

**DE HOOP VLEI**

**SOUTH AFRICA**

Information sheet for the site designated to the  
List of Wetlands of International Importance  
in terms of the  
Convention on Wetlands of International Importance  
especially as Waterfowl Habitat

South African Wetlands Conservation Programme  
Document No 24/21/3/3/3/1 (1975)

Department of Environmental Affairs and Tourism  
Private Bag X447  
PRETORIA 0001  
South Africa

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**DE HOOP VLEI: RAMSAR DATA SHEET**

**1. COUNTRY**  
SOUTH AFRICA

**2. DATE OF COMPILATION**  
December 1984

**3. REFERENCE NUMBER**  
1ZA001

**4. COMPILER**  
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**5. NAME OF WETLAND**  
De Hoop Vlei

**6. DATE OF RAMSAR DESIGNATION**  
12 March 1975

**7. GEOGRAPHICAL CO-ORDINATES**  
South 3424' to 3430'  
East 2018' to 2026'

Map number: 1:50 000 3420 AD Wydgelëe

## **8. GENERAL LOCATION**

Bredasdorp - 65 km

Boundaries: The main body of De Hoop Vlei between the causeway at Apolsvlei in the north and Die Mond in the south.

## **9. AREA (ha)**

Main body of De Hoop Vlei ca 750 ha when full. The surface area of the lake when full is 6,2 km<sup>2</sup>.

## **10. WETLAND TYPE**

Variable from type 17 to 18 (Salt lake/Fresh eutrophic lake)

## **11. ALTITUDE**

4 to 11 metres above sea level depending on depth.

## **12. OVERVIEW OF SITE**

The lake is 18 km long and 0,5 km wide on average with a surface area of ca 750 ha when full. The depth of the lake is very variable from a maximum of 7 m during periods of flooding (only twice this century) to nearly completely dry (at least once this century) (Butcher, 1984). As a consequence of these extreme variations in water levels the salinity is very variable and can drop from 50% to 3% within a period of only 2 months (D.J. Coetzee, unpublished data). During occasions of extensive flooding, which has occurred only twice this century in 1906 and 1957 (Butcher, 1984), an area of up to 3000 ha on the plain southwest of De Hoopvlei may be inundated to a depth of up to 3 m. The water receded gradually after the 1957 inundation and provided very favourable conditions for a variety of wetland-dependent birds for up to 10 years afterwards. A number of species, which do not normally breed in this area, bred on the numerous islands formed by the 1957 inundation. A notable event was the first reported large scale breeding attempt of the greater flamingo *Phoenicopterus ruber* in South Africa in this area in 1980 when up to 5000 birds were present and ca 800 nests were built with a fledgling success of 35% (Uys et. al., 1963). A detailed account of the effects of the 1957 inundation is provided by Uys and Macleod (1967).

## **13. PHYSICAL FEATURES**

### *13.1 Geology and Geomorphology*

The main geological formation is limestone and sand dating from the Tertiary Period. This limestone overlies Bokkeveld shales, sandstone and quartzite of the Table Mountain Group.

### *13.2 Origins*

The sandstone and quartzite are approximately 4000 million years old and the limestone 5 million years.

### *13.3 Hydrology*

Widely fluctuating salinities from approximately 3% to 60%. The depth also fluctuates from full to completely empty although not very often.

### *13.4 Soil type and chemistry*

The soil is of low agriculture potential.

### *13.5 Water quality*

Variable salinity from 3 up to 60 ppt.

### *13.6 Depth, fluctuations and permanence*

DEPTH: Min: 0 Max: 7,7 metres

### *13.7 Tidal variations*

N/A

### *13.8 Catchment area*

The most important river system to the De Hoop Vlei is the Sout River and its branch, the Potteberg River. Several fountains are also responsible for feeding the De Hoop Vlei. Due to these fountains, the northern part of the lake is not as brackish as the rest.

### *13.9 Downstream area*

N/A

### *13.10 Climate*

The lake is in the eastern part of the Southwestern Cape which is a winter rainfall area with a Mediterranean climate. Mean annual rainfall is 380 mm with a maximum in August. Mean annual temperature is 17,5C.

## **14. ECOLOGICAL FEATURES**

(Main habitats and vegetation types)

## **15. LAND TENURE**

Virtually the entire catchment of 1 108 km<sup>2</sup> is in private ownership and has largely been ploughed for the establishment of wheatlands and pastures. The greater part of the area surrounding the lake will shortly be incorporated in the De Hoop Nature Reserve. The remaining privately owned land at the upper end of the lake consists largely of undeveloped rocky limestone hills which are used as rough grazing for sheep and cattle. Frequent burning is the only veld management practice that is applied to this land.

## **16. CONSERVATION MEASURES TAKEN**

### *16.1 Legal status*

Mostly state land.

