

The process of landscape (trans)formation: a methodology for sustainable intervention in contemporary landscape.

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Abstract—Resulting from two different evolutionary processes - 4000 million years of biological changes and the cultural process of human inhabitation of the planet - landscape makes evident the level of integration of its natural and cultural dimensions. The cultural context (ensuing from the transformations imposed by human population) affects the natural environment and the overall construction of landscape. For centuries, the relationship between society and territory was harmonious and balanced, producing urban, rural and natural constructed landscapes which were not only attractive and productive, but formed a core part of our shared heritage and the basis for our European identity. More recently, however, sectarian and utilitarian visions ruled by the principles of easy and maximum profit have become prevalent, side-by-side with new dominant trends of human intervention which have assisted in the adulteration and degradation of landscape. If a more sustainable approach to the organisation of contemporary landscape is to be defined, this will have to be based on the in-depth knowledge of its values, dynamics, problems and contradictions. This approach will have to jointly consider the landscape's natural and cultural aspects in the planning process and use both of these dimensions for the definition of the objectives presiding landscape preservation and transformation. Only such a methodology, which respects the heritage and identity of landscape, can be said to foster the long-term development of both society and nature. In the context of the changeable dynamics typical of contemporary landscapes, this article contributes to the formulation of an intervention methodology based on an ecological and cultural reading of the landscape in order to apply the method used in landscape ecology to the conurbation of central Algarve coast.

Keywords— landscape, ecology, culture, heritage, identity, preservation, transformation, intervention methodology, landscape ecology, conurbation, sustainable development.

I. INTRODUCTION

Systemic, continuous and cumulative human action on earth has for thousands of years impacted on the surface of the planet. This historic process of territorial transformation, that

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is, landscape construction, had its origins in the interaction between people and nature. Implicitly influenced by culture, landscape construction transformed the natural ecosystems, allowing human beings to make the best use of resources.

By adapting the cultural to the natural order, each society produces culturally and historically its own landscapes [1], that is, “(...) *the landscape contributes to the formation of local cultures and that it is a basic component of the European natural and cultural heritage, contributing to human well-being and consolidation of the European identity (...)*” [2]. As a signifier for the history and culture of varied peoples and civilisations, the landscape is a guarantor for their individual identities, encapsulating the unity of a nation, country or continent.

The landscape attests for the mutual and evolving relationship established between society and nature. It reflects the deeply engrained values of a community and culture. It constitutes the constantly updated heritage of a society.

Deeply engrained in history, the landscape as a heritage site reflects the successive interventions operated by different civilisations. For the role it plays in the definition of national and European identities, the landscape acquires therefore deep social, economical and cultural values. Because of this, the Council of Europe has produced guidelines for landscape policy which aim to guarantee the respect for, preservation and enhancement of European cultural identities.

In its guidelines, the Council of Europe highlights the triple cultural dimension of landscapes. First, landscapes reflect the individual or collective interpretation of a territory. Second, landscapes testify to the spatial and temporal relationships established between society and nature. Finally, the landscape contributes to the definition of cultural practices, local traditions and beliefs.

Despite the Council of Europe's directives, the cultural and heritage values of the landscape are under threat. Territorial exploitation guided by maximum productivity alone, ignores the value and importance of the natural systems and of the cultural mosaics that sustain and qualify the inherited landscape. Territorial exploitation is in this way contributing to the adulteration and degradation of the landscape.

While human intervention is rapidly and profoundly changing the landscape, it is not fully destroying neither the landscapes' traditional forms of organisation nor the

specificities intrinsic to its identity and character. As a mosaic of present and past constructed landscapes, contemporary landscapes (and its configurative dynamic processes) need to be interpreted using new approaches [3] (fig. 1).



Fig.1 – Lisbon, Portugal (db)

II. THE CONTEMPORARY LANDSCAPE CONDITION

Human survival and well-being has always been dependent on the relationship established with the natural environment, that is, on the exploitation of the territory and its natural resources. Through history, mostly, even if not always, economic and utilitarian objectives have ruled the transformation of the landscape.

