

## The changing Mediterranean landscape: An editorial view

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The Mediterranean landscape has coevolved with human beings (Farina et al.). *Homo erectus* passed through the eastern Mediterranean about half a million years ago, but the ecological impact of humans probably was not significant until Neanderthals arrived, hunting large animals and using fire (Currier and Ronen, 1976). By 45,000 BCE, humans were spread throughout the Mediterranean, and man's ecological impact on the environment accelerated. Agriculture and pastoralism, originating in the Near East about 10,000 years ago, increased the pace of change, as did urbanization some 5,000 years later (Hillel, 2005). We cannot guess what the Mediterranean would look like without human activity.

The relationship of man and the environment in this anthropogenic landscape forms the central theme for most of the papers collected in this festschrift in honor of Prof. Zev Naveh, who pioneered this approach to landscape ecology. Farina et al. examine the increasing rates of landscape change in the last century compared to millennia of traditional land use. Currently, the Mediterranean experiences two opposing trends: in some areas, land abandonment, examined by Danin and Farina et al., and in other areas, the intensification of land use with both urbanization and modern agriculture, as examined by Farina et al. and Olsvig-Whittaker et al.

Landscape ecology in the Mediterranean tends to focus on management problems (Papanastasis and Chouvardas; Perevolotsky; Van-Zeller et al.), since leaving the landscape to develop “naturally” is neither a feasible nor usually a desirable option. For example, the effects of reduction in grazing intensity, studied by

Dufour-Dror, are shrub encroachment and reduction in species diversity. The beneficial effects of grazing are also examined by Perevolotsky, extrapolating from the Israeli experience to the Mediterranean in general.

Responses to disturbance are strongly affected by the marginal nature of Mediterranean landscapes, which are mostly shrublands that lie between the desert and the forest (Le Houérou). Because of this ecotonicity, changes in management and small shifts in climate can enhance spatial and temporal heterogeneity, in turn causing these landscapes to be more patchy, diverse, and capable of shifting physiognomy. The long-term adaptation of the Old World Mediterranean has given its landscapes resiliency in the face of such changes (Perevolotsky; Papanastasis and Chouvardas), whereas other Mediterranean areas may be more vulnerable to species invasion and loss of diversity (Allen et al.)

The need for interdisciplinary cooperation is emphasized by Lieberman and Ingegnoli, largely due to the importance of social, cultural, and economic factors in shaping the Mediterranean landscape. Change in the landscape is accelerating due both to expanding populations and to global climatic change. There is an urgent need for better interdisciplinary integration of knowledge, policy, and practice in order to preserve the Mediterranean landscapes. Prof. Zev Naveh understood this half a century ago, well ahead of most of us, and his work will serve to guide us in the future.

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