GAYOSO, J; ACUÑA, M. **Guía de conservación del paisaje.** Proyecto certificación forestal en las regiones octava, décima y duodécima. Universidad Austral de Chile. Valdivia. Chile, 1999.

GÓMEZ, J; RIESCO, P. **Marco conceptual y metodológico para los paisajes españoles. Aplicaciones a tres escalas espaciales.** Consejería de Obras Públicas y Vivienda, Junta de Andalucía, España, 2010.

GONOT, B. **L'eau un facteur essentiel de structuration du paysage. L'exemple des landes de Gascogne.** In: PUECH, D.; RIVIERE-HONEGGER, A. L'évaluation du paysage, une utopie nécessaire?. Presses Montpellier, n. 3: p. 35-43, 2004.

GONZÁLEZ, F. **Ecología y paisaje.** Editorial H. Blume, Madrid, España, 1981.

GROS, C. "La relación paisaje-turismo-desarrollo local: examen de su significado en publicaciones recientes de divulgación territorial". **Revista de Desarrollo Rural y Cooperativismo Agrario** n. 6, p. 123-133, 2002.

HABER, W. **Concept, origin, and meaning of landscape.** In: UNESCO. UNESCO's Cultural Landscapes of Universal Value: Components of a Global Strategy. UNESCO, New York, p. 38-42. 1995.

HAINES-YOUNG, R.; POTSCHIN, M. **Landscape Indicators: How to track landscape change.** In: PÉREZ-SOBA, M.; WASCHER, D. M. (eds.). Landscape Character Areas. Places for building sustainable Europe. Landscape Europe, Wageningen, p. 21-24, 2005.

HAN, K. T. "Responses to six major terrestrial biomes in terms of scenic beauty, preference, and restorativeness". **Environment and Behavior** v. 39, n. 4, p. 529-556, 2007.

HAN, K. T. A reliable and valid self-rating measure of the restorative quality of natural environments. **Landscape and Urban Planning** v. 64, n. 4, p.209-232, 2003.

HANLEY, N.; READY, R.; COLOMBO, S.; WATSON, F.; STEWART, M.; BERGMANN E. A. "The impacts of knowledge of the past on preferences for future landscape change". **Journal of Environmental Management** v. 90, n. 3, p. 1404-1412, 2009.

HERZOG T. "Danger, Mystery, and Environmental Preference". **Environment and Behavior** v. 20, n. 3, p. 320-344, 1988.

HERZOG, T. R.; KUTZLI, G. E. "Preference and perceived danger in field/forest settings". **Environment and Behavior** v. 34, n. 6, p. 819-835. 2002.

- JACQUES, D. L. "Landscape appraisal: the case for a subjective theory". *Journal of Environmental Management* n. 10, p. 107-113, 1980.
- JAMES, P. E.; G. MARTÍN, *All possible worlds: a history of geographical ideas*. John Wiley; Sons, New York, 1981.
- KAPLAN, S. **Adaptation, structure and knowledge**. In MOORE, G. T.; GOLLEDGE R., (eds.) *Environmental Knowing: theories, research and methods*: Dowden Hutchinson and Ross, Stroudsburg, p. 32-45, 1976.
- KAPLAN, S; KAPLAN, R. **Cognition and Environment**. Praeger, New York, 1982.
- KELLERT, S. R.; WILSON, E. O. eds. **The Biophilia Hipótesis**. Shearwater Books/Island Press, Washington, DC., 1993.
- KIVANÇ, M. **Visual Quality Assessment Methods in Landscape Architecture Studies**. In: ÖZYAVUZ, M. (ed.) *Advances in Landscape Architecture*. Chapter 11. InTech DOI: 10.5772/55769 p. 279-290, 2013.
- KOSHAKA, R.; FLITNER, M. "Exploring forest aesthetics using forestry photo contests: case studies examining Japanese and German public preferences". *Forest Policy and Economics* v. 6 n. (3-4), p. 289-299, 2004.
- LASH, S.; URRY, J. **Economies of Signs and Space**. TCS/Sage, London, 1994.
- LAURIE, I. C. **Aesthetic factors in visual evaluation**. In: ZUBE, E. N.; BRUSH, R. O.; FABOS J. G. (eds.) *Landscape Assessment: Values, Perceptions and Resources*. Dowden Hutchinson and Ross, Stroudsburg, p. 102-117, 1975.
- LE LAY, Y.; H. PIÉGAY; K. GREGORY; A. CHIN; S. DOLÉDEC; A. ELOSEGI; M. MUTZ; B. WYZGA; ZAWIEJSKA J. "Variations in cross-cultural perception of riverscapes in relation to in-channel wood". *Royal Geographical Society* n. 33, p 268-287, 2008.
- LOTHIAN, A. (1999) "Landscape and the philosophy of aesthetics: is landscape quality inherent in the landscape or in the eye of the beholder?". *Landscape and Urban Planning* n. 4, p. 177-198, 1999.
- LOTHIAN, A. "Scenic perceptions of the visual effects of wind faros on south Australian landscapes". *Geographical Research* n. 46, p. 196-207, 2008.
- LUGINBÜHL, Y. **Paysages. Textes et représentations du paysage du siècle des Lumières à nos jours**. La Manufacture, Paris, 1989.
- MARTÍN, M. "Los impactos de las estaciones de telefonía móvil". *Informes de la Construcción* n. 53, p. 47-52, 2001.
- MATA, R. **El paisaje patrimonio y recurso para el desarrollo sostenible. Conocimiento y acción pública**. Arbor Ciencia, pensamiento y cultura, 2008.
- MATLESS, D. **Landscape and Englishness**. Reaktion, London, 1998.

