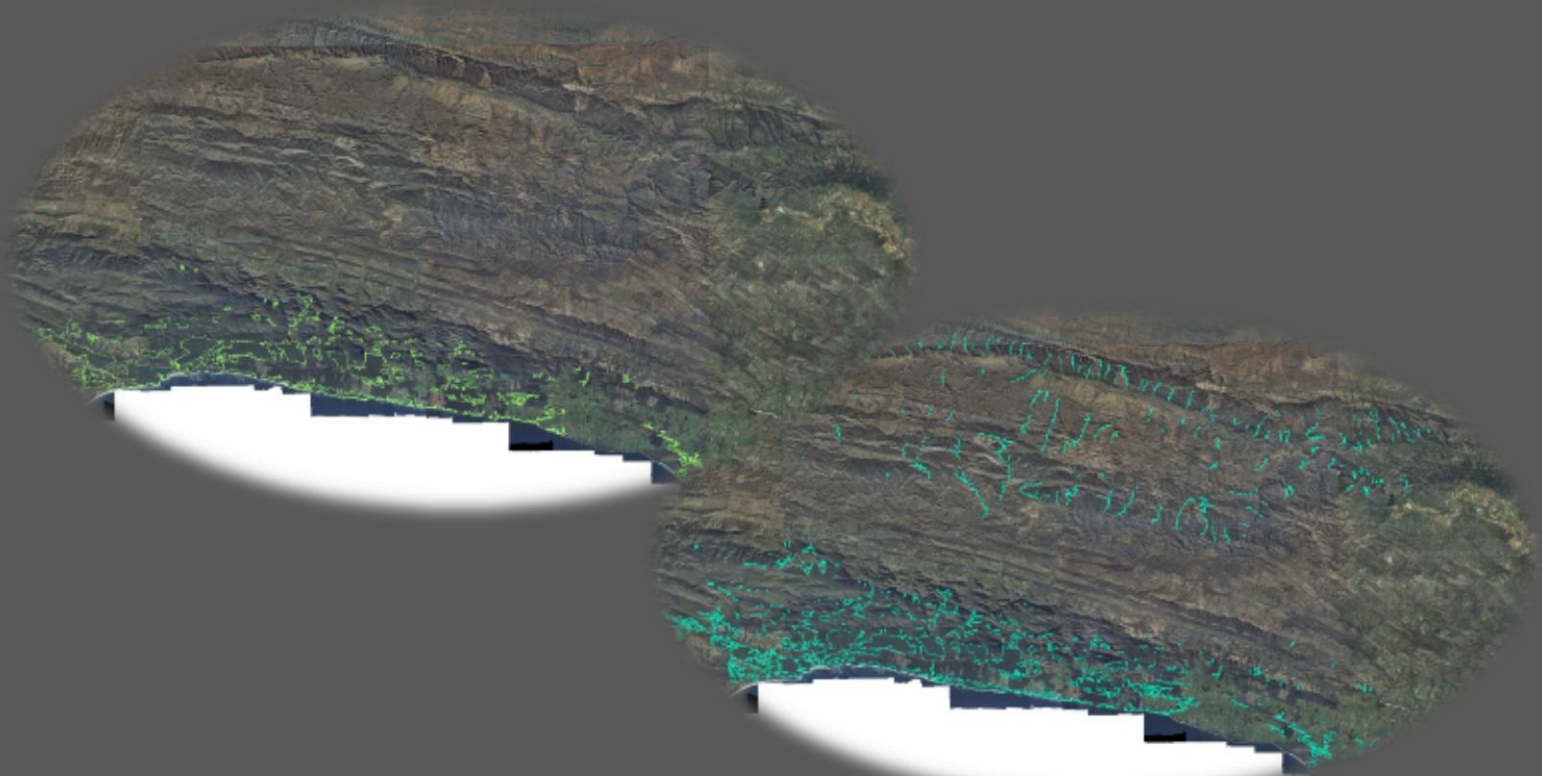


Incorporating new and refined Forest polygons from existing fine scale vegetation maps from 2003 to 2009: Phase 1 Langeberg

Technical proposal by Anisha Dayaram, Review and technical edits by Dr Coert
Geldenhuys



Background and Literature

The first version of the National Vegetation Map (NVM) was developed from the years 2000 to 2005 under the VEGMAP Project based at SANBI. The project was large, inclusive and collaborative, accumulating years of knowledge from experienced botanists and ecologists from across the country using the latest available data and technology.

Data collection for the map largely ended in 2005, and the publication process was finalised in 2006. During this time several other maps, referred to in this report as contributor maps, were being developed, some of which were only finalised as the National Vegetation Map was already being processed for publication. Additionally some of these maps did not follow the same approach as the National Vegetation Map classification system.

Since 2006, the NVM has been updated three times with new data collected after 2006 using the same approach as the NVM classification. The fourth version provides the opportunity to incorporate other data that may improve delineations within the NVM. Hence, we decided to revisit previously published vegetation maps that were available to us to ascertain whether elements of these maps could be easily incorporated into the NVM using the criteria stipulated in the Handbook for making changes to the National Vegetation Map as a guide for determining which elements may qualify.

Some of this mapping was compiled by Dr Coert Geldenhuys in the Langeberg mountains and warrants inclusion in the National Vegetation Map.

A detailed description of the mapping approach and implications is outlined in the report that follows.

**BRIEF REPORT ON MAPPING OF NATURAL
FOREST PATCHES:
LANGEBERG MOUNTAINS, WESTERN CAPE**

Report Number FW-04/20

Coert J Geldenhuys

Forestwood cc, P O Box 228, La Montagne 0184

cgelden@mweb.co.za

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1. BACKGROUND

The mapping of the natural forest patches is continuously updated. As member of the VegMap Committee of SANBI (South African National Biodiversity Institute), I was sent the Google Earth references for many forest patches in different national forest types in the Eastern and Western Cape to check the correctness of the mapping. The first action was to group the individual mapped patches into separate folders within Google Earth Pro, using the following folder names, from the Southwest to the Northeast:

Langeberg (Grootvadersbosch) forests

Outeniqua forests

Knysna Forests

Tsitsikamma forests

Kromrivier forests

Inland forests (Baviaanskloof) forests

Eastern Mistbelt forests

Pondoland Scarp forests.

The next step was to develop a procedure for assessing the mapped units, by looking at the forests within the mountainous Langeberg as a region with the Western Cape, not well mapped before. This brief report covers the procedures followed and results obtained with the mapping of the Langeberg forests.

2. ADMINISTRATIVE PROCEDURE FOLLOWED WITH MAPPING LANGEBERG FORESTS

In the initial list of mapped forests received from SANBI, the forests occurring along the Langeberg mountains, contained the names Grootvadersbos (Grootvadersbosch being the largest forest patch along the Langeberg range) and NULL, but the numbering of each forest patch in the naming did not follow a numerical sequence. It was therefore decided to use a new numbering system, from West (Montagu and Coghmansklouf) to East (Gouritz River), starting with LB for Langeberg (for example LB 01 for first mapped forest patch). Where the Langeberg-mapped unit coincided with a SANBI-mapped unit, the LB number included a reference to the SANBI-based mapping unit (without changing the outlines of the SANBI mapped units). The SANBI-mapped units were listed in Google Earth in the same sequence as the LB-mapped units (the SANBI-mapped units preceded the LB-mapped units). Sometimes more than one SANBI-mapped unit was combined into one LB-mapped unit, or one SANBI-mapped unit was separated into more than one LB-mapped unit, as indicated in My Places in Google Earth (Figure 1).

The Excel spreadsheet (Forest mapping by Region – Langeberg) included the following information for each mapped forest patch:

Province, Region, Patch number, Altitude (more or less in middle of forest patch – it would have been useful to also include the lower and upper altitude of each forest patch), Geographic coordinates for South and East, National forest type to which the patch probably belongs, General landscape features (although this should be standardised better), VEGMAP type, with reference to SANBI-mapped unit, Brief description of the condition of the forest (with a few cases the possibility of the forest being confused with invasive alien plant (IAP) stands, particularly wattle stands, mostly in low-lying areas associated with farms.