Until fairly recently, however, a balanced use of resources through the conscientious occupation of limited spaces was the rule rather than the exception. Attractive and harmonious, the traditional landscapes were altered as a result of collective action based on empiric, environmentally friendly and inter-generational knowledge. Of late, nevertheless, these landscapes have been altered disregarding all the effort and cumulative knowledge of prior generations.

Transformations to the landscape have demonstrated a failure in understanding the essence, workings and complexity of landscapes. These more recent changes have frequently ignored the landscape's intrinsic economic value, its formal and aesthetic contents, the continuity of the ecosystem, its inherent richness and the role it plays in the daily lives of the populations.

Growing urbanisation, extension of communication infrastructures and profound changes affecting traditional agro-systems have all led to the fragmentation and homogenisation of the landscape, to its reduced diversity and complexity, and to the loss of elements and structures essential to the landscape's functional and ecological equilibrium, besides considerably impacting on the built heritage sites [4].

Resisting oversimplification and a tendency for homogenisation, partial biophysical and cultural structures remain, nevertheless, on those landscapes. Spatial references can also still be found. All of these are useful for understanding the symbiotic relationship between society and landscape.

It is undeniable that today two extreme situations coexist regarding landscape. On the one side, some landscapes have preserved their cultural heritage and spatial balance. On the other, some are characterised by severe unbalances and environmental dysfunctions resultant from a process of transformation, which has been blind to the richness and singularity of our heritage. When considering the continuous transformations of the landscape, and the continuous social and economical changes, important questions come to mind.

How can we adequately respond to the new environmental and spatial problems resulting from the current process of territorial transformation without ignoring the expectations and needs of contemporary society?

How can we put into practice a planning system that both consider the unavoidable spatial transformations of the territory and the need to preserve long-term invaluable landscapes?

Or saying it another way, in the current framework of intense development and rapid change, how can we take into account the cultural and ecological dimension of the landscape and its heritage and biophysical value in the process of landscape planning and management?.

A. Analysis and evaluation of the (trans) formation process of the landscape

Aiming to answer the questions presented above, this article proposes to carefully consider core principles, objectives and concepts for the development of new methodologies and intervention strategies in the landscape. To do this, a reading of the current state of the landscape, and of its models and set tendencies, will be taken into account, even if the main purpose behind this may be to correct or oppose these tendencies. Finally, the main agents and processes of landscape transformation will be identified.

Answering the questions above should involve a balanced and up-to-date reading of the landscape based on the one hand on its spatial, traditional and cultural values and on the other on a dynamic visualisation of the contemporary landscape. In this way, the landscape may adapt itself to the current social needs and strategies, besides contemplating the innovative re(drawing) and reinvention of space.

This approach entails considering both the agents and dynamics of landscape transformation and the rigorous reading of the ecological and cultural dimensions of the landscape.

A.1 Reading ecology and culture into the landscape

The ecological and cultural readings of the landscape allow for the global understanding of the decisive factors (ecological, social, economical and political) in landscape transformation. Ecology and culture are the two primordial dimensions of landscape formation. By analysing and characterising ecology and culture, one reveals both the forms developed by nature over millions of years and the forms resulting from human intervention, which are then translatable into the cultural and ecological structures of the landscape.

Landscape is understood here not merely as a basis for

transformation. It is analysed according to its physical image and historical construction, taking into account the interaction between the natural and cultural components of its morphology. Studying landscape morphology therefore requires the joint study of biophysical features such as geology and geomorphology, relief, hydrograph, soils, vegetation and climate, together with the study of the anthropic elements that inform the landscape construction process such as relief manipulation, allotments, fields, hydraulic structures, human settlements and the network of roads and pathways (fig. 2).



Fig.2 – serra da Peneda, Portugal (mrc)

Landscape articulates humanity by expressing in time and space the relationship established between people and nature. People have intelligibly altered nature, responding to the several roles to be fulfilled by the landscape according to economic and ecological concerns: habitat, farming, leisure and environmental protection [5].

