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Abstracts

Riccardo G.

Oral presentation

Spatial representation of vegetation and floristic diversity at landscape scale: the Italian experience

Session: Applied mapping for conservation and management

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The application of phytosociology to the analysis of vegetation and landscape diversity has greatly developed in Italy during the past 60 years. The analysis of the scientific production of this period is therefore fundamental for a reflection on vegetation mapping and may be useful to forecast future scenarios of this discipline (Bruno *et al*., 2003). Many different documents related to the plant species distribution and diversity became available over time from different land units of Italy. In particular, interesting examples of mixed floristic and vegetation maps have been produced in a pilot project for the province of Palermo (Sicily) and used in the diagnosis of environmental heterogeneity, as well as as to streamline the zonation of the Madonie regional park (Raimondo, 2000). After a critical review on the available documents, as well as on the relationship between vegetation maps and floristic maps, the evolutionary trends in the production of this kind of thematic maps will be considered, along with some reflections on the information contents, limits and utility of different approaches at different scales. The hypothesis that landscapes are a geo-botanical (meta-ecosystemic) matrix, in which all organisms (including humans) interact, is at the basis of the current shift from vegetation maps to functional maps, in which the description of landscapes as a patchwork (mosaic) of vegetation units, even though spatio-temporally related and subject to their own dynamic, becomes obsolete and the observed complexity is, instead, expressed in terms of functional diversity and ecosystem services (Farina *et al*.,2005). Along with this semiotic and cognitive process, the progress of technology boosted the current debate on landscape mapping, by making available improved multi-scale sampling techniques (using satellite imagery, aerial photography and field data to stratify landscape units and "keystone ecosystems''), smaller minimum mapping units (< 0.02 ha) in automatized analyses, an unbiased sampling design based on double sampling, improved mathematical models including species-area curves corrected for habitat heterogeneity, and GIS-based ecological models (Stohlgren *et al*., 1997). To date, despite continued advances in techniques and technologies, the production of new maps on landscape/vegetation/plant species diversity still relies significantly on manual labor and requires great professional skill and sensitivity, particularly when setting, testing and training the automatized analyses, as well as in the evaluation of results.