MOPT **Guía para la elaboración de estudios del medio físico. Contenido y metodología.** Monografías de la Secretaría del Estado para las Políticas del Agua y del Medio Ambiente. España, 1992.

MUÑOZ, A. **Guía metodológica. Estudio del paisaje.** Conselleria de infraestructuras, Territorio y Medio Ambiente. La Imprenta CG, España, 2012.

MUÑOZ-PEDREROS, A. "La evaluación del paisaje: una herramienta de gestión ambiental". **Revista Chilena de Historia Natural** n. 77, p. 139-156, 2004.

MUÑOZ-PEDREROS, A.; A. BADILLA; H. RIVAS "Evaluación del paisaje en un humedal del Chile: El caso del río Valdivia , X Región". **Revista Chilena de Historia Natural** n. 66, p. 403-417, 1993.

MUÑOZ-PEDREROS, A.; A. LARRAÍN "Impacto de la actividad silvoagropecuaria sobre la calidad del paisaje en un transecto del sur de Chile". **Revista Chilena de Historia Natural** n. 75, p. 673-689, 2002.

MUÑOZ-PEDREROS, A., MONCADA-HERRERA J.; GÓMEZ-CEA, L. "Evaluación del paisaje en humedales del río Cruces, sitio Ramsar de Chile". **Revista Chilena de Historia Natural** n. 85, p. 73-88, 2012.

MUÑOZ-PEDREROS, A.; MONCADA-HERRERA J.; GONZÁLEZ, C.; RUTHERFORD, P. "Assessing the Visual Quality of the Landscape in the Andes Mountain range in Southern Chile", Manuscript, 2015.

MUÑOZ-PEDREROS, A.; MONCADA-HERRERA, J.; LARRAÍN, A. "Variación de la percepción del recurso paisaje en el sur de Chile". **Revista Chilena de Historia Natural** n. 73, p. 729-738, 2000.

NOGUÉ, J. **El paisaje en la cultura contemporánea.** Madrid: Biblioteca Nueva, 2008.

NOGUÉ, J. ed. **La construcción social del paisaje.** Biblioteca Nueva, Madrid, 2007.

NOGUÉ, J. **Entre paisajes.** Àmbit Serveis Editorials, Barcelona, 2009.

NOGUÉ, J.; DE SAN EUGENIO VELA J. "La dimensión comunicativa del paisaje: Una propuesta teórica y aplicada". **Revista de Geografía Norte Grande** v. n. 49, p. 25-43, 2011.

NOGUÉ, J.; VICENTE J. Landscape and national identity in Catalonia. **Political Geography** n. 23, 113-132, 2004.

NOHL W. "Sustainable landscape use and aesthetic perception preliminary reflections on future landscape aesthetics". **Landscape and Urban Planning** n. 54, p. 223-237, 2001.

