

The vegetation of Africa

A descriptive memoir
to accompany the Unesco/AETFAT/UNSO
vegetation map of Africa

by F. White

Unesco

Mapping units

For reasons given in the Introduction to Part Two the vegetation of the mapping units is described within a chorological framework rather than under the names of the units themselves. In many instances a single section of text deals only with a single mapping unit, but for other units, especially complex mosaics, the relevant information is given in more than one place.

The mapping units are listed in Table 4 (see opposite), with cross-references to the phytochoria under which they are described.

TABLE 4. Mapping units and related information

Mapping units	Phytocoria	Main vegetation types and page references
1. Lowland rain forest: wetter types		
(a) Guineo-Congolian <i>Note:</i> Included in this unit, but not shown separately, are large areas of cultivation, and of secondary forest (page 80) and smaller areas of short forest and scrub forest (page 81), elfin thicket (page 83), edaphic grassland (page 83), and secondary grassland and wooded grassland (page 84). The largest areas of Guineo-Congolian swamp forest are mapped separately (units 8 and 9) but smaller areas are scattered throughout 1a.	I. Guineo-Congolian Region	Hygrophilous coastal evergreen Guineo-Congolian rain forest (page 76). Mixed moist semi-evergreen Guineo-Congolian rain forest (page 77). Single-dominant moist evergreen and semi-evergreen Guineo-Congolian rain forest (page 78).
(b) Malagasy <i>Note:</i> Also included are large areas of cultivation, secondary forest (page 235) and secondary grassland (page 239).	XIX. East Malagasy Region	See page 235.
2. Guineo-Congolian rain forest: drier types <i>Note:</i> Also included but not shown separately are large areas of cultivation and secondary grassland and wooded grassland (page 84) and secondary forest (page 80), and smaller areas of short forest and scrub forest (page 81), swamp forest (page 82), transition woodland (page 83) and edaphic grassland (page 83).	I. Guineo-Congolian Region X. Guineo-Congolia/Zambezia Regional Transition Zone XI. Guineo-Congolia/Sudanica Regional Transition Zone XII. Lake Victoria Regional Mosaic	See page 79. See page 172. See page 79. See page 181.
3. Mosaic of 1a and 2 <i>Note:</i> In this type large areas of hygrophilous and moist rain forest (1a) have been replaced by old secondary forest dominated by species more characteristic of drier peripheral Guineo-Congolian rain forest (page 79) such as <i>Triplochiton scleroxylon</i> and <i>Terminalia superba</i> .	I. Guineo-Congolian Region	See note in column 1.
4. Transitional rain forest <i>Note:</i> The largest occurrence of this unit forms the transition between the Guineo-Congolian Region and a large 'island' of the Afromontane Region to the east. For convenience it is included in the former. There is little published information.	I. Guineo-Congolian Region XII. Lake Victoria Regional Mosaic	See page 85. See page 181.
5. Malagasy moist montane forest <i>Note:</i> This unit is dominated by <i>Cryptosepalum pseudotaxus</i> , are shown on the map, but in many places they have been degraded or replaced by secondary communities. They also occur in mosaic with smaller areas of edaphic grassland (page 99) and miombo woodland (page 92). Elsewhere this type is shown symbolically as part of a mosaic (see units 14 and 21).	XIX. East Malagasy Region II. Zambezian Region	See page 236. See page 89.
6. Zambezian dry evergreen forest <i>Note:</i> The largest areas, which are dominated by <i>Cryptosepalum pseudotaxus</i> , are shown on the map, but in many places they have been degraded or replaced by secondary communities. They also occur in mosaic with smaller areas of edaphic grassland (page 99) and miombo woodland (page 92). Elsewhere this type is shown symbolically as part of a mosaic (see units 14 and 21).	XIX. East Malagasy Region II. Zambezian Region	See page 236. See page 89.
7. Malagasy dry deciduous forest	XX. West Malagasy Region	See page 241.