### *16.2 Management category*

Registered as a wetland of international importance at RAMSAR.

### *16.3 Management practices*

De Hoop Vlei is at present only partially included in the De Hoop Nature Reserve. The rest of the lake is privately owned. However, expropriation which is currently in progress will result in the inclusion of more than 85% of the lake within the boundaries of the nature reserve.

The reserve management authority has no control over land-use practices in the catchment area of the lake which is nearly all privately owned farmland. Dykes which were built along the edge of the lake are to be removed in the near future.

The upper portion of the lake, which is to remain in private ownership, is still largely natural veld which is use as rough grazing for cattle.

## **17. CONSERVATION MEASURES PROPOSED**

An agreement should be entered into with the landowner of the privately owned upper portion of the lake to ensure this part of the lake is utilized and managed in ways which are compatible with conservation objectives for the lake as a whole.

The impact of land-use practices in the catchment on the lake should be determined and appropriate remedial action taken.

Public access to the lake should be carefully controlled to ensure that disturbance to birdlife is within acceptable limits as determined by reserve management objectives.

## **18. LAND USE**

Virtually the entire catchment of 1 198 km<sup>2</sup> is in private ownership and has been largely ploughed for establishment of wheatlands and pastures. The remaining privately owned land at the upper end of the

lake consists largely of undeveloped rocky limestone hills which are used as rough grazing for sheep and cattle. Frequent burning is the only veld management practice that is applied to this land.

### **19. POSSIBLE CHANGES IN LAND USE AND PROPOSED DEVELOPMENT PROJECTS**

The development and operation of the Overberg Test Range is not likely to result in significant disturbance to the bird life of De Hoop Vlei provided that aircraft flights are kept well away from the lake. The possible impact of the missile testing range is being monitored and strict requirements have been laid down for the operation of the testing range to ensure that disturbance is kept to acceptable minimum levels (See report on the environmental implications of the proposed experimental weapons test and evaluation facility between Waenhuiskrans and Cape Infanta, Bredasdorp, dated 22 November 1983).

### **20. DISTURBANCES AND THREATS**

The development and operation of the Overberg Test Range is not likely to result in significant disturbance to the bird life of De Hoopvlei provided that aircraft flights are kept well away from the lake. the possible impact of the missile testing range will be monitored and strict requirements have been laid down for the operation of the testing range to ensure that disturbance is kept to acceptable minimum levels.

The possibility that land-use practices in the catchment may threaten the lake due to eutrophication by fertilizer run-off, pesticides and siltation due to increased erosion should be investigated.

### **21. HYDROLOGICAL AND BIOPHYSICAL VALUES**

#### **22. SOCIAL AND CULTURAL VALUES**

Historical: The area was probably settled by Europeans in the late 17th century. Information on the history of the area is provided by Butcher (1984).

Cultural: The De Hoop complex of historical farm buildings is one of the oldest in this area and is a proclaimed National Monument.

Visitor numbers will be restricted and visitors will not be allowed access to sensitive areas to ensure that the natural resources of the area are not damaged. The safe carrying capacity of the reserve must still be determined.

#### **23. NOTEWORTHY FAUNA**

To date 259 bird species, which represents 70% of the 369 species known in the south-western Cape, have been recorded in the De Hoop Nature Reserve (Hel, 1983) This high species richness is ascribed to the high habitat diversity in this area (Uys and Macleod, 1987). An updated checklist of the avifauna of the area is provided by Hel (1992 Scientific Services Section Cape Nature Conservation).

At least 75 bird species, which are dependent on wetlands, have been recorded at De Hoopvlei and includes 12 of the 18 waterfowl species in South Africa (Hel, 1983). Regular monthly or quarterly counts of the birds on De Hoop Vlei have been undertaken since 1979 (Hel, 1983). Noteworthy numbers of birds recorded between May 1979 and April 1983 include:

*Anas undulata* (yellow-billed duck): Maximum of 4 626 recorded which represents 7,1% of the estimated South African population of 65 000 (Rowan, 1963).

*Anas smithii* (Cape shovler): Maximum of 3 004 recorded which represents 15,0% of the estimated South African population of 20 000 (Siegfried, 1965).

*Fulica cristata* (Redknobbed coot): Maximum of 24 400 recorded and more than 10 000 regularly present.

*Alopochen aegyptiacus* (Egyptian goose): Maximum of 2 166 recorded and up to 1332 birds recorded in moult.

Rare and threatened species which have been recorded during these surveys include:

*Pelecanus onocrotalus* (White pelican): A maximum of 60 has been recorded which represents 9% of the regional south-western Cape population of 653 individuals (Cooper and Hockey, 1981) and De Hoopvlei is thus an important feeding area for this species. The white pelican is regarded as rare in South Africa with only two breeding populations viz. on Dassen Island and Lake St. Lucia (Brooke, in press).

