213. Soweto Highveld Grassland (Gm 8)

Reference number	Gm 8
Listed under Criterion	A1
Biome	Grassland
Provinces	Free State, Gauteng, Mpumalanga and North West
Municipalities	Phumelela LM, Ngwathe LM, Metsimaholo LM, Mafube LM, Ekurhuleni MM, City of Johannesburg MM Emfuleni LM, Midvaal LM, Lesedi LM, Mogale City LM, Randfontein LM, Westonaria LM, , Msukaligwa LM, Seme LM Lekwa LM, Dipaleseng LM, Govan Mbeki LM, Delmas LM, Emalahleni LM, Potchefstroom LM and Merafong City LM
Original area of ecosystem	1 451 000 ha
Remaining natural area of ecosystem (%)	54%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	

Geographical location

In a broad band roughly delimited by the N17 road between Ermelo and Johannesburg in the north, Perdekop in the southeast and the Vaal River (border with the Free State) in the south. It extends further westwards along the southern edge of the Johannesburg Dome (including part of Soweto) as far as the vicinity of Randfontein. In southern Gauteng it includes the surrounds of Vanderbijlpark and Vereeniging as well as Sasolburg in the northern Free State.

Description

Gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses such as *Elionurus muticus*, *Eragrostis racemosa*, *Heteropogon contortus* and *Tristachya leucothrix*. In places not disturbed, only scattered small wetlands,

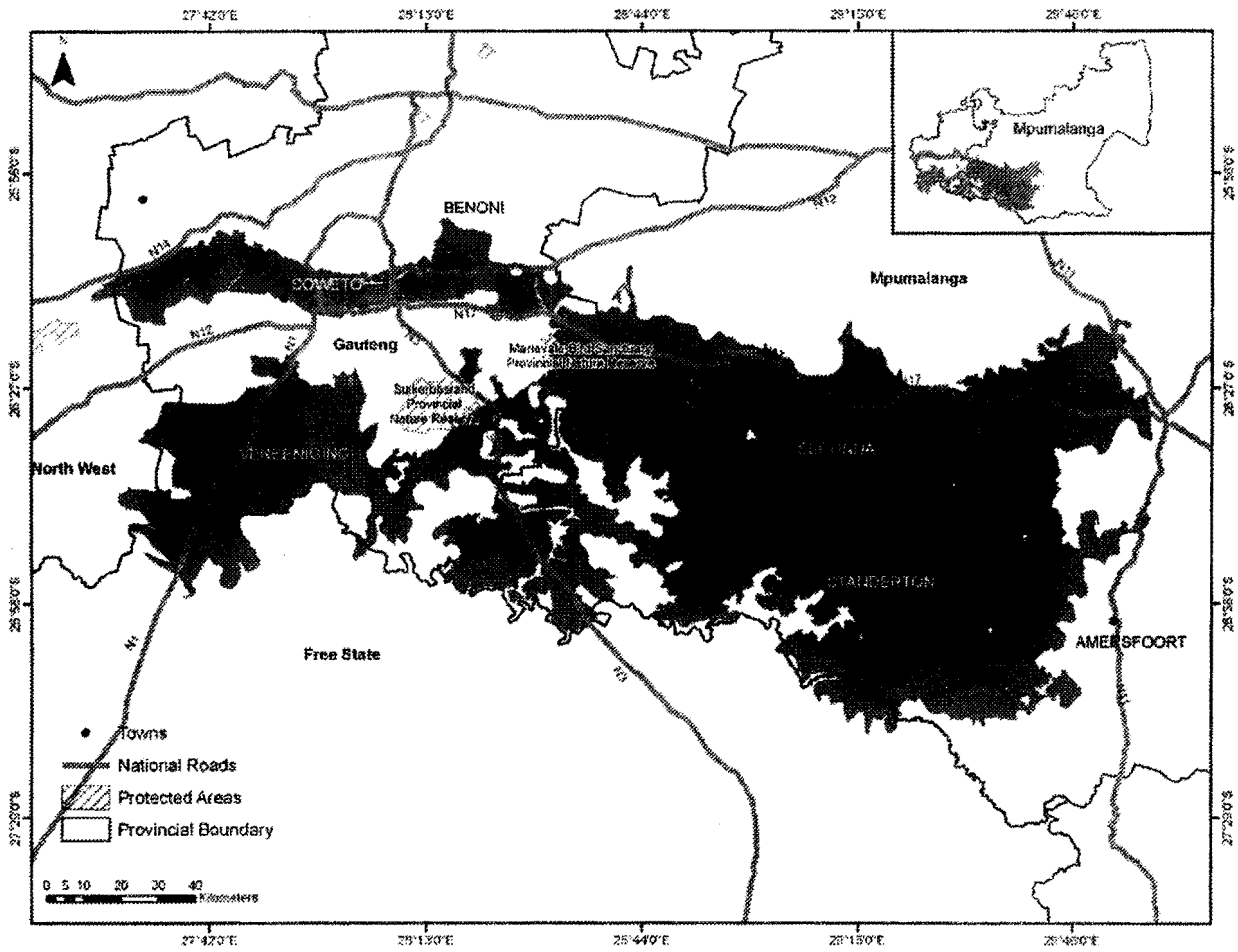
narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover.

Other information

Only a handful of patches are protected.

Reference

Mucina, L., Hoare, D.B., Lotter, M.C., du Preez, P.J., Rutherford, M.C., Scott-Shaw, R., Bredenkamp, G.J., Powrie, L.W., Scott, L., Camp, K.G.T., Cilliers, S.S., Bezuidenhout, H., Mostert, T.H., Siebert, S.J., Winter, P.J.D., Burrows, J.E., Dobson, L., Ward, R.A., Stalmans, M., Oliver, E.G.H., Siebert, F., Schmidt, E., Kobisi, K., & Kose, L. 2006. Grassland Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 397. South African National Biodiversity Institute, Pretoria.



Location of Soweto Highveld Grassland showing original area of ecosystem

214. Springbokvlakte Thornveld (SVcb 15)

Reference number	SVcb 15
Listed under Criterion	A1
Biome	Savanna
Provinces	Gauteng, Limpopo, Mpumalanga and North West
Municipalities	City of Tshwane MM, Nokeng tsa Taemane LM, Polokwane LM, Lepele-Nkumpi LM, Thabazimbi LM, Mookgopong LM, Modimolle LM, Bela-Bela LM, Mogalakwena LM, Greater Marble Hall LM, Elias Motsoaledi LM, Dr JS Moroka LM, Moretele LM and Local Municipality of Madibeng
Original area of ecosystem	880 000 ha
Remaining natural area of ecosystem (%)	57%
Proportion of ecosystem protected	1% of original area
Known number of species of special concern	

Geographical location

Flats from Zebediela in the northeast to Hammanskraal and Assen in the southwest as well as from Bela-Bela and Mookgophong in the northwest to Marble Hall and Rust de Winter in the southeast.

Description

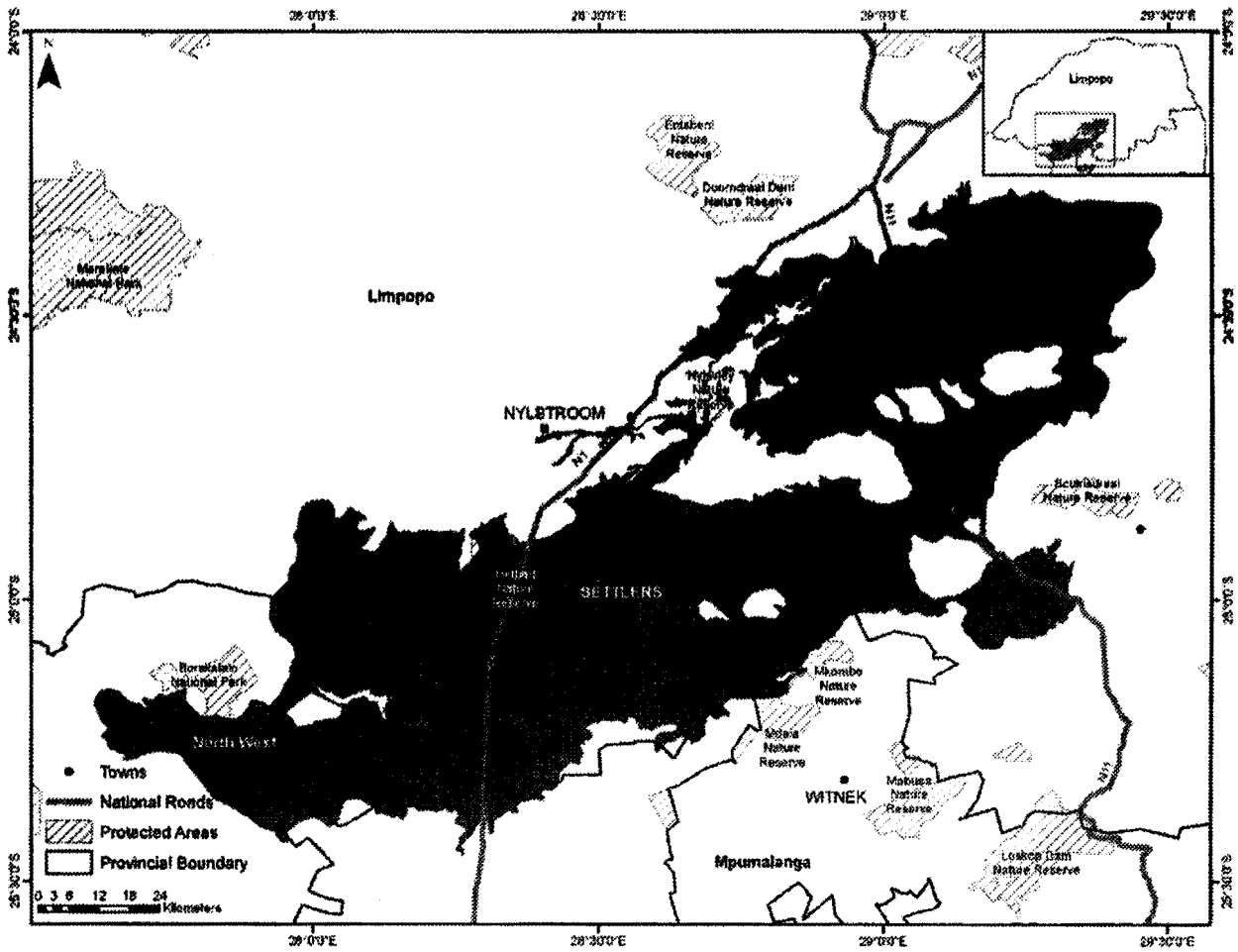
Open to dense, low thorn savanna dominated by *Acacia* species or shrubby grassland with a very low shrub layer. The ecosystem occurs on flat to slightly undulating plains.

