

INFORMATION AND COGNITION IN LANDSCAPE ONTOGENESIS: A NEW THEORY TO INVESTIGATE THE ECOLOGICAL COMPLEXITY

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ABSTRACT

Landscape may be considered as a dense, complex, network of interactions between environmental factors (both forms and patterns, and processes, or dynamics) that capture implicit as well explicit properties of the environment (Phillips, 1999).

Landscape ontogenesis is not a popular theme in ecology but despite this it represents a fundamental step to understanding ecological dynamics and changes under the pressure of internal and external constraints.

Coalescence of land mosaics largely depends on the stochasticity of how such complex systems are embedded, and accordingly three main fundamental processes are proposed in landscape ontogenesis: opportunities, events and novelties.c

Opportunities contribute to the coalescence of individuals inside a patch, events create tension zones (ecotones) between the composing patches and finally novelties produce new configurations in the land mosaic.

Events and novelties are implicated into a proto-cognition process that operates at level of emergent properties eco-field (*sensu* Farina 2000). In landscape ontogenesis self-organizing processes impart order to the systems and cognitive processes assure the bio-semiotic mechanisms to exchange energy, information and material between the different subjects according to a scaled and hierarchical vision of the landscape.

These three processes are strongly informative (*sensu* Stonier 1998) bringing order into the system. The cognition process that operates at the level of opportunities is responsible of the species-specific cognitive landscape (see von Uexkull 1940, Farina et al. 2003).

Keywords: eco-field, ecological dynamics

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