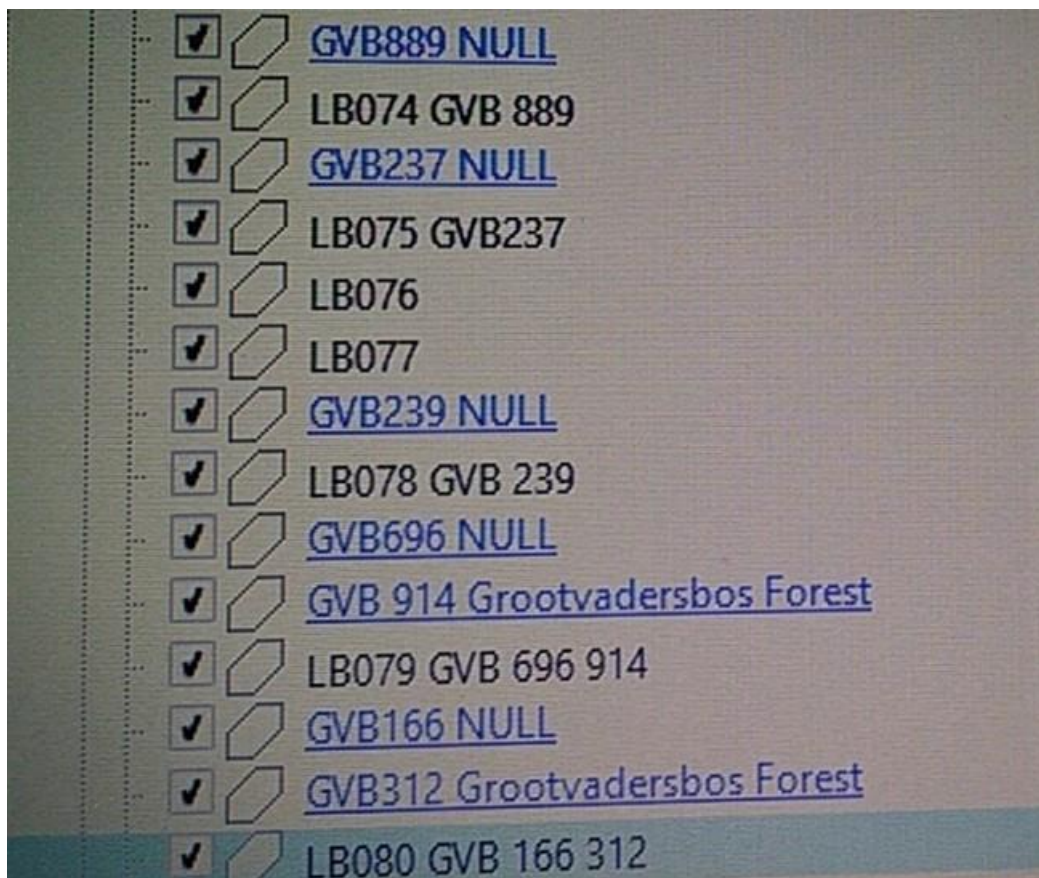


Figure 1. Listing of individual mapped natural forest patches in the Langeberg mountains within the Langeberg folder within My Places in Google Earth Pro. The blue names are the original SANBI-mapped units, with GVB and the VertexCount number inserted at the start of the name, such as GVB696 or GVB312. The black names are the Langeberg-mapped units, in numerical sequence from West to East. The GVB plus VertexCount number was then repeated in the LB-mapped unit. For example, the Langeberg-mapped unit LB079 GVB 696 914 combined the two SANBI-mapped units into one unit. The LB-numbers without an added GVB number are new mapped units.

3. TECHNICAL PROCEDURE FOLLOWED WITH MAPPING LANGEBERG FORESTS

The forest patches were systematically searched across the Langeberg mountain complex from South to North, at each point from West to East. The forest patches did not always show clearly on the general Google Earth image. Mapping was therefore done on the latest clear historical Google Earth image (Figure 2). In general, the images around November to December 2018 gave the clearest view of a forest patch. Sometimes while mapping a patch, it was found useful to switch backwards in the available historical images to get a clearer view of the margins of a forest patch.

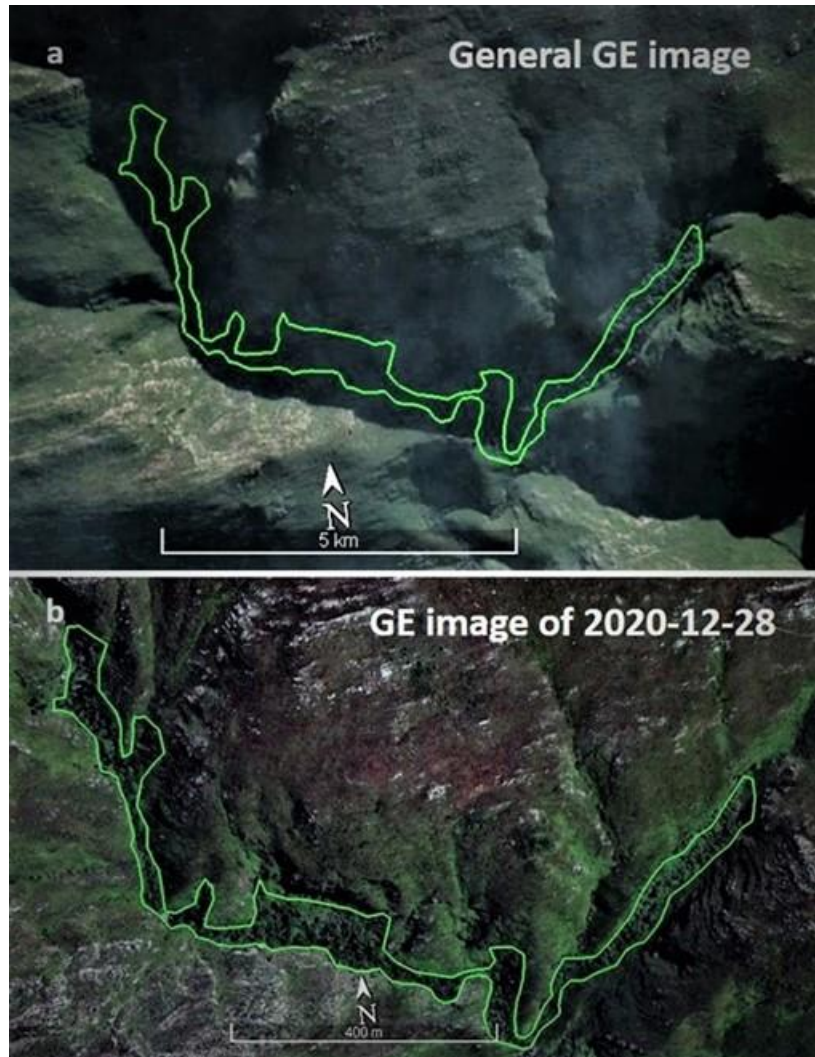


Figure 2. The general Google Earth image for this scene was not clear but switching to the historical image of 28 December 2018 showed the forest patch clearer.

The steep terrain and sheltered position of the forest patches sometimes caused the boundary of a forest patch to shift when moving from one historical image to another, probably because of the exact position of the satellite when the specific scene in between narrow gullies and steep cliff faces was captured. Unfortunately, the date of the image used in the mapping was not captured in the Excel database of the mapped units.

The question often popped up as to what is the actual boundary of a specific forest patch? The following points need to be considered:

- 1) The nature of the fire-prone landscape caused that a forest patch is often long and narrow, sometimes with short interruptions, along a steep stream channel (as fire-shadow area), extending from near the crest of the mountain (sometimes even across the crest at that point to the other side of the mountain) to the foothill-zone.
- 2) The core, mature part of a forest patch often shows clearly, but is then surrounded by parts that can be considered are either ecotone, or recently partly or totally damaged by fire, or is in an advanced stage of recovery but not mature yet.
- 3) Recent fires mostly burnt into the forest edge but sometimes totally burnt part of a forest, that may give the impression that the forest became cleared and lost. But then these forest patches have become adapted to survive such fires regularly passing through the landscape. Switching between historical images helped to see the true extent of a patch, and whether a burnt patch recovered (not yet after the 2018 fires).
- 4) When a stream cuts through part of the forest, the forest could be considered as being fragmented into two or more forest patches. The same thinking applies to when there are several small patches alternating from the one side of a stream to the other side of the stream, and there are some short sections of the stream with no forest trees on either side of the stream, because of a pool with steep cliffs, or rocky boulders, or other such micro sites unsuitable for forest becoming established.
- 5) Many IAP stands include naturalisation of natural forest species and could potentially be considered as expansion of natural forest boundaries.

The key question, when in doubt in this fire-prone Fynbos environment, is whether this is forest, wetland, or Fynbos? This particularly applied to forest patches which included different stages of development. In most cases the earlier recovery stages showed a lighter colour than the core mature forest part of a forest patch. The basic principle used was to consider the forest patch as a system with different habitats and stages of recovery after a major disturbance, such as a devastating fire. The examples listed below can be used as a guideline.

3.1 Extended forest patch across diverse habitats covering a long altitudinal gradient

Forest patch LB022 is used as example (Figures 3 & 4). The flat image (Figure 3a,b; Figure 4b) gives a very different view of the different habitats covered by this forest patch than the tilted image in 3-dimensional view (Figure 3c; Figure 4c). A conservative approach could separate the forest patch into different patches. For example, the parts indicated with (1) are separated by a stream, but which is considered as a different habitat within the larger forest patch. Note that Figure 3b,c shows that the stream runs from the crest of the ridge into two directions (parts 2 and 3 in Figures 3 & 4). Isolated tree stands are linked with smaller streams or merely shallow gullies or seepage lines, with small groups of trees, or single trees or even parts with no trees (indicated as points 4, as observed in other similar habitats), with the main parts of the extended forest patch, making it one forest patch system. At the bottom end of this extended forest patch, there is a patch left of the main stream that was initially separated as a separate forest patch. With zooming in, there is a definite small stream, with scattered trees, linking this patch with the main patch along the main stream. However, this patch is

separated from forest patch LB020 to its left, by a rounded ridge. This meant that forest patch LB020 could not be joined with the extended forest patch JB022.