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TABLE 4 cont'd

Mapping units	Phytoclonia	Main vegetation types and page references
8. Swamp forest <i>Notes:</i> (1) This unit also includes small areas of herbaceous swamp and aquatic vegetation (page 264), and edaphic grassland (page 83). (2) Guineo-Congolian swamp and riparian forest extends into the adjacent transition zones, and related forest occurs in the wetter part of the Zambezian Region (page 91).	I. Guineo-Congolian Region XII. Lake Victoria Regional Mosaic	See page 82. See page 181.
9. Mosaic of 8 and 1a	I. Guineo-Congolian Region	
10. Mediterranean sclerophyllous forest <i>Note:</i> Much of the area shown as forest has been destroyed or severely degraded and only scattered fragments remain. Several types of forest can be recognized but their distribution is too complicated for their boundaries to be shown accurately on the map. The occurrence of three major variants is indicated by letters. Among subordinate types, deciduous forest is described on page 156, bushland and thicket are described on page 157, and secondary shrubland (macquis and garrigue) on page 159.	VII. Mediterranean Region XVIII. Mediterranean/Sahara Regional Transition Zone	Mediterranean broad-leaved sclerophyllous forest (page 150). Mediterranean coniferous forest, p.p. (page 152). Sub-Mediterranean forest (page 226).
11. Mosaic of lowland rain forest and secondary grassland (a) Guineo-Congolian <i>Note:</i> Most of the grassland is secondary but there are small areas of edaphic grassland (page 83 and page 173).	I. Guineo-Congolian Region	Drier peripheral semi-evergreen Guineo-Congolian rain forest and similar forest in the transition zones (page 79). Guineo-Congolian secondary grassland and wooded grassland (page 84).
(b) Malagasy	X. Guinea-Congolia/Zambezia Regional Transition Zone XI. Guinea-Congolia/Sudania Regional Transition Zone XII. Lake Victoria Regional Mosaic XIX. East Malagasy Region	Drier peripheral semi-evergreen Guineo-Congolian rain forest and similar forest in the transition zones (page 79). Guineo-Congolian secondary grassland and wooded grassland (page 84). } See pages 84, 172 and 173. See pages 79 and 84. See pages 84 and 181. East Malagasy primary lowland rain forest (page 235). East Malagasy secondary lowland rain forest (page 235). East Malagasy secondary grassland, p.p. (page 239).
12. Mosaic of lowland rain forest, <i>Isobertia</i> woodland and secondary grassland <i>Note:</i> Similar to 11a but with patches of <i>Isobertia</i> woodland on the poorer soils, principally stony hills and ironstone plateaux. Their distribution in Nigeria is accurately known (J. A. D. Jackson, pers. comm.). Elsewhere information is incomplete.	XI. Guinea-Congolia/Sudania Regional Transition Zone	Drier peripheral semi-evergreen Guineo-Congolian rain forest and similar types in the transition zones (page 79). Guineo-Congolian secondary grassland and wooded grassland (page 84). Sudanian <i>Isobertia</i> and related woodlands (page 106).

13. Mosaic of lowland rain forest, secondary grassland and montane elements
Note: This unit is a mosaic of relict forest patches in a matrix of secondary grassland and wooded grassland. There are also patches of scrub forest and semi-evergreen thicket on shallow soils and in rain-shadow areas, and, on the coastal plain, of swamp forest and edaphic grassland.
14. Mosaic of lowland (Guineo-Congolian) rain forest, Zambezian dry evergreen forest and secondary grassland
Note: This unit is a mosaic of relict forest patches in a matrix of secondary grassland and wooded grassland. There are also patches of scrub forest and semi-evergreen thicket on shallow soils and in rain-shadow areas, and, on the coastal plain, of swamp forest and edaphic grassland.
15. West African coastal mosaic
16. East African coastal mosaic
 (a) Zanzibar-Inhambane
Note: Except for some small islands of forest (16b below) the vegetation has been so extensively modified by man that it is impossible to map the different physiognomic types separately. Unit 16a almost exactly coincides with the Zanzibar-Inhambane Region but there are also some exclaves in the eastern parts of the Zambezian Region.
- (b) Forest patches (Zanzibar-Inhambane)
17. Cultivation and secondary grassland replacing upland and montane forest in Africa
Note: The natural vegetation, which is mostly destroyed, probably originally contained a mixture of Afromontane and lowland species. There is virtually no published information.
18. Cultivation and secondary grassland replacing upland and montane forest in Madagascar.
- XI. Guinea-Congolia/Sudania Regional Transition Zone
 See page 176.
- X. Guinea-Congolia/Zambeia Regional Transition Zone
 Drier peripheral semi-evergreen Guineo-Congolian rain forest (page 172).
 Zambezian dry evergreen forest and transition woodland (page 172).
 Grassland and wooded grassland (page 173).
- X. Guinea-Congolia/Zambeia Regional Transition Zone
 See page 174.
- XI. Guinea-Congolia/Sudania Regional Transition Zone
 See pages 176-8.
- XIII. Zanzibar-Inhambane Regional Mosaic
 See pages 186-9.
- XIII. Zanzibar-Inhambane Regional Mosaic
 Zanzibar-Inhambane lowland rain forest (page 186).
 Transitional rain forest (page 186).
 Zanzibar-Inhambane undifferentiated forest (page 187).
- II. Zambezian Region (as enclaves)
 IV. Somalia-Masai Region (as enclaves)
 Zanzibar-Inhambane lowland rain forest (page 186).
 Zanzibar-Inhambane lowland rain forest (page 186).
- XV. Tongaland-Pondoland Regional Mosaic
 See pages 199-202.
- II. Zambezian Region
 VIII. Afromontane Region
 See note in column 1.
- XIX. East Malagasy Region
 East Malagasy sclerophyllous montane forest (page 236).
 East Malagasy tapia forest (page 237).
 East Malagasy secondary grassland, p.p. (page 239).