The ecological and cultural reading of the landscape frames it as a constructed manifestation of society. Landscape portrays society as planning change consciously and formally, through projects and drawings, but also by empirically (re)building the landscape. Both approaches are coupled in an identifiable landscape architecture, even if centuries have been drawn. Examples of this include the Alhambra in Granada, Versailles in Paris, the roman territorial operations known as *centuriatio*, the medieval colonisation of the Iberian Peninsula (fig. 3) or more recently in the construction of the terraced vineyard landscape of the Douro region, a world heritage site located in the north of Portugal.



Fig.3 – Granada, Spain (db)

The diversity of structural and organisational ways of planning a territory is visible in the architecture of the landscape. This diversity is directly dependent on the use and exploitation of natural and cultural resources, and it is in addition directly influenced by levels of social and economic development.

An integrated analysis of the natural and cultural aspects of landscape draws on the definition of landscape as a construction dependent on collective economical, social and cultural dynamics. In this definition, landscape represents an important heritage and a guaranty of national and European identities.

A society's culture and identity are constantly mirrored in its landscapes. Because of this, landscapes become an indispensable support for guarantying and developing culture, memory and the historic perseverance of a civilisation (fig. 4).



Fig.4 – Torre d'Aires, Tavira, Portugal (db)

Landscape is read like a group of interrelated and fitted pieces. It is like a panel of different spaces (urban, suburban, rural, transitional, natural) and elements (constructed, non-constructed, farming, travelling), submitted to an ecological matrix with a universal character. Viewed in this manner, the analysis and interpretation of landscape carries information and instruments that allow for the planning and designing of

that same landscape [6].

The global understanding of territorial organisation and planning should be currently drawn from a cultural matrix matching the traditional landscape of each place and the typology of its constitutive elements. The landscape's constitutive elements are based on natural and cultural values, autochthon and vernacular standards, defined through their ecological and cultural partitioning and organisation.

A.2 Evaluation of the agents and dynamics of landscape transformation. The spatial model of landscape ecology

Societies' development, and changed economic perspectives and dominant values have of late caused alterations to economic activities and to the systems of territorial and resource exploitation, in addition to modifications to the living and working conditions. Based on short-term goals and maximum profit objectives, such changes are responsible for landscape transformation, resulting in the degradation of the landscape's morphological and functional structures.

The process of landscape transformation is connected to new ways of experiencing work and consumer society, to improved telecommunication systems, infrastructures and ways of travelling (highways, ring roads, car ownership). This process is intrinsic to the creation of a new constantly changing shifting reality characterised by changes operated to the increasingly scattered urban systems, together with the progressive urbanisation of the rural (fields, orchards, gardens, vineyards) and natural systems (forests, bushes, dunes, marsh zones, water streams) (fig. 5).



Fig.5 – Faro, Algarve, Portugal (mrc)

Increasingly urbanised landscapes, mutating cities and heritage degradation constitute an ever changing complex territory which therefore requires a study of the agents and dynamics of landscape transformation. The circumstances deriving from these changes should be read as opportunities, that is, intervention opportunities requiring planning and the overall understanding of the breaking points, the dynamics and the agents of landscape transformation. Landscape is prospectively analysed and surveyed and in doing so the problems, qualities, predisposition for change and the

guidelines for landscape management and organisation are identified. By a diagnosis of the land mosaic, that is a consideration of its structure, running and tendencies for change, the processes which bring about landscape transformation and degradation can be avoided and, in this way, it is possible to prevent the most recent trends and aims of the accelerated changes inflicted upon the landscape [3].

Landscape ecology, as a model for analysis and territorial intervention, provides a landscape mosaic through which any territory (natural, rural, urban, suburban) can be explained. The group of principles it offers, because based on land use organisation, facilitate the harmonious and long-term progression of nature and society [7].

