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The Landscape Value: Interpretive Categories, Diagnostic Techniques and Management Rules

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This research comes from the observation that over the past fifty years the Italian landscape has been radically altered by urban development, often carried out without formal and functional qualities. There is a fundamental discrepancy between legislation on landscape conservation and its implementation, especially in cases of measures without a specific object, measures that take into account the “everywhere”, the “real world” (Farina, 2001) and not only individual elements of unquestionable value, as indeed required by the most recent Community guidelines. In view of these premises, after a survey of the different cultural approaches that have guided and still guide standards, studies and practices related to the landscape, the urbanization of soils has been identified as a parameter that can be used to evaluate the state of Italian landscapes, as it affect indiscriminately every expressions of landscape values. This paper proposes also, on the basis of qualitative and quantitative trends of urbanization, the identification of “trending landscapes” derived also from Local Strategic Plans provisions.

Introduction

The polysemy of the concept of landscape, recognized also by legislative guidelines, the different disciplinary approaches that guide experts that, for the reason above, deal, with equal rights, with the landscape, and, finally, the lack of guidelines from Italian authorities (which are instead present in other European countries such as Britain and France), have led to an extremely diverse methodological framework of techniques and parameters used to define and assess landscapes, even in those procedures where it's expressly required: sector plans, environmental assessments (EIA, SEA, EEA) and landscapes reports.

Therefore, when technicians are required to evaluate the territory from a landscape point of view, they generally choose judgment criteria case by case, according to their personal inclinations but also basing their decision on the characteristics of the local context, on the type of instrument to be implemented and on time and data available. While on one side this *modus operandi* allows to calibrate the analysis on the specificity of the territory, on the other it makes extremely difficult to compare analyzes between different case studies and consequently to acquire an overview on the state of the Italian landscape based on objective and common parameters. It also prevents to understand the trend of land transformation and thus to provide general guidelines for the entire country.

On several occasions during the recent years, especially after the European Landscape Convention (ELC), technicians and scholars expressed the need to monitor the land in its wholeness¹, with codified parameters, for any activity that relates to the landscape comes from a deep knowledge that can promote actions and assessment methods that guide planning, managing and maintenance activities (Maniglio C., 2003).

The evaluation techniques

A survey of the evaluation techniques commonly used in landscape analysis shows three fundamental approaches, each one with a specific cultural and methodological point of view: the aesthetic and perceptive approach, the cultural one and finally the ecological-functional one.

Among the three, the perceptive approach is certainly the one that best goes beyond its disciplinary boundaries as it is a point of view also taken into account in research and analysis focused on the other parameters. Even the ecological values of the landscape, although mentioned in definitions and guidelines, especially at international level², almost never acquire a functional meaning, persisting with the idea, now obsolete, of “natural beauty”.

This shows how the cultural concepts of nature are still very different from the scientific concept of ecological function (Nassauer, 1995).

Communities still have difficulties to perceive nature as a whole and to identify it emotionally with the everyday landscape, while it is common practice to remain in awe of spectacular sceneries away from home (Naveh, 1994). This weakness has affected the evaluation process and, consequently, landscape valorization and management and ultimately the transformative phenomena of the area.

In Italy, where the aesthetic component led guidelines and practical applications since the beginning of the “landscape” issue, this situation is particularly evident.

The higher institutional sensitivity to aesthetic and cultural values of the landscape doesn't lead to major defections of conservation in so-called remote areas, located over a certain distance from the nearest urban area (Romano and Zullo, 2010), where the beauty of the landscape acts like an “umbrella concept” for the conservation of eco-functional values. It poses, though, serious limitations in the “real world” (Farina,

1 For example, the decalogue drawn up by the Italian Geographical Society “*For good policies in defense of our heritage*” included in the 2009 VII Annual Report entitled “Italian landscapes. Between nostalgia and transformation” states that: “*There is no protection, and therefore no valorization and development, without the analytical knowledge of the stratified mosaic of Italian landscapes, region by region, area by area, site by site, and without the ability to monitor continuously the landscape, as modern technologies would allow us to do if there were, at all levels, the willingness to move towards this direction.*”

2 Such as in the Convention on the Protection of the World Cultural and Natural Heritage by UNESCO (1972) which recognizes the “natural heritage” and in the more recent European Landscape Convention (2000).