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TABLE 4 cont'd

Mapping units	Phytocoria	Main vegetation types and page references
19. Undifferentiated montane vegetation		
(a) Afromontane	VIII. Afromontane Region	See pages 162-9.
(b) Sahelomontane	XVI. Sahel Regional Transition Zone	Sahelomontane scrub forest (page 207). Sahelomontane secondary grassland (page 207).
(c) Malagasy	XIX. East Malagasy Region	East Malagasy montane bushland and thicket (page 237). East Malagasy rupicolous shrubland (page 238). East Malagasy secondary montane grassland (page 239).
20. Transition from Afromontane scrub forest to Highveld grassland	XIV. Kalahari-Highveld Transition Zone	See page 195.
21. Mosaic of Zambezian dry evergreen forest and wetter miombo woodland Note: The largest areas of dry evergreen forest are shown separately (mapping unit 6). Elsewhere, this type has a fragmentary distribution and always occurs in mosaic with transition woodland, miombo woodland and various types of secondary, fire-maintained woodland and grassland (chipya).	II. Zambezian Region	Zambezian dry evergreen forest (page 89). Zambezian transition woodland (page 91). Zambezian wetter miombo woodland (page 93). Zambezian chipya woodland and wooded grassland (page 96).
22. Mosaic of dry deciduous forest and secondary grassland and wooded grassland (a) Zambezian Note: Forest and secondary communities replacing it occur on deep well-drained Kalahari sand. Other types, principally Kalahari woodland (page 97), Kalahari thicket (page 98) and edaphic grassland (page 100), occupy shallower and less well-drained soils. (b) Malagasy	X. Guinea-Congolia/Zambezia Transition Zone	Zambezian dry evergreen forest and transition woodland (page 172). Grassland and wooded grassland (page 173).
	II. Zambezian Region	Zambezian dry deciduous forest and scrub forest (page 90). Zambezian secondary grassland and wooded grassland, p.p. (page 101).
23. Mosaic of Mediterranean montane forest and altimontane shrubland	XX. West Malagasy Region	West Malagasy dry deciduous forest (page 241). West Malagasy grassland, p.p. (page 242).
	VII. Mediterranean Region	<i>Cedrus atlantica</i> forest (page 155). <i>Abies pinsapo</i> and <i>A. numidica</i> forest (page 156). <i>Juniperus thurifera</i> forest (page 156). Mediterranean deciduous forest, p.p. (page 156). Altimontane Mediterranean shrubland (page 158).
24. Mosaic of Afromontane scrub forest, Zambezian scrub woodland, and secondary grassland	XIV. Kalahari-Highveld Transition Zone	See page 196.
25. Wetter Zambezian miombo woodland Note: In addition to the islands of other vegetation (units 6, 19a, 21, 37, 40, 47, 60, 64 and 75) shown on the map there are also smaller areas of evergreen swamp and riparian forest (page 91),	II. Zambezian Region X. Guinea-Congolia/Zambezia Transition Zone	See page 93. See page 172.