The spatial model matrix–corridor–patches constitutes a fundamental tool for the planning of land use, as it effectively “controls” the movements, fluxes and changes in the social and natural systems. With the spatial matrix model, landscape ecology clearly contributes to the creation of sustainable landscapes through a large-scale approach to territorial organisation [8] (fig. 6).



Fig. 6 – serra do Marão, Portugal (mrc)

III. FORMULATING A METHODOLOGY FOR LANDSCAPE INTERVENTION

The presently rapid, intense and continuous territorial mutations have increasingly caused severe problems such as fragmentation and the loss of the landscape's ecological integrity and cultural identity. These problems currently affecting the landscape require new approaches and intervention tactics in order to better respond to the new demands made upon and the new opportunities provided by regional and urban planning [9].

For a constant mutating landscape such as the present one, finding planning systems capable of addressing landscape intervention becomes a challenge. To respond to this challenge, innovative intervention methodologies must be sought in order to guide these inescapable changes. Such methodologies must balance the desired preservation of cultural and natural values which confer singularity and

identity upon landscape with the multiple changes affecting its constitutive structural elements.

It will be essential to use a planning system which will absorb the unavoidable spatial alterations while working on the assumption of preserving ecology and heritage. A planning system which will strive for environmental and heritage sustainability by recognising the value of the main landscape structures, side by side with acknowledging the spatial relationships established between the structural elements of the landscape mosaic.

It is because landscape amounts to an irreplaceable heritage and a guarantee for collective identity that preserving it must constitute a primordial objective. In this way, changes to landscape must be controlled by ecological reasoning which covers securing environmental quality in addition to the socioeconomic roles of ecosystems. Furthermore, spatial and formal configuration must be considered for the primordial role played in the definition of the natural and cultural memories of a place (fig. 7).



Fig. 7 Telouet, Morocco (mrc).

An ecological and cultural reading of the landscape becomes essential for achieving the types of spatial development analysis useful to the planning process. This approach will guide the drawing of new objectives framing the preservation and transformation of the landscape, facilitating concerted and time-effective interventions which recover the landscape as heritage by integrating this concept of landscape in the planning process.

The planning process will pursue a global understanding of the landscape. It will bring to reality the theory of the 'cultural ecological continuous', encapsulating it in a highly dynamic and complex landscape mosaic which, besides incorporating the transformational processes potentially affecting it, is also able to restore its dynamic ecological equilibrium.

Through a deep understanding of the land mosaic, the intervention methodology used will allow for the distinction between the 'compulsory' natural and cultural traits and values in the landscape, and the expendable supplementary traits which enable a vast number of interpretations and uses of the landscape [10].

This methodology makes possible an understanding of the contemporary landscape and offers the opportunity for adapting the landscape to the needs and strategies of present-day society. It does so by clearly and strategically indicating the natural or anthropic structures, spaces and elements to be preserved, and the ones which conversely can be exploited and used in different ways by the community.

The aim is to find a balanced attitude for integrating and harmoniously articulating distinct and contrasting spaces, highlighting their identity and authenticity and contradicting the hybridisation of its characteristics. The landscapes that are more affected by transformation processes unfamiliar to their richness and singularity would in addition be identified.

By establishing a landscape mosaic in order to spatially and functionally organise the territory, the rural and the natural spaces are considered integral to the culturally inherited heritage sites. In the structural overview of the landscape, the rural and natural spaces are viewed as inseparable from the urban areas. They are no longer liable to be considered in isolation as long as the objective for the preservation of the ecological cultural matrix of landscape prevails.

Landscape becomes an essential resource for local and regional development through the vocational characterisation of its different structures and components in accordance with a sustainability agenda. This approach balances the economic and ecological interests required by the up-to-date needs of society (produce, invent, enjoy, survive) and the respect for the heritage and identity of the landscape. Its alternative transformation is based on the landscape itself and synthesised in accordance with a sustainable development [11].