Other information

Approximately 1% of the ecosystem is protected, mainly in the Mkombo Nature Reserve.

Reference

Rutherford, M.C., Mucina, L., Lotter, M.C., Bredenkamp, G.J., Smit, J.H.L., Scott-Shaw, R., Hoare, D.B., Goodman, P.S., Bezuidenhout, H., Scott, L., Ellis, F., Powrie, L.W., Siebert, F., Mostert, T.H., Henning, B.J., Venter, C.E., Camp, K.G.T., Siebert, S.J., Matthews, W.S., Burrows, J.E., Dobson, L., van Rooyen, N., Schmidt, E., Winter, P.J.D., du Preez, P.J., Ward, R.A., Williamson, S. & Hurter, P.J.H. 2006. Savanna Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 471. South African National Biodiversity Institute, Pretoria.



Location of Springbokvlakte Thornveld showing original area of ecosystem

215. Swamp Forest (Foa 2)

Reference number	FOa 2
Listed under criteria	A2 and C
Biome	Forest
Provinces	KwaZulu-Natal and Eastern Cape
Municipalities	Umhlabuyalingana LM, Mtubatuba LM, Mbonambi LK, uMhlathuze LM & KZNDMA27
Original area of ecosystem	Data not available
Remaining natural area of ecosystem	3 000 ha
Proportion of ecosystem protected	67% of remaining area
Known number of species of special concern	1 endemic plant species

Geographical location

Pockets and narrow ribbons of Swamp Forests extend in a narrow belt along the Indian Ocean coastal seaboard from within Mozambique, through Maputaland to as far south as Port Grosvenor - Msikaba River in Pondoland. Their distribution is curtailed more in the south than that of Mangrove Forests, suggesting they are more climatically susceptible than mangroves. The ecosystem occurs only at low latitudes between 20m and 60m.

Description

Usually 12-15 m tall forests and comprises two main strata (canopy tree stratum and the shrub layer). The trees and herbaceous plants have strong tropical affinities. Swamp Forests are supported by sandy, waterlogged soils in habitats close to still, or very slow flowing, fresh water bodies. There is a characteristic build up of organic decaying material. Specialized breathing and mechanical supports, such as stilt roots, underground suckers, lenticels, and microphores occur in some dominant species in these forests. Presence of ferns, epiphytes and creepers in the understorey is another striking feature of this forest ecosystem. Low-stature thickets and forests dominated by *Hibuscus tiliaceus* (in freshwater situations) are also classified within this forest ecosystem. The extreme and very specialized habitat conditions of Swamp Forest do not support a high number of species. In addition, this tropical forest ecosystem reaches its southernmost distribution limits in South Africa and is naturally depauperate. Few dominant canopy tree species reflects the low species diversity of this forest type.

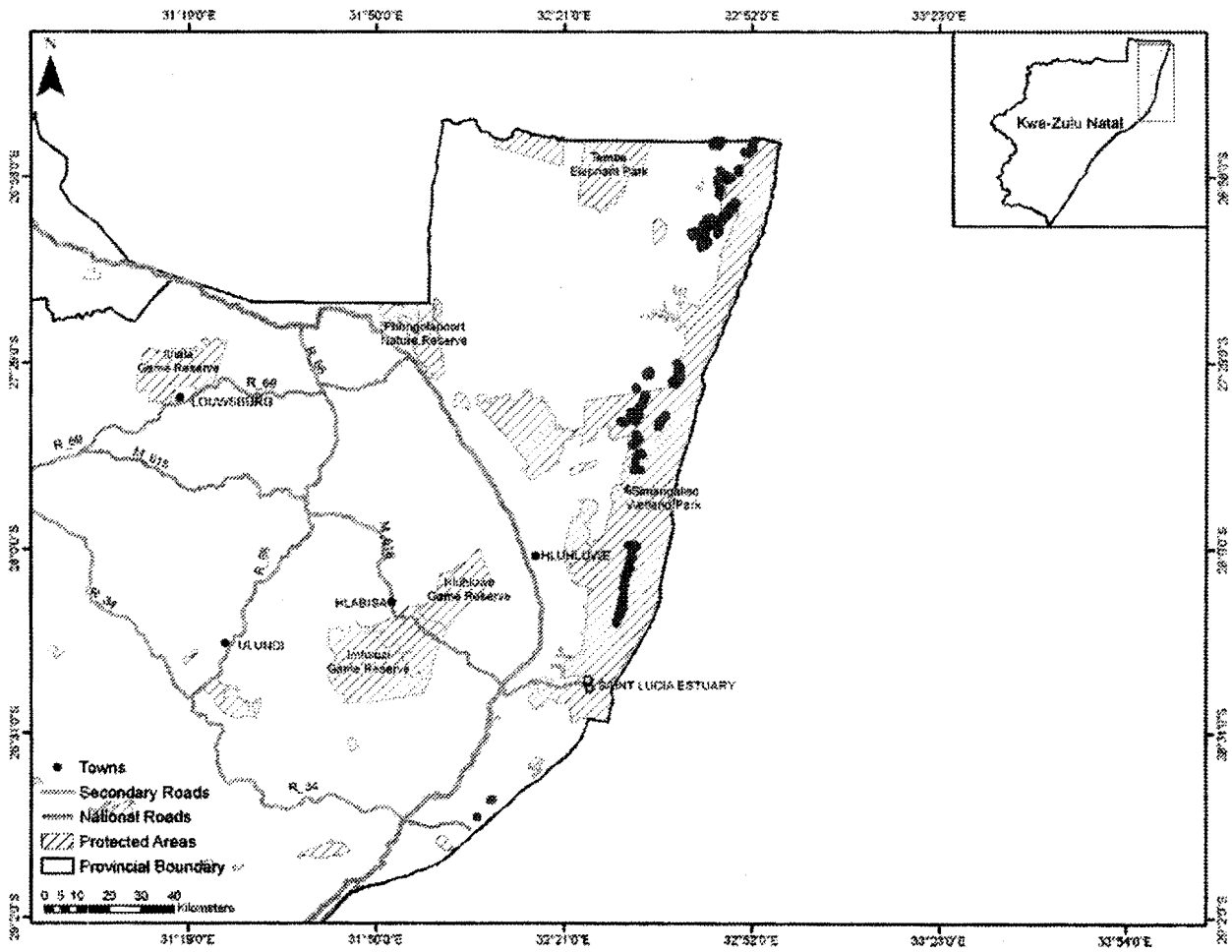
Other information

Approximately 67% of the ecosystem is protected in isiMangaliso Wetland Park, Maphelana, Dududuku, Raphia Palms and Umlalazi Nature Reserves.

References

Mucina, L. & Geldenhuys, C.J. 2006. Afrotemperate, Subtropical and Azonal Forests. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 607-608. South African National Biodiversity Institute, Pretoria.

Von Maltitz, G., Mucina, L., Geldenhuys, C., Lawes, M., Eeley, H., Adie, H., Vink, D., Flemming, G. & Bailey, C. 2003. Classification System for South African Indigenous Forests. An objective classification for the Department of Water Affairs and Forestry. Environmentek Report ENV-P-C 2003-017, CSIR, Pretoria.



Location of Swamp Forest (area of ecosystem enlarged for visibility at this scale)

216. Swartland/Franklin Vlei/Kokstad Ridge and Wetlands (KZN 80)

Reference number	KZN 80
Listed under Criterion	F
Biome	Grassland and Forest
Province	KwaZulu-Natal
Municipalities	Greater Kokstad LM and Umzimkhulu LM
Original area of ecosystem	42 000 ha
Remaining natural area of ecosystem (%)	49%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	8 threatened or endemic plant and animal species including those listed below

Geographical location

Swartberg (3029AB), Franklin (3029AD) and Glengarry (3029BC). Ecosystem defined by the ridges and wetlands associated with Wattled Crane, White-winged Flufftail and Oribi habitat.

Description

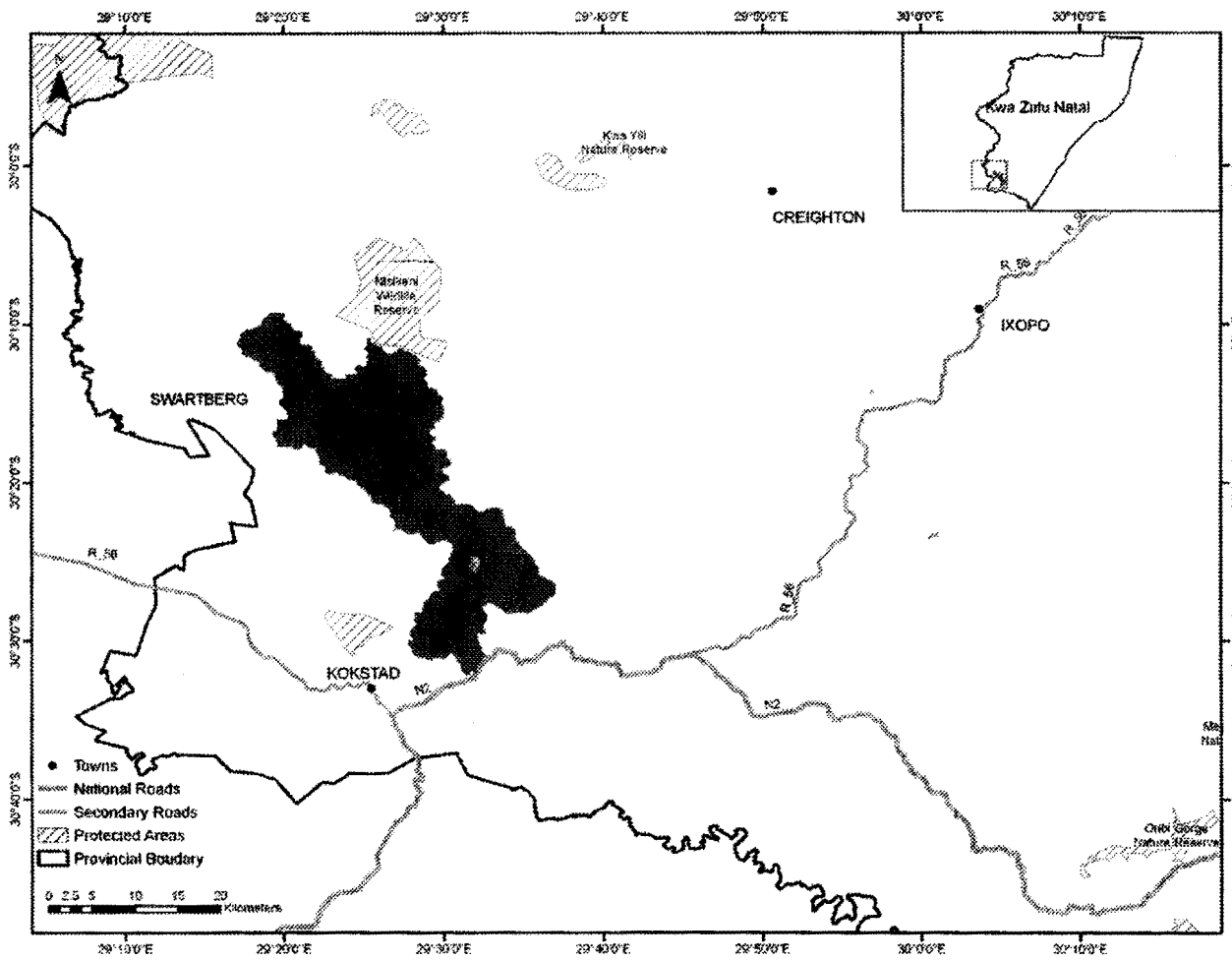
Key biodiversity features include one amphibian species, *Leptopelis xenodactylus*; two bird species including Wattled Crane and White-winged Flufftail; one mammal species, the Oribi; two millipede species including *Centrobolus tricolor* and *Doratogonus montanus*; two plant species for example *Dierama tysonii*; and four vegetation types including Drakensberg Foothill Moist Grassland, East Griqualand Grassland, Eastern Mistbelt Forest and Midlands Mistbelt Grassland.

