

Preservation & Development of Agricultural Land Act, 39 of 2024

Agroecosystem Management

(Section 4 (2); 14; 15 (1), (3), (4) (a), (b), (d),
(e), (f); 20 (2); 35 (1)(e)(iv), (1)(i)

A. COLLETT
MARCH 2026



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PDALA

- To provide principles for the management of agricultural land
- To provide for the general **objectives of agro-ecosystem** management
- **Areas** within agro-ecosystems

“**RECOGNISING** that it is in the national interest to **preserve and promote** the **sustainable development of agricultural land** for the production of food and other agricultural products for the primary purpose of **sustaining and enhancing human life** for the benefit of present and future generations;”

“**ACKNOWLEDGING** that high value agricultural land is a **scarce and non-renewable resource** and that the **pressures** exerted on agricultural land make it increasingly difficult to **effectively and sustainably produce sufficient food**;”

In accordance to: Section 24 & Section 27(1)(b) of the Constitution, to ensure that everyone in the Republic has access to sufficient food by taking **measures** aimed at enhancing the **preservation and optimal use of agricultural land** for agricultural purposes



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Agro-ecosystem principles

- Assessing applications for agro-ecosystem authorizations
- Determining norms and standards
- Developing provincial agricultural sector plans
- Declaring protected agricultural areas
- **All actions and decisions made in respect of agricultural land.**

Preservation
&
Development



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Agro-ecosystem application

Agro-ecosystem **applied** in relation to —

(a) **Land evaluation and classification system**

- *“establish evaluation and classification systems to appraise agricultural land capability, suitability, potential and use of agricultural land at national, provincial and local levels to promote the preservation and sustainable development of agricultural land (5 (1))*

- agricultural **land capability (including soil-; climate- and terrain capability)**
- agricultural suitability (43 crops)
- **agricultural potential (Protected Agricultural areas - defined)**
- grazing capacity (CARA Regulation 10)
- **agricultural land use classification system**

- Spatial Data Infrastructure Act, 54 of 2003 – custodianship

- Criteria for the assessment of agro-ecosystem authorization applications – transparent



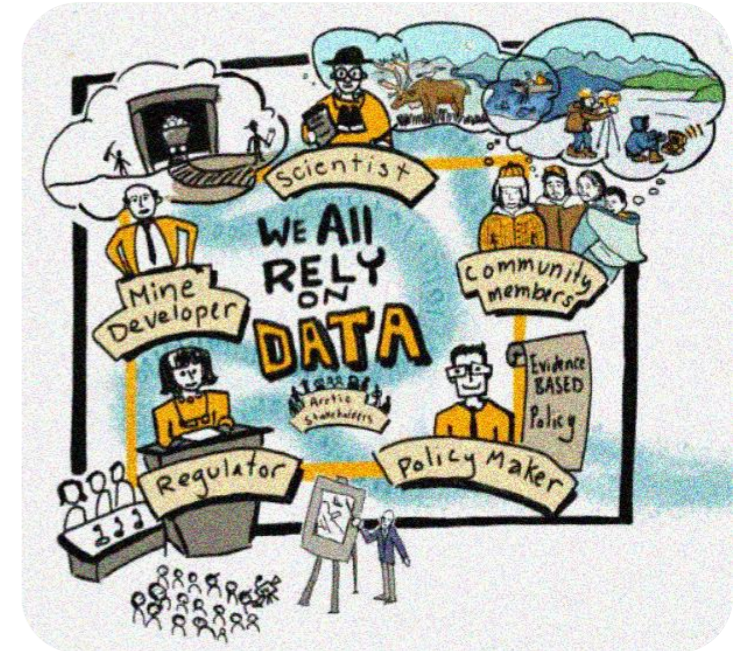
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PDALA – AGRO-ECOSYSTEM MANAGEMENT: DATA

- Natural resources
 - Soil
 - Climate
 - Vegetation
- Land capability
- Agricultural potential
- Grazing capacity
- Risks and Hazards
- Production suitability & Production Practices
 - Crops
 - Livestock
- Infrastructure
 - On and off farm infrastructure
- Land use – agricultural & non-agricultural related (long-term trends)
- Orientation
- Conservation Areas / Biodiversity (CBA's / ESA's)
- Imagery



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LAND EVALUATION AND CLASSIFICATION

LAND CAPABILITY:

- “The most intensive long-term use of land for purposes of rainfed cultivation determined by the interaction of climate, soil and terrain (topography)”
 - Soil Capability;
 - Climate Capability
 - Terrain Capability
- Land capability has the intention to indicate the capability of the natural agricultural resource base (soil, climate and terrain) for agricultural production purposes with no to limited impact on the conservation status thereof.

