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Doñana, need for adaptation: a new system as a sustainable assessment tool

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The response to current territorial problems requires a reformulation based on innovative guidelines that leads to a new sustainable and balanced territorial model, aware of its natural and anthropized environment, that moves away from the unilateral imperative of urban growth that consumes the natural habitat in an indecisive way and that is the cause of the endemic loss of resources (Fernández & González, 2014; Hessel & Morin, 2012).

The Doñana Natural Space is a dynamic place, which, beyond remaining unchanged over the years, is associated with a constant movement of reinterpretation and adaptability in its territory, in its people and in its activities. For this reason, it is presented as a case study to respond to a sustainable territorial model where the natural space becomes the leading element and configurator of the general system (Higueras, 2006, p. 17), giving a new balance to the social, environmental and economic dimensions under the protection of the cultural from new planning dynamics that attend to its flexibility and its ability to adapt to the succession of transformations that take place in it (Sánchez & Donadei, 2012). Only in this way will it be possible to attend to the complex challenges of contemporary times with inclusive and sustainable policies. The search for a territorial model based on sustainable criteria is essential to define the future of Doñana; however, the success of this model lies in the presence of firm political authorities, judicious citizens and a manifest inter-institutional cohesion that enables understanding between the parties for a common future project in relation to their territory based on an open and continuous process (Sanchez, 2009). This process must be evaluated by a complex tool that is capable of redefining the current planning paradigm, understanding the territory as a complex system in which various interdisciplinary subsystems intervene.

In this way, an ecologized methodology is propounded in this text in order to propose open solutions to the current territorial model under the holistic and complex understanding of the territory, through inclusive, interdisciplinary and interdependent guidelines. For this, the consideration of the traditional systems of sustainability is aimed, together with the four sustainable capitals (Pearce & Turner, 1990), to modify and restructure the fields of work of contemporary sustainability and, from this, originate new multivariate and integrative strategies (Giraud-Herrera & Morantes-Quintana, 2017; Del Espino & Navas, 2018). In this way,

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four ecologized systems that demonstrate the fundamental participation of the human being in the regulation of environmental patterns and processes (Alberti, 2008; Liu et al., 2007) of the territories: *locusistema, polysystem, holosistema* (Arnet & Naranjo, 2019) and *iconosystem* are propounded. In the first place, the *locusystem* encompasses natural systems and biodiversity; therefore, it will be in charge of ensuring the environmental dimension of the territory, in constant exchange between the natural and the artificial, protecting its natural resources and mitigating the polluting impact. On the other hand, the *polysystem* is in charge of the architectural configuration and distribution supported by the territory, defining the relationship of interdependence that exists between the natural and the built, in addition to assessing how this impacts the *locusytem*. In addition, the *holosystem* collects the functional dynamics that occur in the *polysystem*, contributing to the sustainable carrying capacity of the territory. Finally, the *iconosystem* is in charge of evidencing the symbolic and significant elements that act as representatives of the cultural expression of a given society. Thus, the new sustainable territorial model is defined by the relationship of inclusive systems, integrating and interdependent whose intertwined relationships concur in the current territory based on its fullness (*polysystem*), on its gaps (*locusytem*) and on the relationships that are derived from these (*holosystem*) to unite them and provide a unique condition to the territory where the cultural (*iconosystem*) emerges.

In this way, it is possible to attend to the contributions made by Quinn (1950) and Hawley (1950) in relation to urban studies from their understanding of concentric or multicentric dimensions based on human / urban ecology, in addition to adding it to the approaches of Alberti (1996), completing the traditional analysis of sustainability - social, environmental and economic - with more sophisticated indicators that tend to the contemporary paradigm of identity and provide a new approach to the understanding of sustainability. All of this allows the design of a new sustainability assessment system, as well as contributing to improving the collection of information provided by the territory and the knowledge of the interrelationships between the different systems.

The purpose of the reformulation of this sustainable evaluation system is to present conclusive results that provide solid roots for the resolution of current problems under the sustainability paradigm. In this way, an exhaustive analysis of the field of study is achieved based on common criteria that provides qualitative and quantitative data from which to establish operational conclusions for the improvement of the territory, make a specific proposal and contextualize it in a specific territory to obtain key parameters in favor of change. This fact will come hand in hand with the variation of the traditional agrarian model, together with a transformed coastal urban development model, to seek alternative and sustainable ways in which identity and patrimonial issues, all housed in the *iconosystem*, are especially critical points from which to propose improvement strategies.

The current contingency of sustainability ratifies the obligation to design new evaluation tools of the same that consider a totalizing and integral view of the territory by incorporating environmental, social, economic, political and, in addition, cultural variables. The space that embraces Doñana, offers a unique opportunity to verify the sustainability present in it due to its ability to house architectural, urban, natural, agricultural, industrial and ethnological elements, together with its resilience to structural changes and, to despite this, it retains its fundamental characteristics.

On the one hand, the limits imposed on urban development in Doñana force its understanding as a socio-ecological (Montes, 2007) and a totalizer system where identity, *iconosystem*, prevails and manages to permeate different registers of the territory, its anthropization and the activities that they are all derived.

On the other hand, the instrumental consideration of the research in relation to the sustainability of the territorial models, makes it possible to establish case studies from whose contextualization the theoretical contribution established in this regard is evidenced. In this sense, the application of an innovative methodological tool designed to assess sustainability in Doñana and implementing good practices in relation to immeasurable issues, serves to establish a new mechanism where Doñana is recognized as the ideal space to test the sustainable, natural and anthropized conscious, balanced territorial model that Andalusian land-scale planning search. With this, the desired balance between the natural and the artificial is achieved based on the understanding of the decision-making agents rather than the decisions themselves (Sheldon & Parke, 1975, p. 698), specifying for this a reinterpretation of the territorial consideration attending to a rhi-

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zomatic and interdependent view of its subsystems (Hawley, 1950; Quinn, 1950; Alberti, 1996) - *locusystem*, *polysystem*, *holosystem* and *iconosystem* –. All of this favors the configuration of a system of indicators whose combination is adapted to the case study to obtain more assertive data in relation to the sustainable condition and compliance with the 2030 Agendas. Likewise, this system must be constantly reviewed to adapt to the prevailing dynamism in this sector of the Andalusian territory, incorporating new indicators that integrate variables necessary for the study or eliminating those whose information is scarce, ineffective or deficient.

Finally, it should be noted that the consideration of Doñana as a significant sample of study demands the need for a paradigm shift to move towards understanding sustainability in cultural keys through the development of dynamic and multi-scale formulas. They should promote equitable and balanced management models that they adapted to the contemporary canons from which the territorial model of Andalusia is approached. Undoubtedly, the latter will only be possible if an innovative methodology is available that is capable of specifying the strengths and cultural devices of excellence that make up these complex territories and allows the establishment of balanced protection and development actions.

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