Other information

The ecosystem is not protected.

Reference

Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.



Location of Swartberg/Franklin Vlei/Kokstad Ridge and Wetlands showing original area of ecosystem

217. Swartland Alluvium Renosterveld (FRa 2)

Reference number	FRa 2
Listed under Criterion	A1
Biome	Fynbos
Province	Western Cape
Municipalities	City of Cape Town MM, Saldanha Bay LM and Swartland LM
Original area of ecosystem	6 000 ha
Remaining natural area of ecosystem (%)	51%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	4 Red Data plant species (EX, EW, CR, EN & VU excl VU D2)

Geographical location

Narrow belts in the southern Swartland encompassed by Klipheuwel, Malmesbury, Moorreesburg and Darling along the Groen and Diep Rivers.

Description

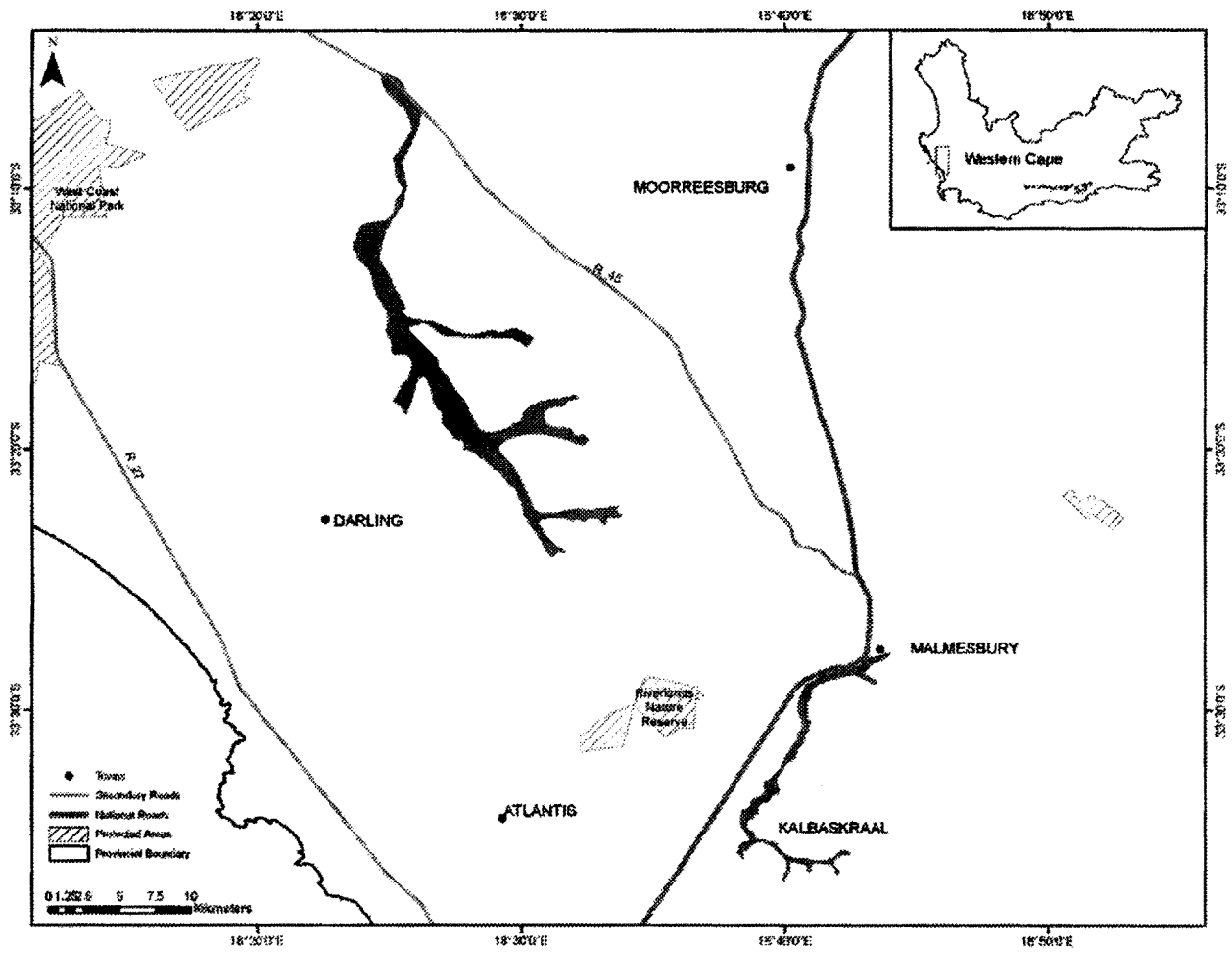
The ecosystem is found in riverine plains and bottomlands. Open, low, short cupressoid and low to moderately tall, grassy shrubland, dominated by renosterbos. At least four Red Data List plant species occur in the ecosystem.

Other information

The ecosystem is not protected.

Reference

Rebelo, A.G., Boucher, C., Helme, N., Mucina, L., & Rutherford, M.C. *et al.* 2006. Fynbos Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 194-195. South African National Biodiversity Institute, Pretoria.



Location of Swartland Alluvium Renosterveld showing original area of ecosystem

218. Swellendam Silcrete Fynbos (FFc 1)

Reference number	FFc 1
Listed under Criterion	A1
Biome	Fynbos
Province	Western Cape
Municipalities	Swellendam LM, Hessequa LM and Mossel Bay LM
Original area of ecosystem	87 000 ha
Remaining natural area of ecosystem (%)	49%
Proportion of ecosystem protected	4% of original area
Known number of species of special concern	23 Red Data plant species (EX, EN, CR, EN & VU excl VU D2) and 14 endemic plant species

Geographical location

Relatively large patches on southern foothills of the Langeberg from around Swellendam to north of Dekriet/Soutpan (between Riversdale and Albertinia), becoming highly fragmented between Albertinia and the southern side of Robinson Pass to around Molenrivier (north of Klein-Brak River).

Description

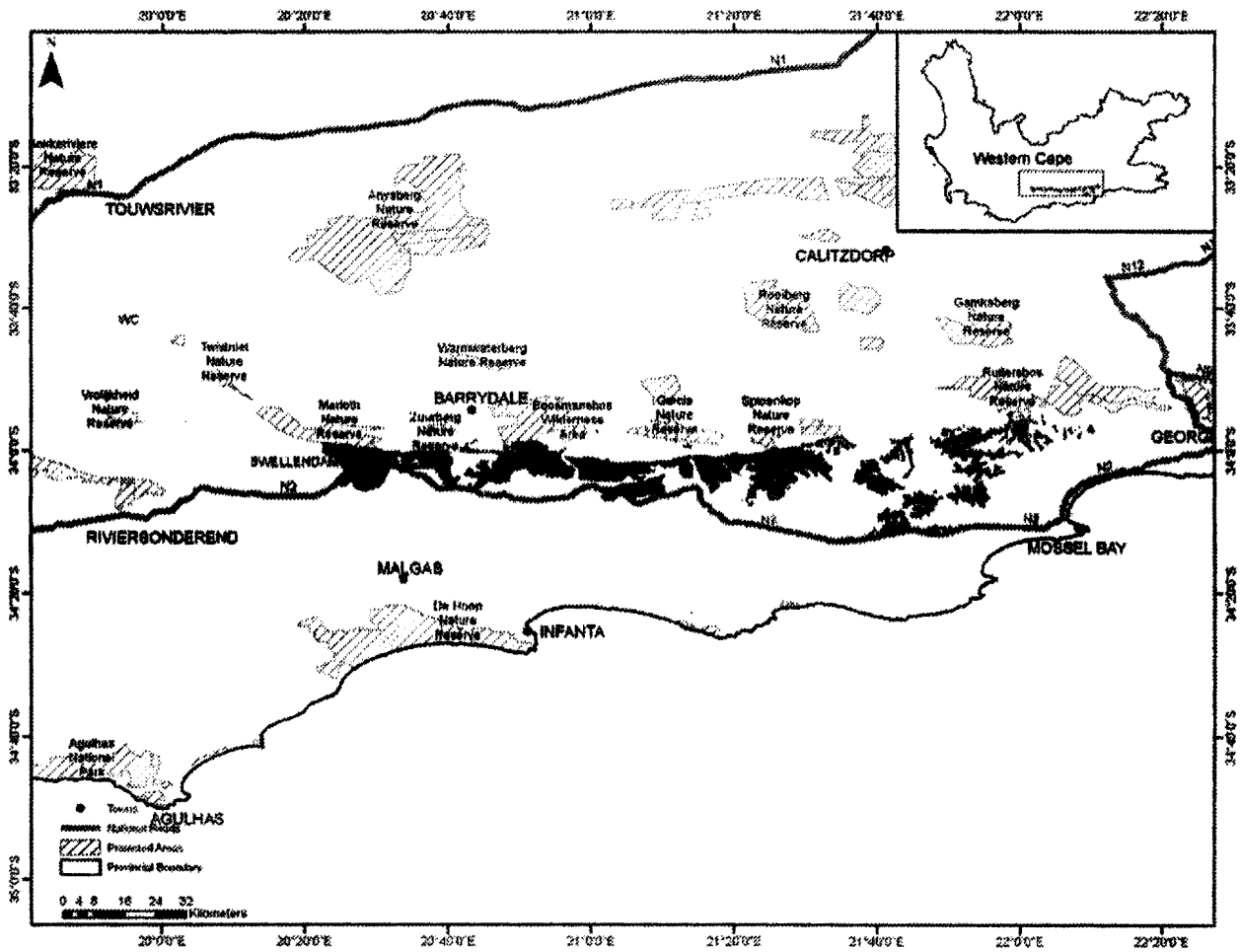
Mainly undulating hills on the coastal forelands, the remains of the old African surface. Structurally it is a medium tall evergreen shrubland or grassland. Predominantly asteraceous fynbos, but graminoid fynbos on summits and northern slopes where disturbed. Proteoid fynbos occurs on southern slopes and ericaceous fynbos is found in wetter habitats. Afrotemperate forest occurs in fire-safe alluvial areas, such as along perennial rivers. It is uncertain whether proteoid fynbos, renosterveld or thicket was the dominant type in some of the eastern plateaus; it has all been converted to pasture. At least 14 endemic plant species and 23 Red Data List plant species occur in the ecosystem.