2001), where sometimes the elements of natural beauty are not considered as significant by the people. Yet the “real world” is where the game on the conservation of landscape quality is being played, where land transformations occur more quickly and more incisively, and where economic interests are hardly ever related to the values of natural capital and of ecological functions³.

As Caldwell (1990) states: “landscape ecologists and planners need a critical understanding of both the social ecology and the natural ecology of the environments within which they work. They need this insight not only to successfully pursue their professional tasks, but also to help elevate public comprehension of the significance of landscape for the quality of life”.

This is a vital message, given the rapid and global landscapes degradation and the loss of their biological, cultural and scenic activities.

The conversion of urban soils as meeting point

Finding a common ground, common threats and interpretations valid for each of the three cultural approaches is currently the most effective way to be able to make eco-functional values more understandable and to connect them to the cognitive and cultural domains.

A parameter that is particularly suited to provide a synthetic judgment is the urbanization of soils which affects in the same way the expressions of the three landscape values.

The negative effects of the increase in urban sprawl involve the landscape not only from an ecological point of view, but also in its aesthetic perception and in its identity and history meanings, by failing basic ecosystem services (Table I). This is even more true in Italy, where landscape values often overlap on the same territory: here the sprawl ends up by affecting historic and cultural territories, which will be destroyed and annihilated if there is no awake social consciousness to safeguard these values (Turri, 2000).

Ecosystem service	Soil function
Ecologic function	Soil is an essential element in the regulation of the natural cycles of water, air, minerals and organic matter: it filters, purifies, degrades and accumulates.
Biologic function	Soil represent the living habitat of a wide range of organisms (microorganisms, fungi, animals, plants and humans).
Economic function	Soil is the basis for agricultural and forestry production and the source of raw materials such as clay, sand, gravel, minerals.
Cultural function	Soil embodies the landscape and the marks of historic and cultural memory of human and natural activities.

Table 1 | Soil ecosystem services

Each and every value of the landscape is therefore equally sensitive to the conversion of land into urban use, thus the monitoring of this phenomenon could be a first step towards landscape conservation and management (as called for by ELC), based on a holistic and complex view of the landscape as a common good.

The urbanization in Abruzzo

A case study of urbanization as a parameter to assess landscape quality in all of its aspects was conducted in the Abruzzo region. The study areas were chosen among the landscape units, determined by their physiographic elements (ARSSA Abruzzo), where this trend of land use change has been observed. This research used a diachronic approach, comparing three time periods: the mid 1950s, the early 1980s and the period after 2000. The attention was then focused on 47 municipalities of the province of Teramo, Abruzzo, for which the mosaic of the Local Strategic Plan (PRG) provisions, as in force until 2008, has been examined

³ For these reasons were developed some evaluation parameters, such as the ecosystem services (Costanza et al. 1997; Daily 1997; Scott et al. 1998; Haines-Young, 2000; Luck et al. 2003; Antrop, 2004) which give a value to the “natural capital” more easily quantifiable in economic terms. Ecosystem services are currently one of the best ways to relate the ecological value to landscape assessment.

(Picture 1). This made it possible to show how general urban planning guides the transformation of the territory and which are the factors that determine the changes envisaged by the plans. Planning instruments, especially the PRG, are the ones that have most power to manage and safeguard the landscape by implementing appropriate policies, as it is at the local level that the strongest changes occur. It is therefore essential to understand this mechanisms in order to best act against the current trend of landscape alteration.