The steep slope south of the end of forest patch JB022, to both sides of the main stream, there are two stands of trees (points 6 in Figure 4b,c). These stands are considered as naturalising trees of the invasive Black wattle (*Acacia mearnsii*) and are not considered as naturalising natural forest and were excluded from the mapping of natural forest patches (unless an on-site visit shows the contrary).

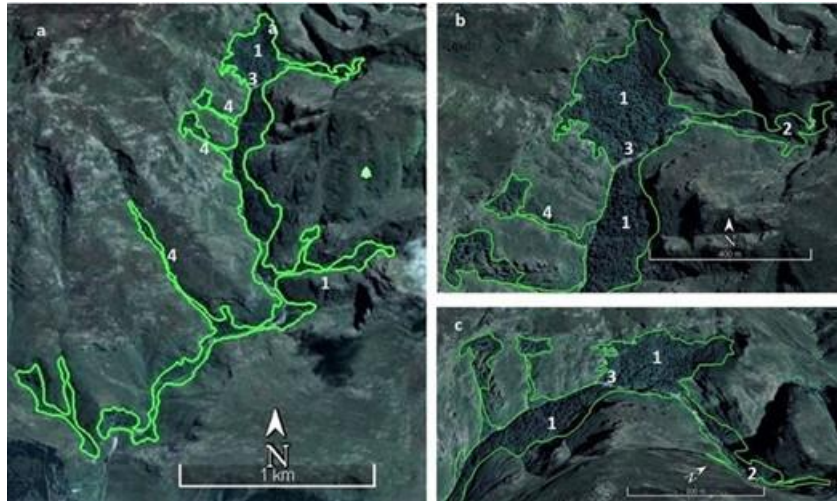


Figure 3. Forest patch LB022 extending from near the crest of the mountain ridge at 820 m above mean sea level (asl) down to the footslope at 240 m asl., linking parts of different shapes and sizes across different habitats: Photo (a) of the total forest patch and Photo (b) of the upper part of the patch, shows a flat image, and Photo (c) shows a tilted 3-dimensional view of the upper part (Photo b), and indicates that the stream runs into an eastern direction (2) and a southern direction (3). The narrow line of forest at points (4) are generally a few trees (and sometimes no trees) along a steep gully linking the two isolated smaller patches with the main patch along the main stream running to the south down the mountain – as one forest patch system.



Figure 4. The middle (Photo a) and lower (Photos b,c) parts of forest patch LB022 (Figure 3a). The points (3) along the stream in Photo (b) indicate relative open parts along the stream but with probably scattered trees and the occasional stand of trees. Points (4) are similar tree-less points along a narrow relatively shallow gully, linking upper small forest stands with the main forest patch. Point 5 is a small ridge between the main forest patch (LB022) and patch LB020. The tree stands indicated as points 6 are most likely stands of the invader Black wattle (*Acacia mearnsii*).

3.2 Fire effects on forest patches and stages of recovery

Forest patches persist in fire shadow areas and when they expand into fire pathways, they can be burnt back during occasional extreme fires, after which they then expand back to such sites. Several forest patches showed such developing forest ecotone zones outside the mature core parts of the forest patches. Several such zones of recovering forest ecotones are shown in Figures 5 & 6.

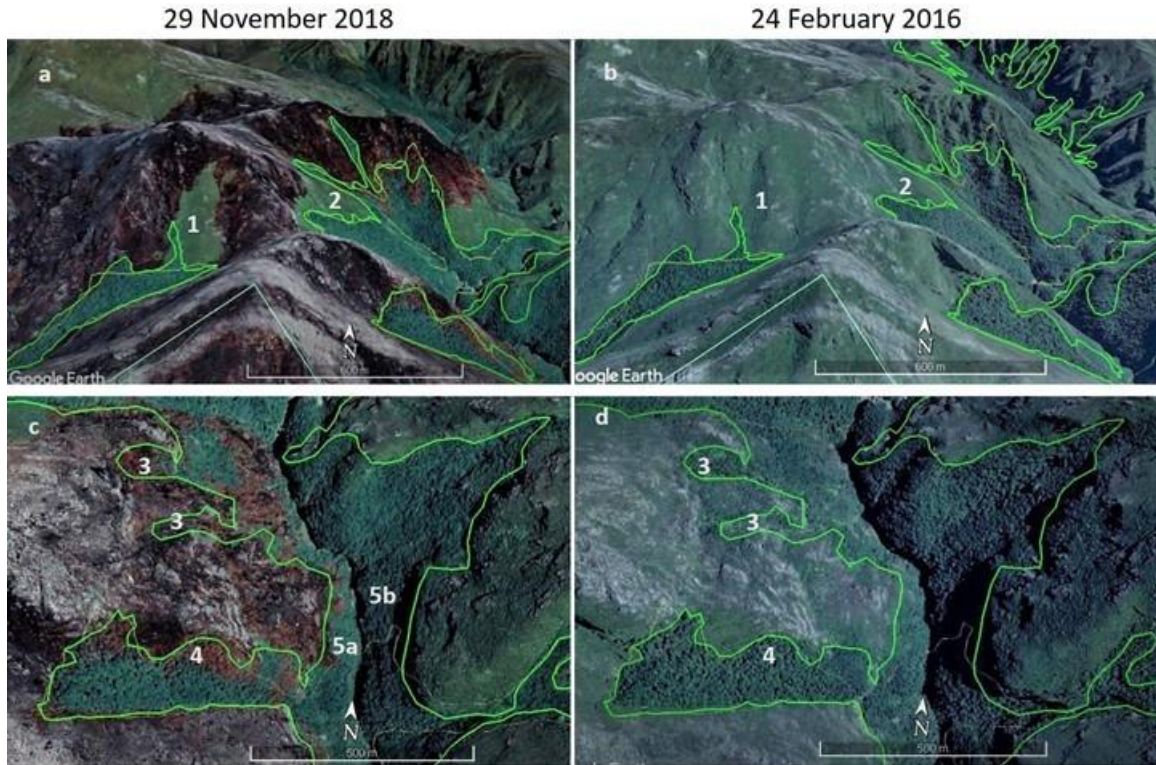


Figure 5. Burnt parts and developing forest ecotones of forest patch LB079 in burnt landscapes to the south below the highest peak in this area of Lemoenshoek Peak (1601 m asl). The mapped parts based on Google Earth images of 29 November 2018, after the major fires in this area of 2018, are compared here with the images of 24 February 2016. The unburnt green part (point 1) and another unburnt part (point 2) in Photos (a) and (b) are not forest but probably young Fynbos. The areas of points 3 and 4 in Photos (c) and (d) were young forest that had been burnt in 2018, and will eventually recover back to forest, as shown in the images of February 2016. Point 5a is such regrowth forest as compared to more mature core forest at point 5b. These areas at points 3 to 5 in Photo (c) were therefore included in the mapped forest patch LB079.

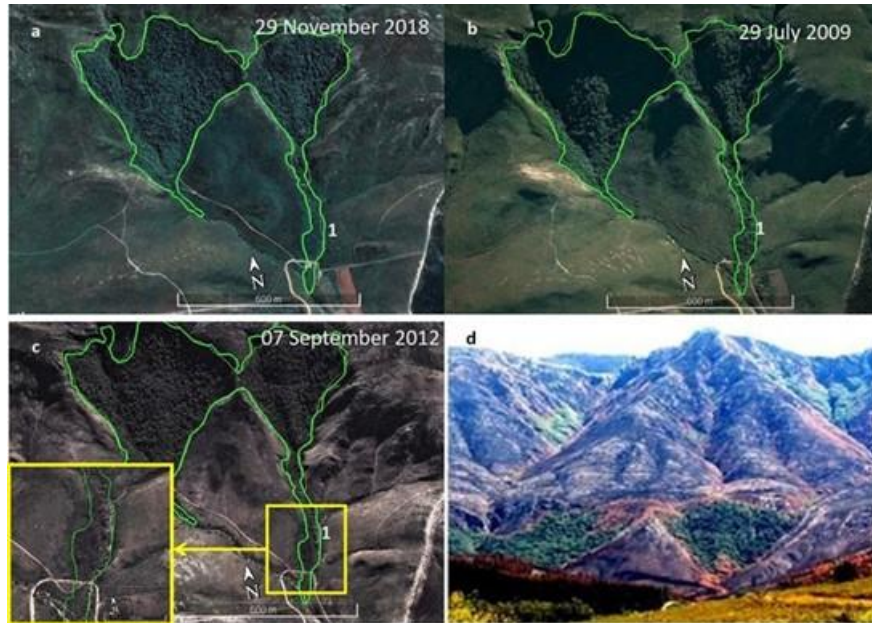


Figure 6. The dynamics at the margins of forest patch LB047: Photo (a) shows the situation on the image of 29 November 2018 which was used for the mapping. Photo (b) shows the forest patch during July 2009 prior to the area being burnt during mid 2012 (Photo (c) and the real view of Photo (d)). The inserts in Photo (c) shows how the most likely scrubforest of 2009 along the stream got destroyed during the fire of 2012 and in a stage of recovery during late November 2018 (indicated as point 1). This area was therefore mapped as part of the forest patch in November 2018.



