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NURSE PLANT RETATIONSHIPS OF COLUMNAR CACTI IN ARIZONA

Kathleen C. Parker

Pages 322-335 | Published online: 15 May 2013

 Download citation  <https://doi.org/10.1080/02723646.1989.10642386>

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Abstract

Patterns of association of three columnar cactus species with potential nurse plants and rocks were examined in Organ Pipe Cactus National Monument, Arizona. Close spatial associates of cacti are often called “nurses” because they provide a less extreme microclimate for cactus seedlings, which improves survival rates. Of the three cacti, *Carnegiea gigantea* had the greatest frequency of association with nurse plants. *Stenocereus thurberi*, which is common on steep hillslopes where rocks and crevices offer numerous protected microsites for seedling establishment, was associated with nurse rocks more frequently than were the other two species. *Lophocereus schottii* showed the lowest frequency of association with nurses. In the Monument, *L. schottii*

reproduces primarily through vegetative propagation, which reduces the need of small cacti for protection from nurses. Species most frequently associated with the three cacti were among the dominant species where each cactus occurred except that sparsely foliated species were associated with cacti less frequently than expected. This pattern supports previous claims that structural characteristics are more important than species identification in providing cacti with enhanced chances for survival. It also suggests that at a landscape scale, population dynamics of columnar cacti are more closely linked to patterns of overall vegetation change than to population fluctuations of a particular species that acts as a nurse. [Key words: northern Sonoran Desert, cactus establishment, nurse plants.]



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