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METHODOLOGY TO TERRITORIAL PLANNING IN IBERIAN MEDITERRANEAN NATURAL AREAS

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In the present work we propose to do the analysis and cartography of an natural area to propose the best use in each part of the area. To get this objective we establish to do three different parts, the first one is a descriptive analysis of the zone, the second one is the diagnostic and finally the prescriptive analysis in witch we propose the most possible appropriate use recommendations. To get this parts it is necessary considers all of the environment factors (biotics and abiotics). To make this analysis and cartography we follow a methodological sequence to achieve a spatial planning a great scale (spatial microplanning).

Keywords: Spatial planning, Environmental Units, Soil, Recommendation.

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МЕТОДОЛОГІЯ ТЕРИТОРІАЛЬНОГО ПЛАНУВАННЯ ІБЕРІЙСЬКИХ ПРИРОДНИХ ЗОН СЕРЕДЗЕМНОМОР'Я

Пропонується аналіз та картографування природних територій. Враховано ймовірний вплив факторів середовища (абіотичні та біотичні) при ландшафтному плануванні дослідженої території.

Ключові слова: ландшафтне планування, ґрунт, рекомендації.

The natural areas have been traditionally source of goods and services as much for the urban societies as for the agricultural-forest ones. The great challenge is to elaborate models of operation, arrangement or planning that, as far as possible, satisfy the goods and the services demanded to an area.

A solution to this problem of multiplicity of demands would be to optimize them and later to prioritize them. But this preferential criterion can not be valid when we consider a prolonged period of time for a good environmental management.

Therefore, the most remarkable objectives of the environmental management will be the persistence, conservation and improvement of the productive capacity of the soil and environments, and the maximum yield of the utilities to the colectivity of the products, jobs, recreational and landscaping aspects, as well as other direct and indirect benefits.

On the other hand the necessities of management and conservation of the territory imply the existence of a deep knowledge of the natural resources. In this sense, the pedologycal information can contribute efficiently to the use planning of land (Zinck 1,996), as support of life or any type of activity.

Based on the work scale with which the process of Spatial Planning is carried out traditionally, one has distinguished three levels (FAO 1.976; Cendrero 1.982) corresponding to: Macroplanning, Mesoplanning and Microplanning, being isolated the sectorial-local planning processes, therefore, it would be necessary to include a fourth category that would correspond to the Nanoplanning (Parras 2.001).

Globally the natural ambience can be organized basically of three ways: separative form (thematic), reconstructive form (integrated), or by mixture and superposition of both criteria, it means, analytical, synthetic or mixed methodologies can be used (Cendrero, et al. 1.987).

MATERIAL AND METHODS

The methodology followed in the elaboration of the natural ambience potential cartography or thematic cartography based on the detail degree and on the work scale (1:10.000) corresponds at a Microplanning level (FAO 1.976; Cendrero 1.982), being the applied method of synthetic type (Cendrero, 1.982), in which by a sequential process and staggered way, the object of study area is subdivided in units progressively smaller.

In the cartographic sequence three levels of maps have been developed, corresponding to Descriptive Maps, Diagnostic Maps and Prescriptive Maps, each one of them corresponds to the phases of Recognition (descriptive maps), Evaluation (diagnostic maps) and Planning (prescriptive maps) of the territory (natural ambience), with Integrated Planning of Natural Ambience as final mission.

The recognition level corresponds to the Descriptive Map of Ambience, Systems, Physiological Subsystems and Environmental Units, (Parras et al. 2.000). The Environmental Inventory phase is developed simultaneously, obtaining an only cartographic document with the global information (Land System Approach, Dent and Young, 1.981).

Next step is the natural resources evaluation, locating in the interphase between the recognition and the planning. This process entails a biophysic interpretation of the basic recognitions, in order to predict the actual situation of the environmental elements, being developed the Potential Erosion Map, the Use Capacity Map, the Geologic Risks Map and the Quality for the Conservation Map (protection of units McRae & Burnhan, 1.981).