Other information

Approximately 4% of the ecosystem is protected in the Bontebok National Park and small patches are also found in Langeberg-oos (mountain catchment area).

Reference

Rebelo, A.G., Boucher, C., Helme, N., Mucina, L., & Rutherford, M.C. *et al*. 2006. Fynbos Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 158-159. South African National Biodiversity Institute, Pretoria.



Location of Swellendam Silcrete Fynbos showing original area of ecosystem

219. Transkei Coastal Scarp Forest (Foz V3)

Reference number	FOz V3
Listed under Criterion	A2
Biome	Forest
Province	Eastern Cape
Municipalities	Mbhashe LM, Mnquma LM, Qaukeni LM, Port St Johns LM, Nyandeni LM and King Sabata Dalindyebo LM
Original area of ecosystem	Data not available
Remaining natural area of ecosystem	61 000 ha
Proportion of ecosystem protected	10% of remaining area
Known number of species of special concern	

Geographical location

Transkei Coastal Scarp Forests (previously called Transkei Coastal Platform Forests) occur as two spatially separated belts, representing two subtypes. Transkei Coastal Platform Forests are found scattered along the Southern Transkei coast between Mngazana (just south of Port St. Johns) in the north and East London in the south. The southern most forest patch of this subtype is represented by Umtiza Forest (just west of East London). Transkei Lower Scarp Forests are situated in a belt more inland (up to 600-800 m of altitude), in scarp situations (e.g. on slopes of deeply-incised river valleys).

Description

Transkei Coastal Forests comprise low-grown (up to 9 m) and middle-grown (15-25 m) species-rich forests. The ground layer is only poorly developed. The forests of this ecosystem are found on sloping coastal platforms as well as steep scarps in deep incised valleys at altitudes between 0 to 600-800 m. Medium to coarse-grained spatial scale of regeneration of woody plants indicates that this forest is gap or event driven.

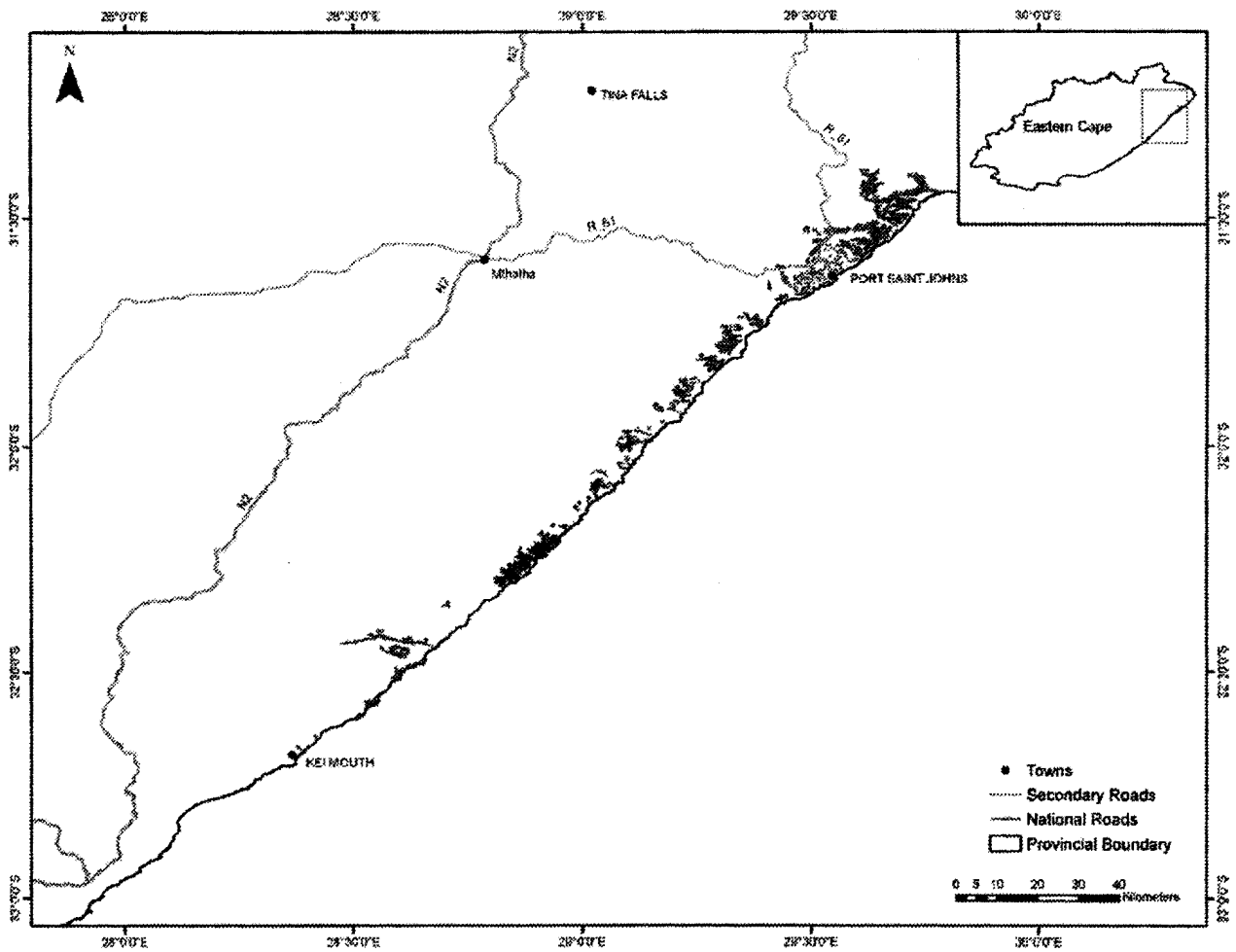
Other information

Approximately 10% of the ecosystem is protected in, for example the Dwesa/Cwebe Wildlife Reserve and Marine Sanctuary and Hluleka Nature Reserves. Many smaller patches occur on State forest land with low protection levels.

References

Mucina, L. & Geldenhuys, C.J. 2006. Afrotemperate, Subtropical and Azonal Forests. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 602-603. South African National Biodiversity Institute, Pretoria.

Von Maltitz, G., Mucina, L., Geldenhuys, C., Lawes, M., Eeley, H., Adie, H., Vink, D., Flemming, G. & Bailey, C. 2003. Classification System for South African Indigenous Forests. An objective classification for the Department of Water Affairs and Forestry. Environmentek Report ENV-P-C 2003-017, CSIR, Pretoria.



Location of Transkei Coastal Scarp Forest (area of ecosystem enlarged for visibility at this scale)

220. Tzaneen Sour Bushveld (SVI 8)

Reference number	SVI 8
Listed under Criterion	A1
Biome	Savanna
Provinces	Limpopo and Mpumalanga
Municipalities	Greater Letaba LM, Greater Tzaneen LM, Maruleng LM, Thulamela LM, Makhado LM, Molemole LM, Polokwane LM, Lepele-Nkumpi LM, Greater Tubatse LM and Thaba Chweu LM
Original area of ecosystem	343 000 ha
Remaining natural area of ecosystem (%)	57%
Proportion of ecosystem protected	1% of original area
Known number of species of special concern	

Geographical location

A band extending along the foot slopes and hills of the northeastern escarpment, from the Soutpansberg Mountains in the north via Tzaneen and narrowing to the Abel Erasmus Pass area in the south.

Description

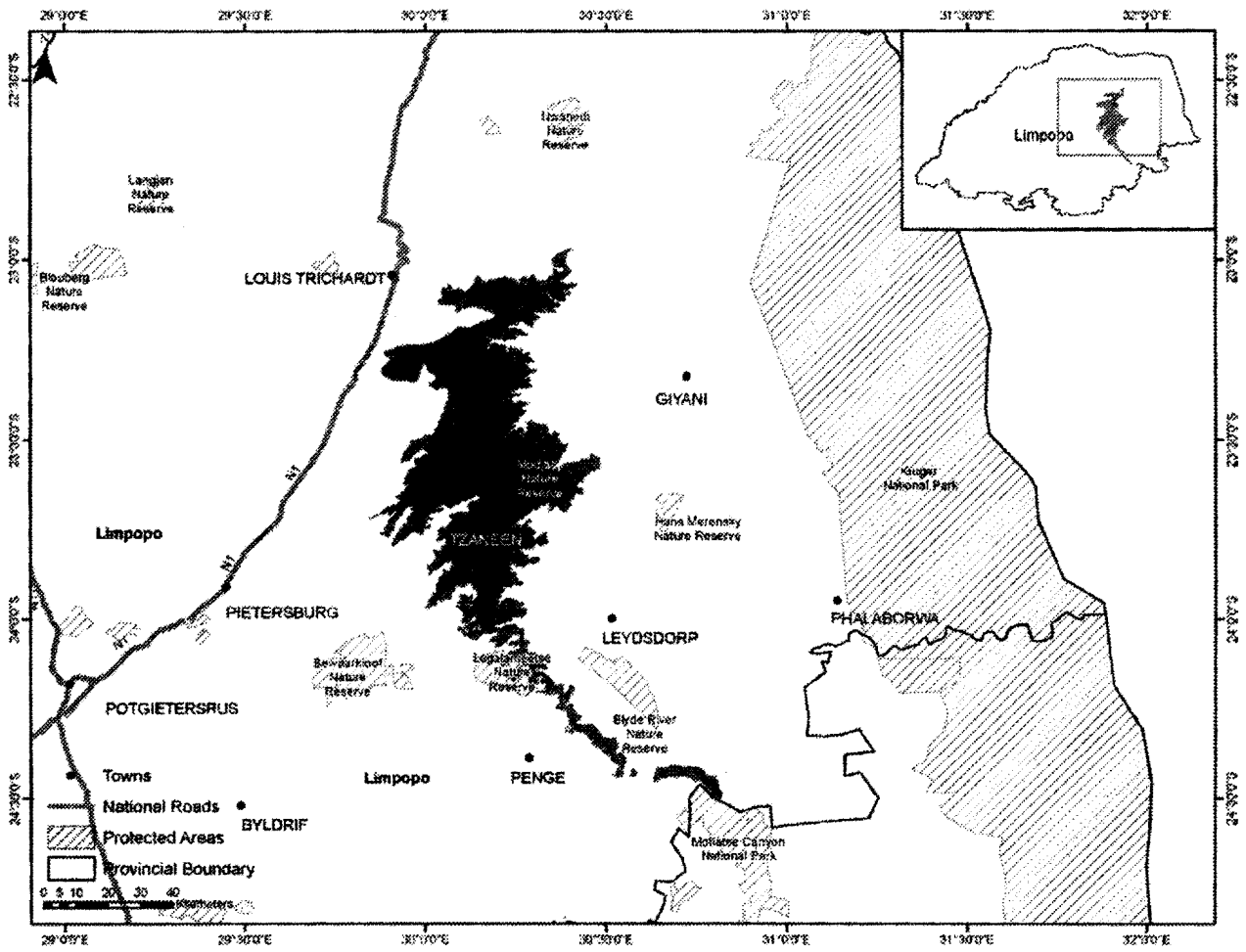
Deciduous, tall open bushveld (parkland) with a well-developed, tall grass layer, occurring on low to high mountains with undulating plains mainly at the base of, and on the lower to middle slopes of the northeastern escarpment.

