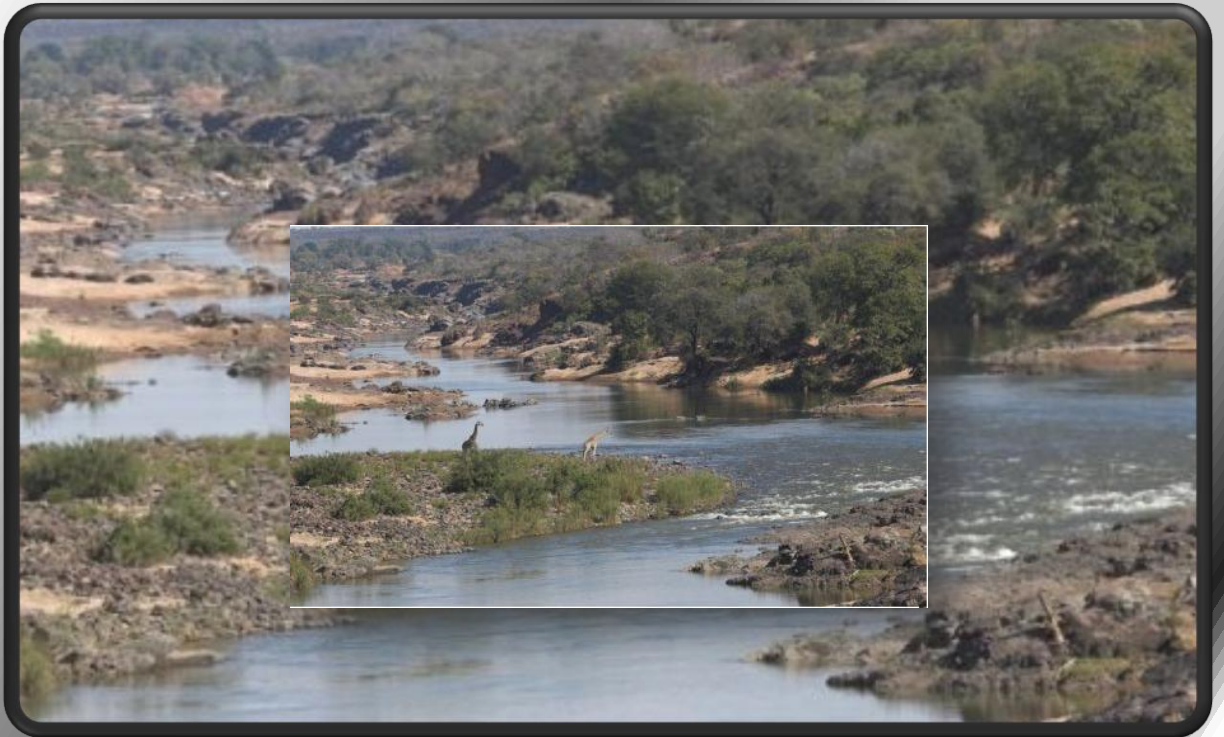


THE OLIFANTS RIVER LIMPOPO/MPUMALANGA PROVINCE



The Olifants River

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OLIFANTS RIVER: Overview

The Olifants River originates near Bethal in the Highveld of Mpumalanga. The river initially flows northwards before curving in an easterly direction through the Kruger National Park and into Mozambique where it joins the Limpopo River before discharging into the Indian Ocean.

- The Olifants water management area corresponds with the South African portion of the Olifants River catchment but excludes the Letaba River catchment. The area of the Olifants Water Management Area is 54550 km². The Olifants water management area falls within three provinces viz Gauteng, Mpumalanga, and the Limpopo Province. The main tributaries are the Letaba, Wilge, Elands and Ga-Selati Rivers on the left bank and the Steelpoort, Blyde, Klaserie and Timbavati Rivers on the right bank. (Ref.3).