IV. A CASE STUDY: THE CONURBATION OF CENTRAL ALGARVE

Landscape may be analysed and read as a mosaic made up of different spaces and elements (built, natural, farmed, road networks) dependent on a global and universal ecological matrix. This approach allows finding tools and establishing relevant knowledge for the planning and construction of landscape [12]. This article will use an ecological and cultural reading of the landscape in order to apply the method used in landscape ecology, that is, the analysis of the land mosaic, to the conurbation of central Algarve coast. The principle objective will be to establish possible principles and models for the (re)designing and restructuring of the conurbation of central Algarve Coast which covers the Olhão, Faro and Loulé urban system [11].

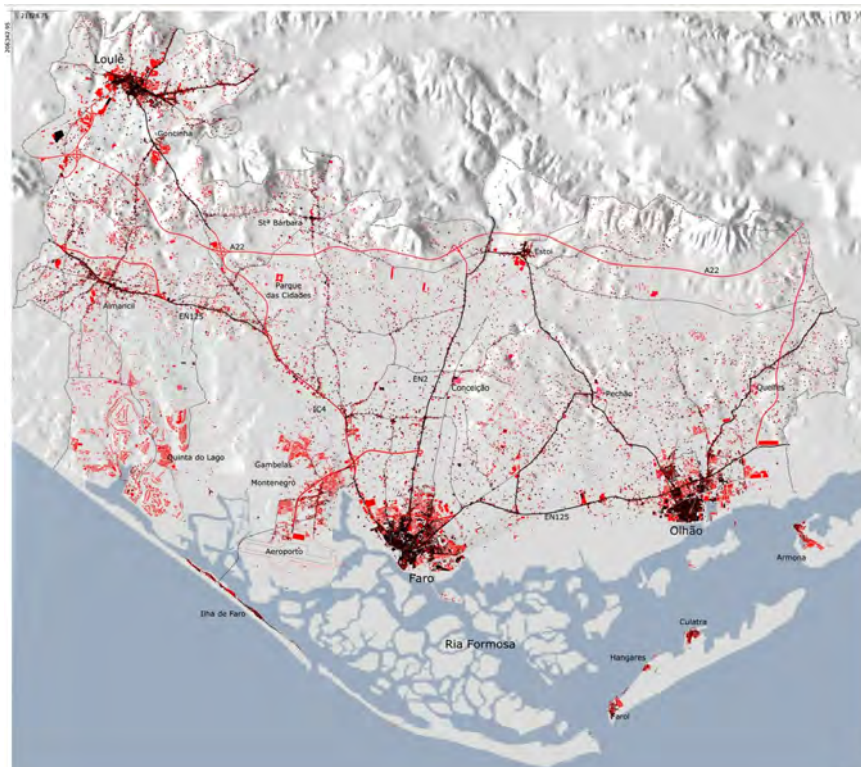


Fig. 8 – Central Algarve urban growth (Black – until 1980 / Red 1890 to 2006 (Batista, 2009)