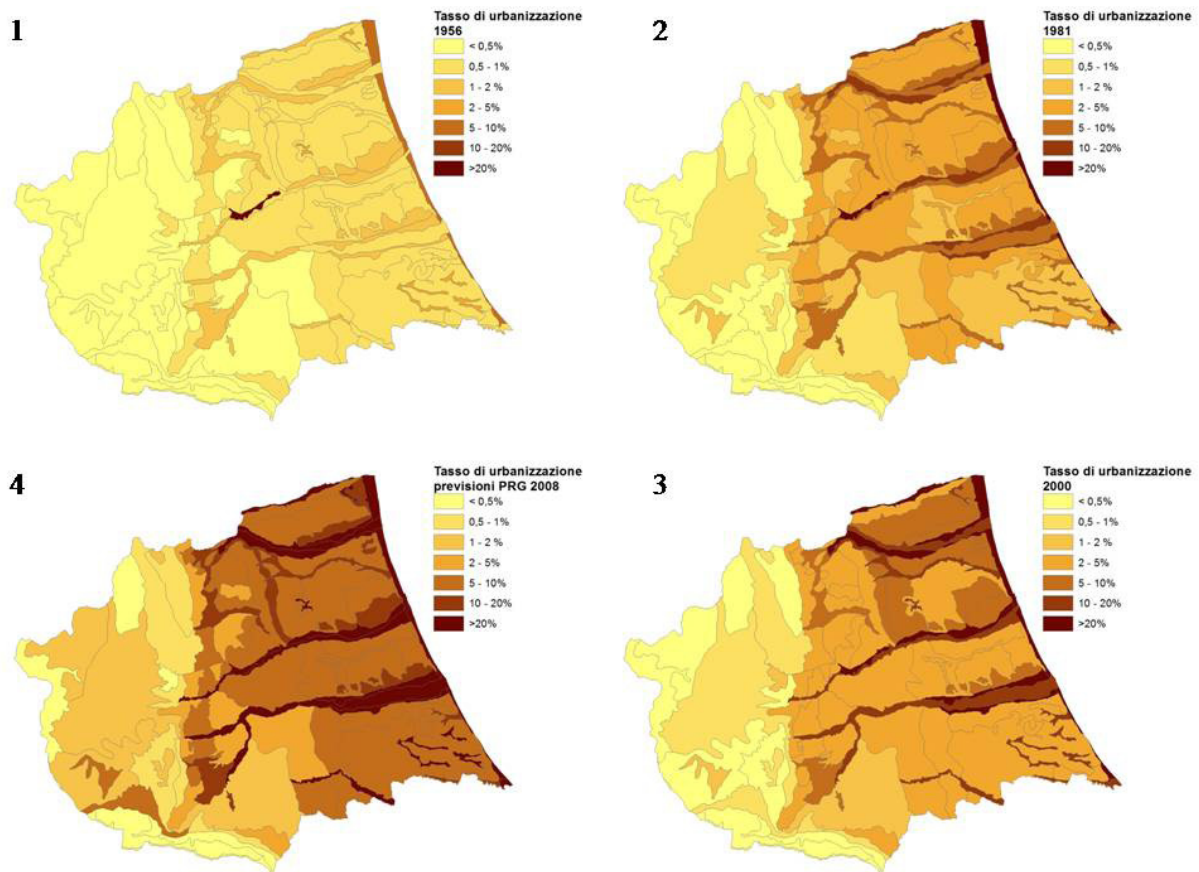


Figure 1 | Province of Teramo: urbanization rate in 1956 [1], 1981 [2], 2000 [3], 2008 [4]

The study of data on urban transformation of land give a picture of which are the landscapes types mainly affected by land use and abuse.

The analysis shows that in the 1950s urban areas, about 23,7%, were located mainly in the intermountain basins between 300 m. and 1000 m. above the sea level, but the highest rate of urbanization is found along the coastline, 6,3% of which is heavily built, compared with the 2,3% of the intermountain basins. The middle and lower valleys of the main rivers of Abruzzo had, in the Fifties, relatively low rates of urbanization, standing at 1,1%, that is the 11, 3% of the regional built land.