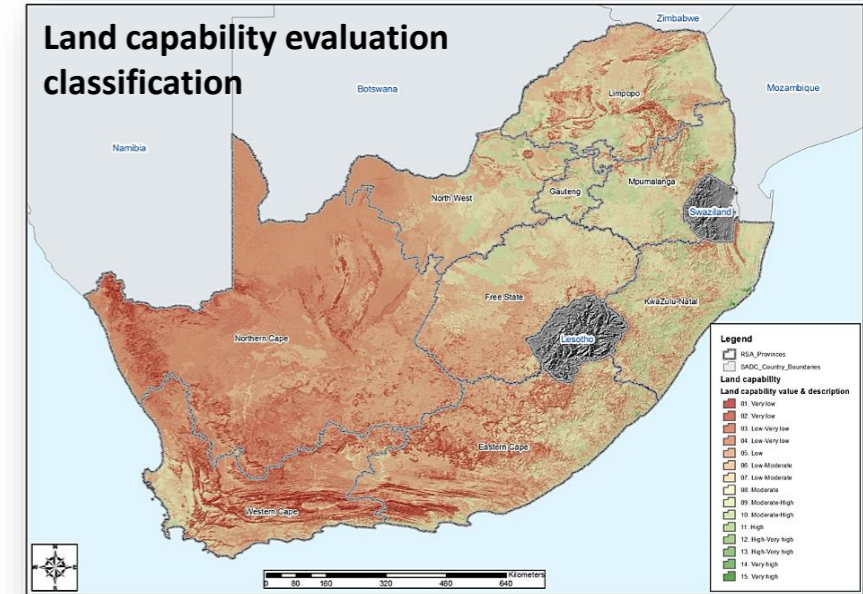


Table 1: Land capability evaluation values indicated per area (Ha & %) in South Africa

Land capability evaluation value : 2016	Area - ha	% of RSA Surface
Very low: 1	1 014 221.75	0.832%
2	3 566 739.09	2.927%
3	6 136 397.78	5.035%
4	13 051 928.01	10.71%
5	29 537 616.72	24.238%
6	24 306 414.92	19.945%
7	17 847 541.18	14.645%
8	14 837 391.59	12.175%
9	8 066 659.39	6.619%
10	2 879 755.30	2.363%
11	518 277.17	0.425%
12	72 119.16	0.059%
13	16 935.50	0.014%
14	9 902.47	0.008%
Very High: 15	4 013.33	0.003
Total:	121 865 903.35	100.00%



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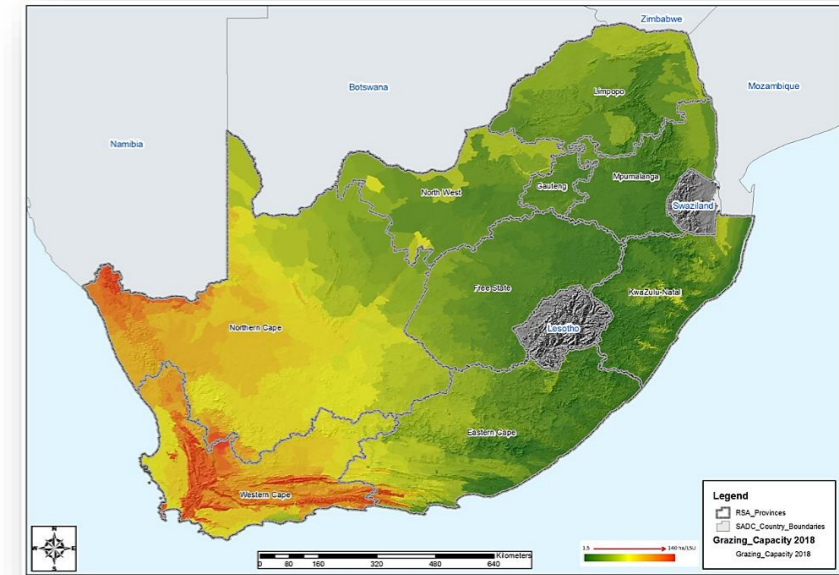


GRAZING LAND IN SOUTH AFRICA

GRAZING CAPACITY:

- “The inherent production potential of the herbaceous layer of an area of vegetation, required to maintain an animal with a weight of 450 kg (1 LSU), with an average fodder intake of 10 kg dry mass per day over a period of 1 year, in an area suitable for grazing without degrading the natural resources (vegetation and soil), measured in Ha/LSU

(Long-term Grazing capacity: Regulation 10 of the Conservation of Agricultural Resources Act, 43 of 1983)

