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The Forest Resources Assessment Programme

Sustainably managed forests have multiple environmental and socio-economic functions important at the global, national and local scales, and play a vital part in sustainable development. Reliable and up-to-date information on the state of forest resources - not only on area and area change, but also on such variables as growing stock, wood and non-wood products, carbon, protected areas, use of forests for recreation and other services, biological diversity and forests' contribution to national economies - is crucial to support decision-making for policies and programmes in forestry and sustainable development at all levels.

FAO, at the request of its member countries, regularly monitors the world's forests and their management and uses through the Forest Resources Assessment Programme. This country report forms part of the Global Forest Resources Assessment 2005 (FRA 2005), which is the most comprehensive assessment to date. More than 800 people have been involved, including 172 national correspondents and their colleagues, an Advisory Group, international experts, FAO staff, consultants and volunteers. Information has been collated from 229 countries and territories for three points in time: 1990, 2000 and 2005.

The reporting framework for FRA 2005 is based on the thematic elements of sustainable forest management acknowledged in intergovernmental forest-related fora and includes more than 40 variables related to the extent, condition, uses and values of forest resources. More information on the FRA 2005 process and the results - including all the country reports - is available on the FRA 2005 Web site (www.fao.org/forestry/fra2005).

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The Global Forest Resources Assessment 2005 Country Report Series is designed to document and make available the information forming the basis for the FRA 2005 reports. The Country Reports have been compiled by officially nominated country correspondents in collaboration with FAO staff. Prior to finalisation, these reports were subject to validation by forestry authorities in the respective countries.

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1 Table T1 – Extent of Forest and Other wooded land

1.1 FRA 2005 Categories and definitions

Category	Definition
Forest	Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds <i>in situ</i> . It does not include land that is predominantly under agricultural or urban land use.
Other wooded land	Land not classified as “Forest”, spanning more than 0.5 hectares; with trees higher than 5 meters and a canopy cover of 5-10 percent, or trees able to reach these thresholds <i>in situ</i> ; or with a combined cover of shrubs, bushes and trees above 10 percent. It does not include land that is predominantly under agricultural or urban land use.
Other land	All land that is not classified as “Forest” or “Other wooded land”.
Other land with tree cover (Subordinated to “Other land”)	Land classified as “Other land”, spanning more than 0.5 hectares with a canopy cover of more than 10 percent of trees able to reach a height of 5 meters at maturity.
Inland water bodies	Inland water bodies generally include major rivers, lakes and water reservoirs.

1.2 National data

1.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year	Additional comments
1. Forest Act 122 of 1984	H	Classification and Definitions	1984	There were no classification and definitions for the 1986/87 data. Assumption was the National Forest Act of 1984 definitions were applicable
2. Department of Environment Affairs. 1987. Annual Report 1986/87: Cape & Transvaal Printers (Pty) Ltd, Cape Town for the Government Printer, Pretoria	H	State Forests, Conservation areas	1987	
3. Forestry South Africa: Forest Facts.	H	Plantation area	1987 1990 and 2000	Total plantation area in South Africa in 1986/87
4. Thompson, M. 1999. A standard land-cover classification scheme for remote sensing application in South Africa. Forestek. CSIR, Pretoria.	H	Land cover classification	1995	Contains the definitions used for land use classification made by Fairbanks et al., 2000. Some definitions in this source such as barren lands are not clear enough. For example in Limpopo and Mpumalanga, some barren lands actually are degraded woodlands.
5. Fairbanks et al., 2000. The South African Land-Cover Characteristics Database: A synopsis of	H	Land cover description	1995	Best available data source for national land cover classification in South Africa. Good compatibility with FRA 2005

the landscape. SA Journal of Science, 96, February 2000.				categories and definitions.
6. Department of Water Affairs and Forestry. 2002. Unpublished state of the forest report for South Africa	H	Natural Forests, Woodlands	2000	The reference year here refers to the year in which the figures for 1996 (National land cover Map) were verified

1.2.2 Classification and Definitions

a) Classification and definitions established in the Forest Act 122 of 1984.

National class	Definition
National Class	Definition
State Forests	State land which was acquire for the purpose for which or which was reserved for those purposes with the concurrence of the Minister of Public Works, and includes a state plantation, state sawmill, state timber preservation plant, land controlled and managed by the Department for research purposes, as tree nursery, or for the establishment of a commercial timber plantation, an area which has been set for the conservation of fauna and flora, for the management of catchments area, for the prevention of soil erosion or sanddrift, or for the protection of indigenous forests, and all trees on (a). any other state land, excluding land purchased from the State but not yet transferred to the purchaser; and (b)any other land if the right to those trees vests in the state
Nature Reserves	Nature Reserve means a state or a part thereof which has been set aside as a nature reserve under section 15(1)(a)(i) ¹
Wilderness Area	Wilderness Areas means a state forest or a part thereof set aside under section 15(1)(a)(ii)as a wilderness area

Source:1

b) Definitions for land-cover classification in South Africa (Thompson, 1999)

National Class	Definition
Forest & Woodland	All wooded areas with greater than 10% tree canopy cover ¹ , where the canopy is composed of mainly self-supporting, single stemmed ² , woody plants >5 m in height. Essentially indigenous tree species ³ , growing under natural or semi-natural conditions (although it may include some localised areas of self-seeded exotic species). Excludes planted forests (and woodlots). Typically associated with the Forest and Savannah biomes in South Africa.
Forest	Tree canopy cover > 70%. A multi-strata community, with interlocking canopies, composed of canopy, sub canopy, shrub and herb layers.
Thicket, Bushland, Scrub Forest and High Fynbos	Communities typically composed of tall, woody, self-supporting, single and/or multi-stemmed plants (branching at or near the ground), with, in most cases no clearly definable structure. Total canopy cover > 10%, with canopy height between 2 - 5 m. Essentially indigenous species, growing under natural or semi-natural conditions (although it may include some localised areas of self-seeded exotic species, especially along riparian zones). Typical examples are Valley Bushveld, Mopane bush, and tall Fynbos. Dense bush encroachment areas would be included in this category.
Shrubland and Low Fynbos	Communities dominated by low, woody, self-supporting, multi-stemmed plants branching at or near the ground, between 0.2 - 2 m in height. Total tree cover < 1.0%. Low shrublands and heathlands are combined at Level 1 due to similar overall physiognomic structure and (in many cases) appearance on remotely sensed imagery. Examples would include low Fynbos, Karoo and Lesotho (alpine) communities.
Herbland	Communities dominated by low, non-woody, self-supporting, non-grass like plants, between 0.2 - 2 m in height. Total tree cover < 1.0%. Typical vegetation examples are found in Namaqualand, and `weed' dominated degraded

