

Desert grapes

An expedition to the remote reaches of the southern Namib

by Ernst van Jaarsveld, Kirstenbosch



TOP: Dolphin Head, 110 km north of Luderitz, is a quartzitic sandstone outcrop about 200 m high, surrounded by sand dunes in the east and the Atlantic Ocean in the west.

ABOVE: Close-up of the flowers of *Jensenobotrya lossowiana*. Note the dead leaves still attached to the plant, and the drooping fruiting capsules.

Photos: E. van Jaarsveld.

Jensenobotrya lossowiana (desert grapes or druiwetrosvygie) is one of the rarest vygies (mesembs) in Namibia, confined to a region of the Namib Desert that receives regular coastal fog. Although commonly found in succulent collections today, very few people have ever seen it in its natural habitat: the reason being that it occurs in one of the most inaccessible and remote parts of the Namib Desert, 110 km north of Luderitz. The area falls within the Sperrgebiet National Park. The only way to get there is not only by 4x4, but with an experienced driver who knows the route well enough to negotiate some of the largest dunes in the world.

Jensenobotrya lossowiana was discovered by Mrs Budewitz from Luderitz in 1951 at Dolphin Head about 110 km north of Luderitz. It was brought to the attention of succulent enthusiast Emil Jensen who investigated the mesemb thoroughly and sent it to Hans Herre, a horticulturist at the Stellenbosch University Botanical Garden. Herre immediately recognized

it as new and, with the material provided by Jensen, he described and named it *Jensenobotrya lossowiana*, publishing his findings in *Sukkulentenkunde* in 1951. Emil Jensen's interesting account of his expedition was reproduced in G. Schwantes book *Flowering stones and midday flowers* (Ernest Benn, London, 1957).

The Namib Desert is known for its unique flora and fauna: *Welwitschia* plants, the web-footed gecko, side-winding snakes and tenebroid beetles to name but a few. It is a fairly narrow desert running parallel to the West Coast of Africa (between the coast and inland escarpment) for more than 1600 km (32 to more or less 15 degrees latitude). It stretches from southern Angola in the north, through Namibia and meets up with the succulent Karoo ecosystem just north of the Olifants River in the northern Western Cape of South Africa. Here the vegetation consists mainly of succulent Karoo and strandveld, becoming true desert in the Richtersveld further north, and then

being replaced by arid savanna in the central and northern parts of Namibia and Angola. The southern portion, from more or less 100 km north of Luderitz southwards, is subject to winter rain, and the northern portion receives summer rainfall. The coast is cool and the interior much hotter. Large sand dunes are a common feature north of the Orange River but there are also rocky areas and gravel plains.

Although it receives less than 60 mm of rain each year, and looks devoid of vegetation, the Namib has a rich biodiversity. Why? There are two factors involved: a combination of regular fog and a long history of dry conditions. The Namib is an ancient desert moulded by a peculiar set of circumstances or conditions: a cold ocean and a cool climate in a subtropical desert situation (which is similar to the Galapagos Islands with its peculiar fauna and flora). Without fog, the cold ocean and cool conditions, it would indeed be a lifeless desert.

The expedition

With the assistance of Danny Gildenhuys, and sponsorship from Braam van Wyk and the Botany Department of the University of Pretoria, I was privileged to be able to visit Luderitz Bucht and Dolphin Head, 110 km north of Luderitz in the southern Namib. Our main purpose was to see *Jensenobotrya lossowiana* (desert grapes or druiwetrosvygie) growing in its natural habitat. I am doing a survey of cliff dwelling succulent plant species in South Africa and Namibia, and this mesemb was still to be investigated. The plant belongs to the family Mesembryanthemaceae¹, one of the largest plant families in South Africa, consisting mostly of succulents for the most part confined to the winter rainfall region of South Africa. *Jensenobotrya* is a remarkable, fog-dependent succulent mesemb that hangs down from cliffs or forms a sprawling shrub below the cliffs. It can grow up to 118 cm in length, and has dense, leafy branches that resemble bunches of grapes. The main stem can get as thick as a human's arm and Hans Herre estimated some of the plants to be at least 200 years of age.



RIGHT ABOVE: Negotiating the huge Namib dunes on the way to Dolphin Head. Only experienced drivers like Volker Jahnke know the route.

RIGHT: A sprawling plant of *Jensenobotrya lossowiana*. Photos: E. van Jaarsveld.



TOP: The rocky sandstone habitat at Dolphin Head shrouded in fog.

ABOVE: Fog droplets on the leaves of *Jensenobotrya* during a foggy spell. Photos: E. van Jaarsveld.

Our flight left Cape Town on Sunday morning arriving at Luderitz that afternoon. Anso le Roux, a conservationist from Worcester, had given me the details of tour guide and Namib Desert specialist, Volker Jahnke, who is also a specialist in driving on sand dunes. On his office wall was a picture of him towing Kingsley Holgate in his Land Rover

up a dune! And Volker soon showed us that no dunes were too steep to overcome.

