The term "grassland" creates the impression that the biome consists only of grass species. In fact, only one in six plant species in the biome is a grass.

**GRASSLANDS AROUND THE WORLD**

Grasslands cover 40% of the earth’s non-ice bound terrestrial surface and are home to over 1 billion people. They contain biodiversity of global significance and provide ecosystem goods and services that support human life. However, temperate grasslands across the world are one of the biomes most impacted by anthropogenic activities. The Millennium Ecosystem Assessment highlighted that globally more than 70% of the grasslands biome had lost its natural cover by 1950. An additional 15.4% has been lost since then.

**GRASSLANDS IN SOUTH AFRICA**

The grasslands biome is the second largest biome in South Africa, covering 29% of South Africa and occurring in 8 provinces including Gauteng, Limpopo, Eastern Cape, Mpumalanga, KwaZulu-Natal, Free State, North West and the Northern Cape. Grasslands in South Africa have high species richness and high turnover of biodiversity across the landscape. The South African grasslands are a very old, complex and slowly evolved system with indigenous species diversity second only to the well-known fynbos biome. The grasslands also play a vital role in water production. The term ‘grasslands’ creates the impression that the biome consists only of grass species. In fact, only one in six plant species in the biome is a grass. The remainder includes bulbous plants such as arum lilies, orchids, red-hot pokers, aloes, watsonias, gladioli, ground orchids and underground trees. There are also many other species, such as blue cranes, swallows, habitats and ecosystems that form an important part of the grasslands biome, including rivers and wetlands.

**FACTS ABOUT SOUTH AFRICA’S GRASSLANDS BIOME**

- It is one of the most threatened biomes in South Africa, with 30% of the biome transformed beyond repair and only 2% formally conserved.
- It plays an important role in water production in South Africa. Wetlands fulfill an important water provision and flood attenuation role in the grasslands. Major rivers such as the Orange, Tugela, Caledon and Kei rivers have their headwaters in the biome. Yet 83% of river ecosystems are ranked as threatened, with 48% critically endangered.
- Three world heritage sites occur in the grasslands biome, namely, the Cradle of Humankind, the Ukhahlamba/Drakensberg Park and the Vredefort Dome.
- Amongst the rich birdlife of the grasslands, is South Africa’s national bird, the Blue Crane, the critically endangered Wattled Crane and Rudd’s Lark.
- Of the 195 reptile species endemic to South Africa, 22% are found in the biome.
- One third of the 107 threatened South African butterfly species occur in the grasslands.

**THE GRASSLANDS PROGRAMME**

The work of the Grasslands Programme and its partners is to protect and conserve grasslands for current and future generations. The Programme is housed by the South African National Biodiversity Institute (SANBI), an agency of national government, and is pursuing a 20-year conservation strategy for the grasslands biome. The Programme aims to fulfill the conservation targets in this strategy by working with various government departments, conservation agencies, private sector groups, civil society organizations, academic and research institutions.
THE GRASSLANDS VISION

The biodiversity and associated ecosystem services of the grasslands biome are sustained and secured for the benefit of current and future generations.

THE MISSION

- Ensure that the wise management of biodiversity contributes to sustainable development in the grasslands biome.
- Ensure that production and development activities are appropriately located and managed to maintain the delivery of ecosystem services that underpin the economy.
- Mobilise and empower land users, landowners and officials in the private and public sectors to be effective stewards of the landscape.
- Secure the natural and cultural heritage of the grasslands biome.

IMPLEMENTING THE GRASSLANDS PROGRAMME

What makes the Grasslands Programme unique in its approach to meet conservation targets is its strategy to work with major economic sectors to incorporate biodiversity goals into the policies and plans for timber plantations, food production, urban development and coal mining. Market level initiatives to direct the development footprint away from high priority biodiversity areas as well incentivise “greener” production practices are being developed with partners in the Grasslands Programme. Lastly, the Grasslands Programme is working with land owners in the key economic sectors to protect important biodiversity on privately owned land through biodiversity stewardship. Central to this approach is the recognition that trade-offs will be necessary between biodiversity and development. The Programme seeks to find solutions where economic development is sustained by the ecological services provided by a healthy and well-managed grasslands biome.