Other information

Only a little over 1% of the ecosystem is protected, almost all in the Lekgalameetse Nature Reserve, and about 2% is found in private reserves such as the Selati Game Reserve and Wolkberg (Serala) Wilderness Area.

Reference

Rutherford, M.C., Mucina, L., Lotter, M.C., Bredenkamp, G.J., Smit, J.H.L., Scott-Shaw, R., Hoare, D.B., Goodman, P.S., Bezuidenhout, H., Scott, L., Ellis, F., Powrie, L.W., Siebert, F., Mostert, T.H., Henning, B.J., Venter, C.E., Camp, K.G.T., Siebert, S.J., Matthews, W.S., Burrows, J.E., Dobson, L., van Rooyen, N., Schmidt, E., Winter, P.J.D., du Preez, P.J., Ward, R.A., Williamson, S. & Hurter, P.J.H. 2006. Savanna Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 495-496. South African National Biodiversity Institute, Pretoria.



Location of Tzaneen Sour Bushveld showing original area of ecosystem

221. Umvoti Vlei and Surrounds (KZN 81)

Reference number	KZN 81
Listed under Criterion	F
Biome	Grassland and Indian Ocean Coastal Belt
Province	KwaZulu-Natal
Municipality	Umvoti LM
Original area of ecosystem	11 000 ha
Remaining natural area of ecosystem (%)	19%
Proportion of ecosystem protected	4% of original area
Known number of species of special concern	6 threatened or endemic plant and animal species including those listed below

Geographical location

Greytown (2930BA). Includes the Umvoti Vlei and its surrounding lowlands. Ecosystem delineated by contours defining the valley floodplain.

Description

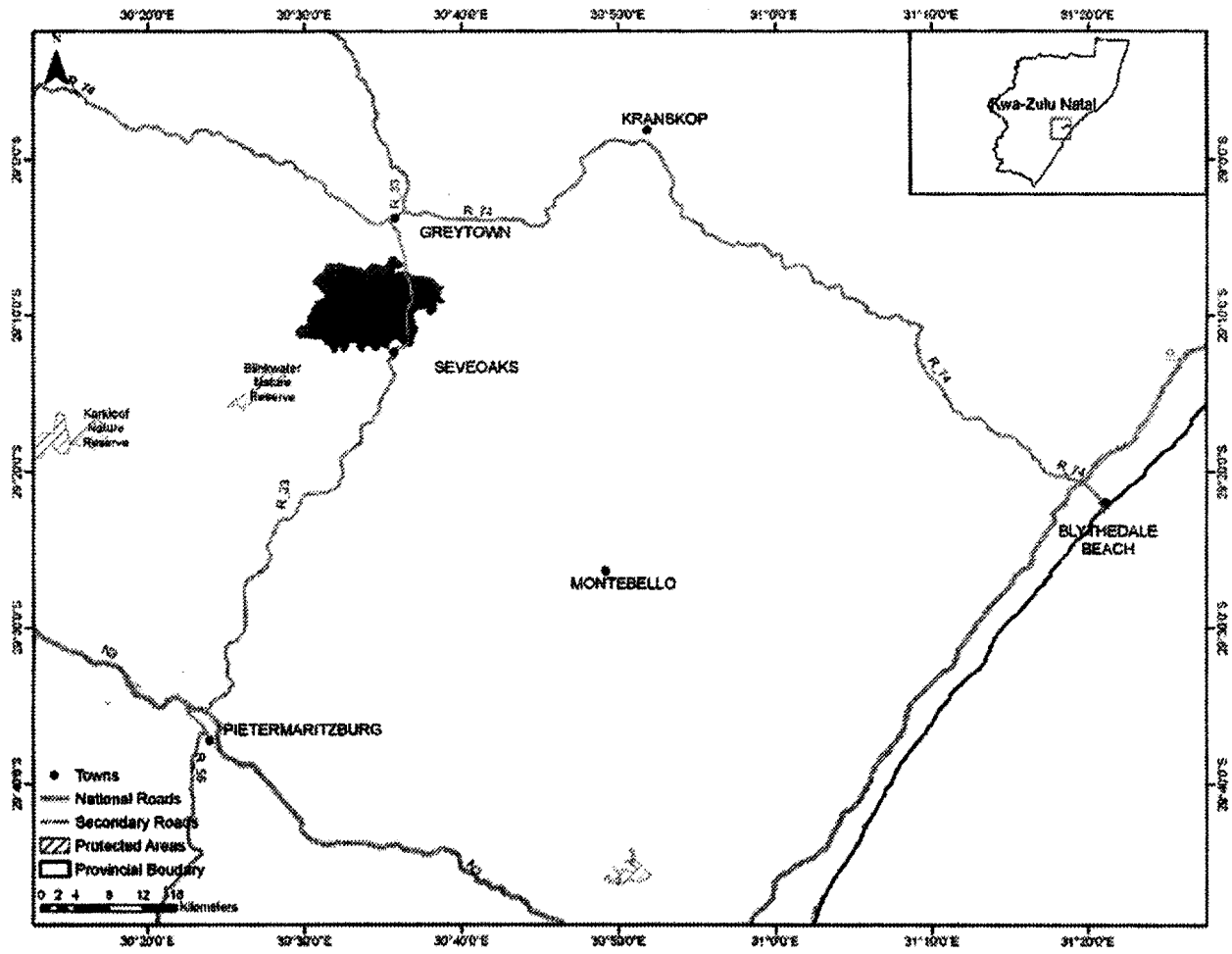
Key biodiversity features include one bird species, the Wattled Crane; one mammal species, the Oribi; one millipede species, *Doratogonus montanus*; three plant species including *Gerbera aurantiaca*, *Kniphofia latifolia* and *Senecio exuberans*; and one vegetation type, Midlands Mistbelt Grassland.

Other information

About 4% of the ecosystem is protected in the Umvoti Vlei Nature Reserve.

Reference

Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.



Location of Umvoti Vlei and Surrounds showing original area of ecosystem

222. Uyskop Valley (KZN 82)

Reference number	KZN 82
Listed under Criterion	F
Biome	Grassland
Province	KwaZulu-Natal
Municipality	Utrecht LM
Original area of ecosystem	1 000 ha
Remaining natural area of ecosystem (%)	63%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	3 threatened or endemic plant and animal species including those listed below

Geographical location

Utrecht (2730CB). Ecosystem lies in the valley between the Uyskop trig beacon and surrounding hills south of the Sandspruit River.

Description

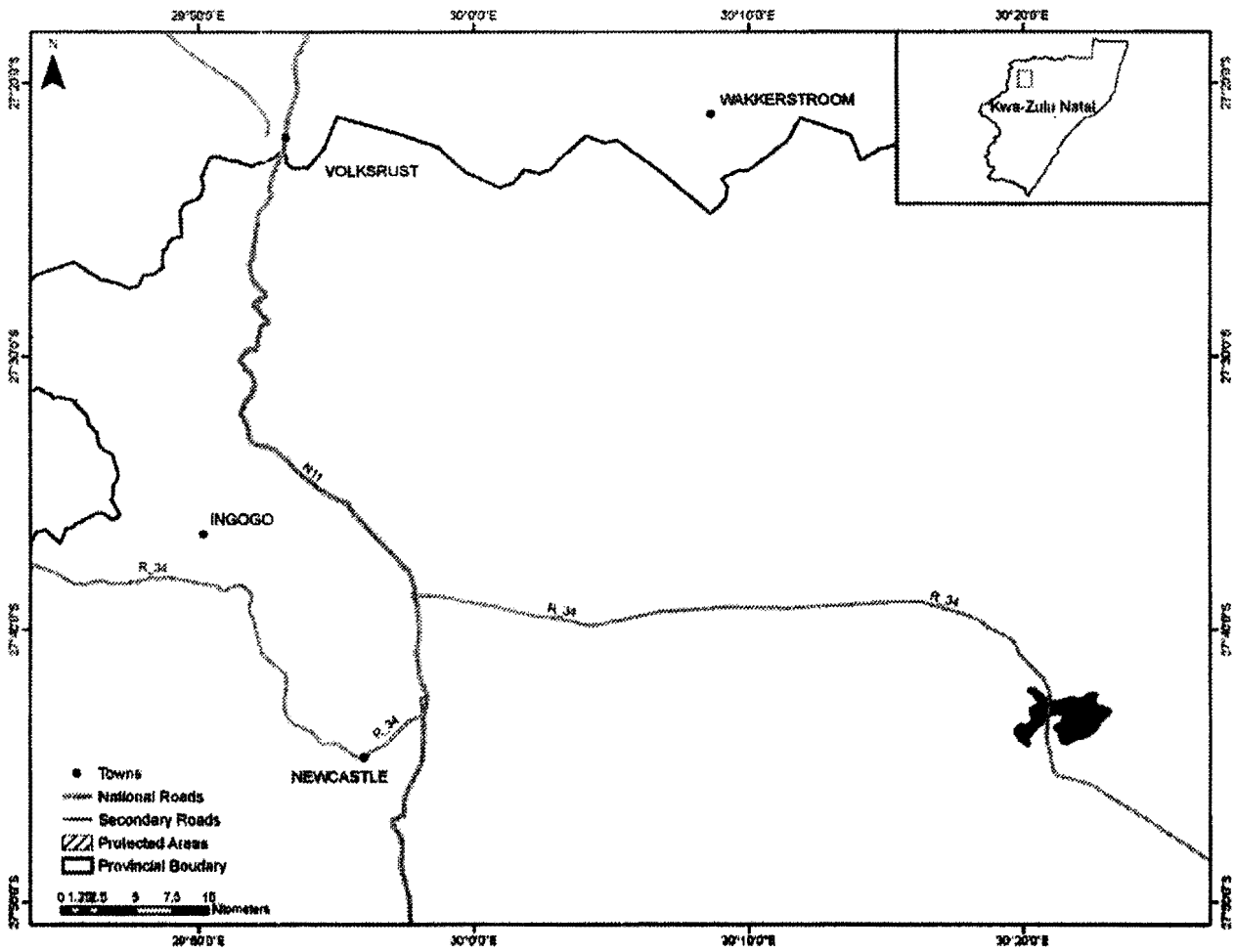
Key biodiversity features include one bird species, White-winged Flufftail; one millipede species, *Doratogonus minor*; one plant species *Kniphofia galpinii*; and one vegetation type, Income Sandy Grassland.