	areas.
Grassland	All areas of grassland with less than 10% tree and/or shrub canopy cover, and greater than 0.1% total vegetation cover. Dominated by grass-like, non-woody, rooted herbaceous plants. Typically associated with the Grassland and Savannah Biomes.
Forest Plantations	All areas of systematically planted, man-managed tree resources composed of primarily exotic species (including hybrids). Category includes both young and mature plantations that have been established for commercial timber production, seedling trials, and woodlots/windbreaks of sufficient size to be identified on satellite imagery. Unless otherwise stated, Levels 1 & 2 includes clear-felled stands <i>within</i> plantations. Excludes all non-timber based plantations such as tea and sisal, as well as orchards used in the production of citrus or nut crops. Level 1 category will include associated land-cover/use's such as roads, fire-breaks and building infrastructure if these are too small to be clearly mapped off the satellite imagery.
Water bodies	Areas of (generally permanent) <i>open water</i> . The category includes natural and man-made water bodies, which are either static or flowing, and fresh, brackish and salt water conditions. This category includes features such as rivers, dams (i.e. reservoirs), permanent pans, lakes, lagoons and coastal waters.
Wetlands	Natural or artificial areas where the water level is at (or very near the land surface) on a permanent or temporary basis, typically covered in either herbaceous or woody vegetation cover. The category includes fresh, brackish and salt water conditions. Examples include salt marsh, pans (with non-permanent water cover), reed-marsh or papyrus-swamp and peat bogs.
Barren Lands	Non-vegetated areas, or areas of very little vegetation cover (excluding agricultural fields with no crop cover, and opencast mines and quarries), where the substrate or soil exposure is clearly apparent.
Degraded Land	Permanent or seasonal, man-induced areas of very low vegetation cover (i.e. removal of tree, bush and/or herbaceous cover) <i>in comparison to the surrounding natural vegetation cover</i> . Category includes major erosion scars (i.e. sheet and gully erosion). Should be sub-divided by Level I vegetation classes i.e. Degraded-Woodland, and Degraded-Grassland wherever possible to allow reconstruction of full class extent. Typically associated with subsistence level farming and rural population centres, where overgrazing of livestock and/or wood-resource removal has been excessive. Often associated with severe soil erosion problems. Characterised on satellite imagery by significantly higher overall reflectance levels (i.e. whiter appearance) and lower NDVI values (in comparison to the surrounding vegetation).
Urban / Built-up Land	An area where there is a permanent concentration of people, buildings, and other man-made structures and activities, from large village to city scale. Note: small rural communities are often included within the surrounding land-cover category (i.e. subsistence / semi-commercial agriculture) if mapping scales do not permit identification of such settlements as individual features. Where mapping scales permit, the limits of the urban boundary are delineated to exclude open areas within the built-up region (i.e. vegetated or non-vegetated areas with few or no structures).
Mines & Quarries	Areas in which mining activity has been done or is being done. Includes opencast mines and quarries, as well as surface infrastructure, mine dumps etc, associated with underground mining activities.

¹⁾ Canopy cover refers in all cases to projected canopy cover.

²⁾ Or a few definitive trunks branching above ground level.

³⁾ Indigenous refers to in all cases to plant species that occur naturally within southern Africa.

⁴⁾ Nanophyllous - less than 1 cm².

⁵⁾ Fallow - cultivated land that is allowed to lay idle during the cultivation season

1.2.3 Original data

Original data for 1995 (Source: Fairbanks *et al.*, 2002)

Land cover description	Area (ha)	%
Forest	401 369.5	0.33%
Forest and woodland	7 011 196.3	5.75%
Forest plantations	1 790 269.6	1.47%
Thicket and bushland	21 409 243.0	17.56%
Shrubland and low Fynbos	41 514 273.8	34.05%
Cultivated land ¹	14 753 248.3	12.10%
Degraded land ¹	5 647 659.7	4.63%
Urban/built-up land: residential/small holding : woodlands ²	40 462.6	0.03%
Urban/built-up land: other ¹	1 358 448.8	1.11%
Dongas and sheet erosion scars	186 513.8	0.15%
Barren rock	260 361.2	0.21%
Herbland	242 995.9	0.20%
Improved grassland	128 202.9	0.11%
Mines and quarries	175 420.7	0.14%
Unimproved grassland	25 945 426.7	21.28%
Wetlands	581 736.8	0.48%
Waterbodies	460 959.4	0.38%
Total	121 907 789.0	100%

1) Aggregation of several classes from the original data set

2) Presented separately in this table as it provides information for estimating Other Land with tree cover. This applies to Barren Rock, and Degraded Land, too, at least in certain provinces.

Original data for 2000 (Source: Department of Water Affairs and Forestry. 2002.

Unpublished state of the forest report for South Africa)

Natural Forests area (2000)	533 669 hectares
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Original data for 1987 (Source: Department of Environment Affairs. 1987. Annual Report 1986/87: Cape & Transvaal Printers (Pty) Ltd, Cape Town for the Government Printer, Pretoria)

Natural Forests > 70% crown coverage	507 496 hectares
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Original data for 1987, 1990 and 2000 (Source: Forestry South Africa: Forest Facts.)

	1987	1990	2000
Plantations (hectares)	1,159,480	1,203,852	1,351,760

While Fairbanks *et al* 2000 is the best available data source for national land cover classification, the figure for forest plantation area appear to be much higher than the official figures (Forestry South Africa, Forest Facts) because of several reasons: (1). most probably due to problems in discrimination between forest plantations and other forest categories, (2). Some forest owners fail to render returns and 3. Woodlots and some “abandoned” (i.e. not managed) plantations are not reported in the official figures (Source 3). The area of plantation from Table 1, based on data from Fairbanks has, therefore, not been used for the following reporting Tables (e.g. Table 3 and 4).

1.3 Analysis and processing of national data

1.3.1 Calibration

No calibration is necessary

Land cover description	Area in ha
Forest	401 370
Forest and woodland	7 011 196
Forest plantations	1 790 270
Thicket and bushland	21 409 243
Shrubland and low Fynbos	41 514 274
Cultivated land ¹	14 753 248
Degraded land ¹	5 647 660
Urban/built-up land: residential/small holding : woodlands	40 463
Urban/built-up land: other ¹	1 358 449
Dongas and sheet erosion scars	186 514
Barren rock	260 361
Herbland	242 996
Improved grassland	128 203
Mines and quarries	175 421
Unimproved grassland	25 945 427
Wetlands	581 737
Waterbodies	460 959
Total	121 907 789

1) Aggregation of several classes from the original data set

1.3.2 Estimation and forecasting

As land cover information consistent with the FRA 2005 categories and definitions only exist for 1995, no estimation and forecasting have been done by interpolation and extrapolation.