- "The Olifants Catchment covers about 54 570 km² and is subdivided into 9 secondary catchments" (www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)
- "The Olifants River meanders past the foot of the Strydpoort Mountains and through the Drakensberg, descending over the escarpment. The Steelpoort and Blyde tributaries, and others, join the Olifants River before it enters the Kruger National Park and neighbouring private game reserves. Crossing the Mozambique border, the Olifants River flows into the Massingire Dam." (www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)



Olifants River near Bahile, Jan 2007 Dr D van Deijl

OLIFANTS RIVER: Tributaries

| Tributary | Notes |
|---------------------------|--|
| ● Blyde river | The Blyde river meanders through the Drakensberg and enters the Lowveld before its confluence with the Olifants river |
| ● Elands River | |
| ● Ga-Selati river | |
| ● Klaserie river | |
| ● Letaba River | |
| ● Moses River | |
| ● Spekboom river | The Spekboom has its source in the mountains near Lydenburg |
| ● Steelpoort river | The river flows in a north-easterly direction and converges with the Olifants River in the Drakensberg near Kromellenboog. |
| ● Timbavati river | |
| ● Wilge River | |

OLIFANTS RIVER: Topography, Geology and Soils

TOPOGRAPHY

The topography in the Olifants River catchment is characterized in the southern part of the catchment by rolling gently sloped hills, before the river cuts through the Drakensberg to enter the relatively featureless Lowveld region. Largely attributable to the topography, distinct differences in climate occur. The climate varies from cool in the southern Highveld region of the water management area through temperate in the central parts to sub-tropical east of the escarpment. The rainfall is strongly seasonal occurring mainly in summer. The mean annual rainfall falls in the range 500 mm in the Lowveld region, reaching 1000 mm in the mountains and reducing to 700 mm in the South in the Mpumalanga Highveld region of the water management area. The potential evaporation is well in excess of the rainfall. (Ref 1)

GEOLOGY

The geology in the Olifants River catchment consists mainly of hard rock formations, with the occurrence of the Bushveld Igneous Complex as the most prominent feature. The eastern limb of this formation cuts through the northern part of the water management area. Rich coal deposits occur in the Upper Olifants Sub-area in the vicinity of Witbank and Middelburg. A large dolomitic intrusion extends along the Blyde River, curving westwards along the northern extremity of the water management area.(Ref.1)

SOILS

"Soils in this ecoregion are highly erodible. The situation is worsened by intensive cultivation and grazing, which have caused general degradation of land cover."

(www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)

"Cultivation and grazing also causes the riverbanks to destabilise, undercutting occurs and riverbanks are swept away by floods."

(www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)



Olifants River near Balule. Jan 2007 Dr D van Driel

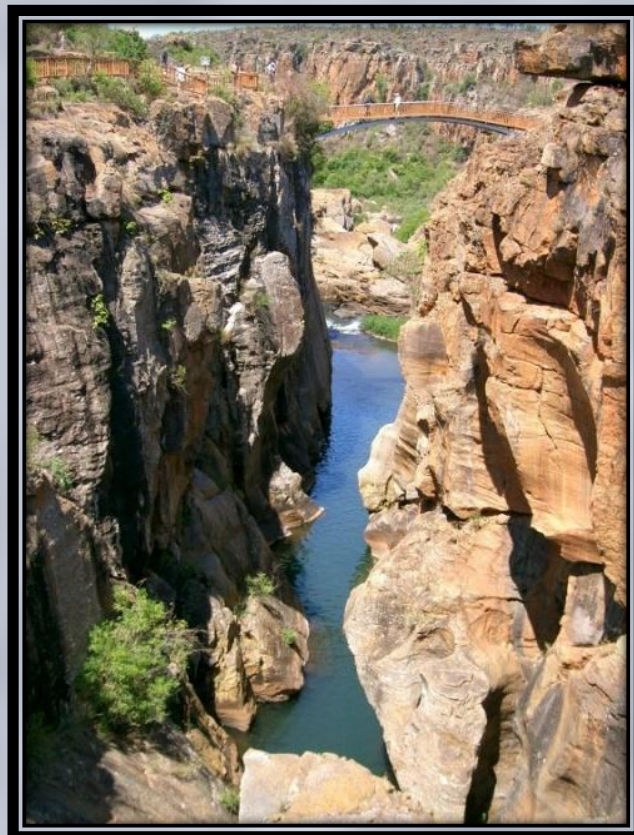
OLIFANTS RIVER: Hydrology and Geohydrology

