

### APPENDIX 3: STANDARD SURVEY FORMS OF THE VEGETATION SURVEY OF NAMIBIA

#### Habitat Description

Observer:	Number:	Computer No:	
Landscape:	Date:	Altitude:	
Locality:	Region:	GPS reading:	
	District:	" S	
	Owner:	" E	
		Accuracy of GPS: (Schwarzeneck)	
		Estimate from 1:50 000 map	General estimate

#### Landscape:

#### Local Topography:

Level land					
LP	Plain	<8%	<100m/km	LPP	Plain
				LPS	Sand drift plain Covered by >50 % sand (unconsolidated)
				LPI	Interdunal street
				LPD	Low dunefield Plains with low dunes like hummock dunes
				LPF	Flood plain Temporary water logged, especially along river systems
				LPO	Oshana Shallow channels of the Cuvelai delta
				LPM	Omuramba Shallow, broad drainage lines of the erosion plains
LL	Plateau	<8%	<100m/km	LLP	Plateau
LD	Depression	<8%	<100m/km	LDP	Pan Seasonally water filled
LF	Low gradient footslope	<8%	<100m/km	LFF	Low gradient footslope
LV	Valley floor	<8%	<100m/km	LVR	Dry river bed
				LVBD	Dry river embankment
				LVB	Perennial river embankment
Sloping land					
SM	Medium gradient mountain	15-30 %	>600m/2km	SMM	Medium gradient mountain
				SMF	Medium gradient footslope
				SML	Medium gradient plateau
SH	Medium gradient hill	8-30 %	>50 m/slope unit	SHH	Medium gradient hill
SE	Medium gradient escarpment zone	15-30 %	<600m/2km	SER	River terrace Especially along the Okavango and Omurambas in the Kalahari sand plateau
				SDP	Pan terrace / rim
SR	Ridges	8-30 %	>50 m/slope unit	SRR	Rocky ridges
				SRDF	Fossil dunes: foot
				SRDS	Fossil dunes: slope
				SRDC	Fossil dunes: crest
				SRAS	Active dunes: slip face
				SRAW	Active dunes: windward face
SU	Mountainous highland	8-30 %	>600m/2km	SUU	Mountainous highland
SP	Dissected plain	8-30 %	Variable	SPP	Dissected plain
				SPA	Alluvial fan
				SWC	Water courses and small rivers
Steep land					
TM	High gradient mountain	>30 %	>600m/2km	TMM	High gradient mountain
				TMF	High gradient footslope
				TMB	Inselbergs, bornhardts
TH	High gradient hill	>30 %	<600m/2km	THH	High gradient hill
				THR	Rocky outcrops like dolerite koppies
TE	High gradient escarpment zone	>30 %	>600m/2km	TEE	Escarpment
				TET	Tallus slope
TV	High gradient valleys	>30 %	Variable	TVC	Canyon slope
				TWC	Steep water courses and ravines
Land with composite landforms					
CV	Valley	>8 %	Variable	Other:	
CL	Narrow plateau	>8 %	Variable		
CD	Major depression	>8 %	Variable		

#### Slope:

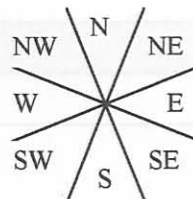
Flat 0 - 1° (0-2%)	Gently undulating 1 - 3° (2-5%)	Undulating 3 - 6° (5-10%)	Rolling 6 - 9° (10-15%)	Moderately steep 9 - 17° (15-30%)	Steep 17 - 30° (30-60%)	Very steep > 30° (>60 %)
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**Stoniness: Cover & Size:**

**Vegetation Data**

**Aspect:**

None	Gravel 0.2-2 cm	Pebbles 2-6 cm	Medium 6-20 cm	Large 20-60 cm	Rock >60 cm
0-2 %					
2-5 %					
5-15 %					
15-40 %					
40-80 %					
>80 %					



**Lithology:**

Acidic igneous rock	IA1	Granite	Clastic sediments	SC1	Conglomerate, Breccia
	IA2	Grano-diorite		SC2	Sandstone, greywacke, arkose
	IA3	Quartz-doprite		SC3	Siltstone, mudstone, claystone
	IA4	Rhyolite		SC4	Shale
Intermediate igneous rock	II1	Andesite, trachyte, phonolite	Organic sediments	SO1	Limestone and other carbonate rocks
	II2	Diorite-syenite		SO2	Marl and other mixtures
Basic igneous rock	IB1	Gabbro		SO3	Coals, bitumen and related rocks
	IB2	Basalt	Evaporites	SE1	Anhydrite, gypsum
	IB3	Dolerite		SE2	Halite
Ultrabasic igneous rock	IU1	Peridotite	Unconsolidated material	UF	Fluvial
	IU2	Pyroxenite		UL	Lacustrine
	IU3	Ilmenite, magnetite, ironstone, serpentine		UM	Marine
				UC	Colluvial
Acidic metamorphic rock	MA1	Quartzite		UE	Eolian
	MA2	Gneiss, magmatite		UG	Glacial
Basic metamorphic rock	MB1	Slate, phyllite (peltic rocks)		UP	Pyroclastic
	MB2	Schist		UO	Organic
	MB3	Gneiss rich in ferro-magnesian minerals	Other:	UCa	Calcrete
	MB4	Metamorphic limestone (marble)			

