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Desert Rocks – A Habitat Which Supports Many Species That Were New to Science in the Last 40 Years

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Abstract: Hard limestone, dolomite, sandstone, and granite constitute, under certain conditions, smooth-faced outcrops in desert areas of SW Asia. This habitat supports the most rare plant species in the desert including most of the desert endemics of Israel, Sinai, and Jordan. The smooth-faced outcrops efficiently contribute runoff water to the rock crevices and events when water is available for plant utilisation take place at a higher frequency than in the other habitats in the desert. In many sites plants are isolated and protected by impermeable rocks from competition from other plants. The rare and special plants found in this habitat include many relicts of mesic floras that prevailed in the past when the climate was moister than that of the present. Many such events of climatic shifts had occurred in the area during the Tertiary and the Quaternary. The soil pockets in these rocks are rich in silt and clay particles transported as air-borne dust and trapped by mosses and lichens that are confined to rocks. The existence of relatively moist soil pockets in this habitat enables it to function as a refugium for plants that adapt to the desert with difficulty. The relatively small areas of rock outcrops of Israel and Sinai may be looked upon as an archipelago of minute and small islands in the ´´desert ocean´´. They support occasional species of the Mediterranean flora together with shrub-steppe species surrounding the refugia. The large areas of sandstone outcrops of SW Jordan function as large islands with many relict species that are typical to almost all the habitats and fulfil most functions of the Mediterranean woodlands. The archipelago situation seems to have functioned in speciation in a few genera. Discovering 5 of the 6 species in Origanum L. sect. Campanulatocalyx Ietsw. may serve as a test-case to display the ´´archipelago situation´´. Occasional events of survival and speciation of taxa in unpredictable sites increase the chances of finding species that were not observed previously locally or internationally, i.e. new to science.

Key Words: Desert, smooth-faced rocks, rare, relicts, mesic moisture regime, refugium

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