The Grasslands Programme is funded by the Global Environment Facility (GEF) through the United Nations Development Fund (UNDP) for the first five of its twenty year strategy.

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FORESTRY

The forestry sector is the second largest land user after agriculture in the grasslands biome. The total area under timber plantations is approximately 1.27 million hectares. Government and large business owns about 76% of the plantations, medium growers about 20% and the remaining 4% are small-scale community based timber growers. All scales of timber growers are members of Forestry South Africa (FSA), a well organized industry body with 2500 members.

In association with the plantations are approximately 600 000 hectares of unplanted land, most of which is managed as natural habitat. This land contributes substantially to the conservation of biodiversity and ecosystem services.

The forestry sector in South Africa has a long history of proactive engagement with environmental programmes and 80 % of forestry land is certified under the Forest Stewardship Council, the world’s leading forest certification system. Forestry properties intersect with a number of the grassland biome’s biodiversity priority areas and many of the plantation owners are engaging with the provincial biodiversity stewardship programmes to have these areas formally secured under the Protected Areas Act.

Plantation establishment in South Africa is heavily regulated through the water-use licensing system and the EIA process. As a result, for water conservation and biodiversity reasons, the area under plantations has decreased over the past 8 years. However, because of its economic contribution, forestry is seen by government as an important development sector with an emphasis on small grower expansion in the Eastern Cape and southern KwaZulu-Natal.

The aim of the Grasslands Programme is to secure and sustain biodiversity within the grasslands biome. In its forestry component, which is implemented by Forestry South Africa (FSA), the Programme aims to ensure that biodiversity is mainstreamed into the forestry sector.

THE GRASSLANDS PROGRAMME’S INTERVENTIONS IN THE FORESTRY SECTOR INCLUDE:

• The formal conservation tenure of unplanted, high priority forestry landholdings is secured

Forestry lands contain some of the best examples of the grassland

Photographer: Brian Armour, SANBI and unknown
vegetation types that occur in the moist grasslands of South Africa. 37 sites comprising 45 000 hectares of natural habitat on forestry land will be proclaimed as protected areas. As a result, the area under formal conservation in the grasslands biome will be extended by almost 5%. Protection of this land requires that the land is managed and monitored according to a management plan drafted in conjunction with provincial conservation agencies. The first forestry site, Mondi Shanduka’s Gilboa Nature Reserve was proclaimed in early in 2010.

- The expansion of small grower plantation forestry is underpinned by biodiversity considerations, and capacity building to meet industry-led certification standards

A partnership between ASGISA Eastern Cape, Forestry South Africa and the Grasslands Programme was established to benefit emerging timber growers in the Eastern Cape and to ensure responsible and biodiversity compatible forestry takes place.

Through this partnership, a biodiversity screening tool was produced to provide maps indicating areas of potential ecological importance. This information is being used by those involved in forestry development, including the regulatory authorities to ensure these areas are protected from the impacts of afforestation.

The programme appreciates that the improvement of rural livelihoods goes hand in hand with better management of the natural resources. In order to support responsible and sustainable forestry development, the partnership has undertaken to provide extension support to communities through the employment of a forestry field manager who will ensure the implementation of a sustainable forestry management system. The system provides blue print for compliance with National and International forest certification standards with an emphasis on sound management of the grasslands that occur in association with the plantation.

In KZN the Grasslands Programme is in partnership with 3 community projects which have the goal of sustainable and responsible plantation forestry and stewardship of their grasslands. Each of these projects includes grassland areas of high value to conservation.

- The management of the forestry estate is improved to more effectively mitigate biodiversity impacts and contribute to meeting grasslands conservation targets

Many forestry land holdings occur in key biodiversity areas and the influence of these plantations in the landscape is appreciated. In order for plantation managers to understand which areas on their estates have the greatest value to conservation a GIS based planning tool has being developed. As well as an aid to management, this tool will be used to understand the significance of forestry lands in the greater conservation landscape and how forestry can do its part to reduce its impact.

The Grasslands Programme has instigated the production of guidelines for managing natural habitats in the grassland biome taking into account the unique challenges faced by plantation management.

