

## B. NATURE RESERVES

### Field Note B4. Denel Overberg Test Range

There are several private and public nature reserves in the Study Area (Figure 1). The nature reserves are described briefly in this chapter. This Field Note is about the Denel Overberg Test Range, which is ~2,000 km<sup>2</sup> in extent (Figure 2). It is not a nature reserve, and the area cannot be accessed for security purposes. It is, however the second largest area (after De Hoop Nature Reserve) where fauna, flora and archaeological features are protected.



**Figure 1. Satellite image showing the confines of the Study Area and the nature reserves and conservatories which are located within its confines. They are (from the southwest to the northeast): ANR – Andrewsfield Nature Reserve (private); De Mond Nature Reserve Complex (Cape Nature) which consists of three reserves: SVNR – Soetendals Vlei Nature Reserve; DMFR – De Mond Forest Reserve and WKNR – Waenhuiskrans Nature Reserve; HRNR - Heunings River Nature Reserve (private); HBNR – Heuninberg Nature Reserve (municipal); AMT – Ancient Milkwood Tree national monument (private); DOTR – Denel Overberg Test Range; VRNR – Vogel Revier (*German spelling*) Nature Reserve (private); HRR – Haarwegskloof Renosterveld Reserve (private); HKNR – Hasekraal Nature Reserve (private); DHNR – De Hoop Nature Reserve (CapeNature); DHMPA – De Hoop Marine Protected Area (CapeNature); and SSNR – San Sebastian Nature Reserve (private). The ANP – Agulhas National Park – is outside the Study Area.**



**Figure 2. Satellite image of the approximate boundaries of the Denel OTR (box).**


The Denel OTR environmental programs are as follows (from the Denel OTR Website):

### Remarkable biodiversity

Denel Overberg Test Range, together with De Hoop Nature Reserve, represents one of the few relatively untouched nature areas remaining along the South African southern coast. Apart from its scenic beauty it harbours an unusual diversity of ecosystems with its greatest value being its extensive stretches of unspoiled mountain and coastal vegetation and the exceptionally rich and varied marine life along the unspoiled coastline.

It forms part of the Fynbos Biome, being one of the six Floral Kingdoms of the world (the smallest and most diverse). In this area alone, approximately 1 500 plant species are found and new species are discovered regularly.

In terms of biological diversity, this area is one of the most remarkable found anywhere. It serves as a habitat to at least 50 different kinds of mammals, including the largest pure-blooded herd of the endemic Bontebok. The Test Range also has a large herd of Eland and a very healthy population of the rare and endangered Cape Mountain Zebra. In addition, this area is well known for its variety of resident and migrant bird species. On the Range alone more than 200 bird species have already been identified of which fourteen, including the rare African Black Oystercatcher, Cape Vulture and the Blue Crane, appear on the international Red Data list.

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The De Hoop Vlei forms the natural boundary between the Test Range and the De Hoop Nature Reserve and is one of only two waterfowl habitats in South Africa to have been declared a marshland of international importance (1975) in accordance with the Ramsar Convention of 1971.

The coastline represents one of the prime mating and calving areas for the Southern Right whale, while the De Hoop Marine Protected Area (MPA) with its exceptionally rich and varied marine life, overlaps 80% of the Test Range's coastal boundary. A rich legacy of prehistoric remains and historical important buildings and sites are to be found along the coastal area between Cape Infanta and Skipskop, which includes the archaeological important viswywers (stone fish traps) and Shellmiddens (ancient refuge dumps).

The geological formations are mainly coastal limestone and sand, deposited on the underlying shale of the Bokkeveld Group during the Tertiary period (more than two million years ago), and sandstone and quartzite of the Table Mountain Group. The rens or rolling plains of Bokkeveld shale lie further inland. The Potberg and Bredasdorp mountain ranges consist of sandstone and quartzite of the Table Mountain Group (about 400 million years old), whereas the limestone hills are only about five million years old. These varied geological features have resulted in a complex mosaic of different habitat types with a diversity of natural plants and animals.