However, a special analysis has been made of data from other sources to see whether any trends may exist in terms of forest area changes.

Time series information on areas of forest plantations and areas of natural forest with crown cover of more the 70 percent is as follows:

Time series data on Forest (> 70% cover) and forest plantations

National Classes	Area in hectares		
	1987	1990	2000
Forest > 70% (1)	507 496		496 462 ¹⁾
Plantation (2)	1 159 480	1 203 852	1 351 760

1) Only the area corresponding to forest areas > 10 ha in size is included in order to make it comparable to the definitions used for the 1987 estimate. The original figure of 533 669 hectares has thus been reduced by 37 207 hectares (total area of patches less than 10 hectares).

The figures on Forest for 1987 and 2000 are very similar and the small difference is not statistically significant. This is also confirmed by expert assessments. The area under forest plantations shows a positive trend for the period.

In this analysis, there is no evidential support for assuming that any major changes in the total extent of Forest and Other wooded land have taken place during the period covered by this report. It is estimated that some natural forests in the definition of the National Forest Act No.84 of 1998 have since been destroyed or degraded. However, at the time of compiling this report, no statistics were available to back this claim. The positive trend on plantations may be counterbalanced by a negative (although undocumented) trend on natural forest (the fraction with crown cover 10% – 70% and >70%). Hence, the 1995 figures based on Fairbanks have been used in the reporting table for all three reporting years.

1.4 Reclassification into FRA 2005 classes

Reclassification matrix

National Class	Forest	OWL	OL	OLTC	Water
Forest > 70%	100%				
Forest 10-70%	100%				
Plantation	100%				
Thicket and bushland		100%			
Others (wetlands, agriculture, built up areas etc)			100%		
Water bodies					100%
TOTAL					

Areas derived from reclassification

National Classes	Area in hectares			
	Forests	OWL	OL	OLWTC
Forest >70%	401 370	0	0	0
Forest 10-70%	7 011 196	0	0	0
Forest plantations	1 790 270	0	0	0
Thicket and bushland	0	21 409 243	0	0
Shrubland and low Fynbos	0	0	41 514 274	0
Cultivated land	0	0	14 753 248	0
Degraded land	0	0	5 647 660	0
Urban/builtup land: Residential/small holding : woodlands	0	0	0	40 463
Urban/builtup land: Other	0	0	1 358 449	0
Dongas and sheet erosion scars	0	0	186 514	0
Barren rock	0	0	260 361	0
Herbland	0	0	242 996	0
Improved grassland	0	0	128 203	0
Mines and quarries	0	0	175 421	0
Unimproved grassland	0	0	25 945 427	0
Wetlands	0	0	581 737	0
TOTAL	9 202 835	21 409 243	90 794 289	40 462

1.5 Data for National reporting table T1

FRA 2005 Categories	Area in 1000 hectares		
	1990	2000	2005
Forests	9 203	9 203	9 203
Other wooded land	21 409	21 409	21 409
Other land	90 835	90 835	90 835
... of which with tree cover	40	40	40
Total land area	121 447	121 447	121 447
Inland water	462	462	462
Total area of country	121 909	121 909	121 909

In order to facilitate the compilation of tables T3 and T4, a time series for the FRA reporting years has been estimated for the three main national classes:

National class	Area in hectares		
	1990	2000	2005
Forest > 70%	505 148	496 462	493 408
Forest 10-70%	7 493 835	7 354 613	7 283 713
Plantation	1 203 852	1 351 760	1 425 714
TOTAL	9 202 835	9 202 835	9 202 835

Notes:

- 1) The figures for forest >70% and for plantations of the time series presented in 1.3.2 on page 11 have been estimated/forecasted through linear interpolation and extrapolation
- 2) The area of forests with cover between 10 and 70 percent has been estimated by subtracting Plantations and Forest >70% from the total forest area as derived under 1.5.

1.6 Comments to National reporting table T1

There were several other sources that reported on forest cover in South Africa i.e. Earth Trends 2003: Department of Water Affairs and Forestry. 2002: Unpublished state of the forest report for South Africa. These sources were eliminated as they used classifications and definitions that were not compatible with each other, or with the FRA 2005 definitions. The 1995 data used was the only source that could provide comprehensive data compatible with the FRA 2005 classifications.

Table 1 is the only table that has clear national definitions and classification of forests in South Africa. T 2 to T 4 uses sources that have the area of natural forests, plantation areas and protected areas for given years. Protected areas data however, do not differentiate between forests and other wooded land. The assumption is therefore made that all areas under protected areas will have a crown cover that is more than 10 percent and tree height more than 5m.

2 Table T2 – Ownership of Forest and Other wooded land

2.1 FRA 2005 Categories and definitions

Category	Definition
Private ownership	Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Land that is not classified either as “Public ownership” or as “Private ownership”.

2.2 National data

2.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments	Data source no.
Forest Act 122 of 1984	H	Classification and Definitions	1984	The 1987 figures for data source 2 were assumed to have been derived from the Forests Act 122 of 1984	1
Department of Environment Affairs. 1986/87. Annual Report: Cape & Transvaal Printers (Pty) Ltd, Cape Town for the Government Printer, Pretoria	H	Ownership of Natural forest, plantations and conservation forests	1987		2
Department of Water Affairs and Forestry. 2002. Unpublished state of the forest report for South Africa	H	Natural Forests, Woodlands	2000	The reference year here refers to the year in which the figures for 1996 (National land cover Map) were modified	3

2.2.2 Classification and definitions

National Classification and Definitions for 1987 data as taken from the Forest Act 122 of 1984

National Class	Definition
State Forests	State land which was acquire for the purpose for which or which was reserved for those purposes with the concurrence of the Minister of Public Works, and includes a state plantation, state sawmill, state timber preservation plant, land controlled and managed by the Department for research purposes, as tree nursery, or for the establishment of a commercial timber plantation, an area which has been set for the conservation of fauna and flora, for the management of catchments area, for the prevention of soil erosion or sandrfit, or for the protection of indigenous forests, and all trees on (a). any other state land, excluding land purchased from the State but not yet transferred to the purchaser; and (b)any other land if the right to those trees vests in the state

2.2.3 Original data

National Class	Area in hectares					
	Public		Private		Total	
	1987	2000	1987	2000	1987	2000
Protected woodlands	5270784	4986114	2067574	2067574	7338358	7053688
Natural Forests	507496	533669			507496	533669
Plantations	334755	380661	825025	971099	1159780	1351760
Total Forest	6113035	5900444	2892599	3038673	9005634	8939117
Woodlands		3502634		18745994		22248628

Notes:

Data for 1987=Source 2

Data for 2000=Source 3

2.3 Analysis and processing of national data

2.3.1 Estimation and forecasting

Estimation was done before calibration to make total forest area consistent with Table 1. The national classes Protected woodlands, Natural forests and Plantations are grouped together into the FRA 2005 category Forest, and the Woodlands correspond to the FRA 2005 category Other wooded land.