Forestry certification is viewed by the programme as a vital instrument for improved management. The Programme works closely with the FSC National Standard development process in order to make forest certification relevant to the management of all elements of the grassland biome and more pertinent to small and medium-scale forestry.

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AGRICULTURE

Supported by a climate which is ideal for farming, the agriculture sector in South Africa uses approximately 65% of the grasslands biome. The agricultural sector is characterised by a dual economy with a well-developed commercial sector and subsistence farming in the communal areas. The biome contains up to 50% of South Africa's beef cattle, and approximately 58% of sheep flock. The commercial game ranching industry has also shown solid growth during the past forty years.

A recent study on the impact of land uses on the biodiversity of South Africa's grasslands found that under the right management practices, livestock farming and game ranching are highly compatible with maintaining grasslands ecosystem function. The Grasslands Programme is working to strengthen land uses that support and maintain the ecosystem function of the grasslands, while protecting areas of important biodiversity.

The aim of the Grasslands Programme is to secure and sustain biodiversity within the grasslands biome. In its agriculture component, the Programme aims to ensure that biodiversity is mainstreamed into the agricultural sector.

THE GRASSLANDS PROGRAMME’S INTERVENTION IN THE AGRICULTURE SECTOR:

- Incorporate biodiversity into agricultural policies, guidelines and decision making

Working closely with partners, the Grasslands Programme is implementing a suite of interventions to mainstream biodiversity into key aspects of land use planning, regulation and management in the agricultural sector. This includes, for example, the development of ecosystem guidelines for the grasslands biome, which was identified as a priority action in the National Biodiversity Framework. The guidelines will ultimately be used across the biome by land users in the agriculture, mining, urban development and forestry sectors.
Building on the success and experience of the Enkangala Grasslands Project, WWF-SA has partnered with the Grasslands Programme to implement a suite of activities in the Wakkerstroom and Luneburg region of southern Mpumalanga and northern KwaZulu-Natal. Demonstration activities include facilitating biodiversity stewardship agreements for priority biodiversity areas with landowners in conjunction with the Mpumalanga Tourism and Parks Agency (MTPA) and working with farmers and provincial agencies to implement good rangeland management practices.

**THE WAKKERSTROOM / LUNEBURG AGRICULTURE DEMONSTRATION PROJECT**

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Biodiversity and ecosystem services are crucial to ensuring that cities are livable, healthy environments for all residents. Natural areas provide green spaces where residents can relax and are also important refuges for indigenous fauna and flora in otherwise built up environments. Wetlands in and around cities help to purify the water that flows from taps, while green spaces help to purify the air by absorbing carbon dioxide and other pollutants.

The aim of the Grasslands Programme is to secure and sustain biodiversity within the grasslands biome. In its urban component, which is implemented by the Gauteng Department of Agriculture and Rural Development (GDARD), the Programme aims to ensure that biodiversity is mainstreamed into urban development in Gauteng.

**SOME LITTLE KNOWN FACTS ABOUT GAUTENG’S BIODIVERSITY**

- 71% of Gauteng is contained within the grasslands biome.
- More plant species occur in Gauteng per unit area than in any other province.
- Gauteng is a centre of distribution for components of grasslands biodiversity, including the critically important Bushveld-Bunkenveld vegetation type.
- Gauteng also has 42 animal species of special concern within select taxa.
- Gauteng’s Spatial Development Framework (SDF) projects a future population of 14.6 million people by 2015, positioning the Province as one of the world’s top fifteen mass populated cities.

**THE PROGRAMME’S INTERVENTION IN PROTECTING BIODIVERSITY IN GAUTENG**

Securing priority sites representative of grasslands biodiversity

The Grasslands Programme of SANBI with the Gauteng Department of Agriculture and Rural Development (GDARD) and municipalities in Gauteng have identified biodiverse-rich sites.
Development of toolkit to strengthen biodiversity mainstreaming in Gauteng

- Assistance with the development of the Gauteng Protected Areas Expansion Strategy.
- The development of the Gauteng Biodiversity Stewardship Strategy.
- The development of Lifestyle Estates guidelines and policy.