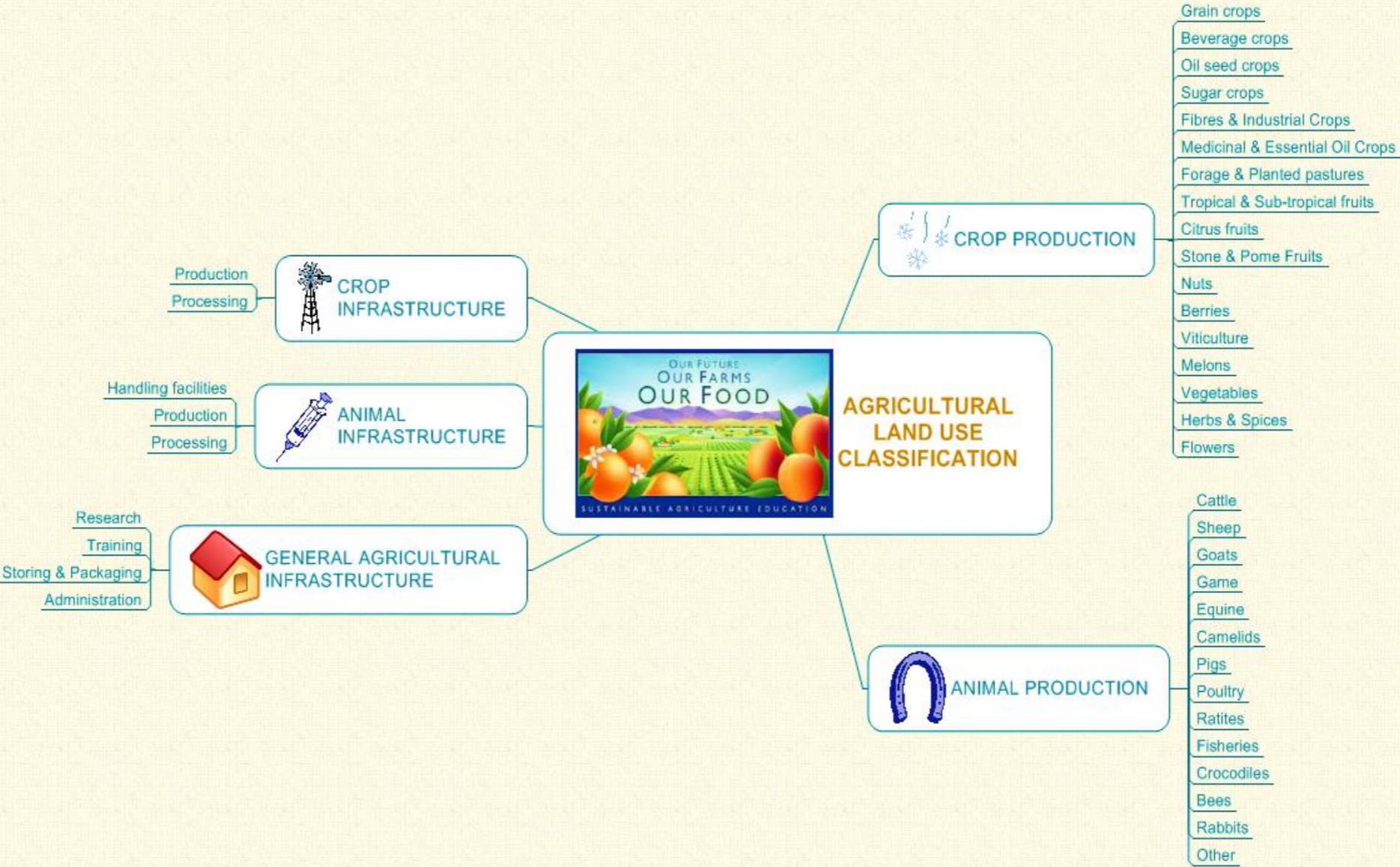


Province	prov_ha	Avail_grazing_ha	% of province	LSU
Northern Cape	37 288 941	33 600 683	90.11%	1 446 536
Eastern Cape	16 896 597	14 058 833	83.21%	1 874 508
Limpopo	12 575 391	9 712 963	77.24%	1 158 536
Free State	12 982 516	8 538 734	65.77%	1 333 815
North-West	10 488 168	7 849 524	74.84%	846 667
Western Cape	12 946 219	6 594 827	50.94%	171 812
KwaZulu-Natal	9 305 166	6 079 373	65.33%	1 227 629
Mpumalanga	7 649 468	3 842 488	50.23%	760 968
Gauteng	1 817 831	1 055 489	58.06%	176 334
RSA TOTAL	121 950 297	91 332 914	74.89%	8 996 806

Table 2: Available grazing areas per province (Ha) and depicted per % area of the province with accompanied number of large stock that can be kept