### Game and wildlife

Since the establishment of the Test Range a comprehensive campaign has been launched to ensure that the animal life is preserved. Considerable success has since been achieved with the re-introduction and management of game. Today various game could be found at on the terrain, with the main species being the rare Cape Mountain Zebra (*Equus zebra zebra*), the endemic Bontebok (*Damaliscus pygargus pygargus*), Eland (*Taurotragus oryx*), Red hartebeest (*Alcelaphus buselaphus*), Steenbok (*Raphicerus campestris*), Bushbuck (*Tragelaphus scriptus*) and the Grey Reebock (*Pelea capreolus*). The Bontebok herd found on the Test Range and the adjacent De Hoop Nature Reserve is currently the largest pure blooded herd in the world.

Various non-indigenous antelope species introduced to this area by previous owners were translocated in conjunction with the then Department of Nature and Environmental Conservation. These species included Blue Wildebeest (*Connochaetes taurinus*), Gemsbok (*Oryx gazella*), Giraffe (*Giraffe camelopardalis*), Burchells Zebra (*Equus burchelli*), Impala (*Aepyceros melampus*), Springbok (*Antidorcas marsupialis*) and the Kudu (*Tragelaphus strepsiceros*).

Other endemic species not present today, but previously found in this area include the Black Wildebeest (*Connochaetes gnou*), the Black Rhino (*Diceros bicornis*) and the Hippopotamus (*Hippopotamus amphibius*).

### Birdlife

This area is well known for its large variety of resident and migrant bird species. They occur in terrestrial environments as well as the De Hoop Vlei and coastal areas. Their feeding habits vary widely, from the large omnivorous ostriches, to scavengers, which include the once widespread Cape griffon vulture (*Gyps africanus*).

In the Greater De Hoop Conservation Area alone more than 260 bird species have already been identified. Fourteen of these species are found on the international red data list of rare and endangered species.

Among these species are included the endemic Damara Tern (*Sterna balaenarum*) and the African black Oystercatcher (*Haemotopus moquini*) (respectively the rarest and second rarest coastal birds of South Africa), the rare Caspian tern (*Hydroprogne caspia*), the vulnerable Cape Griffon vulture of which there are less than 100 breeding pairs remaining in the whole of the Cape Province, and the globally threatened blue crane.

### Reptiles

Thirteen snake species have been recorded in this region of which the Puff Adder (*Bitis arietans*), Cape cobra or yellow snake (*Naja nivea*), Boomslang (*Dispholidus typus*) and spotted Skaapstecker (*Psammophylax rhombeatus*) are probably the best known. Other reptiles include various tortoise species, Geckos (geitjies), Lizards and Agamas (koggelmanders). The unguulate tortoise (*Chersina anulata*) is particularly common while the smaller padlopertjie (*Homopus areolatus*) appears to have seriously decreased in numbers.

### Vegetation

One of the characteristics of the Bredasdorp/Agulhas and Infanta area is the remarkable plant species diversity, which cannot be emphasized enough. With more than 1 500 plant species (or 17% of the approximate 9 600 species found in the Cape Floristic Region) this area is undoubtedly a centre of endemism and speciation.

There are six listed fynbos ecosystem types found in this area, they are:

<b>Ecosystem Type</b>	<b>Status</b>
Protea susannae Fynbos	Protected
Agulhas Limestone Fynbos	Vulnerable
Elim ferricrite Fynbos remnants	Critically endangered
South Coast Strandveld	Protected
Rens shale Renosterveld	Critically endangered
Potberg Ferricrite Fynbos	Endangered

Typical dune fynbos (South Coast Strandveld) is found on coastal sands, of recent marine deposits along the coast, including species like Gonnabos (*Passerina paleacea*), Buchu (*Agathosma collina*) and Phylica lateralis. Blombos (*Metalasia muricata*) and the common Bitou (*Chrysanthemoides monilifera*) are hardy pioneers in these areas.