Other information

The ecosystem is not protected.

Reference

Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.



Location of Uyskop Valley showing original area of ecosystem

223. Vaalkop Headlands (KZN 83)

Reference number	KZN 83
Listed under Criterion	F
Biome	Grassland and Savanna
Province	KwaZulu-Natal
Municipality	Umvoti LM
Original area of ecosystem	6 000 ha
Remaining natural area of ecosystem (%)	68%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	10 threatened or endemic plant and animal species including those listed below

Geographical location

Mount Alida (2930AB). Includes the headwater system of a multiple of small valleys, each with a number of small wetlands. Ecosystem delineated by ridges and valleys.

Description

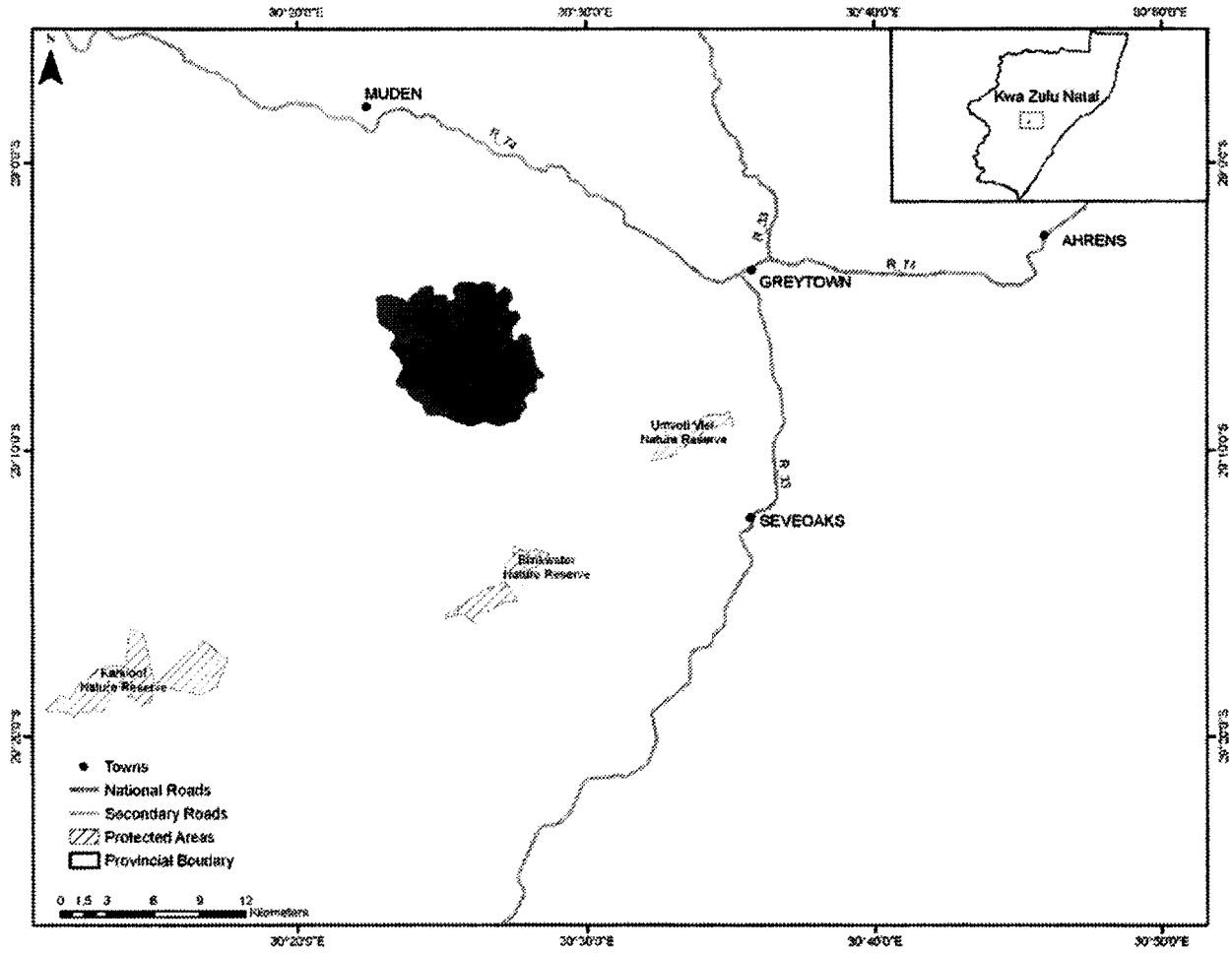
Key biodiversity features include one bird species, the Wattled Crane; one mammal species, the Oribi; four millipede species including *Centrobolus tricolor*, *Doratogonus falcatus*, *Doratogonus montanus* and *Doratogonus natalensis*; three plant species including *Geranium natalense*, *Senecio exuberans* and *Watsonia canaliculata*; one reptile species, *Bradypodion thamnobates*; and three vegetation types including KwaZulu-Natal Highland Thornveld, Midlands Mistbelt Grassland and Thukela Valley Bushveld.

Other information

The ecosystem is not protected.

Reference

Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.



Location of Vaalkop Headlands showing original area of ecosystem

224. Vredefort Dome Granite Grassland (Gh 11)

Reference number	Gh 11
Listed under Criterion	A1
Biome	Grassland
Provinces	North West and Free State
Municipalities	Moqhaka LM, Ngwathe LM, Potchefstroom LM
Original area of ecosystem	92 000 ha
Remaining natural area of ecosystem (%)	59%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	

Geographical location

Central portion of the Vredefort Dome around Parys and Vredefort.

Description

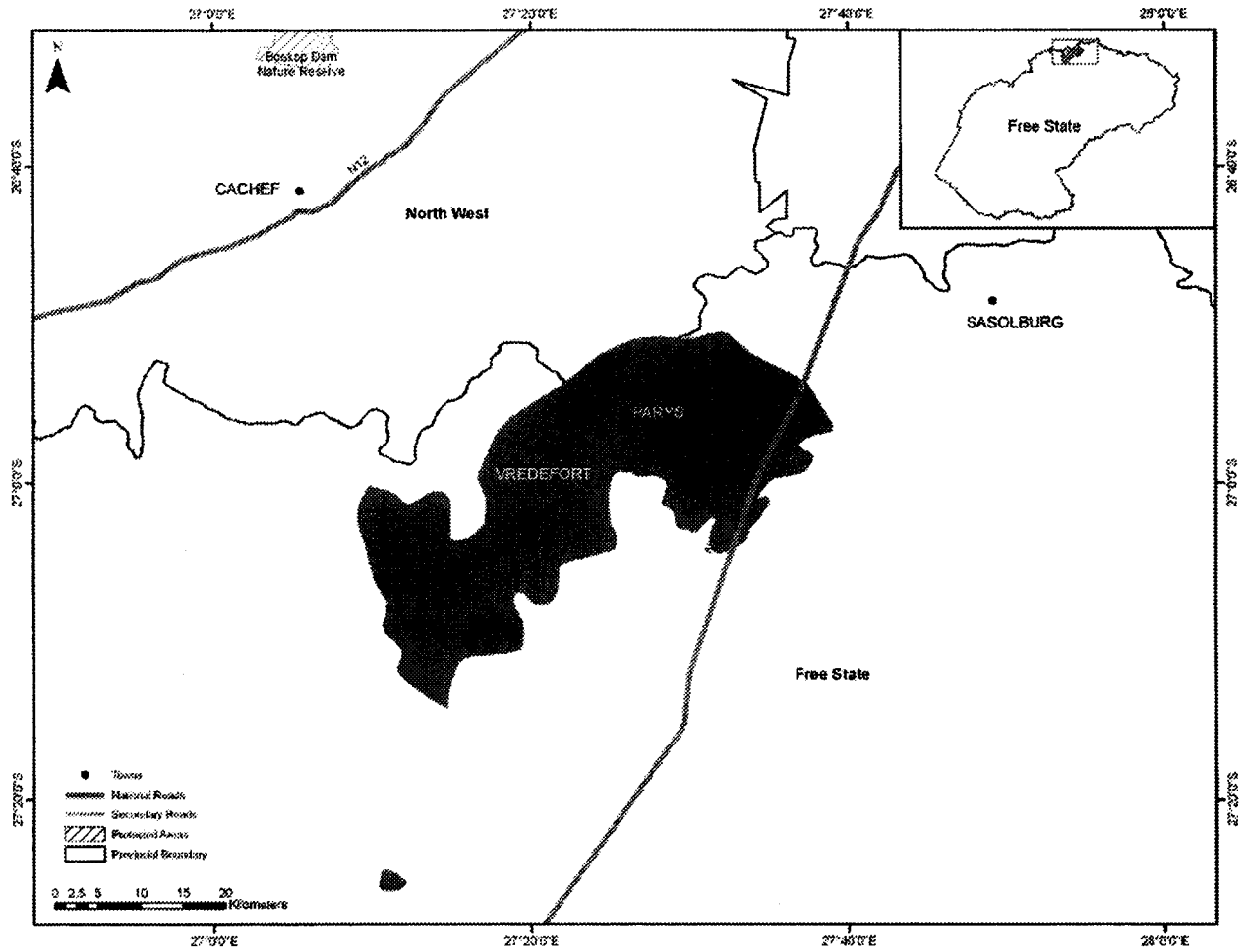
Slightly undulating plains with mainly short, *Themeda triandra*-dominated grassland, though mostly grazed and often degraded. One of the most scenic landscapes of the Highveld, with the Vaal River cutting through the mountainous landscape (Savanna Biome) of the Vredefort Dome. Big boulders of granite are conspicuous in the area, creating microhabitats for a diversity of plant species.