HYDROLOGY

- The available water resource is made up of surface water and groundwater. The mean annual runoff (MAR) for the Olifants Water Management Area is 2042 million m³/a (Ref.1)
 - *The total mean annual runoff is approximately 2400 million cubic metres per year.* (www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)
- The water availability in this sub-area is impacted on by coal mining. The mining process impacts on the natural hydrological system by disturbing the integrity of the overlying rock and soil strata resulting in increased infiltration and recharge of the groundwater system. This “additional” water, although of poor quality, represents extra water which can be utilised in the sub-area. The quantity of the “additional” water needs to be determined. The water volumes stored in the mine workings can also be utilised as dams during drought periods to augment the yield of the system.(Ref.1)

GEOHYDROLOGY

- The groundwater occurrence in The Olifants Water Management Area is controlled by the prevailing lithology. The high groundwater yields in the area are associated with the weathered pockets in the hard rocks which underlie the area and the dolomites. The highest groundwater yields are associated with the dolomite aquifer. Groundwater is extensively used for rural water supplies and stockwatering in the area. (Ref.3)



OLIFANTS RIVER: Ecology

OVERVIEW

"Many weirs impact the river flow and change the habitat. In spite of this, the water quality is very good. The Blyde River gorge has been cleared of alien species like wattles and pines, and water from the Blyde River generally improves the water quality in the Olifants River downstream of their confluence."

(www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)

- Increased silt loads in the Olifants River lead to high water turbidity and sedimentation on the riverbed. In addition to the loss of physical habitat, fine particles also have an irritating and clogging effect on the gills of fish and some aquatic invertebrates (Ref.3)

- There are numerous pans and wetlands located in the Upper Olifants area. Many of these pans and wetlands are under threat by mining. This is due to undermining, mining through or the use of the pans for the storage and evaporation of saline mine water.(Ref.3)

AQUATIC ANIMALS

- The Mhlapitse River was identified during the ecological Reserve determination study as an ecologically important area due to the numerous cool mountain streams that join the Olifants River. The mix of hot and cold waters provides habitat with a high diversity and numerous red data and endemic fish species and frogs occur in these environments.(Ref.3)

- Trout farming in the Spekboom River has resulted in the loss of indigenous fish species.

- The Treur River Barb was rediscovered in the upper Blyde River during the 1970's

- The Natal Mountain Catfish (*Amphilius natalensis*) also occurs in this part of the Blyde River.

- (www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)

TERRESTRIAL ANIMALS

Typical birds are louries, hornbills, fly-catchers, shrikes, rollers, etc.



VEGETATION

- The Olifants water management area is dominated by tropical bush and savanna, with smaller areas of false and pure grassveld. Small amounts of inland tropical forest occur in the northern and eastern boundaries of the water management area.(Ref.3)

- "Cocklebur (*Xanthium strumarium*), a declared weed, dominates the low-lying sandbanks, dry riverbeds and floodplains"

(www.csir.co.za/rhp/state_of_rivers/state_of_crocsabieolif_01/olif_eco.htm)



Redbilled hornbill. Kruger National Park. Jan 2007. Dr Dirk van Driel



European Roller. Kruger National Park. Jan 2007. Dr Dirk van Driel

OLIFANTS RIVER: Climate

TEMPERATURE

The climate varies from cool in the southern Highveld region of the water management area through temperate in the central parts to sub-tropical east of the escarpment. (Ref.1)

RAINFALL

The mean annual rainfall falls in the range 500 mm in the Lowveld region, reaching 1000 mm in the mountains and reducing to 700 mm in the South in the Mpumalanga Highveld region of the water management area. The potential evaporation is well in excess of the rainfall. (Ref.1)



OLIFANTS RIVER: Land-uses

AGRICULTURAL

- Agriculture makes a meaningful contribution to the economy of the water management area. This is mainly attributable to the favourable conditions for dryland and livestock farming as well as extensive irrigation in the Olifants catchment.
- Other farming activities, such as trout and game farming, also contribute to a successful tourism industry. (Ref.3)
- Agricultural activities next to the Blyde River include commercial citrus irrigation



NATURE CONSERVATION, RESERVES AND TOURISM

- The Olifants river runs through the **Kruger National Park**. The Kruger National Park is world renowned and is important from an eco-tourism point of view.
- There are a number of ecologically important areas within the area and various conservation areas have been proclaimed:

Blyde River Canyon Reserve, Klaserie Game Reserve, Thorny Bush Game Reserve, Umbabat Nature Reserve, Timbavati Nature Reserve, Wolkberg Wilderness Area, The Dawns Nature Reserve, Selati Game Reserve, Mount Sheba Game Reserve, Sterkspruit Nature Reserve, Lydenburg Nature Reserve, Gustav Klingbiel Nature Reserve, Ohrigstad Dam Nature Reserve, Loskop Dam Nature Reserve.(Ref.3)

- *"The Wolkberg Wilderness Area is a high priority conservation area"*

- There are also numerous gorges. The more important gorges are located:

Upstream of the Mozambique border in the Kruger National Park. The transition from the Highveld to the Lowveld. Upstream of Loskop Dam.