Between the 1950s and 1980s took place the occupation of the coastal areas, both hilly and flat, and of river valleys: the coastline reaches an urbanization rate of 31.8%. Notable is also the increase in river valleys: in 1980 more than a quarter (25.3%) of the regional urbanized territory is located in those areas. On the other side the intermountain basins, which in 1950s held the record for constructed surfaces, represent only 14% of the regional urban areas, having experienced, during this period, only a slight increase in soil use when compared to the one of the coastline and low-lying areas in general.

The congestion of the coastal zone and of flood plains continued in the next twenty years and it was ac-

accompanied by an increase of built areas (already observable in the 1980s) of hilly areas along the coast and in the interior, which in the 1950s were almost untouched by the development of new settlements. Although low in absolute quantitative terms, this phenomenon has a significant value as it involves as many as 11 different types of hilly landscapes and it determines for them an increase in the average urbanization rate from 0.54% to 2.43% with peaks greater than 4.7%.

This trend reflects what happened at a national level (Romano et al., 2011) and it's a sign that the entire country is affected by similar phenomena even though they assume different timing and values at a local scale.

Being understood that plains still retain their leadership as favorites areas for the entire construction industry, there is a clear sign that, in a country where plains cover only 23% of the surface, shows a trend of massive urbanization on hilly landforms, with significant risks of alteration of some of the finest agricultural landscapes in Europe.

Over the fifty years considered plains have been built with settlements at an average rate of more than 18 ha per day, when hilly landscapes can "boast" a rate of almost 6 ha per day but this could be only the early sign of a subsequent and more energetic development (Romano et al., 2011).

From a qualitative point of view the increase of built surface on the valley bottoms and on fluvial terraces is mainly due to the location of industry and craft settlements and their relative activities⁴.

As for the saturation process that is affecting the coastal strip, it clearly emerges that 41% of the settlements built since the last war are composed by "continuous and dense residential development."

Shifting the focus on hilly areas, the urban increase comes from a 26% of sparse settlements⁵ and 19% of "residential settlement with discontinuous structure."⁶

It doesn't seem an exaggeration to say that these data are signs of an urban sprawl trend in those areas.

The situation briefly described is expected to consolidate itself, taking into account the general framework set out by the provisions of the 47 municipal planning instruments analyzed.

Looking at the details, considering the zoning foreseen by the DM 1444/68 act, the greater tendency to accept residential development is located in the zoning areas B, called "filling zones": 13% of these areas is in fact located in the coastal strip, that occupies only 1, 27% of the province total surface. Under this zoning class are also many river valleys, followed by hilly coastal areas.

These same landscape units are affected by a strong distribution of residential expansion areas, with the exception of the coastal strip, where B zones are statistically more represented than C zones (expansion zones), confirming the trend of saturation that will involve even the areas now free from constructions.

Interestingly, the majority of craft and industrial areas, more than 60%, is located along the valley bottoms, and this also applies to business destinations. This shows that the trend is to continue to establish the productive areas, as well as large commercial structures, in the vicinity of watercourses.

Further information on the dynamics triggered by the Local Strategic Plans were obtained by analyzing the upgrading process of five urban plans completed after 2008, year of the data already provided. Four municipalities out of five are located on the coast and the other one is situated on a hill along a river valley. In the five township analyzed, the productive areas unrealized with the previous plans amounted to 163.3 ha out of 445.1 ha, for a percentage of 36.7% (picture 2).

However, none of the new planning instruments considered expected a scaling down of these areas, but on the contrary there was a drift towards a further increase, 29% more, which, if implemented, would lead to the creation of 575.2 ha production areas.

In addition to this tendency to oversize planned areas, the analysis of PRGs also highlights another alarming

4 In these river valleys, 36% of new buildings belongs to this land use category and represents as much as 46% of the total industrial/craft area of the region.

5 Defined as "land occupied by isolated residential buildings that make up areas of diffuse settlement. Buildings, roads and other cemented surfaces cover less than 50% and more than 10% of the total area."