AGRICULTURAL LAND USE CLASSIFICATION



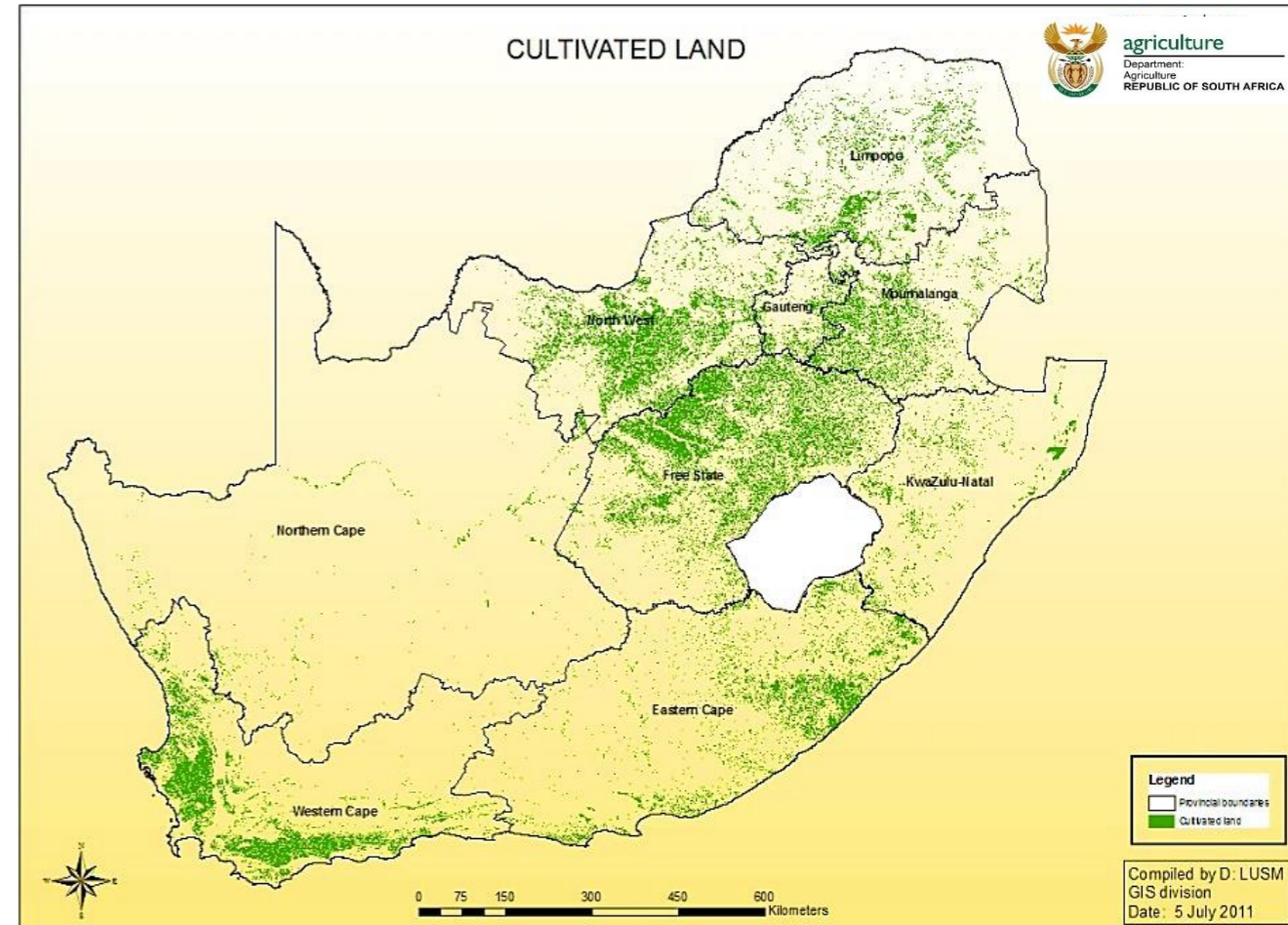
Land use Classification: Agriculture

Level 1	Level 2: Category	Level 3: Agricultural features	Level 4: Attributes
Crop Production	Grain Crops: (Cereals)	Maize; Rye; Millets; Sorghum; Wheat; Barley; Oats; Rice; Triticale;	
	Beverages Crops:	Chicory; Coffee; Cocoa; Rooibos; Tea; Hops; Honeybush;	
	Oil Seed Crops:	Castor bean; Linseed; Soya beans; Groundnuts; Sesame; Sunflower; Canola; Palm oil;	
	Sugar Crops:	Sugar beet; Sweet Sorghum; Sugar cane;	
	Fibres & Industrial Crops:	Cotton; Jute; Kenaf; Flax; Hemp; Sisal; Agave; Bamboo; Rubber; Tobacco;	
	Medicinal & Essential Oil Crops:	African Potato; Devils Claw; Aloe Vera; Cancer Bush; Senna; Lemon Grass; Rose Geranium; Lavender;	
	Forage & Planted pastures	Grass pastures; Legume pastures; Mixed pastures; Woody pastures;	
	Tropical & Sub-tropical Fruits:	Bananas; Mangos; Avocados; Dates; Figs; Olives; Papayas; Coconuts; Kiwis; Pineapples; Granadilla; Guava; Litchis; Persimmons;	
	Citrus Fruits:	Grapefruit; Lemons; Limes; Oranges; Naartjies; Tangerines; Mineolas;	
	Stone & Pome Fruits:	Apricots; Cherries; Peaches; Nectarines; Plums; Apples; Pears; Quinces; Pomegranates; Cherries;	
	Nuts:	Macadamias; Cashews; Almonds; Chestnuts; Hazelnuts; Pistachios; Walnuts; Pecan nuts;	
	Berries:	Black berries; Gooseberries; Raspberries; Strawberries; Blue berries;	
	Viticulture:	Grapes (Table; Wine; Dried);	
	Melons:	Watermelons; Melons; Sweet melons;	
	Vegetables:	Artichokes; Asparagus; Beans; Broccoli; Cauliflower; Cucumber; Peas; Cabbages; Lettuce; Spinach; Peppers; Eggplants; Tomatoes; Pumpkin; Squash; Carrots; Potatoes; Sweet potatoes; Turnips; Cassava; Radish; Beetroot; Garlic; Onions; Shallots; Leeks; Celery; Mushrooms; Truffles; Waterblommetjies; Cowpeas; Broad beans; Chick peas; Lentils; Lupins; Pigeon peas; Butternuts; Drybeans;	
	Herbs & Spices:	Paprika; Chives; Rosemary; Marjoram; Parsley; Thyme; Sweet basil; Turmeric; Coriander; Bay leaves; Ginger; Cinnamon; Cayenne; Vanilla	
	Flowers:	Proteas; Roses; Tulips; Carnations; Lilies; Daffodils; Gypsophylla;	

See breakdown "Crop Production Attributes"

AGRICULTURAL LAND USE CLASSIFICATION

Level 4: Crop Production Attributes						
Heading	Attributes					
Farming Systems	Commercial	Subsistence	Small scale (smallholder)			