Figure 7. The boundary of forest patch LB096 was wrongly interpreted in the SANBI-mapped patch. The mapping was corrected based on the actual area coverage of this forest patch as shown on all the available historical images, shown here for February 2016.

It is, therefore, important to consider the surrounding stand development stages, after disturbance, as part of each natural forest patch system, where they show to be clearly different from the adjacent core Fynbos vegetation.

4. BRIEF ASSESSMENT OF THE MAPPED LANGEBERG FORESTS

In total, 121 natural forest patches were mapped in the Langeberg mountains of the Western Cape Province, with a highest number in the 1 to 5 ha size, and more or less similar numbers in the three categories between 5 and 50 ha in size, and a seven patches of larger than 50 ha in size, with Grootvadersbosch (LB069) being the largest with 311 ha. The total area covered by these forest patches is 2072.58 ha.

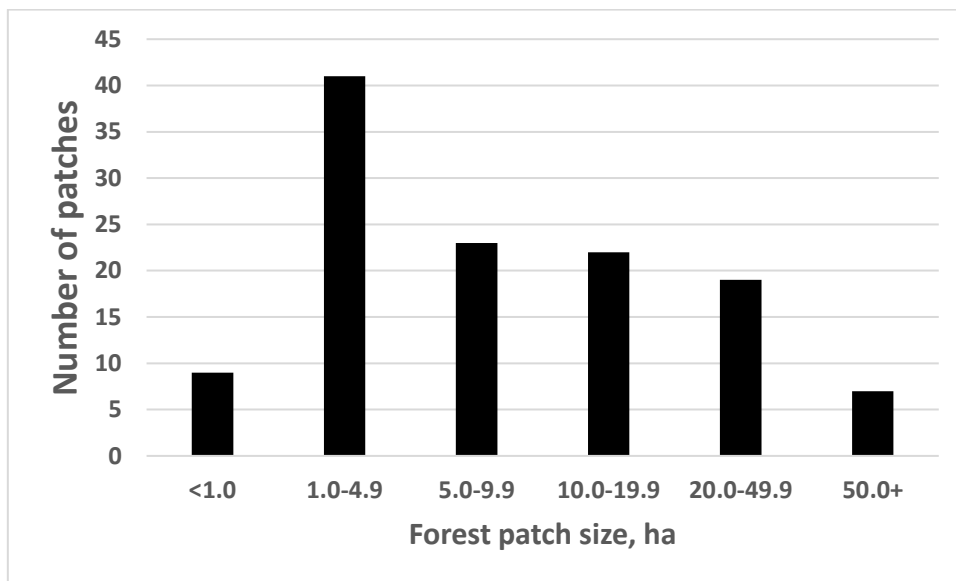


Figure 8. Histogram showing the frequency distribution of the 121 forest patches mapped in the Langeberg mountain range in the Western Cape.

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Province	Region	Patch nr	Area ha	Altitude m	Coordinate S	Coordinate E	Forest type	Landscape	Vegmap code	Comment
Western Cape	Langeberg	LB007	0.29	634	33 49 04.48	20 07 59.82	Southern Cape Afrotropical	Open upper-mountain valley		Moist scrubforest
Western Cape	Langeberg	LB116	0.50	550	33 56 50.30	21 36 35.45	Southern Cape Afrotropical	Narrow gorge up steep gully	GVB vc 031	Moist mountain forest
Western Cape	Langeberg	LB023	0.58	1098	33 57 58.30	20 24 04.45	Southern Cape Afrotropical	Narrow close valley on mountain		Moist forest
Western Cape	Langeberg	LB009	0.61	606	33 49 54.15	20 09 41.15	Southern Cape Afrotropical	Open upper-mountain valley		Moist to drier gorge forest
Western Cape	Langeberg	LB077	0.66	959	33 56 29.90	20 50 57.99	Southern Cape Afrotropical	Steep open mountain valley		Moist mountain forest
Western Cape	Langeberg	LB101	0.70	964	33 58 07.01	21 11 45.72	Southern Cape Afrotropical	Narrow ledge below cliff	GVB vc 032	Moist mountain forest
Western Cape	Langeberg	LB056b	0.78	862	33 58 22.31	20 35 33.86	Southern Cape Afrotropical	Steep slope below cliffs		Moist forest
Western Cape	Langeberg	LB104	0.87	620	33 57 44.60	21 12 38.09	Southern Cape Afrotropical	Open mountain valley near top of mountain	GVB vc 092	Moist scrubforest mostly not well developed
Western Cape	Langeberg	LB018	0.88	548	33 54 33.54	20 19 20.19	Southern Cape Afrotropical	Open narrow stream gully up the mountain		Moist-dry scrubforest & scree forest severely damaged by 2018 fires
Western Cape	Langeberg	LB002	1.18	777	33 50 22.13	20 08 24.42	Southern Cape Afrotropical	Narrow gully		Moist patchy forest
Western Cape	Langeberg	LB021	1.20	785	33 58 45.35	20 23 58.09	Southern Cape Afrotropical	Steep mountain gully		Moist forest
Western Cape	Langeberg	LB056a	1.31	496	33 58 29.54	20 32 13.51	Southern Cape Afrotropical	Scree slope below cliff		Moist forest
Western Cape	Langeberg	LB076	1.32	1007	33 56 26.29	20 50 49.38	Southern Cape Afrotropical	Steep open mountain valley		Moist mountain forest
Western Cape	Langeberg	LB112	1.35	780	33 59 23.21	21 19 55.33	Southern Cape Afrotropical	Steep gully up mountain below crest	GVB vc 095	Moist mountain forest
Western Cape	Langeberg	LB111	1.41	790	33 59 22.94	21 19 19.53	Southern Cape Afrotropical	Steep gully up mountain	GVB vc 090	Moist mountain forest
Western Cape	Langeberg	LB102	1.48	1033	33 58 07.11	21 11 57.66	Southern Cape Afrotropical	Steep gully below mountain crest	GVB vc 063	Moist mountain forest
Western Cape	Langeberg	LB010	1.53	967	33 50 50.66	20 09 32.02	Southern Cape Afrotropical	Narrow gulley /valley up mountain		Moist scrubforest along seepage line
Western Cape	Langeberg	LB017	1.60	246	33 55 31.84	20 14 38.46	Southern Cape Afrotropical	Open footslope valley		Dry scrubforest / thicket
Western Cape	Langeberg	LB071	1.75	272	33 58 48.58	20 50 41.80	Southern Cape Afrotropical	Bottom concave slope next to river		Drier forest, surrounded by AIPs
Western Cape	Langeberg	LB037	1.80	876	33 58 35.15	20 24 41.83	Southern Cape Afrotropical	Open concave slope below cliff	GVB vc 977	Moist mountain forest
Western Cape	Langeberg	LB060	1.85	107	33 59 58.81	20 36 21.36	Southern Cape Afrotropical	Foothill next to Buffeljagsrivier: Sparrebos part		Moist forest
Western Cape	Langeberg	LB008	1.86	774	33 49 55.34	20 09 08.22	Southern Cape Afrotropical	Upper-mountain open gorge		Moist to drier gorge forest