Other information

The ecosystem is not protected.

Reference

Mucina, L., Hoare, D.B., Lotter, M.C., du Preez, P.J., Rutherford, M.C., Scott-Shaw, R., Bredenkamp, G.J., Powrie, L.W., Scott, L., Camp, K.G.T., Cilliers, S.S., Bezuidenhout, H., Mostert, T.H., Siebert, S.J., Winter, P.J.D., Burrows, J.E., Dobson, L., Ward, R.A., Stalmans, M., Oliver, E.G.H., Siebert, F., Schmidt, E., Kobisi, K., & Kose, L. 2006. Grassland Biome. In: L. Mucina & M.C. Rutherford (eds). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* **19**: 385-386. South African National Biodiversity Institute, Pretoria.



Location of Vredefort Dome Granite Grassland showing original area of ecosystem

225. Warley Commons (KZN 84)

Reference number	KZN 84
Listed under Criterion	F
Biome	Grassland and Savanna
Province	KwaZulu-Natal
Municipality	Mooi Mpofana LM
Original area of ecosystem	5 000 ha
Remaining natural area of ecosystem (%)	41%
Proportion of ecosystem protected	0% of original area
Known number of species of special concern	4 threatened or endemic plant and animal species including those listed below

Geographical location

Weston (2930AA) and Estcourt (2929BB). Includes Wattled Crane habitat and is primarily determined by the requirements of this species. Ecosystem delineated by contours that strongly align with the location of the lowlands and the basal regions of the surrounding hills.

Description

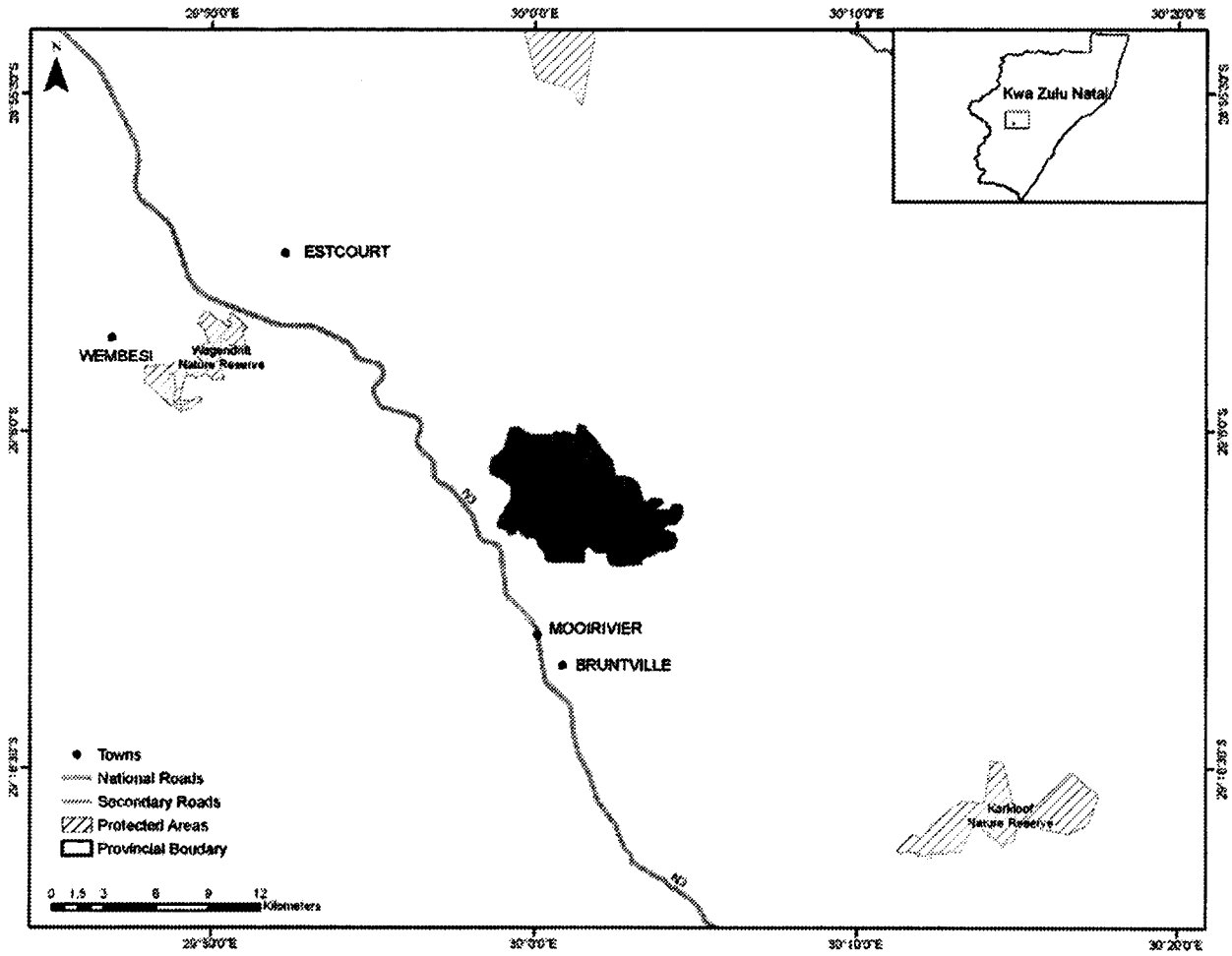
Key biodiversity features include one bird species, the Wattled Crane; two millipede species including *Centrobolus tricolor* and *Doratogonus montanus*; one reptile species, *Bradypodion thamnobates*; and two vegetation types Mool River Highland Grassland and Thukela Thornveld.

Other information

The ecosystem is not protected.

Reference

Goodman, P.S. 2007. KwaZulu-Natal Terrestrial Conservation Plan (C-Plan), Version 4. Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife.



Location of Warley Commons showing original area of ecosystem

8 Contact details

For further information on the process of listing threatened or protected ecosystems in terms of the Biodiversity Act please email threatenedecosystems@sanbi.org.za.

For further information and advice on obtaining the relevant spatial information on threatened ecosystems please visit SANBI's Biodiversity GIS (BGIS) website at http://bgis.sanbi.org or email bgishelp@sanbi.org.

Appendix A: Relevant sections of the Biodiversity Act

Sections of the Biodiversity Act that deal directly or indirectly with threatened ecosystems are:

- Sections 52-55 on protection of threatened and protected ecosystems
- Sections 43-46 on biodiversity management plans and biodiversity management agreements
- Section 97 on regulations that the Minister may make
- Section 9 on norms and standards that the Minister may issue
- Sections 99 and 100 on consultation and public participation

Protection of threatened or protected ecosystems

Ecosystems that are threatened or in need of protection

52. (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection.
(b) An MEC for environmental affairs in a province may, by notice in the Gazette, publish a provincial list of ecosystems in the province that are threatened and in need of protection.

(2) The following categories of ecosystems may be listed in terms of subsection (1):
(a) critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;
(b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;
(c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and
(d) protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs (a), (b) or (c).

(3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list.

(4) The Minister and the MEC for environmental affairs in a relevant province, respectively, must at least every five years review any national or provincial list published by the Minister or MEC in terms of subsection (1).

(5) An MEC may publish or amend a provincial list only with the concurrence of the Minister.

Threatening processes in listed ecosystems

53. (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.

(2) A threatening process identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act and a listed ecosystem must be regarded as an area identified for the purpose of that section.

Certain plans to take into account in protection of listed ecosystems

54. An organ of state that must prepare an environmental implementation or environmental management plan in terms of Chapter 3 of the National Environmental Management Act, and a municipality that must adopt an integrated development plan in terms of the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000), must take into account the need for the protection of listed ecosystems.

Amendment of notices

55. The Minister or the MEC for Environmental Affairs in any relevant province may, by notice in the Gazette, amend or repeal any notice published by him or her in terms of section 52(1) or 53(1).

Biodiversity management plans

43. (1) Any person, organisation or organ of state desiring to contribute to biodiversity management may submit to the Minister for his or her approval a draft management plan for—
(a) an ecosystem—
(i) listed in terms of section 52; or
(ii) which is not listed in terms of section 52 but which does warrant special conservation attention;

(2) Before approving a draft biodiversity management plan, the Minister must identify a suitable person, organisation or organ of state which is willing to be responsible for the implementation of the plan.

(3) The Minister must—
(a) publish by notice in the Gazette a biodiversity management plan approved in terms of subsection (1);
(b) determine the manner of implementation of the plan; and
(c) assign responsibility for the implementation of the plan to the person, organisation or organ of state identified in terms of subsection (2).

Biodiversity management agreements

44. The Minister may enter into a biodiversity management agreement with the person, organisation or organ of state identified in terms of section 43(2), or any other suitable person, organisation or organ of state, regarding the implementation of a biodiversity management plan, or any aspect of it.

Contents of biodiversity management plans

45. A biodiversity management plan must—
(a) be aimed at ensuring the long-term survival in nature of the species or ecosystem to which the plan relates;
(b) provide for the responsible person, organisation or organ of state to monitor and report on progress with implementation of the plan; and
(c) be consistent with—
(i) this Act;
(ii) the national environmental management principles;
(iii) the national biodiversity framework;
(iv) any applicable bioregional plan;
(v) any plans issued in terms of Chapter 3 of the National Environmental Management Act;
(vi) any municipal integrated development plan;
(vii) any other plans prepared in terms of national or provincial legislation that
is affected; and
(viii) any relevant international agreements binding on the Republic.
Review and amendment of biodiversity management plans

46. (1) The Minister must review a biodiversity management plan published in terms of section 43(3) at least every five years, and assess compliance with the plan and the extent to which its objectives are being met.

(2) The Minister, either on own initiative or on request by an interested person, organisation or organ of state, may by notice in the Gazette amend a biodiversity management plan published in terms of section 43(3).

(3) Before amending a biodiversity management plan, the Minister must consult—

(a) any person, organisation or organ of state implementing the plan; and

(b) any organ of state whose activities are affected by the implementation of the plan.

Regulations by Minister

97. (1) The Minister may make regulations relating to—

(a) the monitoring of compliance with and enforcement of norms and standards referred to in section 9;

(b) ... (vi) the minimising of the threat to the ecological integrity of a listed ecosystem;

Norms and standards

9. (1) The Minister may, by notice in the Gazette—

(a) issue norms and standards for the achievement of any of the objectives of this Act, including for the—

(i) management and conservation of South Africa's biological diversity and its components;

(ii) restriction of activities which impact on biodiversity and its components;

(b) set indicators to measure compliance with those norms and standards; and

(c) amend any notice issued in terms of paragraph (a) or (b).