The last link in the cartographic sequence of the natural ambience potential constitutes the use recommendations Map (prescriptive Map), in which two basic objectives are persecuted: to establish the uses environmentally more indicated for each territorial unit and to protect against the use change of the territorial units that actually present a high ecological power.

This methodology leads to the integrated planning of Natural Ambiences and its Resources, allowing an Arrangement as FAO establishes (1.976), where it can be distinguished a Ecosystems evaluation phase (EEs), a socioeconomic planning and an Environmental Impact evaluation (EIEs).

As it is possible to be observed, this secuenciation in the cartography constitutes the elaboration model of a geoscientific cartography (thematic), in which beginning with the zone description (descriptive maps) and continuing with the analysis according to pre-established methods (geocientifics) diagnosis maps are obtained, with the final object to create prescriptions maps (use recommendations), that are the final mission of the geocientific cartography. (Sanchez et al. 1.995).

The final mission of the Natural Ambience Potential Cartography consists, therefore, in constituting a firm base to carry out environmental and territorial studies of any type, trying the optimal and rational use of the resources according to its potentialities and geographic distribution according to the necessities of the society (Zinck, 1,996).

The boundary of ambiences, systems, physiological subsystems and environmental units is the beginning of the cartographic sequence. In these maps has been established the space distribution of the Environmental Units, it means, the sectors that share, on a certain scale, a 1:10.000 or lower, similar natural behaviour, potentiality and possibilities of human use.

The Atmosphere constitutes the taxonomic rank of first order. It corresponds to ”Land Provinces” of Brink et al. (1.965) and to ”Land Systems” of Christian and Stewart (1.968). The criteria that can be used are ones based on the altitude, because this determines the existence of differentiated bioclimatics floors that, as well, they conditions the pedologenesis, the vegetation distribution, the resources and soil uses, aspects that have been combined to define each one of atmospheres.

The System, constitutes a second order subdivision of that represents the different sectors in which each one of atmospheres is subdivided, is defined as a mapable litologic and geomorphologic scope on scale 1:50.000 and corresponds approximately to “Land Units” of Christian and Stewart (1.952, 1.968) and to “Land Systems” of Brink et al.

(1.965) and represents the dominant forms that characterize the relief on scale 1:50.000 and which they share similar topographic, morphoestructurals or morphodinamics characteristics emphasizing those aspects that affect the land use capacity and the quality for the conservation. In the context of the elaborated cartographic sequence, the map of systems has the purpose of emphasizing the topographic, geologic and geomorphologies aspects that present a greater contribution in the characterization and later valuation of the limitations and territory use potentialities.

The Phisiographics Subsystems are characterized from the point of view of evaluation, creating the bases for the boundary of structural units defined by biophysic parameters according to similar criteria to those of the ITC (Zuidam and Cancelado 1,977) or the CNRS (1.980). The looked for direction is a unit of new definition since it tries to facilitate a knowledge of the physiographic ambience at 1:10.000 in his description as in his dynamics, to define homogenous sub-units with structure, common evolution and problems by the conjunction of variables like, morphogenesis, slope, litology, development of the pedology profile, geomorphological dynamic... etc. The elaboration of the subsystems, constitutes the recognition phase in which is evaluated the soil, not as an isolated being, but that it tries to reflect the morphologic, physical and chemical characteristics, relating them to the climate, geologic material, vegetation and topography.

The methodology followed in the boundary of the subsystems, constitutes the methodology model that establishes Sanchez et al. (1.984), for the accomplishment of the basic cartography.

The Environmental Units represent the lower taxonomic rank and are the subdivision of the physiografics subsystems, and imply the more detailed analysis scale.

The units constitute divisions from the territory on scale 1:10.000, that share the same ecoanthropic dynamics. The concept of Environmental Units map indicates an informative basic document that gathers morphology, litology, pedology development and dominant processes in homogenous areas and looks for to explain the interactions that model environment, giving special importance to the soil development degree like indicator of units put under similar processes of pedologycal evaluation.