In sheltered, fire-protected sites dune fynbos is replaced by thickets, with Sea Guarri (*Euclea racemosa*), coastal Olive (*Olea exasperata*), Cherrywood (*Pterocelastrus tricuspidatus*), Taaibos (*Rhus* species) and white Milkwood (*Sideroxylon inerme*) trees.

More inland Rietveld or restioid fynbos (which is dominated by members of the reed family) is found, usually associated with deeper sands or floodplains. Dominant restioid species are the reed (*Chondropetalum tectorum*) in poorly drained sites, often associated with Duineknoppiesbos or Tortum (*Leucadendron linifolium*). Thatching reed or dekriet (*Thamnochortus insignis*) occurs in better drained, younger sands and a related species (*T. erectus*) in better drained, older sands.

Elim ferricrite fynbos remnants are found on the shales and is characterised by the absence or only a sparse cover of a tall proteoid shrub layer. It has a lower cover of restioids and low, ericoid shrubs are dominant. Owing to its limited distribution and the presence of endemics, Elim fynbos is of great interest to botanists. Much of this vegetation type has been removed for agricultural purposes and it thus, requires urgent conservation attention.

Limestone Fynbos is rich in species and probably has the most endemics in the Cape Floristic Region. It therefore warrants urgent conservation measures. The dominant proteoid shrubs are the Bredasdorp Protea (*P. obtusifolia*), silky conebrush (*Leucadendron meridianum*), basterkreupelhout (*Leucospermum patersonii*), pincushion (*Leucospermum truncatum*) and Mimetes (*Mimetes saxatilis*).

### Alien invasive plants


Alien invasive plant species are a serious threat to the natural vegetation.

Undoubtedly the biggest threat to the natural vegetation and ecosystems found at Denel Overberg Test Range is that posed by alien invasive plant species. Free of their natural inhibitors, they multiply unchallenged, smothering natural vegetation and even ecosystems. The main invasive species found at the Test Range are Rooikrans (*Acacia cyclops*), Port Jackson (*Acacia saligna*) and Spider gum (*Eucalyptus lehmanni*) with Rooikrans being the single most significant invasive plant found at the Test Range.

The Test Ranges main task of invasive eradication is centred on Rooikrans control. Rooikrans has an exceptionally rapid potential rate of increase - estimated, by some, at doubling its canopy cover within 3-5 years in sparse stands. This coupled with the fact that Rooikrans seed could be dormant for up to 100 years or more and still be viable, only serves to emphasise the fact that a well organised and executed management program is needed for eradicating this species. It is thus not only the eradication of present individuals that must be taken into account but also the regeneration from seed, or sprouting as found in both Port Jackson and Spider gum trees. This follow-up work is just as important if not more so than the initial destruction of the mother plants. Thus the key to invasive alien control is to prevent further seed production. Biological control agents have been released on Rooikrans and Port Jackson. These pathogens do not kill the plant, but prevent it from seeding.

### Coastal and marine management

The main current along the coast is the south-west flowing Agulhas current, which is turned south by the Agulhas-bank to pass the coast further south. Typical of this area is the diversity of marine life found along the coast. More than 250 marine fish species have been recorded for the De Hoop Marine Protected Area (MPA) alone, making it some of

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South Africa's richest fishing waters to be found. In total eleven whale and two dolphin species have been recorded for this part of the coastline.

As a third of the world's Southern Right whales (*Eubalaena glacialis*) visit the Southern Cape coast every year between April to January, peaking in September and October, to mate and calve, this area is of prime importance for the conservation of this species which was brought close to extinction during the 19th century as a result of whaling. The greatest concentration of these whales is usually found in the sea between Arniston and the mouth of the Breede River.

In March 1986 the De Hoop Marine Protected Area (MPA) was proclaimed to protect the sensitive coastal zone from Skipskop to Cape Infanta, which was heavily, exploited by anglers and commercial bait and shellfish collectors in the past. The reserve extends three nautical miles out to sea and includes 25 300 ha of coastal waters and is managed by CapeNature (De Hoop Nature Reserve). The results have been phenomenal. Not only has marine life recovered within a few years, but rare species have reappeared in appreciable numbers. The cephalopods have increased ten-fold. Various aquatic invertebrates such as crabs, molluscs and starfish have adapted to the specific environmental conditions along the coast. The reserve is now re-populating adjoining areas.