2.3.2 Calibration

	Area in hectares	
	1990	2000
Total Forest from T1	9 202 835	9 202 835
Total Forest in T2	8 990 290	8 939 123
Calibrating factors	1.0236417	1.0295009

	Area in hectares	
	1990	2000
Total OWL from T1	ID	21409243
Total OWL in T2	ID	22248628
Calibrating factors	ID	0.9622725

Results after calibration

National Class	Area in hectares					
	Public		Private		Total	
	1987	2000	1987	2000	1987	2000
Protected woodlands	5386201	5133212	2112849	2128571	7499050	7261783
Natural Forests	518609	549413			518609	549413
Plantations	342085	391891	843091	999748	1185176	1391639
Total Forest	6246896	6074517	2955940	3128319	9202835	9202835
Woodlands		3370488		18038755		21409243

2.4 Reclassification into FRA 2005 classes

State forest and communal forest is public forest. No reclassification was necessary as national and GFRA classes are compatible.

2.5 Data for National reporting table T2

FRA 2005 Categories	Area (1000 hectares)			
	Forest ¹		Other wooded land	
	1990	2000	1990	2000
Private ownership	2 956	3 128		3 370
Public ownership	6 247	6 075		18 039
Other ownership				
TOTAL	9 203	9 203		21 409

2.6 Comments to National reporting table T2

The 2000 information on ownership was obtained from field verification of the 1995 Satellite images. The classifications used for woodlands were not clear enough to differentiate between woodlands with more or less than 10% canopy cover. Protected woodlands were assumed to have more than 10% canopy cover.

¹ Combined with protected woodlands

3 Table T3 – Designated function of Forest and Other wooded land

3.1 FRA 2005 Categories and definitions

Types of designation

Category	Definition
Primary function	A designated function is considered primary when it is significantly more important than other functions. This includes areas that are legally or voluntarily set aside for specific purposes.
Total area with function	Total area where a specific function has been designated, regardless whether it is primary or not.

Designation categories

Category / Designated function	Definition
Production	Forest / Other wooded land designated for production and extraction of forest goods, including both wood and non-wood forest products.
Protection of soil and water	Forest / Other wooded land designated for protection of soil and water.
Conservation of biodiversity	Forest / Other wooded land designated for conservation of biological diversity.
Social services	Forest / Other wooded land designated for the provision of social services.
Multiple purpose	Forest / Other wooded land designated to any combination of: production of goods, protection of soil and water, conservation of biodiversity and provision of social services and where none of these alone can be considered as being significantly more important than the others.
No or unknown function	Forest / Other wooded land for which a specific function has not been designated or where designated function is unknown.

3.2 National data

3.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments	Data source no.
White paper on the conservation and sustainable use of South Africa's biological diversity	H	South African legal or other equivalent IUCN category	1997	Notice 1095 of 1997	1
Forestry South Africa: Forest Facts		Plantation Area		1987, 1990 and 2000	2
Elliot W., 1996 Wilderness in the new South Africa. International journal of Wilderness/Volume 2, Number 2, August 1996		Wilderness areas	1990		3
Forest Act 122 of 1984		List of Wilderness areas			

3.2.2 Classification and definitions²

South Africa does not have definitions for Table 3. The definitions equivalents of the IUCN categories were obtained from the White Paper of Sustainable Use of Biodiversity. Due to problems of classification of woodlands, as in Table 2 protected areas are assumed to have more than 10% canopy cover.

IUCN Category	Name	Management Objective	South African or other equivalent Category
Category 1a	Scientific Reserves	Managed mainly for scientific research and monitoring	- Special nature reserves - Wilderness areas
Category 1b	Wilderness Areas	Managed mainly for wilderness protection, subsistence, and recreation	- Special nature reserves - Wilderness areas
Category II	National Parks and Equivalent reserves	Managed mainly for ecosystem protection and recreation	- National parks

Source: Data Source 4

3.2.3 Original data

Wilderness areas of South Africa

Legally declared under Forest Act

Wilderness areas in Natural Forests	Area in hectares
	1990
Mdedelelo	27 000
Mkhomazi	48 000
Ntendeka	5 200
Mlanbonja	14 000
Mzinkulu	28 300
Wolkberg	17 400
Cedarberg	64 400
Groendal	21 800
Boosmansbos	14 200
Grootwinterhoek	23 600
Doringrivier	11 000
Total wilderness areas in Natural Forests	274 900
Wilderness areas in Kruger National park	672 200
Total wilderness areas	947 100

Source: Elliot, 1996

² Data source 3

3.3 Analysis and processing of national data

3.3.1 Estimation and forecasting³

National Classes	1990	2000	2005
Plantations	1 203 852	1 351 760	1 425 714
Wilderness Areas	947 100	947 100	947 100
Other forests	7 051 883	6 903 975	6 830 021
TOTAL Forest	9 202 835	9 202 835	9 202 835

Notes:

- 1) The time series for Plantations is taken from T1.
- 2) It is assumed that the wilderness areas are the same for the years 1990, 2000 and 2005.
- 3) The class “Other forests” has been estimated by subtracting Plantations and Wilderness areas from the total forest area.

3.4 Reclassification into FRA 2005 classes

All the Other Wooded Land are regarded as modified forests

National Categories	Production	Protection of soil and water	Conservation of biodiversity	Social services	Multiple purpose
Wilderness areas			100%		
Plantations	100%				
Other Forests					100%

Results after reclassification

FRA 2005 Categories	Area in hectares		
	1990	2000	2005
Production	1 203 852	1 351 760	1 425 714
Conservation	947 100	947 100	947 100
Multiple purpose	7 051 883	6 903 975	6 830 021
Total Forests	9 202 835	9 202 835	9 202 835

³ Derived from linear interpolation

3.5 Data for National reporting table T3

FRA 2005 Categories / Designated function	Area (1000 hectares)					
	Primary function			Total area with function		
	1990	2000	2005	1990	2000	2005
Forest						
Production	1 204	1 352	1 426			
Protection of soil and water						
Conservation of biodiversity	947	947	947			
Social services						
Multiple purpose	7 052	6 904	6 830	not appl.	not appl.	not appl.
No or unknown function				not appl.	not appl.	not appl.
Total - Forest	9 203	9 203	9 203	not appl.	not appl.	not appl.
Other wooded land						
Production						
Protection of soil and water						
Conservation of biodiversity						
Social services						
Multiple purpose				not appl.	not appl.	not appl.
No or unknown function	21 409	21 409	21 409	not appl.	not appl.	not appl.
Total – Other wooded land	21 409	21 409	21 409	not appl.	not appl.	not appl.