6 Where buildings, roads and other man-made surfaces cover from 50% to 80% of the total amount.

element: about 1164 ha of urbanized territory, 13% of the total, it is not even touched by the perimeter of any other area derived from the zoning mosaic. It means that a portion of the settlements goes beyond the planning control. This is a proof of how difficult it is to control the urban sprawl through planning policies like they are currently conceived and it poses the issue of how to reform planning methodologies, too often treated as a mere manuals, far from specific problems of the territories and often calibrated to only meet the needs of certain municipal areas.

The analysis shows that the zoning plans seem to respond to a logic completely independent from inputs arriving, or expected to arrive, from higher levels or inputs that should come from analysis conducted on the local situation. They are, in fact, in contrast with demographic trends (often in decline) and with the degree of implementation of previous planning instruments, not satisfying the dynamics that are actually taking place, and self-referential compared to the suggestions coming from higher-level authorities and to what happens in nearby areas, especially regarding size and placement of activities, such as industrial, business and craft areas, with the highest qualitative and quantitative impact on landscape.

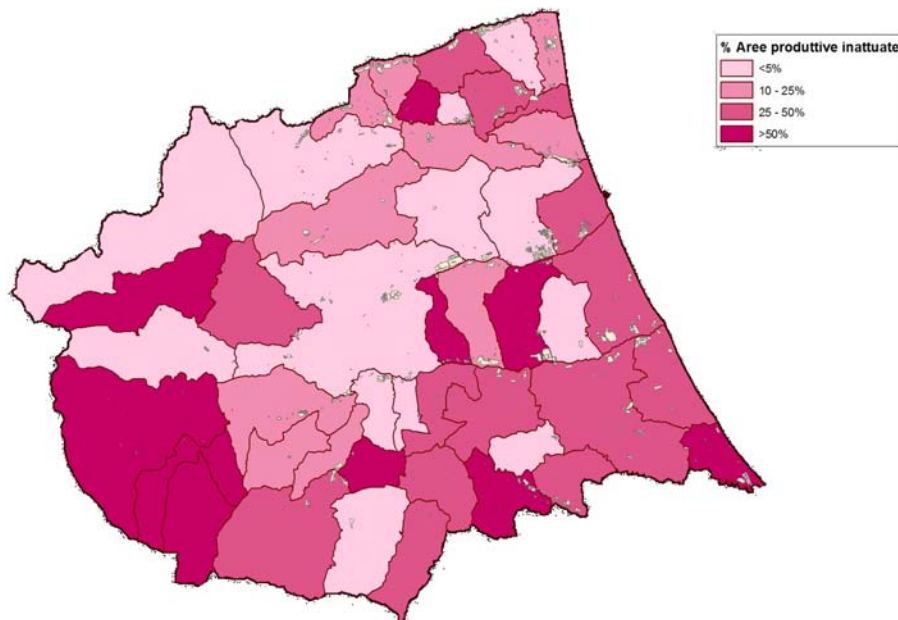


Figure 2 | Province of Teramo: rate of unrealized productive areas

A classification of landscapes by urban dynamics

The study on size and quality of urbanization trends might be used to provide a dynamic picture of landscapes, a view on tendencies that would be much more useful, than a static approach, to those who are going to define the future transformations of the territory through the most disparate planning processes (Ferrario, 2009). This paper therefore proposes a first definition of “trending landscapes”, based on their current degree of urbanization and on the trend that land use processes are following.

In the specific case of Abruzzo this study divided landscape units into four trends (picture 3):

- Landscapes that tend to be saturated: areas in which the exploitation of landscapes and environmental resources is now reaching the carrying capacity. They consist of landscape units in which the urbanization is a constantly growing phenomenon, but the percentage of total urbanized soil in these units is in decline; the amount of urbanized soil in other landscape units is, in other words, increasing at greater rates compared to this sector. This is due to the limited availability of space that causes a slowdown