For that reason, the criteria used for their boundary simultaneously integrate abiotics (morphology, topographic, pending situation, exhibition, litology, density of drainage, erosive pattern of drainage, processes, flood, movements in mass, sedimentation, accumulation, climate... etc.), biotics (ground dominant, inclusions, vegetal cover, fauna), and anthropics (use and mean efficiencies) parameters. Each unit is characterized by the set of parameters that a standardized card summaries, that designed to such aim provides the basic information of the territorial inventory (Parras et al. 2,000).

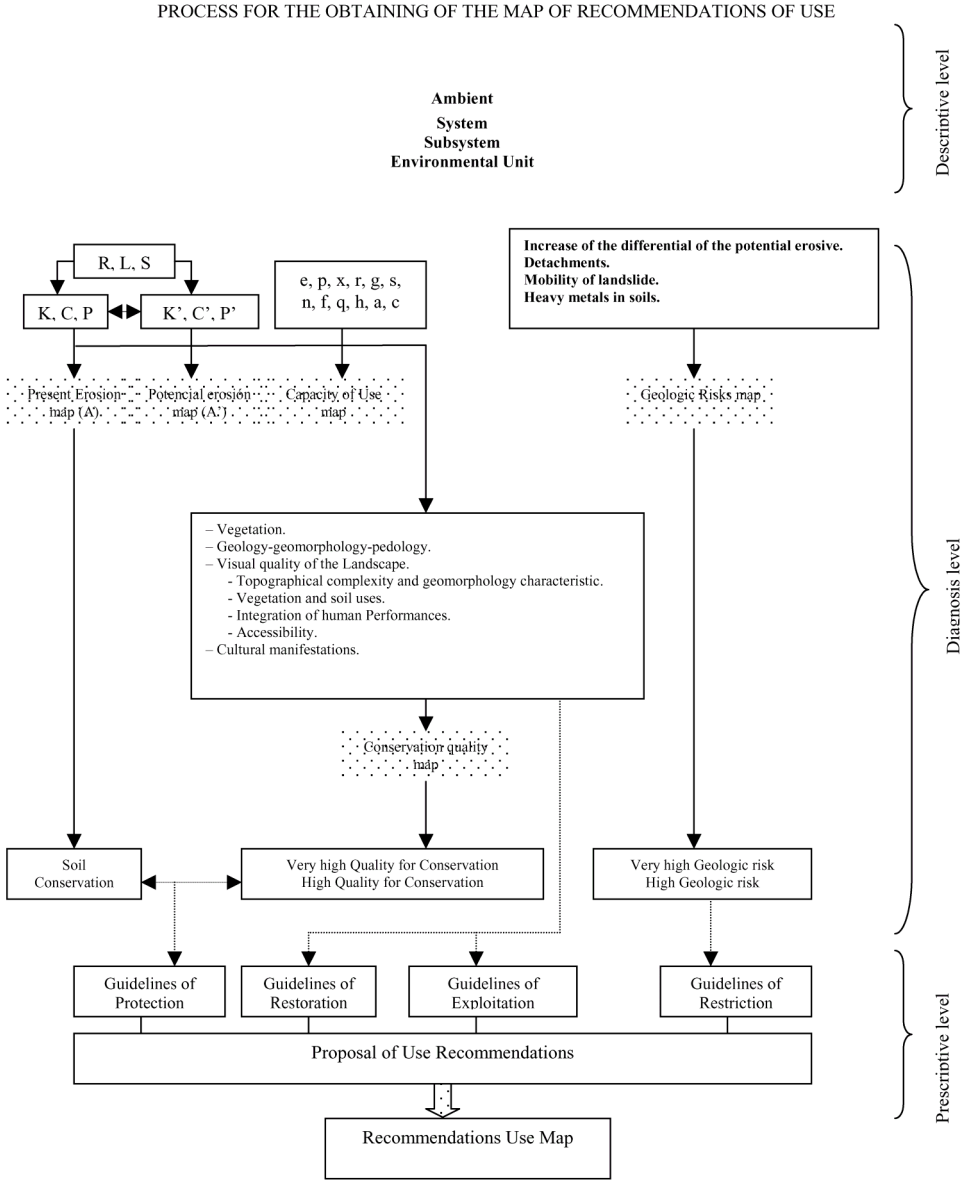
The increasing demand of natural resources by the man makes necessary the territory use planning to avoid its destruction and deterioration. In agreement with Cendrero (1990), the thematic cartography constitutes the scientific base for the environmental planning and the spatial planning. For this reason, it is necessary to make a rational study that contemplates in a combined way the land advantage and the soil conservation, reason why is precise to have information relative to the resources, about soil location and typology, their possibilities and their limitations as opposed to different uses, as well as the impact levels of these performances in the future.