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB10	2.00	1120	33 57	21 11	Southern Cape			
	erg	0			58.99	34.57	Afrotemperate	Concave slope near mountain crest		Moist mountain forest
Western Cape	Langeberg	LB08	2.11	277	33 58	20 52	Southern Cape			
	erg	8			57.12	36.24	Afrotemperate	Open mountain foothill valley		Drier scrubforest along stream, possibly IAPs
Western Cape	Langeberg	LB03	2.17	364	33 58	20 21	Southern Cape			
	erg	3			50.87	39.06	Afrotemperate	Open gully at footslope		Moist scrubforest; it may extend more but tree cover not clear
Western Cape	Langeberg	LB09	2.62	330	33 58	20 59	Southern Cape			
	erg	3			02.23	22.58	Afrotemperate	Open foothill gully		Moist to dry regrowing forest, IAPs at bottom end
Western Cape	Langeberg	LB10	2.83	1050	33 58	21 13	Southern Cape			
	erg	5			32.20	57.47	Afrotemperate	Steep gully below mountain crest		Moist mountain forest
Western Cape	Langeberg	LB02	2.90	1020	33 57	20 20	Southern Cape			
	erg	5			25.60	06.11	Afrotemperate	steep slope below cliffs		Moist forest
Western Cape	Langeberg	LB03	2.97	930	33 58	20 24	Southern Cape			
	erg	8			25.56	47.84	Afrotemperate	Open concave slope below cliff along gully	GVB vc 977	Moist mountain forest
Western Cape	Langeberg	LB07	3.10	394	33 58	20 49	Southern Cape			
	erg	3			13.75	45.90	Afrotemperate	Steep east-west mountain valley		Moist mountain forest
Western Cape	Langeberg	LB06	3.14	256	33 58	20 42	Southern Cape			
	erg	4a			32.41	00.78	Afrotemperate	Steep slope below cliff (and road)	GVB vc 021	Moist forest
Western Cape	Langeberg	LB03	3.22	362	33 59	20 24	Southern Cape			
	erg	5			19.03	33.85	Afrotemperate	Open gully at footslope going upslope		Moist scrubforest, drier at bottom, may have IAPs
Western Cape	Langeberg	LB00	3.25	412	33 51	20 08	Southern Cape			
	erg	4			18.21	54.20	Afrotemperate	Open footslope valley		Drier scrubforest
Western Cape	Langeberg	LB05	3.51	279	34 00	20 27	Southern Cape			
	erg	0			27.31	46.03	Afrotemperate	Open footslope valley		Drier forest, with AIPs at bottom end
Western Cape	Langeberg	LB05	3.54	529	33 58	20 33	Southern Cape			
	erg	7			57.76	12.09	Afrotemperate	Open mountain valley	GVB vc 103	Moist forest
Western Cape	Langeberg	LB08	3.64	415	33 58	20 55	Southern Cape			
	erg	5a			00.73	39.18	Afrotemperate	Open mountain valley		Moist mountain forest
Western Cape	Langeberg	LB10	3.88	360	33 58	21 17	Southern Cape			
	erg	9			47.53	41.57	Afrotemperate	Steep gully mid-mountain above river	GVB vc 086	Moist mountain forest
Western Cape	Langeberg	LB02	3.93	339	33 58	20 22	Southern Cape			
	erg	0			47.70	16.78	Afrotemperate	Concave slope valley		Moist forest
Western Cape	Langeberg	LB08	3.95	287	33 58	20 56	Southern Cape			
	erg	5b			22.12	11.74	Afrotemperate	Open mountain valley		Moist mountain forest
Western Cape	Langeberg	LB11	3.97	255	34 00	21 23	Southern Cape			
	erg	3			20.84	59.06	Afrotemperate	Foothill concave shelf		Most to dry scrubforest
Western Cape	Langeberg	LB10	3.98	845	33 58	21 15	Southern Cape			
	erg	7			32.61	01.93	Afrotemperate	Steep gully below mountain crest	GVB vc 036 058	Moist mountain forest
Western Cape	Langeberg	LB04	3.99	453	33 59	20 26	Southern Cape			
	erg	1			23.23	12.62	Afrotemperate	Steep open gully		Moist forest with lower end surrounded by IAPs
Western Cape	Langeberg	LB02	4.10	442	33 58	20 18	Southern Cape			
	erg	7			02.41	44.27	Afrotemperate	Lower foothill concave slope		Moist forest
Western Cape	Langeberg	LB01	4.13	488	33 50	20 10	Southern Cape			
	erg	1			11.42	13.69	Afrotemperate	Narrow gulley/valley up mountain		Moist to dry scrubforest burnt several times
Western Cape	Langeberg	LB09	4.20	700	33 56	21 08	Southern Cape			
	erg	8			49.70	38.50	Afrotemperate	Concave slope below mountain crest		Moist mountain forest

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Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB003	4.29	444	33 50	20 08	Southern Cape				
Western Cape	Langeberg	LB019	4.47	495	33 54	20 19	Southern Cape	Narrow gully			Moist patchy forest
Western Cape	Langeberg	LB045	4.59	987	33 58	20 26	Southern Cape	Open narrow stream gully up the mountain			Moist-dry scrubforest & scree forest severely damaged by 2018 fires
Western Cape	Langeberg	LB006	4.80	418	33 51	20 09	Southern Cape	Steep open gully			Moist mountain forest
Western Cape	Langeberg	LB032	4.94	688	33 57	20 23	Southern Cape	Open footslope valley to narrow gully			Drier scrubforest to moist gully
Western Cape	Langeberg	LB042	5.19	945	33 58	20 26	Southern Cape	Open valley near top of mountain			Mountain forest
Western Cape	Langeberg	LB044	5.19	945	38.62	13.21	Afrotemperate	Concave gully below cliffs			Moist mountain forest
Western Cape	Langeberg	LB049	5.23	752	33 59	20 28	Southern Cape	Open narrow gully			Moist mountain forest
Western Cape	Langeberg	LB110	5.38	505	33 58	21 18	Southern Cape	Steep gully up mountain	GVB vc 131 GVB vc 083 146		Dry scrub-forest
Western Cape	Langeberg	LB063	5.43	158	33 59	20 41	Southern Cape	Foothill next to Buffeljagsrivier	GVB vc 033		Moist forest
Western Cape	Langeberg	LB081	5.50	812	33 56	20 52	Southern Cape	Steep open mountain valley			Moist mountain forest
Western Cape	Langeberg	LB106	5.51	915	33 58	21 14	Southern Cape	Steep gully below mountain crest	GVB vc 060		Moist mountain forest
Western Cape	Langeberg	LB084	5.55	861	33 57	20 54	Southern Cape	Steep open mountain gully			Moist mountain forest
Western Cape	Langeberg	LB042	5.75	268	01.84	49.80	Afrotemperate	Steep open gully			Moist forest to drier scrubforest, maybe with IAPs at lower end
Western Cape	Langeberg	LB029	6.00	332	33 59	20 26	Southern Cape	Steep open gully			Moist to dry forest
Western Cape	Langeberg	LB119	6.25	815	30.61	50.37	Afrotemperate	Lower foothill open valley			Moist to dry forest
Western Cape	Langeberg	LB115	6.25	815	33 57	21 31	Southern Cape	Steep gully up mountain below crest	GVB vc 127		Moist mountain forest
Western Cape	Langeberg	LB092	6.35	475	07.82	19.79	Afrotemperate	Steep open mountain gully			Moist to dry forest
Western Cape	Langeberg	LB001	6.36	828	27.53	48.27	Afrotemperate	Steep open mountain gully			Moist to dry forest
Western Cape	Langeberg	LB051	6.36	828	33 49	20 07	Southern Cape	Open mountain valley			Dry scrubforest/thicket, scree-like
Western Cape	Langeberg	LB059	6.54	115	08.80	19.24	Afrotemperate	Foothill next to Buffeljagsrivier:			Moist forest
Western Cape	Langeberg	LB039	6.54	115	33 59	20 35	Southern Cape	Sparrebos			Moist forest
Western Cape	Langeberg	LB035	6.86	864	58.92	07.82	Afrotemperate	Upperslope gully			Moist forest
Western Cape	Langeberg	LB041	7.12	1101	33 57	20 21	Southern Cape	Concave slope below cliffs			Moist mountain forest
Western Cape	Langeberg	LB015	7.42	649	42.28	39.28	Afrotemperate	Narrow open valley up the mountain			Moist scrubforest & scree forest
Western Cape	Langeberg	LB047	7.52	889	33 57	20 25	Southern Cape	Concave gully below cliffs			Moist mountain forest
Western Cape	Langeberg	LB000	7.62	381	48.21	53.17	Afrotemperate	Open footslope valley to narrow gully			Drier scrubforest to moist gully
Western Cape	Langeberg	LB013	7.62	381	33 54	20 15	Southern Cape	Open footslope valley to narrow gully			Drier scrubforest to moist gully

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Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB103	7.64	607	33 57	21 12	Southern Cape	Open mountain valley near top of mountain	GVB vc 201	Moist mountain forest
Western Cape	Langeberg	LB114	7.74	980	33 57	21 26	Southern Cape	Steep gully up mountain below crest	GVB vc 170	Moist mountain forest
Western Cape	Langeberg	LB108	8.23	870	33 58	21 15	Southern Cape	Steep gully below mountain crest	GVB vc 060 087	Moist mountain forest
Western Cape	Langeberg	LB016	8.32	516	33 54	20 18	Southern Cape	Open narrow stream gully up the mountain		Moist-dry scrubforest & scree forest severely damaged by 2018 fires
Western Cape	Langeberg	LB066	8.34	477	33 57	20 41	Southern Cape	Broad open steep gully	GVB vc 135	Moist forest in early recovery
Western Cape	Langeberg	LB065	10.1	482	33 58	20 41	Southern Cape	Broad open steep gully	GVB vc 070	Moist forest & ecotone recovery
Western Cape	Langeberg	LB090	10.1	896	33 56	21 06	Southern Cape	Concave slope below cliffs upper mountain	GVB vc 092	Moist mountain forest
Western Cape	Langeberg	LB095	10.2	810	33 57	21 06	Southern Cape	Concave slope below cliffs upper mountain	GVB vc 138	Moist mountain forest
Western Cape	Langeberg	LB028	10.5	368	33 58	20 19	Southern Cape	Lower foothill concave slope		Moist forest
Western Cape	Langeberg	LB034	10.7	345	33 59	20 24	Southern Cape	Open gully at footslope going upslope		Moist scrubforest; bottom end may have IAPs
Western Cape	Langeberg	LB072	11.0	694	33 57	20 48	Southern Cape	Steep east-west mountain valley		Moist mountain forest
Western Cape	Langeberg	LB022	11.3	883	33 57	20 20	Southern Cape	Narrow gully/valley up mountain		Moist forest
Western Cape	Langeberg	LB051	11.6	256	34 00	20 29	Southern Cape	Open footslope valley	GVB vc 214	Drier forest, with AIPs at bottom end
Western Cape	Langeberg	LB083	11.7	719	33 57	20 53	Southern Cape	Steep open mountain valley	GCB vc 221	Moist mountain forest
Western Cape	Langeberg	LB094	12.7	340	33 57	21 00	Southern Cape	Open mountain gully 286 to 723 m		Moist to dry forest, IAPs at bottom end?
Western Cape	Langeberg	LB011	13.3	581	33 51	20 11	Southern Cape	Narrow but open valley up the mountain		Moist to dry scrubforest burnt in places
Western Cape	Langeberg	LB063	13.4	361	33 58	20 41	Southern Cape	Concave slopes above Keur River	GVB vc 048	Moist forest, some degraded by fire
Western Cape	Langeberg	LB081	13.6	719	33 57	20 54	Southern Cape	Steep open mountain gully		Moist mountain forest
Western Cape	Langeberg	LB084	13.6	190	33 58	20 56	Southern Cape	Open mountain valley		Drier scrubforest along stream, possibly IAPs
Western Cape	Langeberg	LB091	13.7	735	33 56	21 08	Southern Cape	Narrow open gully below mountain crest		Moist mountain forest
Western Cape	Langeberg	LB064	14.6	474	33 58	20 41	Southern Cape	Steep open mountain gully	GVB vc 155	Moist mountain forest
Western Cape	Langeberg	LB023	17.2	343	33 58	20 19	Southern Cape	Lower foothill concave slope		Moist forest
Western Cape	Langeberg	LB071	17.5	562	33 57	20 51	Southern Cape	Steep open mountain valley	GVB239 NULL	Moist mountain forest