Water Application	Irrigation	Rainfed				
Production purpose	Food	Fodder	Fibre	Fuels	Research	Aesthetic (Cut flowers) Pharmaceutical
Production practice	Conventional: Mechanical	Conventional: Manual	Conservation Agriculture			
Cultivar / Plant spp						



AGRICULTURAL LAND USE

Land use Classification: Agriculture			
Level 1	Level 2: Category	Level 3: Agricultural features	Level 4: Attributes
Animal Production	Cattle	Beef; Dairy; Dual Purpose	See breakdown "Animal Production : Attributes"
	Sheep	Meat; Fibre; Pelt; Milk; Dual Purpose	
	Goats	Meat; Milk; Fibre; Dual Purpose	
	Game	Large ungulates; Small Ungulates; Very large mammals; Small mammals; Predators; Other	
	Equine	Donkeys; Horses, Mules and Hinnies; Other	
	Camelids	Camels; Alpacas; Lamas	
	Pigs		
	Poultry	Chicken; Turkeys; Ducks & Geese; Quail; Guinea fowl;	
	Ratites	Ostrich; Emu; Rhea;	
	Fisheries	Finfish; Shellfish; Crayfish; Eels; Catfish	
	Crocódules	Meat; Skin;	
	Bees	Honey; Wax; Propolis	
	Rabbits	Meat; Fur; Skin	
Other	Silk; Mopani worms; Earth worms; etc.		

Land use Classification: Agriculture			
Level 1	Level 2: Category	Level 3: Agricultural features	Level 4: Attributes
Crop Infrastructure	Production	Nursery; Shade net; Tunnel; Glasshouse; Canal	
	Processing	Refinery; Winery & Distillery; Cotton Gin; Millers; Sun-dry platform or racks; Cannery, Juicing plants; Other Processing plants;	
Animal Infrastructure	Handling facilities	Crush pen; Dip facility; Shearing shed; Auction kraal; Loading ramp; Holding Pen; Kraal;	
	Production	Dairy; Feedlot; Broiler; Layer; Piggery; Hatchery & Ponds;	
	Processing	Abattoir; Tannery; Milk Processing plants; Meat Processing plants; Fibre Processing plants;	
General Agricultural Infrastructure	Research	Agricultural Research station; ; Laboratory;	
	Training	Agricultural School; Agricultural College; Agricultural Museum;	
	Storing & Packaging	Shed; Cold room; Bunker; Silo; Packaging plant;	
	Administration	Agricultural Office; Agricultural Service provider;	



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AGRO-ECO SYSTEM DELINEATION

The following standardised naming convention per delineated agro-ecosystem is recommended:

Ownership - Tenure - System - Dominant Use - Sub (secondary) use



Social - Economic - Production (practice) - Production (land use)

e.g.