NORA, P. **Les lieux de mémoire.** Gallimard, Paris, 1984.

ORMAETXEA, O.; LUCIO J. "Valoración de la calidad del paisaje vasco por la población. Métodos para su consideración objetiva como criterio de conservación". **Cuadernos de selección. Historia** n. 20, p. 491-504, 1992.

- ORTEGA, N. **Paisaje y cultura**. En V. CABERO; L. GARCÍA; E. MARTÍNEZ; J. MUÑOZ; N. ORTEGA; C. SANZ; M. TROITIÑO & F. ZOIDO (eds.) Paisaje y medio ambiente. Universidad de Valladolid, España, p. 137-146, 1998.
- OTERO I., CAÑAS, I.; ESPARCIA, P.; NAVARRA, M.; MARTIN, M.; ORTEGA, E. "La carretera como elemento de valor paisajístico y mediambiental. Captación del valor de paisaje a través de la carretera". **Informes de la Construcción** n. 58, p. 39-54, 2006.
- OUESLATI, W. ed. **Analyses économiques du paysage**. Éditions Quae, Versailles, 2011.
- PALMER, J. F.; SENA, K.D. **Seasonal scenic value and forest structure in Northeastern hardwood stands**. In VANDER. G. A. (ed.) Proceedings of the Northeastern recreation research symposium. United States Department of Agriculture, Forest Service Technical Report, Saratoga Springs, New York, USA, p. 115-121, 1993.
- PAQUET, J.; BÉLANGER, L. "Public acceptability thresholds of clearcutting to maintain visual quality of boreal balsam fir landscapes". **Forest Science** v. 43, p. 46-55, 1997.
- PASTOUREAU, M. **Blue: The history of a color**. Princeton; Oxford: Princeton University Press, 2001.
- PATSFALL, M. R.; FEIMER, N. R.; BUHYOFF, G. J.; WELLMAN, J. D.. "The prediction of scenic beauty from landscape G. J. content and composition". **Journal of Environmental Psychology** n. 4, p. 7-26, 1984.
- PENNING-ROUSELL, E. C. **Alternative approaches to landscape appraisal and evaluation**. Planning Research Group, Middlesex Polytechnic, Report 11, 1973.
- PONTALTI, E.; ORTENCIO, H.; OBARA. A.; SCHUNK. E. "Percepção ambiental dos agricultores do município de São Tomé Paraná Brasil". **Arquivos da Apadec** n. 8, p. 996-1002, 2004.
- QUEIJEIRO, J. "Valoración del paisaje y ordenación del territorio en los medios costeros de Galicia". **Options Méditerranéennes** n. 3, p. 271-274, 1989
- ROGER, A. **Breve tratado del paisaje**. Biblioteca Nueva, Madrid, 2009.
- ROGER, A. **Court traité du paysage**. Gallimard, Paris, 1997.
- ROLSTON, H. "Saving Nature, Feeding People, and the Foundations of Ethics". **Environmental Values** n. 7, p. 349-357, 1998.
- SAUCHKIN, Y. Paisaje cultural. **Cuestiones de Geografía** n. 1, p. 97-106, 1946.
- SAUER, C. The morphology of landscape. University of California, **Publications in Geography** n. 22, p. 19-53, 1925.
- SAYADI, S.; C. GONZÁLEZ; CALATRAVA, J. "Estudio de preferencias del paisaje mediante los métodos de análisis de conjunto y valoración contingente". **Economía Agraria y Recursos Naturales** n. 7, p. 135-151, 2004.
- SKLENIČKA, P.; I. KAŠPAROVÁ. "Restoration of visual values in a post-mining landscape". **Journal of Landscape Studies** n. 1, p. 1-10, 2008.

SOJA, E. **Postmodern Geographies: the Reassertion of Space in Critical Social Theory**. Verso, London, 1989.

SOJA, E. **The spatiality of social life: towards a transformative retheorization**. In: D. GREGORY; J. URRY. *Social Reations and Spatial Structures*. Macmillan London, p. 90-127, 1985.

TUAN Y. F. **Thought and landscape: The eye and the mind's eye**. In D. W. MEINIG (ed.) *The interpretation of ordinary landscapes: geographical essays: 89-102*. Oxford University Press, New York, 1979.