3.6 Comments to National reporting table T3

There is some substantial part of OWL , unknown right now, which is designated for protection of soils and water (Mountain Catchment's Areas Act) and for the conservation of biodiversity.

4 Table T4 – Characteristics of Forest and Other wooded land

4.1 FRA 2005 Categories and definitions

Category	Definition
Primary	Forest / Other wooded land of native species, where there are no clearly visible indications of human activities and the ecological processes are not significantly disturbed.
Modified natural	Forest / Other wooded land of naturally regenerated native species where there are clearly visible indications of human activities.
Semi-natural	Forest / Other wooded land of native species, established through planting, seeding or assisted natural regeneration.
Productive plantation	Forest / Other wooded land of introduced species and in some cases native species, established through planting or seeding mainly for production of wood or non-wood goods.
Protective plantation	Forest / Other wooded land of native or introduced species, established through planting or seeding mainly for provision of services.

4.2 National data

4.2.1 Classification and definitions

Wilderness areas are managed for protection, subsistence and recreation.

4.3 Analysis and processing of national data

4.3.1 Estimation and forecasting

The processed national data from table T3 has been used as input for table T4.

National Classes	1990	2000	2005
Plantations	1 203 852	1 351 760	1 425 714
Wilderness Areas	947 100	947 100	947 100
Other forests	7 051 883	6 903 975	6 830 021
TOTAL Forest	9 202 835	9 202 835	9 202 835

- 1) The time series for Plantations is taken from T1.
- 2) It is assumed that the wilderness areas are the same for the years 1990, 2000 and 2005.
- 3) The class “Other forests” has been estimated by subtracting Plantations and Wilderness areas from the total forest area.

4.3.2 Calibration

Calibration not necessary.

4.4 Reclassification into FRA 2005 classes

FRA 2005	Primary Forest	Modified Natural Forest	Production Plantations	Semi-Natural Forest	Productive Plantation	Protective Plantation
Plantations			100%			
Wilderness areas		100%				
Other Forests		100%				

4.5 Data for National reporting table T4

FRA 2005 Categories	Area (1000 hectares)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Primary						
Modified natural	7 999	7 851	7 777	21 409	21 409	21 409
Semi-natural						
Productive plantation	1 204	1 352	1 426			
Protective plantation						
TOTAL	9 203	9 203	9 203	21 409	21 409	21 409

4.6 Comments to National reporting table T4

There are no national definitions for this Table.

5 Table T5 – Growing stock

5.1 FRA 2005 Categories and definitions

Category	Definition
Growing stock	Volume over bark of all living trees more than X cm in diameter at breast height (or above buttress if these are higher). Includes the stem from ground level or stump height up to a top diameter of Y cm, and may also include branches to a minimum diameter of W cm.
Commercial growing stock	The part of the growing stock of species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.

5.2 National data

5.2.1 Data sources

No national data. Volumes per hectare of all forest type were obtained from expert opinion.

o

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments	Source number
Bailey, C.L., Shackleton, C.M., Geldenhuys, C.J., Moshe, D., Fleming, G., Vink, E.R., Rathogwa, N.R. and Cawe, S.G 1999. Guide to and summary of the meta-database pertaining to selected attributes of south African indigenous forests and woodlands: ENV –P-C 99027	L	Basal area for woodland and natural forest	1999		1
Expert Opinion	L	Vol/ha plantations, Woodlands and Natural forests	2004		2
Forestry South Africa Calculation of total annual increment of softwood log categories, 1991/92 areas	H	Annual increment of plantations	1992	The only study done for plantation at time of writing the report	3

5.2.2 Classification and definitions

No national definitions exist

5.2.3 Original data

No growing stock data exist at country level. The growing stock has therefore been estimated by multiplying the area of different forest types (Fairbanks, calibrated areas from Table T1) with an estimated volume per hectare. The volume per hectare was also derived by using average basal area obtained from data source 1 multiplied by estimated relevant tree height for each forest type and by a form factor. Volume per hectare of plantations was calculated by using data source 3. Reference year is 1995.

National Classes	Area in ha	Volume (m ³ /ha)	Growing Stock in m ³
Natural forest	401 370	315 ⁴	126 431 393
Plantations	1 790 270	135 ⁵	241 686 396
Forest and woodland	7 011 196	38 ⁶	266 425 459
Total Forest	9 202 835		634 543 248
OWL	21 409 243	20	428 184 860

5.3 Analysis and processing of national data

5.3.1 Calibration

5.3.2 Estimation and forecasting

No estimation was done as it is assumed that the state of the forest has not changed very much over time.

5.4 Reclassification into FRA 2005 classes

No Reclassification was necessary. Growing stock for plantation is assumed to be commercial. There is very little harvesting of approximately 1.500m³/ha per annum in the Knysna-Tsitsikamma forest. This volume was considered to be insignificant to impact on the volume of commercial plantation species.

Reclassified data

National data	Growing stock (1995) in m ³	Growing stock (1995) in m ³
	Forest	OWL
Growing stock	634 543 248	428 184 860
Commercial growing stock	241 686 396	0

The figures of growing stock for 1995 have been used for all three reporting years.

5.5 Data for National reporting table T5

FRA 2005 Categories	Volume (million cubic meters over bark)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Growing stock	635	635	635	428	428	428
Commercial growing stock	242	242	242			

No inventory exists to supply data for this table.

Specification of country threshold values	Unit	Value	Complementary information
1. Minimum diameter at breast height of trees included in Growing stock (X)	cm		

⁴ Calculated using average basal area of 30m²/ha, tree height of 15m and tree form factor of 0.7. Basal area as derived from source 1 and expert opinion.

