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Special Issue

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How to survive in the desert. . .

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In the previous two special issues I talked about the exceptional diversity of the flora of the Sperrgebiet and Succulent Karoo Biome. These plants have evolved an equally diverse array of adaptations to cope with this hostile environment, some of which are displayed in this final special issue.

Succulence is very common, where plants have swollen stems (pachycauls) and thick, fleshy leaves for water storage. This is particularly marked in three of the dominant families.

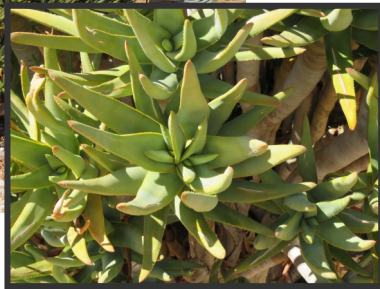


Aloe ramosissima (Aloaceae) nE, from the mountains around the Orange River, with both succulent stem and leaves.

Euphorbia namibensis E, (Euphorbiaceae), a diminutive pachycaul with reduced leaves found on coarse sandy plains.



The mesembs/vygies (Aizoaceae) have succulent leaves, often with bladder cells and hairs.



Phyllobus oculatus, nE retracted to the winter rainfall area.



Below R: *Mesembryanthemum longipapilosum*, a widespread annual in the summer rainfall area.



Zygophyllum pubescens (Zygophyllaceae), a widespread leaf succulent.

Below: *M. barklyi* (brakslaai) nE, lives for one or two years.



In addition, plants have various ways of reducing moisture loss, such as waxy coverings, hairs and tiny or no leaves. Most plants are deciduous, losing their leaves in the dry season. Thorns and spines not only deter herbivores, but also help to create a micro-climate around the plant, creating shade and reducing air flow and thus evaporation.



The deciduous *Sarcocaulon patersonii* (Geraniaceae), Bushman’s candle, has a thick waxy layer over the stems and long white thorns to reflect the heat. The name *Sarcocaulon* means ‘fleshy stem’.



Helichrysum gariepinum (Asteraceae), Orange River everlasting, Sewejaartjie, has densely hairy leaves.

Many plants escape the worst of the heat and drought by having a very short active life span during the rainy season and surviving the rest of the year either as bulbs and corms deep underground (geophytes), or as seeds with drought-resistant coats. Various families have gone the geophyte route.



L: *Ornithoglossum vulgare* (Colchicaceae), a toxic species found on sand or in rock crevices all over Namibia as well as in Botswana and RSA.

R: *Lachenalia klinghardtiana* (Hyacinthaceae), endemic to the red dune sand of southern Namibia.



The daisy family (Asteraceae) specialises in annuals, as well as perennials.



Dimorphotheca sinuata, Namaqualand daisy, is a widespread annual with slightly succulent leaves.

Felicia hirsuta is a perennial with small, fine leaves covered with small white bristles.

E = endemic (restricted) to Namibia. nE = near endemic = mostly in Namibia, but also found across the border in South Africa.

Ref: Mannheimer C, Maggs-Kölling G, Kolberg H & Rügheimer S 2008 *Wildflowers of the southern Namib*. Macmillan Namibia.