TUAN Y. F. *Space and place: the perspective of experience*. University of Minnesota Press, Minneapolis, 1977.

ULRICH S. R. **Biophilia, biophobia and natural landscapes**. In: S. R. KELLERT; E. O. WILSON (eds.) *The Biophilia Hipótesis*. Shearwater Books/Island Press, Washington, DC, p. 73-137, 1993.

URQUIJO-TORRES, P. S.; BARRERA- BASSOLS, N. "Historia y paisaje. Explorando un concepto geográfico monista". *Andamios* v. 5, n. 10, p. 227-252, 2009.

WARD, C.; TRAVLOU P, **A critical review of research in landscape and woodland perceptions, aesthetics, aff ordances and experience**. Open Space Research, Forestry Commission. Edinburgh College of Art. U.K., 2009.

WILLIAMS, K.; CARY J. Perception of native grassland in southeastern Australia. *Ecological Management; Restoration* n. 2, p. 139-144, 2001.

WILLIS, K. G; GAROD G. D. "Valuing landscape: a contingent valuation approach". *Journal of Environmental Management* n. 37, p. 1-22, 1993.

WÜSTENHAGEN, R.; WOLSINK, M.; BÜRER M. J. "Social acceptance of renewable energy innovation: An introduction to the concept". *Energy Policy* n. 35, p. 2683-2691, 2007.

ZUBE, E. H.; SELL J. L.; TAYLOR J. G. "Landscape perception: research, application and theory". *Landscape Planning* n. 9, p. 1-33, 1982.

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THE VISUAL LANDSCAPE: AN IMPORTANT AND POORLY CONSERVED RESOURCE

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Abstract: Landscape is the setting for human activity, and any artificial action affects its perception. The processes that generate losses of landscape are the increase in urban areas and in productive infrastructures and services; the change in use of rural land to monoculture and the increase in anthropogenic structures in the rural landscape. This has led to an increased and rapid deterioration of landscape quality with the loss of landscapes of high aesthetic value, loss of landscape wealth; loss of naturalness when replacing the native plant cover and the loss of archetypal landscapes, robbing local identity. We must advance to landscape policies that include actions such as the compilation of landscape catalogues, monitoring and restoration programmes, as well as a vigorous environmental education programme aimed at conservation and recovery of the landscape.

Keywords: Visual landscape, loss of landscape, management.

Resumen: El paisaje es el escenario de la actividad humana y cualquier acción artificial repercute en su percepción. Los procesos que generan pérdidas de paisaje son el incremento de las zonas urbanas y de infraestructuras productivas y de servicios; los cambios del uso del suelo rural hacia el monocultivo y el incremento de estructuras antrópicas en el paisaje rural. Esto ha implicado un creciente y rápido deterioro de la calidad paisajística con pérdida de paisajes de valor estético alto, pérdida de riqueza paisajística; pérdida de naturalidad al sustituir la cubierta vegetal nativa y pérdida de paisajes arquetípicos, con despojo de la identidad local. Se debe avanzar a políticas de paisaje que incluyan acciones como construcción de catálogos de paisaje, programas de monitoreo y restauración, así como un vigoroso programa de educación ambiental orientado a la conservación y recuperación del paisaje.

Palabras claves: Paisaje visual, pérdida de paisaje, gestión.

Resumo: A paisagem é o cenário para a atividade humana e qualquer ação artificial afeta sua percepção. Os processos que geram perdas de paisagem estão a aumentar em áreas urbanas e infraestrutura produtiva e serviços; a mudança de uso da terra rural em direção a monocultura e aumento de estruturas humanas no campo. Isto envolveu uma deterio-

ração cada vez mais rápida de paisagens de perda de qualidade da paisagem de elevado valor estética, perda da paisagem rica; perda de naturalidade para substituir a cobertura de vegetação nativa e perda de paisagens arquetípicas com desapropriação da identidade local. Precisa desenvolver políticas que incluem ações como construção catálogos de paisagem, programas de monitorização e de restauração e um vigoroso programa de educação ambiental que visa a conservação e recuperação da paisagem.

Palavras-chave: Paisagem visual, perda da paisagem, gestão.