⁵ Derived from source 3

⁶ Derived from basal area obtained from source 1

2. Minimum diameter at the top end of stem (Y) for calculation of Growing stock	cm		
3. Minimum diameter of branches included in Growing stock (W)	cm		
4. Minimum diameter at breast height of trees in Commercial growing stock (Z)	cm		
5. Volume refers to “Above ground” (AG) or “Above stump” (AS)	AG / AS		
6. Have any of the above thresholds (points 1 to 4) changed since 1990	Yes/No		
7. If yes, then attach a separate note giving details of the change	Attachment		

5.6 Comments to National reporting table T5

There was also no real data available for volume produced (fuel wood and industrial wood) from woodlands and natural forests at the time of writing the report. Legally, all natural forests are protected.

6 Table T6 – Biomass stock

6.1 FRA 2005 Categories and definitions

Category	Definition
Above-ground biomass	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass	All living biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.
Dead wood biomass	All non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.

6.2 National data

6.2.1 Data sources

Figures derived from T5 as no original national data was available.

6.3 Analysis and processing of national data

Biomass figures were calculated directly from T5 with conversion factors obtained from IPCC Good Practice Guidelines.

National Classes	Stem vol.	Density	Stem wood	BEF	R/S ratio	D/L ratio
	m3/ha	ton/m3	ton/ha			
Natural forest	315	0.58	182.7	2.73	0.24	0.14
Plantations	135	0.58	78.3	2.35	0.34	0.14
Forest and woodland	38	0.58	22.04	5	0.24	0.14
OWL	20	0.58	11.6	5	0.48	0.14

Calculating biomass stock for Natural Forests

Multiplying area by conversion factors gives:

Natural forest	Biomass (million tonnes)		
	1990	2000	2005
Aboveground biomass	200.2	200.2	200.2
Belowground biomass	48.0	48.0	48.0
Dead wood biomass	34.8	34.8	34.8
Total	283.0	283.0	283.0

Calculating biomass stock for Plantations

Plantations	Biomass (million tonnes)		
	1990	2000	2005
Aboveground biomass	329.4	329.4	329.4
Belowground biomass	112.0	112.0	112.0
Dead wood biomass	61.8	61.8	61.8

Calculating biomass stock for forest and woodland

Forest and woodland	Biomass (million tonnes)		
	1990	2000	2005
Aboveground biomass	772.6	772.6	772.6
Belowground biomass	185.4	185.4	185.4
Dead wood biomass	134.1	134.1	134.1
Total	1092.2	1092.2	1092.2

Total Biomass Stock for Forests

TOTAL	Biomass (million tonnes)		
	1990	2000	2005
Aboveground biomass	1 302	1 302	1 302
Belowground biomass	345.5	345.5	345.5
Total living biomass	1 647	1 647	1 647
Dead wood biomass	230.7	230.7	230.7
Total biomass	1 878	1 878	1 878

Calculating biomass for OWL

OWL	Biomass (million tonnes)		
	1990	2000	2005
Aboveground biomass	1 242	1 242	1 242
Belowground biomass	596.0	596.0	596.0
Dead wood biomass	257.3	257.3	257.3
Total	2 095	2 095	2 095

6.4 Reclassification into FRA 2005 classes

No reclassification was needed.

6.5 Data for National reporting table T6

FRA 2005 Categories	Biomass (million metric tonnes oven-dry weight)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Above-ground biomass	1 302	1 302	1 302	1 242	1 242	1 242
Below-ground biomass	345.5	345.5	345.5	596.0	596.0	596.0
Dead wood biomass	230.7	230.7	230.7	257.3	257.3	257.3
TOTAL	1 878	1 878	1 878	2 095	2 095	2 095

7 Table T7 – Carbon stock

7.1 FRA 2005 Categories and definitions

Category	Definition
Carbon in above-ground biomass	Carbon in all living biomass above the soil, including stem, stump, branches, bark, seeds, and foliage.
Carbon in below-ground biomass	Carbon in all living biomass of live roots. Fine roots of less than 2 mm diameter are excluded, because these often cannot be distinguished empirically from soil organic matter or litter.
Carbon in dead wood biomass	Carbon in all non-living woody biomass not contained in the litter, either standing, lying on the ground, or in the soil. Dead wood includes wood lying on the surface, dead roots, and stumps larger than or equal to 10 cm in diameter or any other diameter used by the country.
Carbon in litter	Carbon in all non-living biomass with a diameter less than a minimum diameter chose by the country for lying dead (for example 10 cm), in various states of decomposition above the mineral or organic soil. This includes the litter, fomic, and humic layers.
Soil carbon	Organic carbon in mineral and organic soils (including peat) to a specified depth chosen by the country and applied consistently through the time series.

7.2 National data

7.2.1 Data sources

As no national information is available, the estimates are based on the figures obtained from T5 and T6.

7.3 Analysis and processing of national data

A conversion factor of 0.5 for converting biomass to carbon has been used as suggested by IPCC Good Practice Guidelines

7.4 Data for National reporting table T7

FRA 2005 Categories	Carbon (Million metric tonnes)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Carbon in above-ground biomass	651.1	651.1	651.1	620.9	620.9	620.9
Carbon in below-ground biomass	172.7	172.7	172.7	298.0	298.0	298.0
Sub-total: Carbon in living biomass	823.9	823.9	823.9	918.9	918.9	918.9
Carbon in dead wood	115.3	115.3	115.3	128.6	128.6	128.6
Carbon in litter						
Sub-total: Carbon in dead wood and litter						
Soil carbon to a depth of _____ cm						
TOTAL CARBON	939.2	939.2	939.2	1047.5	1047.5	1047.5

8 Table T8 – Disturbances affecting health and vitality

8.1 FRA 2005 Categories and definitions

Category	Definition
Disturbance by fire	Disturbance caused by wildfire, independently whether it broke out inside or outside the forest/OWL.
Disturbance by insects	Disturbance caused by insect pests that are detrimental to tree health.
Disturbance by diseases	Disturbance caused by diseases attributable to pathogens, such as a bacteria, fungi, phytoplasma or virus.
Other disturbance	Disturbance caused by other factors than fire, insects or diseases.

8.2 National data

The only national data that was available for this table was on plantation. As plantations constitute only 15% of the total forest cover, the area of plantation seriously damaged by fire, pests and disease was considered insignificant.

8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry. 2000. Revised commercial timber resources and round wood processing in Department of Water Affairs and Forestry	H	Fire Other causes	1988-2002	Covers plantation only

8.2.2 Classification and definitions

No national classification and definition exist. FAO definitions used.