*Ixobrychus minutus* (little bittern): Occasional visitor. Brooke (in press) regards this species as rare in South Africa.

*Ciconia nigra* (black stork): Small numbers of up to 8 birds have been recorded with 14 on one occasion. The black stork is regarded as one of South Africa's rarest birds with about 200 breeding pairs (Brooke, in press).

*Phoenicopterus ruber* (greater flamingo): A maximum of 1 473 individuals has been recorded with an average of 374 but in 1960 up to 5000 individuals were attracted by this favourable conditions created by the 1957 inundation and the first recorded breeding attempt in South Africa occurred with ca 800 nests and a fledgling success rate of 35% (Uys et. al., 1963).

*Phoeniconaias minor* (lesser flamingo): A maximum of 1 715 individuals has been recorded with an average of 222.

*Hydroprogne caspia* (Caspian tern): Caspian terns regularly visit the lake and up to 11 individuals have been recorded. This is a significant proportion of the estimated Cape population of 40 breeding pairs while the South African population is estimated at only about 500 individuals (Underhill and Cooper, 1982; Brooke, in press). A number of breeding attempts have been recorded in this area (Hel, 1983).

*Charadrius pallidus* (Chestnutbanded sandplover): The population of this species in South Africa is estimated at only 250 breeding pairs and is regarded as rare by Brooke (in press). Small numbers have been observed at De Hoop Vlei and some breeding attempts were recorded in the 1960s (Uys and Macleod, 1967) although the lake is probably not normally an important habitat for this rare species (Hel, 1983).

De Hoop Vlei is also an important moulting refuge for a number of waterfowl. The maximum of 1 216 Cape shovellers which was recorded during a moulting migration during 1982 (Hel, 1983) represents 6% of the estimated world population of this species (Siegfried, 1965).

The lake is, however, not normally an important breeding area for waterfowl (Hel, 1983) except during favourable conditions after floods as in the 10 year period following the 1957 flood (Uys and Macleod, 1967; Hel, 1983).

The De Hoop Nature Reserve is also an important refuge for a number of other threatened species including the southernmost and breeding colony of Cape vultures (*Gyps coprotheres*) in the Potberg mountain and Damara terns (*Sterna balaenarum*) and African Black oystercatcher (*Haematopus moquini*) along the coast (Hel, 1983). An annotated checklist of the avifauna of the area is given by Uys and Macleod (1967) and has been updated by Uys and Macleod (1969), Stuart et. al. (1978), Hel (1983) and Scientific Services Checklist 1992, Cape Nature Conservation.

There is only one indigenous fish species in De Hoopvlei, *Sandelia capensis* (Siegfried, 1963) but *Oreochromis mossambicus* has been introduced and now occurs in large numbers (Van Rensburg, 1966; Scott Hamman, 1988). The Cape clawed frog (*Xenopus laevis*) is common (Hel, 1983), but water turtles (*Pelomedusa subrufa*), which were present, in large numbers until the 1960's (Brand, 1961) may have become a rarity (Butcher, 1984).

#### **24. NOTEWORTHY FLORA**

The margin of the lake is mostly bare and only a few *Phragmites australis* reedbeds are present, mainly around freshwater springs. The submerged macrophyte *Potamogeton pectinatus* forms extensive beds

which may cover the greater part of the lake (Hel, 1983). Other submerged macrophytes include *Ruppia* and *Chara* species. *Salicornia* species are dominant on the exposed bed of the vlei.

The vegetation of the surrounding area is Coastal *Macchia* (Acocks, 1975) on limestone substrates. *Sideroxylon inerme* (White milkwood) trees are common along the lake.

Van der Merwe (1976) provides a detailed description of the plant communities of the lake and surrounding area.

## **25. SCIENTIFIC RESEARCH FACILITIES**

A major research programme has been embarked upon which is aimed at monitoring the impact of the Overberg Missile Testing Range on the fauna and flora and other conservation-worthy features of the De Hoop Nature Reserve and surrounding area. Special attention has been given to monitoring of De Hoop Vlei particularly in relation to possible detrimental impacts that may result from land-use practices in the catchment area, including possible pollution by pesticides, eutrophication, increased erosion, and effects on water runoff. (cf. Minutes of research working group meeting on De Hoop of 23 November 1984, Department files).

Monthly counts of waterfowl have been undertaken since May 1979 (Hel, 1983) and are being continued on a quarterly basis since .....

There are no research facilities available at De Hoop.

## **26. CONSERVATION EDUCATION**

The provision of environmental education programmes receives high priority. An environmental education centre with accommodation for 60 persons has already been built at Potberg. Environmental education courses have been offered for groups of school children from 1985. At De Hoop an interpretative centre has been developed and walks and hikes will be offered in the near future.