- Private – Commercial – Irrigated Grain(Maize)-Oilseed(Sunflower) Agro-Ecosystem (Grain-maize being the dominant land use and Oilseed (Sunflower) the secondary land use)
- Communal – Subsistence – Rainfed Sugarcane Agro-ecosystem (no secondary land use)
- Private – Commercial – Dairy Cattle – Irrigated Pastures Agro-ecosystem

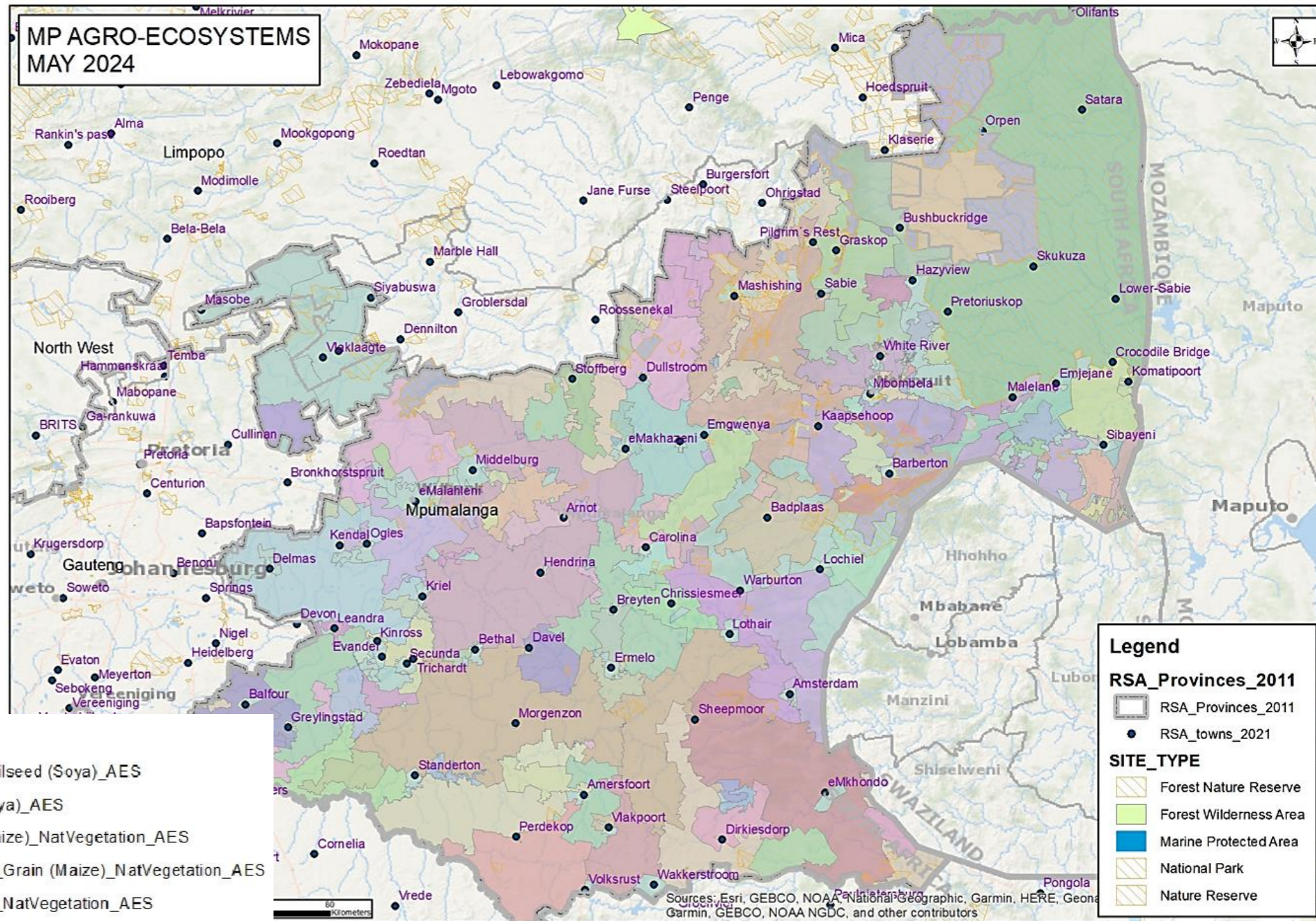


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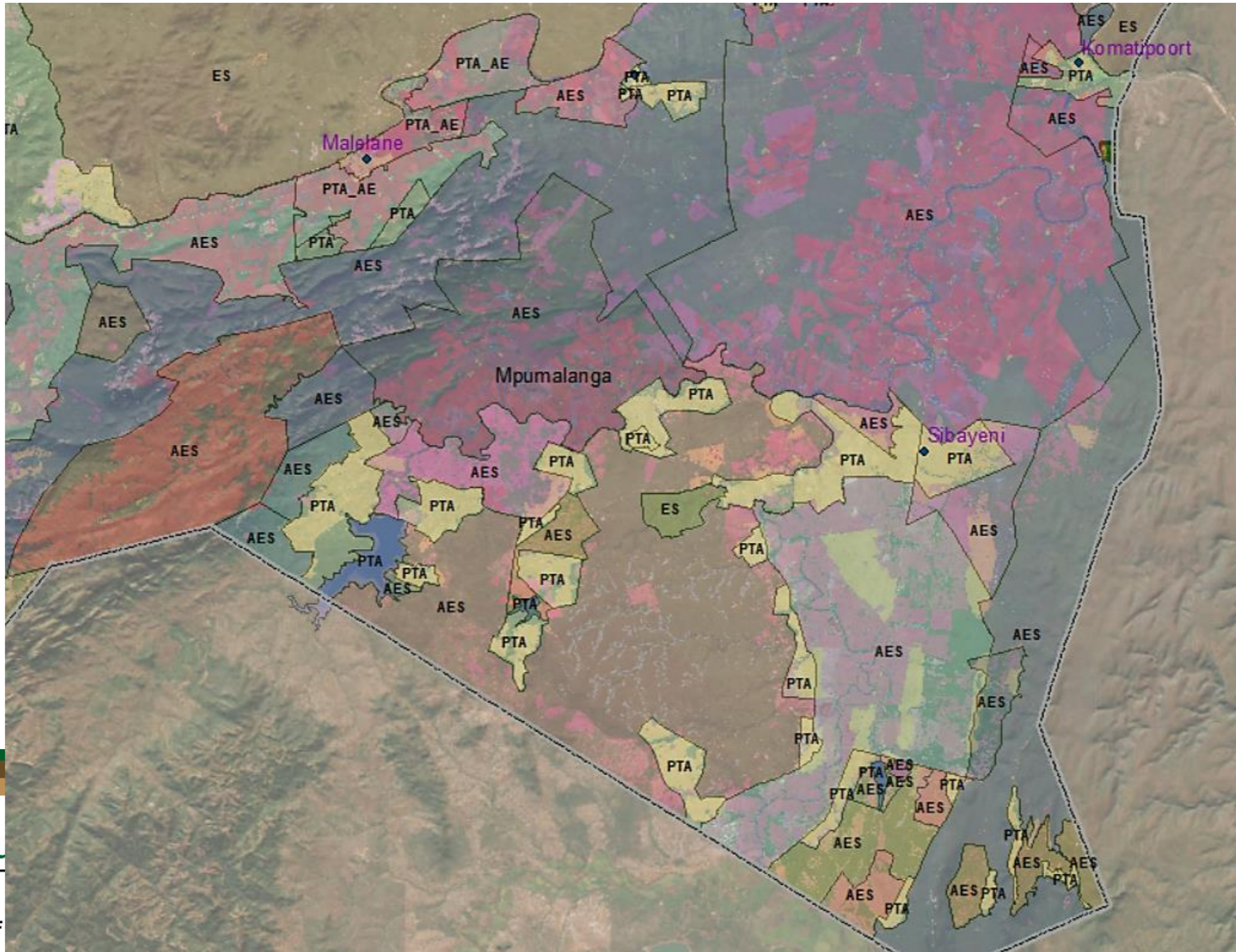
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AGRO-ECOSYSTEM DELINEATION



AGRO-ECO SYSTEM DELINEATION



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AGRO-ECOSYSTEM CLASSIFICATION