#### [Ethno-archaeological and cultural historical heritage](#)

A rich legacy of prehistoric remains and historical buildings and sites are to be found along the Denel Overberg Test Range coastal area between Arniston and Cape Infanta.

Long before modern man, prehistoric people, like the late stone age hunter-gatherers used the coastal resources in rotation with the inland veld resources. Material remains of this period, like the Strandloper shellmiddens (ancient refuse dumps) and stonefish traps or "viswywers" along the coast are still found today. It is estimated that some of these viswywers might be as old as 3000 years. Although there are no proclaimed national monuments on the terrain, all the viswywers, historical buildings and other important archaeological sites have been charted and are actively conserved.

Buildings of architectural merit on the terrain that are conserved include homesteads on the former farms Hardevlakte, Klipfontein, Agterstekraal and Buffelsfontein. The impressive Melkkamer homestead situated on the bank of the De Hoop vlei was transferred to CapeNature (De Hoop Nature Reserve) and restored to its previous splendour.

Denel Overberg Test Range is located near the southernmost tip of Africa on the south-eastern coast of the Western Cape between Arniston and Cape Infanta. The overland portion comprises two sectors separated by the De Hoop Nature Reserve and forms part of the Greater De Hoop Conservation Area covering a total area of approximately 60 000 ha and represents one of the few relatively untouched nature areas remaining along the South African south coast. Apart from its scenic beauty it harbours an unusual diversity of ecosystems; its greatest value being its extensive stretches of unspoiled mountain and coastal vegetation and the exceptionally rich and varied marine life along the unspoiled coastline.

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The establishment of a high technology testing facility in this coastal area was thus not without concern, leading to a huge public controversy when the plans were made public in the early eighties. This was eventually settled when the recommendations made by the Hey Committee (led by Dr. Douglas Hey) in their report: The environmental implications of a weapons test range in the coastal area of Waenhuiskrans-Cape Infanta was accepted by the South African government late in 1983. The Hey Report, as the Committees work is generally referred to, set the framework for sound conservation and management of this distinct area for the years to come.

Since its establishment the Test Range has successfully completed hundreds of test series and developed into a well-established and respected world-class test facility. It has proved that weapon systems testing can be conducted in an ecologically sensitive area without harming the environment. Underlying this success story is the Test Ranges commitment to delivering quality service while remaining sensitive to its unique environment. This resulted in the facility receiving ISO 9000 certification in July 1998, followed by an ISO 14001 certification of its Environmental Management System (EMS) in October 2000.

The main focus of the Test Ranges ISO 14001 EMS is to ensure sound environmental management practices, ensure compliance to environmental legislation, to minimise or prevent pollution and to continually improve the EMS. Various conservation programmes and initiatives are integrated within the EMS. The EMS also provides for integrated ecological management between the Test Range, De Hoop Nature Reserve, De Hoop Marine Protected Area (MPA) as well as the adjacent Air Force Base Overberg. External ISO 14001 audits are conducted annually by the SABS to evaluate for consistency as well as continual improvement of the EMS.

Although sound management of the terrain is an integral part of Denel Overberg Test Ranges main function as a test facility, the Test Range has accepted full responsibility towards the conservation of its natural habitat and resources. We believe in pro-active prevention rather than re-active mitigating action.

### Overberg Review Committee

In order to ensure adherence to the guidelines provided in the Hey Report a monitoring committee, known as the Overberg Review Committee (ORC) was established in the late eighties to monitor the activities in the Greater De Hoop Conservation Area and to give input to improve on environmental management initiatives. This committee consists of senior representatives of the three main role players, Denel Overberg Test Range, CapeNature and Air Force Base Overberg, three external independent environmental specialists and representatives of the local fishing and farming communities. The committee meets bi-annually.