

POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE 2
Degree in Architecture
Honors theses

The fragmentation of agricultural landscape: an hypothesis for the containment of the phenomenon and the environment's widespread requalification

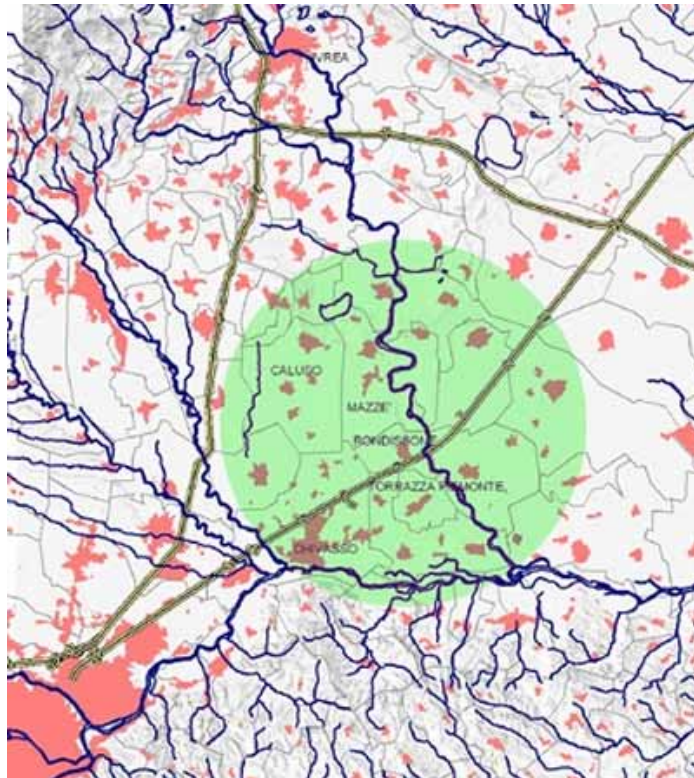
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The fragmentation is the breaking of the natural tissue operated by human-induced disturbances with the introduction of unnatural elements like built-up areas and infrastructures. This phenomenon brings to the formation of natural tissue patches, each one isolated from the others and with more and more small dimensions.

The animal species inside the patches encounter several surviving problems like sparsity of food in the smaller spots and genetic degradation due to the isolation of populations.

The phenomenon has been inquired referring to a real-life study-case: the choice has fallen on an area in the province of Turin delimited to north by the Candia lake, to east by the Dora Baltea river, to south by the Cavour watercanal and to west by SS 26.



This territory is marked by the presence of important infrastructures, like the Turin-Milan freeway and expanding urban centers: all elements of potential fragmentation.

The job has been conceptually subdivided in three parts: the analysis through the application of ecological indexes, the surveying of the built-up areas and the identification of the historical and landscape assets.

The indexes were applied to three different temporal periods (1881, 2001, 2007) in order to trace the evolution of the phenomenon.

The natural consequence of the analysis was the elaboration of a plan aimed at the control and limiting of the phenomenon.

Finally, the indexes were reapplied in order to verify the validity of the plan. For the calculation of the ecological indexes we individuated the uses of the ground in each one of the three temporal periods.

In the passage from 1881 to the 2001 the loss of many historical cultural orderings present on the territory has been noticed: a strongly lessening of the vine, the total disappearing of enclosed fields and padan plantation with irregular outline, the appearance of the poplar cultivation.

The territory, especially in the areas broken by the freeway, turns out banalized and stealed in its constituent features.



The applied ecological indexes are: BTC (Territorial Biopotential) indicates the perspiration; metastability, indicates the stability of the system; resistant/resilient elements ratio; the resistant elements adapt themselves very well to the external perturbations, the resilient elements can't resist to the external perturbations but they have strong and fast resumption ability.

All of the indexes evidenced as in the plain areas the obtained values are in progressive reduction (higher values indicate favorable conditions).

In addition to that were discovered the impermeable patches (surrounded by anthropic elements) to which have been overlapped the elaborations of the data turned out from the surveying of the built-up areas (through the shape, scale and texture of the single buildings) and the surveying of the landscaped assets with particular reference to sacred crosses, pylons and chapels.

The ecological and historical-landscape results confirm that the areas mainly interested from fragmentation are those comprised between the Turin-Milan freeway and the Cavour watercanal.

The plan watched to the highway tracing not only as a cutting element but also as a potential reconjunction opportunity. The idea is to use the water bodies of the Dora Baltea and of the Orco Torrent like longitudinal corridors of connectivity and to create two corridors of cross-sectional connectivity, one located along the freeway and the other to north, under the Tonengo urban area. The cross-sectional corridors will be like mixed vegetation wraps, composed by meadows, poplar coltures managed in natural-like way and arboraceous areas composed by native essences.

It will also be upgraded the fluvial wrap of the Dora with the substitution of the seminataive cultivations with meadows, the natural-like poplar cultivation and the restoration of the native riverside vegetation along the Dora river.

They have been predisposed, moreover, three faunal underpasses in the points of crucial problematics for the transit of the wild fauna.



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