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB03	18.0		33 58	20 26	Southern Cape			
	erg	9	0	945	12.70	15.99	Afrotemperate	Open concave slopes below cliffs	GVB vc 977	Moist mountain forest
Western Cape	Langeberg	LB08	18.0		33 59	20 53	Southern Cape			
	erg	9	0	232	25.63	03.20	Afrotemperate	Open foothill valley	GVB vc 476	Drier scrubforest along stream, possibly IAPs
Western Cape	Langeberg	LB08	18.7		33 57	20 57	Southern Cape			
	erg	6a	0	330	50.65	02.15	Afrotemperate	Narrow open gully in mid-mountain		Moist mountain forest
Western Cape	Langeberg	LB05	19.1		33 58	20 31	Southern Cape			
	erg	4	0	665	11.82	48.77	Afrotemperate	Enclosed concave base below cliffs	GVB vc 112	Moist mountain forest
Western Cape	Langeberg	LB05	20.5		34 00	20 29	Southern Cape			
	erg	2	0	194	15.56	45.87	Afrotemperate	Open footslope valley	GVB vc 384	Drier forest, with AIPs at bottom end
Western Cape	Langeberg	LB05	20.7		33 58	20 31	Southern Cape			
	erg	5	0	527	53.98	48.66	Afrotemperate	Open mountain valley	GVB vc 311	Moist to dry forest
Western Cape	Langeberg	LB04	21.3		33 58	20 27	Southern Cape			
	erg	6	0	976	46.76	46.31	Afrotemperate	Steep concave slope below cliffs		Moist mountain forest
Western Cape	Langeberg	LB01	21.4		33 54	20 15	Southern Cape			
	erg	3	0	342	51.54	00.84	Afrotemperate	Narrow steep gully up the mountain		Moist to dry scrubforest
Western Cape	Langeberg	LB03	21.5		33 58	20 20	Southern Cape			
	erg	0	0	393	21.99	40.77	Afrotemperate	Lower foothill & upslope gully		Moist to dry forest
Western Cape	Langeberg	LB09	22.6		33 57	21 10	Southern Cape			
	erg	9	0	800	40.04	22.81	Afrotemperate	Concave slope below mountain crest		Moist mountain forest
Western Cape	Langeberg	LB07	22.8		33 56	20 50	Southern Cape			
	erg	5	0	963	24.54	25.07	Afrotemperate	Steep mountain valley 750 -1150 m	GVB237	Moist mountain forest
Western Cape	Langeberg	LB08	25.5		33 57	20 55	Southern Cape			
	erg	5	0	737	09.24	53.93	Afrotemperate	Steep open mountain gully		Moist mountain forest
Western Cape	Langeberg	LB05	26.8		33 59	20 32	Southern Cape			
	erg	8	0	256	18.99	45.64	Afrotemperate	Open concave slopes & parts below cliffs	GVB vc 113	Moist forest
Western Cape	Langeberg	LB04	28.3		33 59	20 28	Southern Cape	Open valley between ridges near		
	erg	8	0	330	45.67	23.16	Afrotemperate	footslope	GVB vc 287	Moist to dry forest
Western Cape	Langeberg	LB01	28.4		33 54	20 15	Southern Cape			
	erg	4	0	452	54.45	41.02	Afrotemperate	Narrow steep gully up the mountain		Moist scrubforest & scree forest
Western Cape	Langeberg	LB08	31.2		33 57	20 56	Southern Cape			
	erg	6	0	443	15.67	56.25	Afrotemperate	Steep open mountain gully		Moist mountain forest
Western Cape	Langeberg	LB06	31.8		33 57	20 43	Southern Cape			
	erg	7	0	477	52.70	54.17	Afrotemperate	Broad gorge with steep cliffs	GVB vc 176	Moist forest in all stages & sites
Western Cape	Langeberg	LB06	34.2		33 58	20 46	Southern Cape			
	erg	8	0	514	42.25	03.94	Afrotemperate	Broad to narrow deep gorge	GVB vc 420	Moist forest
Western Cape	Langeberg	LB07	34.2		33 59	20 49	Southern Cape			
	erg	0	0	328	48.22	01.55	Afrotemperate	Rounded hill and stream		Drier regrowth forest to scrubforest
Western Cape	Langeberg	LB04	35.5		33 59	20 27	Southern Cape	Concave slope below cliffs in 2 adjacent		
	erg	7	0	367	33.32	13.96	Afrotemperate	valleys	GVB vc 226	Moist to dry forest
Western Cape	Langeberg	LB09	39.7		33 59	20 55	Southern Cape			
	erg	1	0	166	56.50	31.61	Afrotemperate	Open foothill valley	GVB vc 348	Drier scrubforest along stream, possibly IAPs
Western Cape	Langeberg	LB09	41.4		33 59	20 54	Southern Cape		GVB vc 199	
	erg	0	0	186	55.44	05.10	Afrotemperate	Open foothill valley	248 325	Drier scrubforest along stream, possibly IAPs
Western Cape	Langeberg	LB02	45.0		33 58	20 23	Southern Cape			
	erg	2	0	410	12.31	02.16	Afrotemperate	Narrow gully/valley up mountain		Moist forest

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB03	60.0		33 58	20 25	Southern Cape	Open to closed gully from 195 to 1200 m asl	GVB vc 977	Most forest to dry scrubforest
		6	0	750	24.50	20.49	Afrotemperate			
Western Cape	Langeberg	LB08	69.6		33 55	20 52	Southern Cape	Steep mountain valley below Lemoenshoek Peek	GVB vc 166 & 312	Moist mountain forest
		0	0	905	48.07	32.89	Afrotemperate			
Western Cape	Langeberg	LB07	78.0		33 57	20 49	Southern Cape	Broad mountain valley below cliffs: 365-1070 m	GVB vc 889	Moist mountain forest
		4	0	407	40.93	38.61	Afrotemperate			
Western Cape	Langeberg	LB05	117.		33 58	20 35	Southern Cape	Open mountain valley	GVB vc 584	Moist to dry forest
		3	00	524	58.91	51.37	Afrotemperate			
Western Cape	Langeberg	LB06	137.		33 58	20 39	Southern Cape	Broad mountain valley below cliffs: 200-1150 m	GVB vc 481	Moist mountain forest
		1	00	500	23.77	27.93	Afrotemperate			
Western Cape	Langeberg	LB07	169.		33 57	20 52	Southern Cape	Steep open mountain valley	GVB vc 914	Moist mountain forest
		9	00	498	01.42	42.29	Afrotemperate			
Western Cape	Langeberg	LB06	311.		33 59	20 48	Southern Cape	Broad east-west valley below cliff in north an hills to south	NULL	Moist to dry forest, parts naturalising after timber plantations
		9	00	390	05.46	35.10	Afrotemperate		GVB vc 646	