8.2.3 Original data

Original data available for plantations only

Category	Area of plantations seriously damaged in hectares	
	1990	2000
Fire	3 901	4 062
Disturbances by weather, Diseases, Insects, Animals and rodents ⁷	2 256	919

⁷ Source did not separate different disturbances

8.3 Analysis and processing of national data

8.3.1 Estimation and forecasting

8.4 Reclassification into FRA 2005 classes

8.5 Data for National reporting table T8

Area of plantation damage was insignificant to report as this will distort the damage caused by wild fire in the country.

8.6 Comments to National reporting table T8

The source did not separate the total area of plantations that was seriously damaged by insects, diseases, animals and rodents and insects

9 Table T9 – Diversity of tree species

9.1 FRA 2005 Categories and definitions

Category	Definition
Number of native tree species	The total number of native tree species that have been identified within the country.
Number of critically endangered tree species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered tree species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable tree species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

9.2 National data

9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry: Unpublished State of the forest report; 2000	M	Number of tree species	2000	
www.iucn.org	M	CR, EN, VU species	2000	

9.2.2 Classification and definitions

No national classification and definitions exist

9.2.3 Original data

No national country list is available for this table. The unpublished state of the forest report in South Africa (2000) report estimate the number of tree species to be 649.

9.3 Data for National reporting table T9

FRA 2005 Categories	Number of species (year 2000)
Native tree species	649
Critically endangered tree species	1
Endangered tree species	13
Vulnerable tree species	40

Notes: Contain all tree species.

9.4 Comments to National reporting table T9

South African National Botanical Institute is currently reviewing the Red Data list, and this will most probably change T9 in future.

Critically Endangered

1 BASTARD QUIVER TREE (E)

Endangered

1 [Colubrina nicholsonii](#)

- 2 [Dahlgrenodendron natalense](#)
- 3 [Encephalartos arenarius](#)
- 4 [Encephalartos eugene-maraisii](#)
- 5 [Encephalartos horridus](#)
- 6 [Encephalartos lebomboensis](#)
- 7 [Eulophia coddii](#)
- 8 [Habenaria mossii](#)
- 9 [Leucadendron discolor](#)
- 10 [Manilkara nicholsonii](#)
- 11 [Melolobium subspicatum](#)
- 12 [Warburgia salutaris](#)
- 13 [Widdringtonia cedarbergensis](#)

Vulnerable

- 1 [Albizia suluensis](#)
- 2 [Aloe ramosissima](#)
- 3 [Atalaya natalensis](#)
- 4 [Bauhinia bowkeri](#)
- 5 [Cassipourea flanaganii](#)
- 6 [Cliffortia arborea](#)
- 7 [Cussonia gamtoosensis](#)
- 8 [Encephalartos altensteinii](#)
- 9 [Encephalartos ghellinckii](#)
- 10 [Encephalartos humilis](#)
- 11 [Encephalartos ngoyanus](#)
- 12 [Encephalartos paucidentatus](#)
- 13 [Encephalartos princeps](#)
- 14 [Encephalartos senticosus](#)
- 15 [Encephalartos trispinosus](#)
- 16 [Eugenia umtamvunensis](#)
- 17 [Ficus bizanae](#)
- 18 [Frithia pulchra](#)
- 19 [Gladiolus pole-evansii](#)
- 20 [Gymnosporia bachmannii](#)
- 21 [Jubaeopsis caffra](#)
- 22 [Leucadendron argenteum](#)
- 23 [Maytenus abbotii](#)
- 24 [Maytenus oleosa](#)
- 25 [Mimetes arboreus](#)
- 26 [Mimetes chrysanthus](#)
- 27 [Ocotea kenyensis](#)
- 28 [Protea curvata](#)
- 29 [Protea laetans](#)
- 30 [Protea lanceolata](#)
- 31 [Prunus africana](#)
- 32 [Pseudosalacia streyi](#)
- 33 [Rapanea gilliana](#)
- 34 [Rhynchochalyx lawsonioides](#)
- 35 [Sterculia alexandri](#)
- 36 [Syzygium pondoense](#)
- 37 [Tephrosia pondoensis](#)
- 38 [Trachyandra erythrorrhiza](#)
- 39 [Tricalysia africana](#)
- 40 [Umtiza listeriana](#)
- 41 [Widdringtonia schwarzii](#)

10 Table T10 – Growing stock composition

No data is available for this table

11 Table T11 – Wood removal

11.1 FRA 2005 Categories and definitions

Category	Definition
Industrial wood removal	The wood removed (volume of roundwood over bark) for production of goods and services other than energy production (woodfuel).
Woodfuel removal	The wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

11.2 National data

11.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Water Affairs and Forestry. 2000. Commercial timber resources and round wood processing in SA	H	Plantations	1990 2000	
Forestry South Africa: Industrial Facts sheet	H	Plantations	yearly	Figures derived from the above source

11.2.2 Classification and definitions

No official national classification and definitions exist.

11.2.3 Original data

National data	Volume in cubic meters					5 year Average (1990)
	1988	1989	1990	1991	1992	
Industrial wood	14 842 514	14 702 439	15 705 319	15 368 360	15 669 005	15 257 527
Fuelwood	238 058	245 778	347 642	243 780	238 780	262 808
National data	Volume in cubic meters					5 year Average (2000)
	1998	1999	2000	2001	2001	
Industrial wood	15 473 442	16 511 325	16 370 691	16 387 403	18 988 110	16 746 194
Fuelwood	416 400	168 974	236 188	231 910	217 401	254 174

Source: Forestry South Africa.

11.3 Analysis and processing of national data

11.3.1 Estimation and forecasting

National data	Volume in cubic meters		
	1990	2000	2005
Industrial wood	15 257 527	16 746 194	17 490 527
Fuelwood & Charcoal	262 808	254 175	249 859
Total	15 520 335	17 000 369	17 740 386

The figures for 2005 have been forecasted using linear extrapolation.

11.4 Reclassification into FRA 2005 classes

No reclassification necessary as FAO definitions were used.

11.5 Data for National reporting table T11

FRA 2005 Categories	Volume in 1000 cubic meters of roundwood over bark					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial round wood	15 258	16 746	17 491			
Woodfuel & Charcoal	263	254	250	11 400 ⁸	12 000 ⁹	
TOTAL for Country	15 520	17 000	17 740			

11.6 Comments to National reporting table T11

Natural forests in South Africa are legally protected. An insignificant volume is being removed from the Tsitsikamma-Knysna forest (1 500m³). There are no reliable records of how much fuelwood is being removed from woodlands. The quoted 12 000 000m³ is taken from the FRA 2000 report.

There is a crucial gap in terms of wood fuel. The Commercial Roundwood Statistics of which Forestry South Africa figures are derived from, is deficient in this respect and reports only a tiny fraction of consumption.