## **27. RECREATION AND TOURISM**

The nature reserve has a high recreation potential, but the emphasis is on nature-orientated educational visits. However, limited overnight accommodation and camping and picnic facilities are available at De Hoop as well as hiking trails. Facilities and numbers of visitors are limited to ensure that no damage is done to the prime conservation-worthy resources of the reserve.

## **28. MANAGEMENT AUTHORITY**

Cape Nature Conservation

## **29. JURISDICTION**

Cape Nature Conservation

## **30. REFERENCES**

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### 31. REASONS FOR INCLUSION

1. De Hoop Vlei is unique in the south-western Cape in being a coastal lake with no visible outlet to the sea and widely fluctuating salinities from approximately 3% to 60%. It is partly located in a very picturesque gorge with high limestone cliffs. The lake will be virtually completely protected within the De Hoop provincial nature reserve within a few years due to acquisition of surrounding privately owned land.

2. Wetland-dependent bird species for which De Hoop Vlei is a critical habitat include:

Species	Max. number recorded
<i>Pelecanus onocrotalus</i>	60
<i>Ixobrychus minutus</i>	occasional
<i>Ciconia nigra</i>	14
<i>Phoenicopterus ruber</i>	1473
<i>Phoeniconaias minor</i>	1715
<i>Hydroprogne caspia</i>	11
<i>Charadrius pallidus</i>	occasional

3. De Hoop Vlei is a highly productive wetland and 75 wetland-dependent bird species have been recorded.

4. The wetland has a high value to the following wetland-dependent birds:

*Anas undulata*: Maximum of 4626 recorded which represents 7,1% of the South African population.

*Anas smithii*: Maximum of 3004 recorded which represents 15,0% of the estimated world population. The maximum of 1216 moulting birds that has been recorded represents more than 6% of the world population.

*Pelecanus onocrotalus*: Maximum of 60 recorded which represents 9% of the regional south-western Cape population.

*Fulica cristata*: Maximum of 24 400 recorded and more than 10 000 regularly present.

Large numbers of greater and lesser flamingoes are also regularly present.

5. De Hoop Vlei is of special regional importance as one of a "chain" of wetlands along the southern Cape coast.

7. The lake lies partly in a scenic gorge with high limestone cliffs. A line of high cliffs along the eastern side provides outstanding vantage points for bird-watching without disturbing the birds.

### 32. OUTLINE MAP OF SITE

(To be appended)





## OPSOMMING

### De Hoop Vlei

#### Location

South 3424' to 3430' East 2018' to 2026'  
Bredasdorp - 65 km

#### Area

Main body of De Hoop Vlei ca 750 ha when full. The surface area of the lake when full is 6,2 km<sup>2</sup>.

#### Degree of Protection

De Hoop Vlei is at present only partially included in the De Hoop Nature Reserve. The rest of the lake is privately owned. However, expropriation which is currently in progress will result in the inclusion of more than 85% of the lake within the boundaries of the nature reserve.

The reserve management authority has no control over land-use practices in the catchment area of the lake which is nearly all privately owned farmland. Dykes which were built along the edge of the lake are to be removed in the near future.

The upper portion of the lake, which is to remain in private ownership, is still largely natural veld which is used as rough grazing for cattle.

#### Site Description

The lake is 18 km long and 0,5 km wide on average with a surface area of ca 750 ha when full. The depth of the lake is very variable from a maximum of 7 m during periods of flooding (only twice this century) to nearly completely dry (at least once this century) (Butcher, 1984). As a consequence of these extreme variations in water levels the salinity is very variable and can drop from 50‰ to 3‰ within a period of only 2 months (D.J. Coetzee, unpublished data). During occasions of extensive flooding, which has occurred only twice this century in 1906 and 1957 (Butcher, 1984), an area of up to 3000 ha on the plain southwest of De Hoop Vlei may be inundated to a depth of up to 3 m. The water receded gradually after the 1957 inundation and provided very favourable conditions for a variety of wetland-dependant birds for up to 10 years afterwards. A number of species, which do not normally breed in this area, bred on the numerous islands formed by the 1957 inundation. A notable event was the first reported large scale breeding attempt of the greater flamingo *Phoenicopterus ruber* in South Africa in this area in 1980 when up to 5000 birds were present and ca 800 nests were built with a fledgling success of 35% (Uys et. al., 1963). A detailed account of the effects of the 1957 inundation is provided by Uys and Macleod (1967).

#### International and National Importance

1. De Hoopvlei is unique in the south-western Cape in being a coastal lake with no outlet to the sea and widely fluctuating salinities from approximately 3‰ to 60‰. It is partly located in a very picturesque gorge with high limestone cliffs. The lake will be virtually completely protected within the De Hoop provincial nature reserve within a few years due to acquisition of surrounding privately owned land.

2. Wetland-dependent bird species for which De Hoop Vlei is a critical habitat include:

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