

## **SPATIAL HETEROGENEITY AS EVIDENCE OF ECOSYSTEM TRANSFORMATION IN MEDITERRANEAN ECOSYSTEMS: AND OVERVIEW FROM THE SOUTH**

Marcelo D. Miranda

Center for Applied Ecology and Sustainability CAPES

Pontificia Universidad Católica de Chile

[mmirands@uc.cl](mailto:mmirands@uc.cl)

Mediterranean ecosystems are considered as one of the most important conservation hotspots in Chile due mainly to that they represent more than 20% of the vascular flora of the world. Today its status of conservation depends in two main forces of transformation, the first related to anthropogenic pressures and the second to changes in precipitation and temperature patterns resulting from climate change.

Given this, our research has been oriented to understand how the anthropogenic and the climate forces affect the structural and functional attributes of Mediterranean ecosystems. We have focused on understanding the spatial and temporal dynamics of change by assessing the heterogeneity patterns at different scales. Our methods are based in quantifying the potential primary productivity of vegetation (PPP) by using remote sensing together with field data and mathematical structural functions derived from Landscape Ecology and Geostatistics.

Our results show that several areas of the Mediterranean ecosystems have negative trends for the PPP which are associated with decreases in precipitation and increases in temperature reported during the last 30 years. There was an increment in the spatial heterogeneity at the landscape scale, observed over time as results from local dynamics of land use change, modulated by external drivers affecting this region (principally political and economic).

Learning about the effects of these processes for promoting the sustainability of these Mediterranean ecosystems is the subject of interest in our research group.