

HARRISIA CACTUS AND ITS ENVIRONMENT.II. CLIMATIC, EDAPHIC, AND BIOTIC FACTORS

G.J. Harvey

Department of Lands, Queensland

CLIMATE

The climates of Collinsville and Presidencia Roque Sáenz Peña, the centre of distribution of *Harrisia* cactus (*Eriocereus martinii*) in Argentina, are remarkably similar. Average monthly temperatures, maxima and minima, are closely coincident; the average diurnal temperature fluctuation ranges from 11.1 to 16.7°C at Collinsville, and from 10.5 to 15.2°C at Sáenz Peña. Average annual rainfall at Sáenz Peña is 1089 mm, at Collinsville 743 mm. In both areas rainfall is summer-dominant - 77% from November to March at Collinsville, 84% from October to April at Sáenz Peña. Collinsville rainfall is not reliable, even during the summer peak, so that summer months as well as winter months may be arid. No data on rainfall reliability at Sáenz Peña are available to the author. Thus *Harrisia* at Collinsville is growing in a climate similar to that of the native habitat.

SOILS

From a study of Queensland soil maps and the known distribution of cactus in Queensland, it can be deduced that *Harrisia* will grow on any type of soil. However, it does appear to favour soils of basaltic origin rather than those of sandstone origin, although heavy infestations can occur on soils of the latter type. Alluvial soils also support dense cactus.

BIOTIC PRESSURES

In Australia *Harrisia* populations commonly reach densities greater than 100 000 plants/ha, whereas in Argentina *Harrisia* is a minor problem and 400 to 500 plants/ha is considered a dense infestation. The difference is explainable by differences in biotic pressures within the respective environments.

In Argentina, *Harrisia* has to compete with a large number of Cactaceae and other CAM (crassulacean acid metabolism) plants. In Australia, other Cactaceae are of limited occurrence owing to the success of biological control agents, e.g. *Cactoblastis cactorum*, and no native CAM plants are known. Competition from plants of similar physiological requirements is thus minimal.

*Harrisia* and the prickly pears are prolific seed producers. The bright red fruits attract birds and feral pigs, which distribute the seeds widely. *Harrisia* also propagates vegetatively. In Argentina, seed production by *Harrisia* is slight