**Erosion:**

none	Wind erosion	Wind deposition	Shifting sand	Sheet erosion	Rill erosion	Gully erosion	Deposition by water
slight							
moderate							
severe							
extreme							

**Surface Crusting:**

None	Weak (soft or slightly hard, <0.5 cm thick)	Moderate (soft or slightly hard, >0.5 cm thick, or hard <0.5 cm)	Strong (hard crust >0.5 cm)	Clay bubbles (Schaumböden) present
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**Soil Texture**

Sand	Sandy Loam	Sandy Clay	Silty Clay Loam	Loam
Loamy Sand	Sandy Clay Loam	Silt Loam	Silty Clay	Clay Loam   Clay

**Disturbances:**

None	Herbicides	Selective clearing	Mechanical clearing
Fire	Bush encroachment	Severe overgrazing	Deforestation
Other: Total cover:			

**Stratigraphy (Geology):**

**AEZ:**

**Growing Period Zone:**

**Soil Type:**

**Notes:**

**Photos:**





## APPENDIX 4: SATELLITE MAPS

### Vegetation Type E:

MAP 1: false colour composite satellite image of the southern part of the study area

MAP 2: false colour composite satellite image of the northern part of the study area

### Association 10: *Acacia karroo* - *Leucosphaera bainesii* low semi-open bushland

MAP 3: supervised classification of vegetation associations of the southern part of the study area, part 1

### Association 11: *Acacia mellifera* - *Stipagrostis uniplumis* low moderately closed bushland

MAP 4: supervised classification of vegetation associations of the southern part of the study area, part 2

MAP 5: first approximation of major vegetation types of the southern part of the study area

### Association 12: *Diospyros rugosa* - *Conocarpus ciliatus* low moderately closed bushland

MAP 6: first approximation of major vegetation types of the northern part of the study area

Notes to the legend on Maps 5 and 6:

### Association 13: *Acacia mellifera* - *Conocarpus ciliatus* low closed bushland

Vegetation Type A: combination of associations 1-4:

Association 1: *Catophractes alexandri* - *Willkommia sarmentosa* tall sparse shrubland

Association 2: *Boscia albitrunca* - *Eragrostis cylindriflora* low open woodland

Association 3: *Acacia mellifera* - *Leucosphaera bainesii* low closed shrubland with patches of low open woodland

Association 4: *Acacia mellifera* - *Eragrostis rotifer* low moderately closed bushland

Vegetation Type B:

Association 5: *Acacia mellifera* - *Monechma genistifolium* low semi-open bushland

Vegetation Type C: combination of associations 6 and 7:

Association 6: *Albizia anthelmintica* - *Stipagrostis uniplumis* low open woodland

Association 7: *Acacia mellifera* - *Aristida congesta* low semi-open bushland

Vegetation Type D:

Association 8: *Acacia erioloba* - *Stipagrostis uniplumis* low semi-open bushland

Vegetation Type E:

Association 9: *Lonchocarpus nelsii* - *Eragrostis rigidior* low moderately closed bushland

Vegetation Type F:

Association 10: *Boscia foetida* - *Leucosphaera bainesii* low semi-open bushland

Vegetation Type G: combination of associations 11 and 12

Association 11: *Acacia mellifera* - *Stipagrostis hirtigluma* low moderately closed bushland

Association 12: *Acacia mellifera* - *Cenchrus ciliaris* low moderately closed bushland

Vegetation Type H:

Association 13: *Dichrostachys cinerea* - *Cenchrus ciliaris* low moderately closed bushland

Vegetation Type I:

Association 14: *Terminalia prunioides* - *Croton gratissimus* low closed bushland

LANDSAT 7-ETM+  
Path/Row 179/75  
Date 17 05 2000  
R/G/B 4/5/3

Projection: Geogr. Lat/Lon  
Spheroid: WGS 84  
Datum: WGS 84

"D:\75-00251\img\179r75.tif"  
Mapping: M. Strohbach  
2002