



Using SaudiVeg Ecoinformatics in assessment, monitoring and proposing environmental restoration tools in central Saudi Arabia

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Successful restoration of degraded habitats requires information about the history and factors led to the deterioration of these habitats. This study analyzed SaudiVeg Ecoinformatics, which is a big phytosociological database about plant communities and other environmental factors affecting them in the Najd-Central Region of Saudi Arabia. A phytosociological survey with more than 3000 vegetation relevés was conducted during 2013. The data were used to correlate the plant community attributes, such as abundance and species diversity in natural and ruderal habitats with environmental factors, such as human impacts, soil physical and chemical properties, and land uses. The data were subjected to multivariate analyses using programs, such as TWINSpan, DCA and CCA, via Juice package. Fourteen vegetation associations were described under provisional classification of the Central Saudi Arabia deserts. These associations were broadly grouped into desert vegetation types. One alliance group, Haloxylonion salicornici, is the most widespread and contains four associations on the wadis and desert plains. Three associations are dominant on the depression habitats (raudhas) and two associations of Tamarixidetum spp. on the wetland and salt pan habitats. Four associations inhabit the man-made habitat and abandoned field habitats and one association, the Neurado procumbentis-Heliotropietum digyni, dominates the overgrazed sandy dunes. As human impact is huge and increasing, the vegetation ecoinformatics of the present study would form a baseline description that could be used as a vital tool for future monitoring and for proposing environmental restoration processes in central Saudi Arabia. It could also help both Governmental and Non-governmental organizations (NGO) in formulating strategies and on-ground plans for protection, management and restoration of the natural vegetation.