Papers: Localities

Introduction to Witsand Nature Reserve

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This article is not an official document of the Northern Cape Nature Conservation Service, and is merely an interim measure until an official brochure becomes available.

Welcome to Witsand Nature Reserve. We wish you a most pleasant and enriching visit!

Witsand is the most recent acquisition of the Northern Cape Nature Conservation Service. The larger portion of the reserve was purchased during mid-1993, and the area gained nature-reserve status on proclamation in April 1994. The Witsand Nature Reserve is approximately 3500 ha in size, most of which comprises the unique dune system. Although Witsand is a relatively small reserve, it has nevertheless already gained popularity through its extraordinary splendour.

Witsand is roughly 80 km SW of Postmasburg. (See Fig. 1.) It is linked to the main route between Kimberley and Upington (R64) by a 40 km gravel road branching off about 59 km east of Groblershoop. From the R27, there is a turnoff to Witsand some 5 km south of Olifantshoek, whereafter 78 km of gravel road will lead one to Witsand. The roads are well signposted, although the condition of the gravel road is variable.

Please note that the Bergenaar's Pass is an extremely steep 1:5 pass. Heavy vehicles and vehicles towing laden trailers or caravans are advised to make use of alternative routes. The nearest filling stations are in Postmasburg, Groblershoop and Olifantshoek. There is no filling station at Witsand.

The Witsand Dune System is situated approximately 1200 m above sea level, and comprises a combination of linear and parabolic dunes which vary between 20 m and 30 m in height. The dunes run a length of 9 km in a NE–SW direction and are approximately 5 km in width. Several theories exist as to how the Witsand System evolved. One theory is that the ferricrete outcrops, which overlie vast expanses of yellow sand, reveal that the climate conditions during the Upper Pleistocene period (ca. 20 000 to 45 000 BC) differed radically from modern conditions, and that the oxide was leached from the typically red Kalahari sand in wet 'bottomland' conditions.

Another theory suggests that the Witsand System consist entirely of windborne sand. This extremely light and fine Kalahari sand was blown into the quartzite basin or basins, which underlie the system, and hold vast quantities of spring, run-off and rainwater. Here the oxides have in time been leached from the sand, providing the many different colours and nuances which give these dunes their particular beauty. This theory would indicate that the process is ongoing.

The entire system overlies at least two vast quartzite basins which hold substantial quantities of subterranean water. It is estimated that the southernmost basin holds no less that 1211 million cubic metres of water at any particular time. The water is pure throughout the system, and contains fewer solids than rainwater!

Another interesting phenomenon is the fact that the dunes are higher than the surrounding plains, and that they are kept intact solely by strong NW and ESE winds.

Many visitors to Witsand are intrigued

when they see that the sands of different colours don't mix. However, this is quite easy to understand when one considers that the varying sand colours indicate the amount of leaching to which the sand has been exposed. The different sand colours all represent varying degrees of oxide depletion. White sand is virtually free of aluminium oxide deposits. Thus it is lighter than the other sands and is always distributed on the surface, on top of darker sand. The wind and other natural conditions play important roles in settling the heavier sand at the bottom and the lighter sand on the surface.

The Witsand dunes clearly illustrate the fact that dunes are not merely random heaps of sand, but have specific structures and characteristics, which are fragile, and easily destroyed or damaged. In addition, plants and animals found on a dune also do not occur at random, but are usually related to very specific zones, to which they are suitably adapted.

The phenomenon of the Roaring Sands has also given rise to differing theories. All, however, agree that the sand needs to be warm, dry and clean in order to emit the sound which may vary from a hum to a roar. This effect is thought to be a result of intense friction build-up as the fine, identical sand particles are scoured together.

Sadly, some of the dunes most often frequented by tourists in the park no longer roar. Could it be that these dunes have been polluted (by litter, braai-fire ash, human and animal excrement, exhaust emissions from vehicles, etc.) to such an extent that they are no longer clean enough to roar, or could it be that the many years of tobogganning has destroyed the actual sand structure?

The Witsand Nature Reserve is comparatively speaking still in its infancy, and clearly not enough is known or understood about this unique dune system. This area has been subjected to severe abuse for many decades before at last acquiring conservation status. How much of this exploitation may be remedied or reversed remains to be seen. We do know that humans have inhabited the area for the past 40 000 years, and that most of the destruction has taken place over the last 40 years – a sad reflection of our times.

Fulgurates are shafts of fused silica varying in shape and size. They are created by lightning strikes into the white sand. Because of the high water-table, and the elevation of the dune system, lightning often strikes in the dunes, and visitors are cautioned to avoid the dunes during thunderstorms, which occur most often in summer and in the afternoon.