Western Cape	Langeberg	LB120	2.74	450	33 47 50.21	20 05 06.99	Western Cape Afrotemperate	Open steep gully	Moist to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB121	2.23	440	33 47 17.96	20 05 13.20	Western Cape Afrotemperate	Open steep gully	Moist to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB122	15.5	405	33 46 33.83	20 05 28.17	Western Cape Afrotemperate	Open steep gully	Moist to dry scrubforest, IAPs?	04 March 2016
Western Cape	Langeberg	LB123	2.76	605	33 45 03.37	30 04 01.83	Western Cape Afrotemperate	Open steep gully	Scrubforest dominated by Psoralea of Ac karroo?	04 March 2016
Western Cape	Langeberg	LB124	2.92	390	33 48 02.76	20 04 16.06	Western Cape Afrotemperate	Open steep gully	Scrubforest to scrub	04 March 2016
Western Cape	Langeberg	LB125	1.81	670	33 46 29.85	20 03 53.47	Western Cape Afrotemperate	Open steep gully	Scrubforest to scrub	04 March 2016
Western Cape	Langeberg	LB126	3.00	740	33 45 48.04	20 02 59.41	Western Cape Afrotemperate	Open steep gully	Moist forest	04 March 2016
Western Cape	Langeberg	LB127	11.80	695	33 45 25.09	20 01 16.76	Western Cape Afrotemperate	Open steep gully	Moist forest to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB128	3.58	490	33 46 08.67	20 01 08.05	Western Cape Afrotemperate	Open steep gully	Moist forest to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB129	6.29	480	33 45 53.34	20 00 29.99	Western Cape Afrotemperate	Open steep gully	Scrubforest to scrub	04 March 2016
Western Cape	Langeberg	LB130	31.00	445	33 45 31.62	19 59 56.79	Western Cape Afrotemperate	Open steep gully	Moist forest to dry scrubforest to scrub	04 March 2016
Western Cape	Langeberg	LB131	0.43	870	33 44 44.66	20 03 00.72	Western Cape Afrotemperate	Open steep gully	Drier scrubforest	04 March 2016
Western Cape	Langeberg	LB132	1.89	880	33 44 32.06	20 02 34.20	Western Cape Afrotemperate	Open steep gully	Drier scrubforest	04 March 2016
Western Cape	Langeberg	LB133	0.50	930	33 43 58.38	20 00 22.55	Western Cape Afrotemperate	Open steep gully	Drier scrubforest	04 March 2016

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Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB134	3.19	693	33 44 49.66	19 58 39.94	Western Cape Afrot temperate	Open steep gully	Moist forest to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB135	0.82	560	33 42 56.53	19 59 54.86	Western Cape Afrot temperate	Open steep gully	Drier scrubforest	04 March 2016
Western Cape	Langeberg	LB136	5.16	700	33 44 28.53	19 57 29.25	Western Cape Afrot temperate	Open steep gully	Moist forest to dry scrubforest	04 March 2016
Western Cape	Langeberg	Lb137	2.56	850	33 44 27.86	19 57 55.19	Western Cape Afrot temperate	Open steep gully	Moist forest	04 March 2016
Western Cape	Langeberg	LB138	1.62	1070	33 43 56.20	19 57 30.38	Western Cape Afrot temperate	Open steep gully	Moist forest	04 March 2016
Western Cape	Langeberg	LB139	1.42	845	33 43 07.88	19 57 01.95	Western Cape Afrot temperate	Open steep gully	Dry open scrubforest	04 March 2016
Western Cape	Langeberg	LB140	6.31	500	33 44 33.75	19 56 50.34	Western Cape Afrot temperate	Open steep gully	Moist forest	04 March 2016
Western Cape	Langeberg	LB141	3.78	505	33 44 46.06	19 56 17.11	Western Cape Afrot temperate	Open steep gully	Moist to dry forest	04 March 2016
Western Cape	Langeberg	LB142	5.22	720	33 44 30.98	19 55 34.30	Western Cape Afrot temperate	Open steep gully	Moist to dry forest	04 March 2016
Western Cape	Langeberg	LB143	6.64	437	33 44 52.37	19 55 20.11	Western Cape Afrot temperate	Open steep gully	Moist to dry forest	04 March 2016
Western Cape	Langeberg	LB144	1.17	647	33 44 40.26	19 54 48.88	Western Cape Afrot temperate	Open steep gully	Moist scrubforest	04 March 2016
Western Cape	Langeberg	LB145	3.82	887	33 42 51.54	19 54 08.15	Western Cape Afrot temperate	Open steep gully	Moist to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB146	4.51	570	33 44 26.44	19 51 56.56	Western Cape Afrot temperate	Open steep gully	Moist to dry scrubforest	04 March 2016
Western Cape	Langeberg	LB147	3.92	439	33 44 52.12	19 51 38.20	Western Cape Afrot temperate	Steep footslope below ridge	Dry scrubforest (regrowing)	04 March 2016
Western Cape	Langeberg	LB148	3.96	848	33 44 00.67	19 51 32.64	Western Cape Afrot temperate	Open steep gully	Moist gully forest	04 March 2016
Western Cape	Langeberg	LB149	0.30	785	33 44 13.83	19 51 05.44	Western Cape Afrot temperate	Open steep gully	Open mist gully forest	04 March 2016
Western Cape	Langeberg	LB150	3.52	486	33 45 26.15	19 51 14.77	Western Cape Afrot temperate	Open steep gully	Open moist gully scrub forest	04 March 2016
Western Cape	Langeberg	LB151	1.74	575	33 45 20.30	19 51 04.36	Western Cape Afrot temperate	Open gully below scarp	Open moist gully scrub forest	
Western Cape	Langeberg	LB152	2.79	527	33 45 20.17	19 50 39.19	Western Cape Afrot temperate	Open gully below scarp	Open moist gully forest	
Western Cape	Langeberg	LB153	1.10	990	33 43 32.34	19 50 32.43	Western Cape Afrot temperate	Steep open gully	Open moist forest	
Western Cape	Langeberg	LB154	2.83	1024	33 43 10.45	19 50 37.02	Western Cape Afrot temperate	Steep open gully	Open moist forest to scrubforest	
Western Cape	Langeberg	LB155	12.00	635	33 43 29.46	19 49 52.36	Western Cape Afrot temperate	Steep gully & below cliffs	Moist scrubforest	
Western Cape	Langeberg	LB156	11.60	867	33 42 46.92	19 49 42.66	Western Cape Afrot temperate	Steep gullies and below cliffs	Open to closed scrubforest	

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB157	1.31	860	33 42 30.48	19 48 28.55	Western Cape Afrotropical	Steep open gully with land slide	Moist gully forest	
Western Cape	Langeberg	LB158	1.33	800	33 42 18.77	19 48 11.23	Western Cape Afrotropical	Steep open gully with land slide	Moist gully forest	
Western Cape	Langeberg	LB159	2.42	660	33 42 15.83	19 47 49.77	Western Cape Afrotropical	Open gully with land slide	Scree and gully scrub forest	31 December 2018
Western Cape	Langeberg	LB160	12.30	580	33 41 39.66	19 46 52.70	Western Cape Afrotropical	Scree and gully scrub forest	31 December 2018	
Western Cape	Langeberg	LB161	4.00	675	33 41 15.11	19 46 26.53	Western Cape Afrotropical	Scree and gully scrub forest	31 December 2018	
Western Cape	Langeberg	LB162	12.00	595	33 40 55.94	19 45 24.04	Western Cape Afrotropical	Open gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB163	7.60	800	33 40 07.21	19 45 35.43	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB164	1.92	670	33 40 02.45	19 44 28.07	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB165	1.47	750	33 39 05.14	19 41 49.39	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB166	2.44	534	33 39 17.51	19 40 53.90	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB167	4.77	510	33 38 07.21	19 41 01.08	Western Cape Afrotropical	Open gentle gully	Scree and gully scrub-forest to scrub	05 February 2019
Western Cape	Langeberg	LB168	1.79	600	33 37 13.22	19 41 29.57	Western Cape Afrotropical	Open gentle gully	Scree and gully scrub-forest to scrub	06 November 2017
Western Cape	Langeberg	LB169	7.62	710	33 37 26.39	19 39 39.11	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB170	5.00	610	33 37 22.77	19 39 02.05	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB171	3.11	975	33 36 58.41	19 38 43.43	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB172	6.72	725	33 36 40.90	19 37 40.39	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB173	1.10	700	33 36 29.12	19 36 31.08	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB174	15.30	695	33 35 28.57	19 36 45.29	Western Cape Afrotropical	Open steep gully	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB175	28.80	1164	33 34 18.06	19 34 25.75	Western Cape Afrotropical	Open steep gully with screes n rock face	Scree and gully forest n scrub-forest	31 December 2018
Western Cape	Langeberg	LB176	11.50	665	33 33 42.76	19 32 47.84	Western Cape Afrotropical	Open steep gully with screes n rock face	Scree and gully forest n scrub-forest	31 December 2018