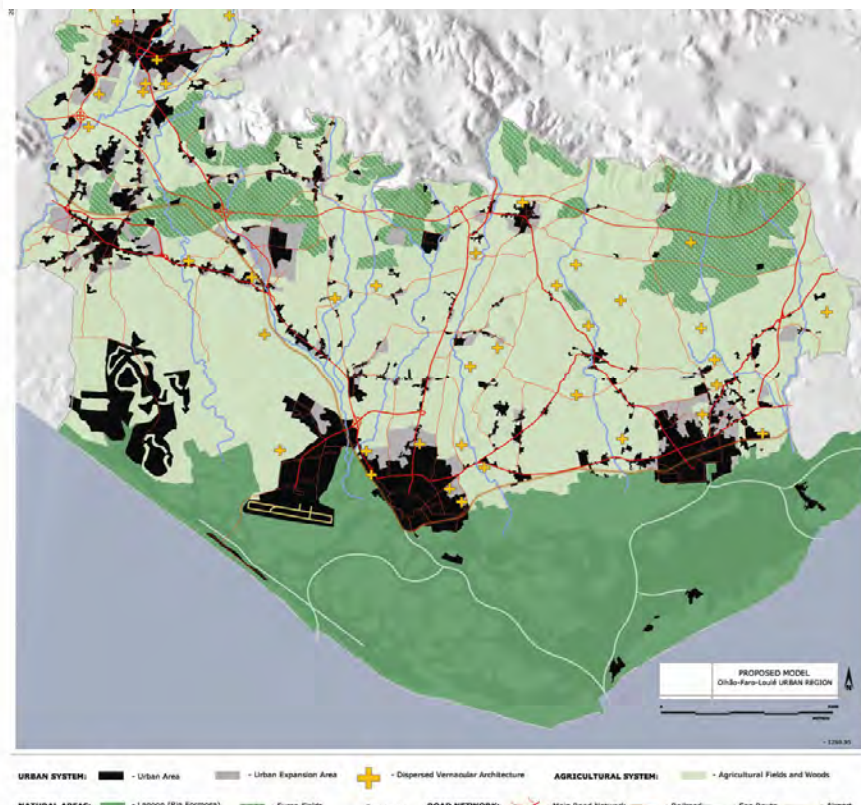


Fig. 9 – The conurbation of Central Algarve: Olhão-Faro-Loulé (Batista, 2009)

Landscape ecology proposes a model for territorial analysis and intervention by establishing a *land mosaic* based on the principles of *land use* and by reading landscape as a structural-functional mosaic. This mosaic is constituted by structural elements such as the matrix, corridors and patches which are related spatially and functionally to each other, besides being constantly exposed to change. It is this relative distribution pattern which constitutes the main factor to be used in the correct definition and interpretation of the mosaic.

Taking into account structure, workings and changes, we have analysed and characterised the current landscape mosaic of Algarve's central coastal area in order to propose a restructuring of its landscape [11]:

a) its structure is made of the following: (i) the agro-marine matrix includes the farming and marine spaces. These spaces are connected to traditional activities using the natural endogenous resources which by farming and fishing, dominate and guarantee nevertheless the landscape's coherence and global workings. These spaces dominate the ecological processes at regional level, constitute the fabric of the landscape and cover fragments patches and corridors; (ii) the corridors constitute privileged means for circulation (of, among others, water, atmosphere air, fauna and populations). They include roads and railways, water lines and folds, living or inert partitioning hedges, the dune system framing the islands and the peninsula, and finally, the sandbars, channels and wetlands of the lagoon; (iii) the agro-marine matrix dominates the functional and spatial coherence of the landscape even if the constructed areas occupy extensive land coverage and despite the corridors' role as guarantors for the ecological and social fluxes. The fragments patches' function is as important, nonetheless, as the level of fragmentation may potentially compromise the structural cohesion and integrity of the landscape. On the other hand, the occurrence alone of small-sized fragments patches may indicate that the landscape has been overused and its fragmentation has compromised functional coherence; on this particular landscape, diffused and non-diffused urban agglomerates, urban allotments (sporting complexes, industrial parks and companies), quarries, gravel pits and bushes are all covered by the typologies and the forms of fragments patches.

The mosaic results from the spatial relationships established between the matrix, the corridors and its patches [13]. Our study focuses on a particular mosaic, characterised in its structure by bringing together of the following configurations:

i) the cities Olhão, Faro and Loulé make up a *large patch* embedded in the agro-marine matrix;

ii) the compacted urban nucleus of Quelfes, Pechão, Conceição, Estói, Santa Bárbara, Culatra, Hangares and Farol, in addition to the woodland areas and aggregate extraction, constitute the *small patch* encircled by the matrix;

iii) streams and other natural drainage ways form a dense hydrographical system conferring a *dentritic* and organic configuration upon the landscape. This is reinforced by the network of channels and creeks which pervade the lagoon and

are visible on a low-tide;

iv) landscape partitioning constitute a network of *rectilinear* corridors by living hedges on the plains, walls of dry rock on the hills and a complex road system.

v) coexisting and alternating, the above mentioned fragments patches constitute a genuine *checkboard* revealing the current fragmentation status of the landscape under review.