INDUSTRIES

- Some of the largest thermal power stations in the world are located in the upper reaches of the Olifants River.

MINING

- The area has extensive coal reserves located in the upstream southern region of the catchment in the vicinity of Witbank and Middelburg. The downstream eastern portions of the catchment have minerals such as copper in the Phalaborwa area, with chrome and vanadium in the Steelpoort valley. The platinum reefs along the Lebowakgomo to Burgersfort axis (Dilokong Corridor) are also starting to be extensively exploited. (Ref. 3)



OLIFANTS RIVER: Populated places

| Name | Province | District | Municipality | Population | River or tributary |
|-----------------|----------|--------------------|------------------|------------|-----------------------------------|
| Arnot | MPU | | | | Klein Olifants River |
| Belfast | MPU | Nkangala | Emakhazeni | | Tributary of Steelpoort River |
| Bethal | MPU | Gert Sebandi | Govan Mbeki | | |
| Bronkhorstspuit | GAU | Metsweding | Kungwini | | Bronkhorstspuit/Wilge River |
| Burgersfort | MPU | Greater Sekhukune | Greater Tubatse | | |
| Cullinan | MPU | | | | Elands River |
| Delmas | MPU | Nkangala | Delmas | | Tributary of Bronkhorstspuit |
| Dullstroom | MPU | Nkangala | Emakhazeni | | |
| GaMasemola | LIM | Greater Sekhukhune | Elias Motsoaledi | | Olifants River |
| Gravelotte | LIM | Mopani | Ba-Phalaborwa | | Mulati/GaSelati |
| Groblersdal | LIM | Greater Sekhukhune | Elias Motsoaledi | | Olifants River |
| Hendrinakrag | MPU | Nkangala | Steve Tshwete | | Tributary of Klein Olifants River |
| Hoedspruit | MPU | | | | |
| Klaserie | LIM | Mopani | Maruleng | | Klaserie River |
| Kriel | MPU | Nkangala | Emalahleni | | Steenkoolspruit |
| Leslie | MPU | | | | Wilge River |
| Lydenburg | MPU | Nkangala | Thaba Chew | | |
| Marble Hall | MPU | | | | between Elands and Olifants River |
| Middelburg | MPU | Nkangala | Steve Tshwete | | Klein Olifants River |
| Phalaborwa | LIM | Mopani | Ba-Phalaborwa | | GaSelati |
| Trichardt | MPU | Gert Sebandi | Govan Mbeki | | Trichardtspruit/Steenkoolspruit |
| Tweefontein | MPU | | | | Enkeldoringspruit/Elands River |
| Witbank | MPU | Nkangala | Emalahleni | | Olifants River |

OLIFANTS RIVER: Dams

| Name | Max. capacity (mil. cub.m) | Comments |
|--------------------------------|----------------------------|--|
| ● Blyderivierspoort Dam | 54.4 | The dam supplies water for irrigation, local industrial and domestic demands and supports the supply from the Phalaborwa Barrage to the urban and industrial centre at Phalaborwa. |
| ● Bronkhorstspuit Dam | 57.4 | Supplies Bronkhorstspuit and the Western Highveld Region in the Elands River catchment with water for domestic and industrial use. There is also a supply for irrigation. |
| ● Flag Boshielo Dam | 183.2 | Was constructed to mainly supply water for irrigation, domestic use and support the transfer of water to Polokwane for domestic use. |
| ● Loskop Dam | 361.5 | Is used primarily to supply irrigation water to the Loskop Irrigation Board |
| ● Middelburg Dam | 48.1 | Meets the urban and industrial demands of Middelburg . |
| ● Renosterkop Dam | | Supply water for domestic use to the Western Highveld Region and for irrigation. |
| ● Rust De Winter Dam | | Supply water for domestic use to the Western Highveld Region and for irrigation. |
| ● Witbank Dam | 104.0 | Meets the urban and industrial demands of Witbank. |





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