The vegetation is a complex convergence zone of three major biotic communities, namely:

1. Kalahari/Karoo–Namib transition community, characterized by sparsely wooded grasslands on dune crests and shrubby grassland in deeper troughs. The grasses are perennial and plants typical of this zone are *Acacia erioloba* (Camelthorn), *Acacia haematoxylon* (Grey Camelthorn), *Boscia albitrunca* (Shepherd's Tree) and *Rhigozum trichotomum*, to name a few.
2. Kalahari Deciduous Acacia Wooded Grassland and Deciduous Bushland are characterized by dense bushland on stony soil. The grasses are typically 'sweet' (of good nutritive value and palatable throughout the year), and the two most abundant trees in this community are *Acacia erioloba* and *Boscia albitrunca*. Shrubs most commonly found are *Diospyros lycioides* (Bluebush).
3. Bushy Karoo–Namib shrubland, which largely comprises small bushy trees and large shrubs. The area has been severely overgrazed for many decades. According to Acocks 'the grass [has] been grazed to extinction' (Acocks 1975, Veld types of South Africa, Mem. Bot. Surv. S. Afr. 57: 1–146).

Ongoing control of alien vegetation is a priority for the Northern Cape Nature Conservation Service, and the stabilization and restoration of the indigenous vegetation will be a slow but vital process.

Witsand has been identified as possibly the only area of localized endemism in the Northern Cape. Most of the plants thought to

be endemic to Witsand occur in the seeps and depressions between the dunes. One is left wondering whether more endemic species may have been lost during the years of large-scale abuse of the dune area by off-road vehicle owners and their uncontrolled recreational activities. The seeps are particularly sensitive areas, and damage to these areas cannot be as readily restored by the forces of the natural elements as, for example, the dune crests are.

Furthermore, most of these rare plants appear only after good rains; therefore the problem is aggravated by the fact that one cannot see obvious signs of any vegetation for many months of the year, and damage and destruction is often totally inadvertent.

Springbok, duiker and steenbok are abundant on the reserve. Since Witsand has been assigned conservation status, a small herd of kudu has established itself on the reserve too. The formal reintroduction of additional species will be considered once the natural vegetation has recuperated sufficiently. Nevertheless, some particularly rare and interesting species, such as pangolin and aardvark occur on the reserve, and the visitor to Witsand can never be sure of what he or she may be likely (or lucky enough) to see! Many species show adaptations typical of species living in hot desert environments. This is particularly true of the many beetles and other insects found in the dunes. The avid birdwatcher's skills will also be put to the test by the abundance of LBJs. Witsand offers an interesting combination of arid-region and bushveld birds to keep all from the complete novice to the compulsive twitcher happy.

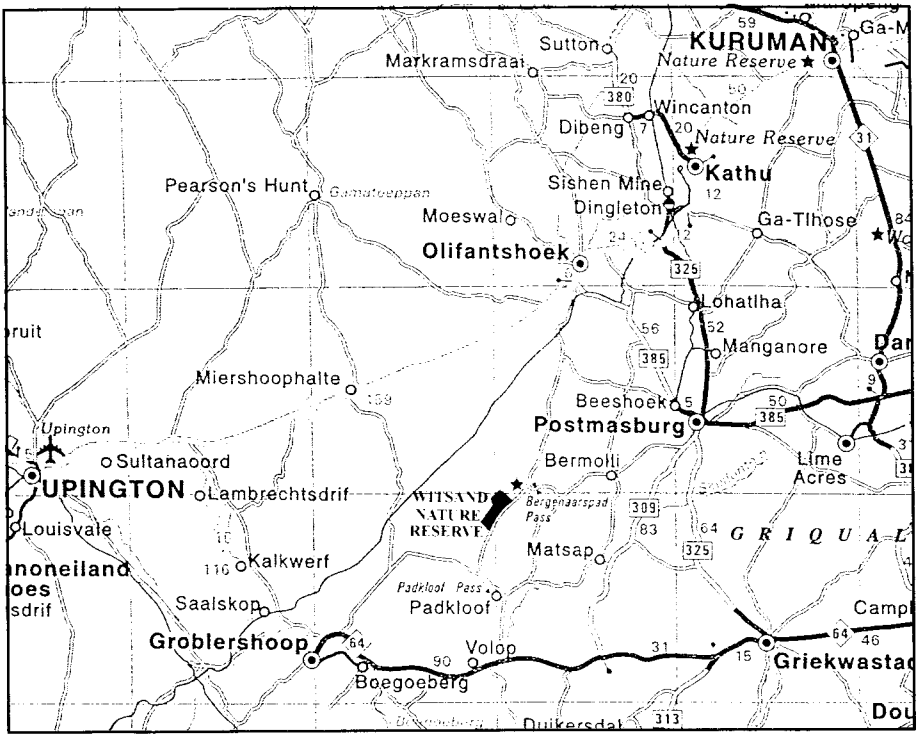

Fig. 1. Roadmap for Witsand Nature Reserve.