AES NO	Agro-Ecosystem Name:	Commodity mix	Production System (Rain-fed / Irrigated)	Agricultural Potential	Farmer type
1	Summer Field Crop agro-ecosystem (Summer rainfall area) incl. Industrial Crops & Extensive Pastures	(Pastures: finger grass; teff; blue / white buffalo grass; weeping love grass; Rhodes grass; fodder sorghum; <i>Pennisetum glaucum</i> ; bottle brush grass; cocksfoot; bread grass)	R/I	H/M/L	C/S/Li
		(Field crops: maize; dry beans; soya; ground nuts; sorghum; millet; sunflower)			
		(Industrial crops: cotton; hemp)			
2	Winter Field Crop agro-ecosystem (Winter Rainfall area)	(Field crops: rye; wheat; barley; oats; triticale; canola)	R/I	H/M/L	C/S/Li
3	Summer / Winter Field Crop agro-ecosystem (Summer Rainfall area)	(Summer Field crops: maize; dry beans; soya; ground nuts; sorghum; millet; sunflower)	R/I	H/M/L	C/S/Li
		alternate with			
		(Winter Field crops: rye; wheat; barley; oats)			
4	Indigenous Shrubs & Bush crops agro-ecosystem	(Rooibos; Honeybush)	R	N/a	C/S/Li
5	Sugarcane agro-ecosystem		R/I	H/M/L	C/S/Li
6	Vegetables, melons, herbs, spices, strawberries, medicinal & essential oil crops agro-ecosystem	(including chicory)	I	H/M	C/S/Li
7	Tropical & subtropical crops agro-ecosystem	(Including macadamia nuts; tea, coffee)	I	H/M	C/S/Li
8	Citrus agro-ecosystem		I	H/M	C/S/Li
9	Intensive pastures agro- ecosystem (for Dairy & Small pen production)	(Pastures: <i>Pennisetum clandestinum</i> (kikuyu); <i>Lolium multiflorum</i> (ryegrass - annual); <i>Lolium perenne</i> (ryegrass - perennial); <i>Schedonorus arundinaceus</i> (tall Fescue); <i>Medicago sativa</i> (Lucerne); <i>Trifolium pratense</i> (Red clover); <i>Trifolium repens</i> (White clover); <i>Vicia spp</i> (Wieke / Vetch); <i>Ornithopus sativus</i> (Seradella / birds foot))	I	H/M	C/S/Li
10	Stone & Pome fruits & Berries agro-ecosystem	(Including olives, pecan nuts, but excl strawberries)	I	H/M	C/S/Li
11	Viticulture agro-ecosystem	(grapes - table wine & raisins)	I	H/M	C/S/Li
12	Extensive Natural Rangeland agro-ecosystem	(for Livestock - large; small / Game)	R	N/A (grazing capacity)	C/S/Li
13	Forestry agro-ecosystem		R	H/M/L	C/S/Li

- Natural agricultural resources not homogenous
- Principle of dominance
- 111 AES
- To be linked to spatial AES delineation



AGRO-ECOSYSTEM MANAGEMENT

- No landscape is **homogenous** in nature
- In most of the cases a combination of commodity examples with one or more of the production practice option and a Socio-economic classification will be present.
- The more **heterogeneous an area the more difficult and complex** it becomes to effectively manage land use planning options, evaluate the impact thereof on the ecological services and to guide with decision making processes within the area
- The delineation of an agro-ecosystem is to assist with land use planning processes, thus ensuring the **best possible options** within a **holistic approach** towards the sustainable utilization of the natural agricultural resource base of the country.



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Regulations

- Norms and standards
 - for the **procedures** to be followed for the preparation, evaluation and adoption of—
 - (ii) **agricultural areas** (based on agro-ecosystem principles using identified criteria and methodologies) – *spatial delineation of agro-ecosystems*;



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Agro-ecosystem application

Agro-ecosystem principles **applied** when—

c) assessing applications for agro-ecosystem authorisations

- *evaluation of application (listed activity) + agro-ecosystem report*
- *decision making (adequate consideration);*
- *public participation;*

d) determining norms and standards

- *actual and potential impact considered – minimize negative impact (footprint; agro-ecosystem); risks consequences; alternatives*
- *per agricultural area (delineated using agro-ecosystem principles)*

(e) developing provincial agricultural sector plans

- *coordination of activities of organs of state – DG*
- *management: activities pursued in accordance to agro-ecosystem principles*

(f) Protected Agricultural Areas

Agro-ecosystem principles

- Management
- Productivity
- Stability
- Resilience
- Viability
- Equitability



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Agro-ecosystem application authorization

Listed activity

- Review impact of listed activity on the relevant **agricultural area (agro-ecosystem principles)**
- In line with **norms and standards** (Section 16 - 18)
- In accordance with the provincial agricultural sector plan content
- Other related applicable legislation authorization will still be required and vice versa

Agro Ecosystem report

Definition: report quantifying and qualifying site specific and cumulative impact of land use changes on the productivity, stability, viability, adaptability, resiliency and equitability of an agro-ecosystem;

- Content
- Level of detail
- Evaluation
- Assessment Criteria
- Training manuals

Regulation



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