The forms with different types of lobes are favourable to the enhancement of interactions between adjacent elements. These forms are representative of an optimum ecological level and correspond to an *interdigitated* configuration. They are not at the moment however represented in the current landscape mosaic which indicates a deficit in the desirable high-level working cohesion of the landscape.



Fig.10 – Faro-Olhão, Algarve, Portugal (mrc)



Fig.11 – Faro-Ria Formosa Natural Park, Algarve, Portugal (mrc)

Once the configuration of the landscape's mosaic has been completed, the analysis of its potential workings will follow.

b) Implicit in the structural elements analysed, the workings in the landscape's mosaic relate to the fluxes and interactions taking place at ecological and socioeconomic levels. This can be illustrated by the land mosaic's numerous and relevant fluxes and flows including, in this particular landscape and using Forman's categorization, the vectors of the landscape. These vectors illustrate the mass fluxes (water, sediments,

nutrients and wind), the movements of flying and ground-based animals and of human communities (associated indistinctly to the matrix, the patches and the corridors) and to the means of transportation of people, possessions and merchandises (plane, boat, coach, train, car).

c) The changes affecting the land mosaic can be seen on the gradual functioning or transformation of its structure. This intrinsic landscape trait is its most important modelling factor as it is crucial to the development of every single element in the landscape.

On a regional urban scale, planning and carrying out intervention in the medium to long-term [14] requires identifying and understanding the overall trends of current transformations in the urban system Olhão – Faro – Loulé, alongside foreseeing its future changes.

On a conurbation scale a new landscape reality emerges where the increasingly diffused urban system transforms itself and the rural and natural resources become urbanised. Regarding change, it is the use of the sole, dependent on policies spreading over years or even decades, which is the more easily changeable and the one which more readably displays landscape transformation. These changes cover essentially the conversion in the uses of rural (forest and farm-related) and natural (dunes and sepals) soil into urban soil (fig.12).



Fig.12 – Faro, Algarve, Portugal (mrc)

The growing urbanised landscapes based upon increasingly diffused patterns and dependent on extended commuter routes are fragmenting the coastal plane. This is currently happening in the *Campina* and in the progressively encroached and invaded wood of Pontal. Hills (*Barrocal*), namely the sealine on the front line of the highland, has also been indiscriminately occupied by random constructions and connecting routes. Resulting from this, the urban system Olhão – Faro – Loulé is being converted into a conurbation highly predatory of landscape and heritage. These overall changes are compromising the present and future structural and functional cohesion and integrity of this landscape's mosaic. If the present model for spatial organisation and management is to persist the present trends and dynamics suggest that in the next

few decades the following changes will affect Algarve's central coastal area [11]:

i) demographic growth, expansion of diffused urbanisation, increased degradation and impermeability of soils highly valued for ecological and/or agronomic reasons, increase in the number of commuter routes, road traffic and traffic jams;

ii) smaller number of crops and smaller quantities of seafood and fish caught for human consumption, a reduction in the surface of natural ecosystems and traditional agro-systems, losses in bio and cultural diversity, increased degradation and destruction of rural built heritage;

iii) overall climate change typified in drier hotter seasons, increased coastal erosion and obstruction of lagoon areas, increased disperse constructions on the seaside and on the hills, destruction of traditional landscape partitioning and increased landscape fragmentation, besides loss of its character and identity.