We spent a day in Luderitz visiting various sites on the peninsula. The flora here is typical succulent Karoo with mesembs dominating. Volker fetched us in his Land Cruiser early on Tuesday morning. The route, he explained, was

first to head east on the main road to Aus, then north and then west via very high sand dunes. The vegetation here is sparse, with the occasional camel thorn (*Acacia erioloba*), quiver tree (*Aloe dichotoma*) and *Euphorbia virosa*. In this terrain where no roads exist, a 4x4 is essential, and Volker's knowledge and experience of the dunes and the desert that he loves so much made this journey most successful. It took us almost a full day to negotiate the dunes, some the size of small mountains. The ascending and descending was sometimes hair raising, but we soon relaxed with Volker behind the wheel. The vegetation became even more sparse, with narras (*Acanthosicyos horridus*) in fruit and the spiny desert grass (*Cladoraphis spinosa*) quite abundant. We also saw *Monsonia ignorata* a small herb with characteristic horizontally produced, palm-like leaves. The dunes became higher and the vegetation almost disappeared completely in some parts.

Just before we reached our camp at Saddle Hill, Dolphin Head became visible; a low, isolated mountain peak about 200 m high, on the Atlantic Ocean shore. Fortunately the huge dunes ended abruptly as we came onto the coastal plain and we reached Saddle Hill two hours before dark. Saddle Hill campsite is an old site erected by De Beers Industrial Diamonds over a hundred years ago. The vegetation was mainly see-gannabos (*Salsola nollothen-sis*), a shrubby plant that forms large hummocks.

Luckily for us, Volker has an excellent general knowledge of the fauna and some flora, and he knew where to find *Jensenobotrya* too, as he had recently taken some botanists from the Windhoek Herbarium to the region. Late that afternoon Volker took us to Arkona about 10 km north of Dolphin Head and Spencer Bay. This was our first sight of a stand of *Jensenobotrya*. The plants were sprawling on quartzitic sandstone (the Spencer Bay formation of the Damara Sequence). The pinkish-brown, skin coloured leaves are densely arranged like bunches of grapes bearing pink flowers. These plants grow up to 80 cm in diameter and are locally abundant, but are confined to sandstone rocks. Another vygie, *Drosanthemum luederitzii*, was common here, and we also came across the Namib caper bush (*Capparis hereroensis*) in fruit, muis-toontjie (*Zygophyllum clavatum*) and kraalvygie (*Brownanthus marlothii*).

Volker showed us a spring with stands

of kweekgras (*Cynodon dactylon*) and on the way back he took us to see a lone human skull lying among rocks - an eerie warning of the hostility of the environment. The only large mammals present in this area are brown hyena and black-backed jackal.

Rainfall in this region is very sparse and mainly received during the winter, but the regular, dense fog keeps life going. We passed Spencer Bay, with Mercury Island in the distance, and then headed back to camp.

Dolphin Head

Early the Wednesday morning we set out for Dolphin Head and our highly anticipated *Jensenobotrya* plants. Dolphin Head is a distinct landmark that consists of a quartzitic sandstone outcrop (the same formation as at Arkona) forming a promontory surrounded by sand dunes in the east and the Atlantic Ocean in the west. We approached from the south and in spite of the sparse rainfall, which is less than 60 mm per annum, it is well vegetated. It was early in the morning and a dense fog settled in. We were glad to experience this low fog cloud as we again realized its importance for the ecology of this area.

Fog is part of the coastal Namib and the various shrubs, other plants and lichens all depend on it. As we ascended we soon came across various stands of *Jensenobotrya*. The plants were similar to the Arkona plants but with different shades of green (pinkish, greyish-to orange-green) because they grow on shady, south-facing slopes. The leaves of many plants were also partially covered with a black fungus, which I have seen also on *Namaquanthus vanheerdei* in Namaqualand. Other plants encountered included *Lycium decumbens*, a low shrub, slaaibos (*Tetragonia decumbens*) and the mesemb *Drosanthemum luederitzii* sprawling on the rocks. There were two *Pelargonium* species present, *P. ceratophyllum* and *P. cortusifolium*, both with succulent stems and the latter in full flower. *Tylecodon schaeferianus*, a small plant related to *Cotyledon*, was also present and surprisingly, still in leaf. (*Tylecodon* is prominent in succulent Karoo vegetation, losing its leaves soon after spring). *Eremothamnus marlothianus* is a rare plant belonging to the daisy family (Asteraceae). It has succulent leaves covered in a white woolly skin and beautiful yellow daisy flowers.

We climbed up to the base of the main cliff of the south-east peak and what a sight awaited us. *Jensenobotrya* was



ABOVE: Volker Jahnke in the rocky sandstone of Dolphin Head. Photo: E. van Jaarsveld.