RESULTS AND DISCUSSION

The elaboration of the Use Recommendations map is made taking care of four directives; Directives of Protection, Directives of Restoration, Directives of Operation and Directives of Restriction of Uses.

The Environmental Units that are conditional to directives of Protection are those that, by their excellent natural, scientific, cultural and landscaping values, demand the maintenance of their characteristics, are grouped in: protection of first order by quality for the very high conservation, protection of second order by quality for the high conservation, protection of third order by soil conservation, it means, units with actual erosion smaller than 25 t/ha*year and potential erosion greater 50 than t/ha*year.

The Environmental Units that present directives of Restoration are those that have certain natural values but that at the moment they undergo degradation, they are grouped in: restoration of first order by natural regeneration, these are the Units that present capacity of high or very high use and the vegetation that in them is developed is constituted by uncultivated, grass, shrubs and hoisted scrub or with cover smaller than 20%, restoration of second order by repoblation, is the Units with erosion smaller than 25 t/ha*year and the vegetation which they support is: uncultivated, grass, shrubs and scrub or hoisted with cover smaller than 20 %.



Outline of the elaboration of the Map of Recommendations of Use in Spatial Microplanning (Parras L., 2001)

The Environmental Units that are subject to directives of Operation are those that have a natural, scientific, cultural and landscaping value, and can have some compatible primary productive advantage, or that, presents anthropic intervention that alters anyway its natural features producing the development of infrastructures, productive services and advantages, are grouped in: operation of first order by lumber use, in this group are included those Units that present a arboreal cover of more of 60 %, in case the existing vegetation in the Unit is only from reforestation pine groves the cutting will try that the arboreal cover never descends below 60 %, if these species coexist with typical species of the Mediterranean forest (oak or cork oak) can only be destroyed first, the condition of the cover will be the same one that in the previous case. Operation of second order by cinegetic-cattle dealer use, is those Units in which the vegetation is meadow or all those of the previous group. Operation of third order by recreational use. In this group are included the Units that have elements that can be taken advantage of tourist or recreational form. They are Units that present constructions in ruinous conditions or good state of conservation, these would be possible to be used as shelters, centers of visitors and classrooms of the nature. Operation of fourth order by agricultural use. To this group belong those optimal Units for the culture of the olive tree (Swells European) and of herbaceous cultures.

The Environmental Units subjected to directives of Restriction of Use are those that present/display some limitation of use from the natural point of view, associated mainly to the presence of risks, are: restriction of first order by geologic risk high finger to the increase of the differential of the erosive potential or the instability of slopes. Restriction of second order by high or moderate geologic irrigation due to the heavy metal presence in grounds.

The performance sequence must be the previously mentioned one (Figure), then, in all process of management, the main element is the Planning, without it, does not exist management, but only a set of unconnected answers to certain problems when these appear, it means, in that case it is a patch activity more than a management one. The management means to anticipate itself to the problems to avoid that these take place or to diminish their effects, and due to it, the previous planning is an indispensable condition.

In the same way, the planning must be sustained in an ample, detailed and trustworthy information, without which, all the process of planning can not serve as anything, or what is more serious, can induce to errors that mess up the management process.

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