To sum up, and when considering change, it is important to analyse transformation carefully in order to balance the rhythms and trajectories of change with functional and spatial organisation. Furthermore, it is crucial to take into consideration that the current landscape mosaic of Algarve's central coastal area has engrained in itself singular and diverse attributes which are essential for the identity and integrity of that same landscape:

- a protected landscape area with rich biodiversity and intrinsic natural traits– Ria Formosa – contributes to the limitation of the uncontrolled expansion of the cities of Olhão and Faro, punctuating them as attractive cities on a human scale and as purveyors of a strong identity. Traits furthermore strengthen by the two existing local woodlands,

- the highlands (cerros), only scarcely populated, confer pleasantly upon the landscape scenic and visual qualities, which are reinforced by the traditional population nucleus and by the non irrigated orchards of almond, carob and fig trees. On the hills (*Barrocal*) and meadows (*Campina*), the surviving (and exceptionally important) irrigation structures, encapsulate the area's rich natural and cultural heritage,

- Milreu's archaeological diggings, the Estói's and poet João Lúcio's palaces, the vast, diverse and valuable farming units surrounding the cities of Olhão, Faro and Loulé, and their individual historical centres are exceptionally important as testimonies to a balanced process of territorial humanisation. They constitute the embodiments of priceless archaeological, architectural and landscape heritage.

- to the geomorphologic heritage comprising of lagoon, dunes and mountain systems and to the cultural heritage consisting of palaces, farms and cities' singular historic centres, one should add the significant pedological heritage associated with the fertile soils (responsible for significant and varied farming crops) and with the wet lagoon area, a guarantor for the landscape's high levels of biodiversity (fig.13).



Fig.13 – Ria Formosa Natural Park, Algarve, Portugal (db)

These are the core elements that should be preserved as they secure the functional coherence, the ecological integrity, the cultural identity and the sustainability of the land mosaic. Landscape development traits such as transformation, or dynamics and continuity, are recognised and integrated into the planning system proposed by landscape ecology. This system asserts therefore its guidance role in unavoidable change by preserving the ecological and cultural traits which bestow singularity on each mosaic, and by securing in this way the landscape's superior functional cohesion [11].

V. CONCLUSION

For most of human's history, the use and exploitation of resources originated beautiful, balanced and productive landscapes. This historic process of landscape construction contributed to the formation of local cultures, increased quality of life, and the affirmation of peoples' identities, encapsulating finally a fundamental part of national and European heritage.

During the last few decades this process has been replaced by an increasingly intense, rapid and generalised transformational process brought about by alterations in economic activities and systems of territorial exploitation. The current process of territorial transformation and extraordinary technological development has caused severe environmental and spatial problems visible in fragmented, uncharacteristic and degraded landscapes.

Despite these increased and profound changes inflicted on the landscape by human action, neither its traditional forms of organisation nor the heritage values credited with its identity and character have completely disappeared.

We have today two very different situations. There are a number of landscapes affected by a complex group of actions which ignore the richness and singularity of what we have inherited. On the other hand, there are still landscapes which have maintained their cultural inheritance and spatial equilibrium. Because of these two realities an ecological and cultural reading of the landscape becomes essential, applied together with an evaluation of its changing dynamics.

The ecological and cultural readings provide an understanding of the logics behind spatial development which

may prove useful to the planning process, guiding the establishment of new objectives for both the preservation and transformation of the landscape (Fig. 8). Such objectives should be unified in a different type of planning system which anticipates acting upon the landscape by integrating and articulating different and contrasting spaces (urban, suburban, rural and natural) [15].

This planning model should base itself in the development of innovative methodologies and intervention strategies. In this way it will be capable of absorbing the unavoidable spatial alterations by conciliating the continuity and appraisal of the natural and anthropic structures which confer authenticity and character to the landscape together with the dynamics of change at the organisational level of the land mosaic.

In this context, the continuous utilisation and preservation of natural and cultural resources, the (re)organisation of land uses, and associated alterations, are all coherent with the objectives of preserving in time and space the quality of life and environment, the cultural inheritance and the socioeconomic functions of the ecosystems (fig.14).



Fig.14 – Cacela, Algarve, Portugal (db)

The conception of a methodology for landscape intervention as defined above seeks to achieve spatial management, functional organisation and the articulation of different landscape systems (urban, rural, farming, hydraulic, ecologic and travelling). It incorporates concerns about the preservation and transformation of the heritage and natural sites, simultaneously trying to respond to social needs while attempting to create ecologically cohesive and balanced agglomerates.

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