⁸ Estimates from FRA 2000

⁹ Estimates from FRA 2000

12 Table T12 – Value of wood removal

12.1 FRA 2005 Categories and definitions

Category	Definition
Value of industrial wood removal	Value of the wood removed for production of goods and services other than energy production (woodfuel).
Value of woodfuel removal	Value of the wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

12.2 National data

12.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments	Source number
Department of Water Affairs and Forestry. Commercial timber resources and round wood processing in SA..	H	Plantations	1990 2000		1
Forestry South Africa	H	Plantations	yearly	Summary of the above source	2

12.2.2 Classification and definitions

No national classification and definitions exist

12.2.3 Original data

National Class	Value in Rand Million					5-year average
	1988	1989	1990	1991	1992	1990
Industrial wood	672.4	826.3	885.9	905.3	1064.4	870.86
Fuelwood & Charcoal	3.8	6.4	12.8	6.8	7.1	7.38
	1998	1999	2000	2001	2002	2000
Industrial wood	2108.2	2250.9	2566.5	2695	3243.3	2572.78
Fuelwood & Charcoal	19.6	17.4	7.6	17.4	22.9	16.98

12.3 Analysis and processing of national data

National Class	Value in million US\$		\$US/Rand rate	
	1990	2000	1990	2000
Industrial wood	343	340	2.536	7.568
Fuelwood	3	2	2.536	7.568
Total	346	342		

12.3.1 Estimation and forecasting¹⁰

National Class	Value in million US\$		
	1990	2000	2005
Industrial wood	343	340	338.5
Fuelwood & charcoal	3	2	1.5
Total	346	342	340

12.4 Reclassification into FRA 2005 classes

12.5 Data for National reporting table T12

FRA 2005 Categories	Value of roundwood removal (1000 USD)					
	Forest			Other wooded land		
	1990	2000	2005	1990	2000	2005
Industrial roundwood	343 000	340 000	338 500	n/a	n/a	n/a
Woodfuel	3 000	2 000	1 500	n/a	n/a	n/a
TOTAL for Country	346 000	342 000	340 000	n/a	n/a	n/a

¹⁰ Estimation and forecasting through linear regression

13 Table T13 – Non-wood forest product removal

13.1 FRA 2005 Categories and definitions

The following categories of non-wood forest products have been defined:

Category
<u>Plant products / raw material</u>
1. Food
2. Fodder
3. Raw material for medicine and aromatic products
4. Raw material for colorants and dyes
5. Raw material for utensils, handicrafts & construction
6. Ornamental plants
7. Exudates
8. Other plant products
<u>Animal products / raw material</u>
9. Living animals
10. Hides, skins and trophies
11. Wild honey and bee-wax
12. Bush meat
13. Raw material for medicine
14. Raw material for colorants
15. Other edible animal products
16. Other non-edible animal products

13.2 National data

13.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Department of Agriculture. 2001. Trends in the Agricultural Sector. http://www.nda.agric.za/docs/Trends2001/trends.htm	Reliable	Food	1996-2001	

13.2.2 Classification and definitions

No national definitions exist

13.2.3 Original data

National Category	Quantity in tons	
	1990	2000/01
Marula fruit	1 700	
Wild fruits		173 999
Total Food	1 700	173 999

13.3 Analysis and processing of national data

13.3.1 Estimation and forecasting

National Class	Quantity in tons	
	1990	2000
Marula fruit	1 700	
Wild fruits	n/a	173 999
Total Food	1 700	

No forecasting to 2005 has been made as no time series data are available.

13.4 Reclassification into FRA 2005 classes

National Class	Food
Marula fruit	100%
Wild fruits	100%

13.5 Data for National reporting table T13

FRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2005
<u>Plant products / raw material</u>					
1. Food	1000	tons	2	174	n/a
2. Fodder			n/a	n/a	n/a
3. Raw material for medicine and aromatic products			n/a	n/a	n/a
4. Raw material for colorants and dyes			n/a	n/a	n/a
5. Raw material for utensils, handicrafts & construction			n/a	n/a	n/a
6. Ornamental plants			n/a	n/a	n/a
7. Exudates			n/a	n/a	n/a
8. Other plant products			n/a	n/a	n/a
<u>Animal products / raw material</u>					
9. Living animals			n/a	n/a	n/a
10. Hides, skins and trophies			n/a	n/a	n/a
11. Wild honey and bee-wax			n/a	n/a	n/a
12. Bush meat			n/a	n/a	n/a
13. Raw material for medicine			n/a	n/a	n/a
14. Raw material for colorants			n/a	n/a	n/a
15. Other edible animal products			n/a	n/a	n/a
16. Other non-edible animal products			n/a	n/a	n/a

14 Table T14 – Value of non-wood forest product removal

No data is available for this table.

15 Table T15 – Employment in forestry

15.1 FRA 2005 Categories and definitions

Category	Definition
Primary production of goods	Employment in activities related to primary production of goods, like industrial roundwood, woodfuel and non-wood forest products.
Provision of services	Employment in activities directly related to services from forests and woodlands.
Unspecified forestry activities	Employment in unspecified forestry activities.

15.2 National data

15.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
http://www-dwaf.pwv.gov.za/Events/Arborweek/2004/documents/EnablingEnvironment1Jul04I.doc	M	Employment	2004	

15.2.2 Classification and definitions

No national classification and definitions exist

15.2.3 Original data

Forestry sub-sector	Employment (2004)
Commercial plantations	60 000
Mining timber	500
Poles	5000
Tourism (game parks; eco-tourism)	Estimated 200 000
Conservation	50 000
Government (DWAF)	5 000
Total	320 500

15.3 Analysis and processing of national data

15.3.1 Estimation and forecasting

Only one data set which was moderately reliable existed. No estimation or forecasting has been done. The existing data are used for reporting year 2000.

15.4 Reclassification into FRA 2005 classes

Forestry sub-sector	Primary employment	Provision of services
Commercial plantations	100%	
Mining timber	100%	
Poles	100%	
Tourism (game parks; eco-tourism)		100%
Conservation		100%
Government (DWAF)		100%
Total		

15.5 Data for National reporting table T15

FRA 2005 Categories	Employment (1000 person-years)	
	1990	2000
Primary production of goods	n/a	66
Provision of services	n/a	255
Unspecified forestry activities	n/a	n/a
TOTAL	n/a	321

15.6 Comments to National reporting table T15

Employment statistics in the forest sector are very difficult to obtain from primary production of goods, as most of these activities are either outsourced or are seasonal.