Mapping of natural forest patches, Langeberg Mountains, Western Cape

Western Cape	Langeberg	LB177	9.63	865	33 33 26.89	19 33 04.45	Western Cape Afrotropical	Steep ledges n scree below cliffs	Scree forest n scrub-forest	31 December 2018
Western Cape	Langeberg	LB178	13.30	500	33 33 11.20	19 32 47.10	Western Cape Afrotropical	Steep ledges n scree below cliffs	Scree forest n scrub-forest	31 December 2018
Western Cape	Langeberg	LB179	22.40	610	33 32 14.11	19 33 54.68	Western Cape Afrotropical	Steep ledges n scree below cliffs	Scree forest n scrub-forest	06 November 2017
Western Cape	Langeberg	LB180	2.94	800	33 31 49.20	19 35 27.17	Western Cape Afrotropical	Open steep gully with scree n rock face	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB181	0.41	715	33 30 56.90	19 36 53.20	Western Cape Afrotropical	Open steep gully with scree	Scree and gully scrub-forest to scree	31 December 2018
Western Cape	Langeberg	LB182	0.51	600	33 30 29.52	19 37 14.32	Western Cape Afrotropical	Open steep gully with scree	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB183	1.15	675	33 30 30.18	19 38 17.96	Western Cape Afrotropical	Open steep gully with scree	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB184	7.40	780	33 30 17.71	19 39 58.98	Western Cape Afrotropical	Open steep valley in gorge below cliffs	Scree and gully scrub-forest to scrub, with some reed-covered pools	31 December 2018
Western Cape	Langeberg	LB185	1.34	1242	33 30 28.98	19 43 28.04	Western Cape Afrotropical	Open steep valley in gorge below cliffs	Scree and gully scrub-forest to scrub	31 December 2018
Western Cape	Langeberg	LB186	0.77	790	33 29 26.17	19 44 00.27	Western Cape Afrotropical	Open steep valley in gorge below cliffs	Scree and gully scrub-forest to scrub	

National Vegetation Map Proposed Edits Control Sheet

This control sheet is designed to help the VEGMAP Project team at SANBI keep a long term record of evidence submitted for edits to the National Vegetation Map. Kindly complete Sections A and B1. Please contact us if you need assistance when completing the form. See Appendix A for guidance on proposing edits, types of edits and accepted data required for a motivation. Any proposal for changes to the National Vegetation Map must be accompanied by this control sheet.

SECTION A: Description of edit


Vegetation type/types affected	Southern Afrotropical Forest	
Type of Edit (tick)	<input type="checkbox"/> Major	<input checked="" type="checkbox"/> Minor
	<input type="checkbox"/> Other minor change affecting a large are of the map	
Brief description: Dr Coert Geldenhuys provided field verified forest patches in the Langeberg during the review of other forest patches. These were checked and determined to be of high quality and would improve a more accurate extent of Southern Afrotropical Forest patches.		

SECTION B: Description of review process

B1: To be completed by the Proposer

Name of person/s proposing edit	Anisha Dayaram on behalf of Dr Coert Geldenhuys (forest biome lead)
Organisation and role	SANBI, Vegetation Scientist
Nature of evidence provided to justify change	<input type="checkbox"/> Site visits <input checked="" type="checkbox"/> Desktop delineation <input checked="" type="checkbox"/> Published technical report <input type="checkbox"/> Peer Reviewed Article <input checked="" type="checkbox"/> GIS spatial data
Change criteria cited in the motivation	<input checked="" type="checkbox"/> MN1 <input type="checkbox"/> MN2 <input type="checkbox"/> MN3 <input type="checkbox"/> MN4 <input type="checkbox"/> MN5 <input type="checkbox"/> MN6 <input type="checkbox"/> MJ1 <input type="checkbox"/> MJ2 <input type="checkbox"/> MJ3

B3: Approval NVM-TEMC Chair/Biome lead

Name of NVM-TEMC Chair/Biome Lead	Dr Andrew Skowno
The proposal is approved	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Signature of NVM-TEMC Chair or biome lead	

APPENDIX 1: The process for submitting updates and revisions

*extracted from Section C of The National Vegetation Map Handbook.

Table 1 Types of changes and proposal requirements

No	Types of change	Benefit	Issues	Requirements	Process
Minor Change					
MN1	Boundary shifts (realignment)	Improved spatial accuracy	The scale of the affected boundary line, and resultant gains and losses of extent will result in changes to threat status and protection levels which will have to be recalculated.	<ul style="list-style-type: none"> • Motivation, • GIS shapefiles and data • Must be complete (not stop at cadastral boundaries) 	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN2	Creation of a sub type/community within an existing vegetation type	Improved accuracy of classification and spatial data	Inconsistency in the scale at which subtypes are accepted could influence the consistency in the classification.	<ul style="list-style-type: none"> • Motivation • GIS shapefiles and data or description of units (polygon #) • Publication in peer review/fine-scale biodiversity plan, Environmental Management Framework or Strategic Environmental Assessment 	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN3	Change in Vegetation type name (without spatial or description changes) *Special circumstances for this change are described in the Handbook	Correction in spelling or name better reflects the description of the Vegetation Type e.g. Rûens to Ruens	Small mismatches with previous versions of the NVM will arise when comparing database tables.	<ul style="list-style-type: none"> • The proposed new name and motivation must be submitted. • Must meet criteria for name changes. See Handbook. 	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN4	Change in vegetation type description e.g. list of endemic species	Improvement in more accurate description of a vegetation type and more accurate description of dominant species, endemics etc.	Implications minor or major. Descriptions could change again if boundary shifts later. Most updated names of species must be used. May conflict with text in book	Paper with plot data and environmental data supporting description or if change is just for change in species dominance plot data with species abundance.	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
MN5	Boundary shifts when neighbouring country or coastal borders are redefined	Map remains updated to the latest country boundaries	New areas which may not previously have been included in the map may not have any data.	<ul style="list-style-type: none"> • Motivation, • GIS shapefiles and data 	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team.
MN6	The creation of new polygons of an existing vegetation type that may be disjunct from existing polygons of that type and beyond a reasonable* range extension or reduction. *to be determined by the NMVC on a case by case basis	Improved accuracy of classification and spatial data	Scale of boundary lines, gains and losses of extent, changes to threat status and protection levels, classification consistency	<ul style="list-style-type: none"> • Requires a strong motivation, • GIS geodatabase files or description of units (polygon #), • Publication in peer review/Formal technical report such as a fine-scale biodiversity plan 	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
Major Change					
MJ1	Removal of a Vegetation type from the classification	Removal of spurious types. The polygons of	Usually associated with boundary shifts (see above) and	<ul style="list-style-type: none"> • Requires a strong motivation, 	A proposal must be submitted to SANBI via email.

	system or downgrading a type to a level below a vegetation type e.g. subtypes.	the removed type will be dissolved into remaining types.	affects classification consistency	<ul style="list-style-type: none"> • GIS geodatabase files or description of units (polygon #), • Publication in peer reviewed journal 	The decision will be reviewed and decided by the committee.
MJ2	Create new vegetation type (replace existing) or upgrading of a subtype to a Type.	Improved accuracy of classification and spatial data	Scale of boundary lines, gains and losses of extent, changes to threat status and protection levels, classification consistency,	<ul style="list-style-type: none"> • Requires a strong motivation, • GIS geodatabase files or description of units (polygon #), • Publication in peer reviewed journal 	A proposal must be submitted to SANBI via email. The decision will be reviewed and decided by the committee.
MJ3	Reassignment of a community in a vegetation type from an existing vegetation type to another existing vegetation type	Improved accuracy of classification	Usually associated with boundary shift (see issues above), classification consistency	<ul style="list-style-type: none"> • Motivation • GIS shapefiles and data or description of units (polygon #) • Publication in peer reviewed journal • Fine-scale biodiversity plans, Environmental Management Framework or Strategic Environmental Assessments can be submitted 	A proposal must be submitted to SANBI via email. The decision will be reviewed internally by the SANBI VEGMAP team. Only peer reviewed literature will be accepted.

Table 2 Important issues that must guide revisions

Issues	Description	Proposed Solution
Stability vs. Improvement	The update process must allow for legitimate improvements while maintaining a stable vegetation map.	Major revisions will be released so that they are aligned with the NEM:BA listing of threatened ecosystems, while smaller changes (updates) will be allowed between listing events.
Defensibility	Scientific basis for change must be maintained;	Minor Changes: Should be supported by peer reviewed literature or official reports such as biodiversity plans, EMFs, SEAs PhD, MSc or government reports. Major Changes: Only peer reviewed literature will be accepted.
Maintain consistency	Maintaining consistency in classification hierarchy and spatial scale used within each biome. These may differ significantly.	The Committee and the VEGMAP Team needs to keep in mind the scale and classification “depth” for each biome
Alignment with other Realms	Ecosystem classification and mapping is a major focus of the NBA and as a result there will be an opportunity to discuss the integration of vegetation map with the estuary map, coastal and marine habitat map and wetland map. Alignment with catchment boundaries will also be advantageous where possible.	The National Ecosystem Classification Committee will develop a joint approach to integration of ecosystem type maps across all realms. The scale of mapping will guide the process in some instances.
Spurious changes	Systems need to be established to avoid, ad hoc updates and changes that could be considered politically or commercially motivated.	The NVMC will decide on all changes to the map apart from purely technical corrections. Submissions that meet the requirements but are deemed to be spuriously motivated will not be accepted.
Precedents set in previous versions / updates	The original veg map was a ground-breaking product, multi-author product which inherited a few inconsistencies. The updates and revisions should aim to reduce these inconsistencies, not perpetuate them.	The VEGMAP Team at SANBI in conjunction with the National Vegetation Map Committee needs to take cognisance of the existing inconsistencies and propose potential solutions for future updates.