- of the building processes. Included in this category are the coastline and the river valleys of Abruzzo.
- Landscapes at risk of sprawl: other conceptual types related to the so-called “settlement risk” (Romano & Paolinelli, 2007). All the hilly landforms characterized by the increase of residential and discontinuous settlements. The rural landscape, full of meanings in terms of culture, identity, beauty and ecology, is the one at greater risk in these situations. The transformation in the rural context is mainly due to private initiative, accepted and tolerated by local governments. Private projects are often active in those “white areas” inside zoning plans, the most general areas designated as “E”, regulated by higher-level laws and regional or provincial instruments. Included in this category are Plio-Pleistocene and Mesoadriatic landforms, soils with alternations of sandstone and fine-grained layers up to 800 m above the sea level and intermountain basins with volcanic deposits and hydrologic sedimentations.
 - Landscapes at risk of abandonment: This category includes all those landscapes susceptible to a sharp decline in population, which corresponds to a relatively low rate of urbanization. The risk for this category of landscapes, located in the mountains of the interior, is that there is a tendency of population to move away from towns and villages and that the growth of settlements causes a deterioration of the morphological aspects that characterize them, because these settlements are not always accompanied by quality and consistency criteria.
 - Landscapes in balance: these landscape units are those which in 1956 hosted the highest percentage of urbanized soil, being affected by the presence of the largest historical centers of the interior. In these areas there is still a certain degree of correlation between evolution of urban areas and population dynamics. Urban expansion shows itself primarily as an extension of the peri-urban area around ancient towns. The concept of balance in this case is exclusively linked to quantitative factors and this does not guarantee that the landscape will remain unaffected by transformation phenomena caused by the building expansion, however, the risk is low when compared with other regions. Cities can expand according to various models, which may not be subjected to requirements of urban and landscape quality. The intermountain basins where urban settlements are located are the physiographic unit “symbol” of this category.

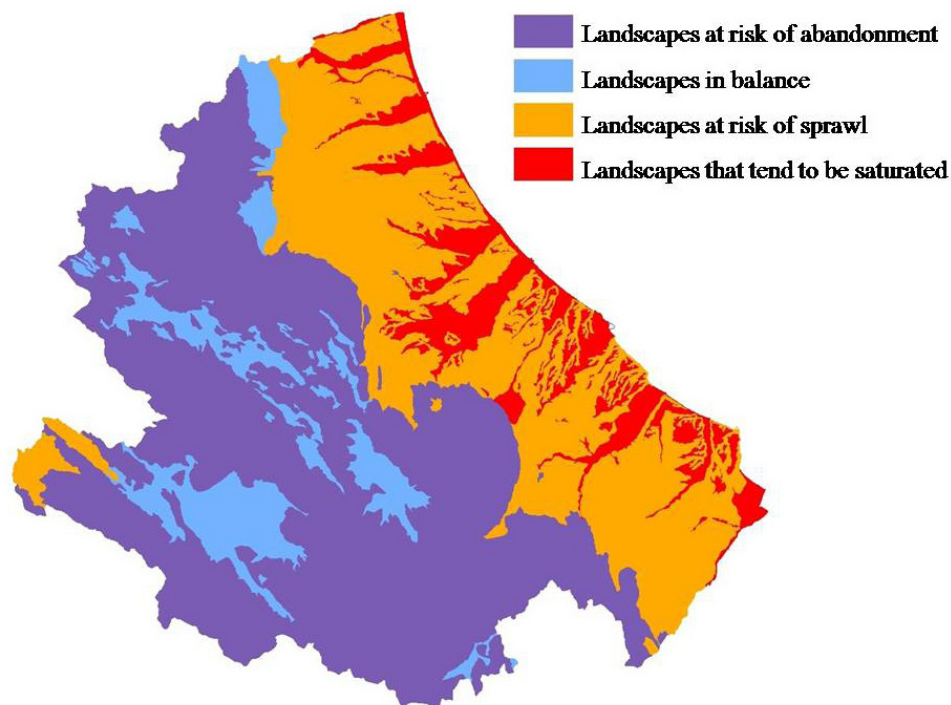


Figure 3 | Abruzzo Region: classification of landscapes by urban dynamics

This classification, properly detailed and enriched with additional case studies, could be used in landscape plans of regional or provincial level to provide general management guidelines that could be implemented and expanded during the preparation of Local Strategic Plans, using surveys on the social component through participatory processes involving a small community.

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