BELOW: One of the *Jensenobotrya lossowiana* plants that we photographed was the same plant photographed by Willie Giess² in January 1974. There was hardly any difference in size 34 years later, evidence that these large specimens must be very old. (TOP) Willie Giess' photo, January 1974. (BOTTOM) Ernst van Jaarsveld's photo, December 2007.

growing everywhere. It is clearly the dominant plant here, as it was clear that Dolphin Head contains its main population. Some plants were drooping from the cliffs, their leaves dripping with moisture (see photo on opposite page). We could not believe our eyes as to the size of some of these plants. The stems are densely leaved with grapelike, spherical leaves and the older leaves remain on the plant for some time. Most of the plants were sparsely flowering, as one would expect for *Delosperma* (to which genus it is clearly related). This genus is usually longer lived and does not need to flower profusely as most of the Western Cape mesembs, which flower more opportunistically and are short lived, do. In fact, Herre received a specimen from Emil Jensen that was 118 cm long with a stem circumference of 23 cm! These plants we could see must be very old. I took many pictures and to my surprise, one was of the same plant featured by Willie Giess² in *Dinteria* 10, which was taken in January 1974. There was hardly any difference in size 34 years later! Herre was right about their great age but I think the large plant with the stem circumference of 23 cm must be at least double that age. What struck me about the plants was their fragility, and thus their vulnerability. They have no defences, and luckily, on Dolphin Head the only predators are black-backed jackal and brown hyena, scavenging and preying on Cape fur seal



What does that mean?

Locule (plural loculi) A compartment of the ovary containing ovules.

Refugium (plural refugia) When plant species are found in two or more widely separated regions but nowhere in between, these places or refugia are presumed to be survivors from a once more widespread vegetation type.



TOP: The narra or botterpit, *Acanthosicyos horridus*.

ABOVE: A desert grape plant partially drooping over the cliff face. Note the black fungal growth on the leaves.
Photos: E. van Jaarsveld.

pups. These plants thus grow without any disturbance. In my opinion this is what defines a true cliff dweller. Because of a lack of browsers, plants could exploit the adjacent slopes and rocky outcrops. In past warmer phases with higher sea levels, Dolphin Head promontory was surely an island, devoid of any possible predators. The region is very dry and is not visited by gemsbok or other antelope. If predators had started to browse the plants, the cliff population would have remained intact and would have acted as a valuable refugium.

The fruiting capsules are also interesting. After fertilization they droop, and when there is moisture in the air, they

open up and the seeds fall out.

We saw many plants scattered on the cliffs and sprawling on the steep slopes below; the much-branched stems with dark blackish longitudinally fissured bark. During foggy periods the plants become dripping wet, which constantly revives them so that they are not dependent on rainfall alone. Lichens are commonly found on the stems of the plants, which grow among rock fragments on the fragile rocky cliffs. Due to their extremely fragile nature, these should be protected, as walking among the plants could cause serious damage. In size they vary from small seedlings to one metre long plants; a good, healthy population.

We documented the plants and took many photographs, before meeting up with Volker at the base of the mountain. The journey back was also very interesting. We stopped at the narra population and Volker found a ripe fruit. These are delicious and I realized why the Topnaar people (a branch of the Nama people who live in the the western central Namib along the Kuiseb River) are so protective of their narra plants. Narra (*Acanthosicyos horridus*) belongs to the cucumber family (Cucurbitaceae), a thorny, scrambling shrub several metres in diameter that grows in the dune 'streets'. The huge fruits, which are the size of a small watermelon, are thorny and have delicious orange-yellow flesh containing many seeds. The Topnaar people dry the flesh and market the nutrient rich seeds, which are known in Cape Town as 'botterpitte'.

On our way back through the dunes, we saw gemsbok (oryx) and black-backed jackal. We were grateful to get back safely, with great memories of a most remarkable plant and expedition. 📷

¹Some botanists regard the Mesembryanthemaceae as belonging in the family Aizoaceae, but retain them as a subfamily, the Mesembryanthemoidae. See www.biodiversityexplorer.org/plants/aizoaceae/

²Heinrich Johann Wilhelm (Willie) Giess started the Namibian State Herbarium in 1953 and held the post of curator until his retirement in 1975, but continued to work at the herbarium until 1980. He made an enormous contribution to the collections: 18 570 specimens were collected by him. In honour of Kurt Dinter, Giess published the first issue of Namibia's botanical journal *Dinteria* in 1968, which he edited until 1991. Among his publications are several new taxonomy descriptions. His contribution to Namibian botanical knowledge is immeasurable. He died in 2000 at Swakopmund.

See www.klausdierks.com/Biographies

Acknowledgements

I am grateful to Professor Braam van Wyk and the University of Pretoria for sponsoring this fruitful expedition. I am also thankful to Volker Jahnke for taking us to Dolphin Head; without his help we would not have been able to reach the site. Also thank you to Anso le Roux from Worcester for providing information on touring in the Luderitz region; to Danny Gildenhuys for accompanying and assisting me, and to the curator and nursery manager at Kirstenbosch for allowing me to go. Bertil Nordenstam is thanked for the identification of plants belonging to the Asteraceae family.