Strengthen capacity for urban biodiversity management through awareness and training

- Raise awareness through the use of local media in Gauteng.
- Training counsellors and decision-makers in Gauteng with partners SA Cities Network and SALGA (South African Local Government Association).
- Public service announcement and documentary to educate Gauteng citizens about biodiversity.
- Working with civil society in Gauteng to raise the profile of biodiversity.

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Of the many minerals found in the Grassland biome, none is as significant and extensive as coal reserves. Coal, extracted predominantly using opencast methods, is a cheap source of energy, the second largest earner of foreign exchange for South Africa, and makes up 4% of the country’s GDP. South Africa’s electricity is mostly generated from coal - the cooling towers of many power stations are a characteristic feature of the grasslands. The BP Statistical Energy Survey found that South Africa is the fifth largest coal producer in the world (Mbendi, 2010).

Yet the costs of coal consumption are high. Opencast mining has a devastating effect on biodiversity especially flora and fauna. In addition, this method of mining has a negative impact on the hydrological functioning of the landscape. Wetlands, often mined first as a result of the coal-bearing seams being easier to access at lower points in the landscape, are either destroyed or severely impacted, the result being a decrease or elimination of the services they provide - water purification, flood attenuation, erosion control and water storage. Yet demand for coal is increasing locally and internationally due to the growing demand for cheap energy. This is resulting in the expansion of coal mining at a rapid rate across the grasslands biome leading to even more pressure on flora, fauna and hydrological services.

The challenge for biodiversity and ecosystem management is to limit and manage the impact of coal mining on grasslands. This will be achieved by ensuring that the relevant and current biodiversity and ecosystem information is used by mining companies, the authorities including the Department of Mineral Resources, the Department of Water Affairs and the Department of Environmental Affairs, and other concerned entities in the planning, authorisation and management of coal mines. An example of such information is shown on the map.

The aim of the Grasslands Programme is to secure and sustain biodiversity within the grassland biome. In its Coal Mining Component the Programme aims to ensure that biodiversity information is mainstreamed in the coal mining sector.

Photographer: Eilen Elmendorp, SANBI and unknown
INTERVENTIONS IN THE COAL MINING SECTOR INCLUDE:

- Wetlands are protected through a wetland mitigation banking offset scheme. This is being done in partnership with Working for Wetlands.
- Mining companies and regulatory authorities use biodiversity planning information to plan new coal mines.

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Biodiversity stewardship in the grasslands biome

Biodiversity stewardship – partnerships to conserve grasslands

At present, less than 2% of South Africa’s grasslands biome is formally protected. Partnerships between the owners and users of land, conservation authorities and other parties including NGOs are therefore critical to securing biodiversity. Biodiversity stewardship provides the tools to conserve biodiversity on private and communally owned lands while generating livelihoods through the effective management of the resource base.

Conservation authorities in KwaZulu-Natal, Mpumalanga and Gauteng are championing biodiversity stewardship in critical areas of the grasslands biome. Conservation authorities are working closely with landowners and land-users in the agricultural, forestry, mining and urban development sectors to achieve conservation targets. The Grasslands Programme is playing a key role in supporting provincial biodiversity stewardship programmes.

The Grasslands Programme works with partners to secure and sustain biodiversity in the grasslands biome. The Programme has established partnerships in the agricultural, forestry, cola mining and urban development sectors to secure grasslands biodiversity in these landscapes. One of the ways the partners do this is to encourage land owners to enter into biodiversity stewardship agreements, which formally recognise the role played by private and communal landowners in the conservation of biodiversity.
BIODIVERSITY STEWARDSHIP PRINCIPLES:

Focuses on biodiversity priorities: Resources must be focused on areas already identified as biodiversity priorities by national and provincial conservation authorities.

Landowner-focused: Biodiversity stewardship agreements must be backed up with sufficient resources to inform, help and support landowners.

Acknowledges people's needs: Biodiversity stewardship must be based on a clear understanding of the needs of those who own, live and work on the land.

Biodiversity as the bottom line: Decisions on conservation investment should be based on the biodiversity value of the land.

Guarantee site security: Land with high biodiversity value must be secured through legally sound biodiversity stewardship agreements.

Build cooperation: The agreement must be based on mutual trust to enable effective conservation management and sustainable livelihoods.

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