...

(3) Norms and standards may apply—

(a) nationwide;

(b) in a specific area only; or

(c) to a specific category of biodiversity only.

(4) Different norms and standards may be issued for—

(a) different areas; or

(b) different categories of biodiversity.

Consultation

99. (1) Before exercising a power which, in terms of a provision of this Act, must be exercised in accordance with this section and section 100, the Minister must follow an appropriate consultative process in the circumstances.

(2) The Minister must, in terms of subsection (1)—

(a) consult all Cabinet members whose areas of responsibility may be affected by the exercise of the power;

(b) in accordance with the principles of co-operative governance set out in Chapter 3 of the Constitution, consult the MEC for Environmental Affairs of each province that may be affected by the exercise of the power; and

(c) allow public participation in the process in accordance with section 100.

Public participation

100. (1) The Minister must give notice of the proposed exercise of the power referred to in section 99—

(a) in the Gazette; and

(b) in at least one newspaper distributed nationally, or if the exercise of the power may affect only a specific area, in at least one newspaper distributed in that area.

(2) The notice must—

(a) invite members of the public to submit to the Minister, within 30 days of publication of the notice in the Gazette, written representations on, or objections to, the proposed exercise of the power; and

(b) contain sufficient information to enable members of the public to submit meaningful representations or objections.

(3) The Minister may in appropriate circumstances allow any interested person or community to present oral representations or objections to the Minister or a person designated by the Minister.

(4) The Minister must give due consideration to all representations or objections received or presented before exercising the power.

Functions of SANBI

11. (1) The Institute—

(a) must monitor and report regularly to the Minister on—

(ii) the conservation status of all listed threatened or protected species and listed ecosystems

Monitoring

49. (1) The Minister must for the purposes of this Chapter designate monitoring mechanisms and set indicators to determine—

(a) the conservation status of various components of South Africa's biodiversity; and

(b) any negative and positive trends affecting the conservation status of the various components.

(2) The Minister may require any person, organisation or organ of state involved in terms of subsection (1) in monitoring the matters referred to in that subsection to report regularly to the Minister on the results of such monitoring measured against the predetermined indicators.

(3) The Minister must—

(a) annually report to Parliament on the information submitted to the Minister in terms of subsection (2); and

(b) make such information publicly available.

Appendix B: Relevant sections of NEMA (as amended)

The relevant sections of NEMA are:

- 24(2)-(3)
- 24A
- 24B
- 24D

24. Environmental authorisations

(2) The Minister, and every MEC with the concurrence of the Minister, may identify -
(a) activities which may not commence without environmental authorisation from the competent authority;
(b) geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may not commence without environmental authorisation from the competent authority;
(c) geographical areas based on environmental attributes, and specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may be excluded from authorisation by the competent authority;
(d) activities contemplated in paragraphs (a) and (b) that may commence without an environmental authorisation, but that must comply with prescribed norms or standards:

Provided that where an activity falls under the jurisdiction of another Minister or MEC, a decision in respect of paragraphs (a) to (d) must be taken after consultation with such other Minister or MEC.

(3) The Minister, or an MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority.

24A. Procedure for listing activity or area

Before identifying any activity or area in terms of section 24(2), the Minister or MEC, as the case may be, must publish a notice in the relevant Gazette -
(a) specifying, through description, a map or any other appropriate manner, the activity or area that it is proposing to list;

(b) inviting interested parties to submit written comments on the proposed listing within a period specified in the notice.

24B. Procedure for delisting of activities or areas

(1) The Minister may delist an activity or area identified by the Minister in terms of section 24(2).
(2) An MEC may, with the concurrence of the Minister, delist an activity or area identified by the MEC in terms of section 24(2).
(3) The Minister or MEC, as the case may be, must comply with section 24A, read with the changes required by the context, before delisting an activity or area in terms of this section.

24D. Publication of list

(1) The Minister or MEC concerned, as the case may be, must publish in the relevant Gazette a notice containing a list of-
(a) activities or areas identified in terms of section 24(2); and
(b) competent authorities identified in terms of section 24C.
(2) The notice referred to in subsection (1) must specify the date on which the list is to come into effect.

Appendix C: List of workshops and work sessions held

The following workshops and work sessions were held over the period October 2006 to April 2008, to develop criteria, test and identify the list of threatened terrestrial ecosystems. Organisations represented at each workshop or work session are provided.

Date	Workshop or work session	Organisations represented
24 – 26 October 2006	National Workshop: Development of Criteria for Listing Threatened or Protected Ecosystems in South Africa	African Environmental Centre Agricultural Research Council (ARC) Botanical Society of South Africa CapeNature Centre for Invasion Biology (University of Stellenbosch) Council of Scientific and Industrial Research (CSIR) Eastern Cape Parks Endangered Wildlife Trust (EWT) Ezemvelo KwaZulu-Natal Wildlife Free State Department of Tourism, Environment and Economic Affairs (DTEEA) Freshwater Consulting Group Gauteng Department of Agriculture, Conservation and Environment (GDACE) Limpopo Department of Economic Development, Environment and Tourism (LEDET) Mpumalanga Department of Agriculture and Land Affairs (DALA) Mpumalanga Tourism and Parks Agency (MTPA) National Department of Agriculture (DoA) National Department of Environmental Affairs and Tourism (DEAT) National Department of Water Affairs and Forestry (DWAF) Nelson Mandela Metropolitan University (NMMU) North West Department of Agriculture, Conservation and Environment (NW DACE) Northern Cape Department of Tourism, Environment and Conservation (DTEC) Percy Fitzpatrick Institute (University of Cape Town) South African Institute for Aquatic Biodiversity (SAIAB) South African National Biodiversity Institute (SANBI) South African National Parks Board (SANParks) University of Stellenbosch University of Witwatersrand Working for Wetlands (SANBI) Independent Biodiversity Planning and Vegetation Mapping Consultants
11 & 12 December 2006	Work Session: Testing Criterion A: Loss of Natural Habitat and Criterion D: Threatened Species Associations	Council for Scientific and Industrial Research (CSIR) Gauteng Department of Agriculture, Conservation and Environment (GDACE) Nelson Mandela Metropolitan University (NMMU) South African National Biodiversity Institute (SANBI)

Date	Workshop or work session	Organisations represented
8 February 2007	Work Session: Finalisation of Approach for Criterion A: Loss of Natural Habitat; Criterion D: Threatened Species Associations; and Criterion F: Priority Areas for Meeting Explicit Biodiversity Targets as Defined in a Systematic Biodiversity Plan at the 2007 Biodiversity Planning Forum	C.A.P.E. Fine-scale Biodiversity Planning Project CapeNature Council for Scientific and Industrial Research (CSIR) Eastern Cape Parks Ezemvelo KwaZulu-Natal Wildlife Free State Department of Tourism, Environment and Economic Affairs (DTEEA) Gauteng Department of Agriculture, Conservation and Environment (GDACE) Independent Biodiversity Planning Consultants Limpopo Department of Economic Development, Environment and Tourism (LEDET) Maloti-Drakensberg Transfrontier Project (MDTP) Mpumalanga Tourism and Parks Agency (MTPA) North West Department of Agriculture, Conservation and Environment (NW DACE) Northern Cape Department of Tourism, Environment and Conservation (DTEC) South African National Parks Board (SANPArks) South African National Biodiversity Institute (SANBI) Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)
23 & 24 March 2007	Work Session: Testing of Criterion F Using Provincial Biodiversity Plans	Ezemvelo KwaZulu-Natal Wildlife Gauteng Department of Agriculture, Conservation and Environment (GDACE) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI)
16 May 2007	Work Session: Development of Criteria for Threatened Forest Ecosystems and Planning for Stakeholder Workshop	Department of Water Affairs and Forestry (DWAF) Eco-Logic Consulting South African National Biodiversity Institute (SANBI)
28 & 29 May 2007	Stakeholder Workshop: Development of Criteria for Listing Threatened Forests Ecosystems	Botanical Society of South Africa Buffelskloof Private Nature Reserve Council for Scientific and Industrial Research (CSIR) Department of Water Affairs and Forestry (DWAF) Eco-Logic Consulting Forestwood cc Limpopo Department of Economic Development, Environment and Tourism (LEDET) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI) University of KwaZulu-Natal
16 & 17 July 2007	Work Session: Review of Forest Targets and Testing of Criteria for Threatened Forest Ecosystems	Department of Water Affairs and Forestry (DWAF) Eco-Logic Consulting Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI) University of Stellenbosch

Date	Workshop or work session	Organisations represented
21 – 23 November 2007	Work Session: Identify and Finalise List of Threatened Terrestrial Ecosystems using Criteria A, D and F	Botanical Society of South Africa C.A.P.E Fine-scale Biodiversity Planning Project CapeNature Ezemvelo KwaZulu-Natal Wildlife Gauteng Department of Agriculture, Conservation and Environment (GDACE) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI) Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)
31 January 2008	Review of Threatened Terrestrial Ecosystems Identified Using Criterion F	Ezemvelo KwaZulu-Natal Wildlife Gauteng Department of Agriculture, Conservation and Environment (GDACE) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI)
27 February 2008	Work Session: Results of Forest Target Review and Testing of Criteria for Threatened Forest Ecosystems	Department of Water Affairs and Forestry (DWAF) Eco-Logic Consulting Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI)
6 March 2008	Work Session: Final Review of Threatened Terrestrial Ecosystems Identified Using Criterion F	Ezemvelo KwaZulu-Natal Wildlife Gauteng Department of Agriculture, Conservation and Environment (GDACE) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI)
12 & 13 March 2008	Workshop: Identification of List of Threatened Forest Ecosystems	Department of Water Affairs and Forestry (DWAF) Eastern Cape Parks Eco-Logic Consulting Ezemvelo KwaZulu-Natal Wildlife Limpopo Department of Economic Development, Environment and Tourism (LEDET) National Department of Environmental Affairs and Tourism (DEAT) South African National Biodiversity Institute (SANBI) South African National Parks (SANParks) not present but provided input
22 & 23 April 2008	Work Session: Finalise List of Threatened Ecosystems and Supporting Material for Submission to Working Group 1	Botanical Society of South Africa CapeNature Department of Water Affairs and Forestry (DWAF) Ezemvelo KwaZulu-Natal Wildlife Gauteng Department of Agriculture, Conservation and Environment (GDACE) Mpumalanga Tourism and Parks Agency (MTPA) South African National Biodiversity Institute (SANBI)