transition woodland (page 91), chipya woodland and wooded grassland (page 96) and wet dambo (page 99).	XII. Lake Victoria Regional Mosaic	See page 181.
26. Drier Zambezan miombo woodland <i>Note:</i> This unit also includes smaller areas of dry deciduous thicket (page 97), mopane woodland (page 93), deciduous riparian forest (page 91) and dry dambo (page 99).	II. Zambezan Region	See page 93.
27. Sudanian woodland with abundant <i>Isobertinia</i> <i>Note:</i> This unit also includes small areas of semi-evergreen swamp and riparian forest (page 103), transition woodland (page 105), edaphic (page 107) and secondary grassland (page 108), and rupicolous communities (page 108).	IV. Somalia-Masai Region (as enclaves)	
28. <i>Colophospermum mopane</i> woodland and scrub woodland <i>Note:</i> Included in unit 26 are smaller areas of miombo woodland (page 92), dry deciduous forest (page 90), deciduous riparian forest and woodland (pages 91, 95), undifferentiated woodland (page 95) and edaphic grassland (page 99).	XIII. Zanzibar-Inhambane Regional Mosaic (as enclaves)	
29. Undifferentiated woodland (a) Sudanian <i>Note:</i> Much of the area is now semi-permanent cultivation and bush fallow. In places the original vegetation may have been dry forest. Included in this type are areas, too small to be shown on the map, of dry evergreen forest (page 103), semi-deciduous riparian forest (page 103), transition woodland (page 105), edaphic grassland (page 107) and rupicolous communities (page 108). (b) Ethiopian (c) North Zambezan (d) South Zambezan (e) The transition from undifferentiated Zambezan woodland to Tongaland-Pondoland bushland <i>Note:</i> This unit is at the northern end of a rather complex floristic and physiognomic continuum. Where the rainfall is higher, as on the seaward slopes of the Lebombo Mts, there are patches of forest (page 199).	III. Sudanian Region	See page 106.
30. Sudanian undifferentiated woodland with islands of <i>Isobertinia</i> <i>Note:</i> Small islands of <i>Isobertinia</i> occur, especially on rocky hills, in wetter undifferentiated Sudanian woodland and are shown schematically on the map. Their distribution in Nigeria is accurately known (J.A.D. Jackson, pers. comm.). Elsewhere information is incomplete.	III. Sudanian Region	See page 107. See page 95. See page 96.
31. Mosaic of wetter Zambezan woodland and secondary grassland <i>Note:</i> This corresponds in part to Devred's (1958) mapping unit 16. There is virtually no published information.	XV. Tongaland-Pondoland Regional Mosaic	Tongaland-Pondoland evergreen and semi-evergreen bushland and thicket, p.p. (page 200).
	X. Guinea-Congolia/Zambeza Regional Transition Zone	See pages 105-7.
		See note in column 1.

TABLE 4 cont'd

Mapping units	Phytocoria	Main vegetation types and page references
32. The Jos Plateau mosaic <i>Note:</i> This is the largest upland area in Nigeria above 1000 m. Much of the original vegetation has been destroyed for agriculture or to provide fuel for the tin-mines. Some communities are related to vegetation in the East African Highlands and other upland areas in West Africa (see Keay, 1959). The best-preserved vegetation is in rocky places.	III. Sudanian Region XI. Guinea-Congolia/Sudanian Regional Transition Zone	Sudanian transition woodland (page 105). Sudanian rupicolous scrub forest, bushland and thicket (page 108).
33. The Mandara Plateau mosaic <i>Note:</i> On the upper slopes (1 300–1 442 m) Sudanian elements are mixed with Afromontane species such as <i>Olea capensis</i> and <i>Pittosporum viridiflorum</i>, and the succulent tree <i>Euphorbia</i>, <i>E. desmondii</i>, which also occur on the Jos Plateau (see Letouzey, 1968).	III. Sudanian Region	See note in column 1.
34. Transition from South African scrub woodland to Highveld grassland	XIV. Kalahari-Highveld Transition Zone	See page 196.
35. Transition from undifferentiated woodland to <i>Acacia</i> deciduous bushland and wooded grassland (also including mosaics of communities dominated by <i>Acacia</i> and broad-leaved trees) (a) Zambezan <i>Notes:</i> (1) Woodland and wooded grassland, dominated by species of <i>Acacia</i> and broad-leaved trees, greatly modified by fire, is extensively distributed on alluvium in the Rukwa Valley, Tanzania (Pielou, 1952; Vesey-FitzGerald, 1970). (2) Wooded grassland dominated by species of <i>Acacia</i> and broad-leaved trees occurs in the Zambezan Region on Kalahari Sand between the Okavango basin and the Makarikari depression, but is much more extensive in the transition zone further south. (b) Ethiopian <i>Note:</i> This unit forms the transition from the edaphic grasslands of the Flood Region of the Nile to the <i>Anogeissus-Combretum hartmannianum</i> woodland (page 107) flanking the Ethiopian Highlands to the east. <i>Acacia seyal</i> and <i>Balanites aegyptiaca</i> occur throughout except for patches of thornless woodland dominated by <i>Combretum hartmannianum</i>, <i>Sterculia setigera</i>, <i>Stereospermum kunthianum</i> and <i>Adansonia digitata</i>. (c) The Windhoek Mountains	II. Zambezan Region XIV. Kalahari-Highveld Regional Transition Zone III. Sudanian Region	See notes in column 1. See page 193. See note in column 1.
36. Transition from <i>Colophospermum mopane</i> scrub woodland to Karoo-Namib shrubland	XIV. Kalahari-Highveld Regional Transition Zone XIV. Kalahari-Highveld Regional Transition Zone	See page 193. See page 191.

37. *Acacia polyacantha* secondary wooded grassland
Note: *A. polyacantha* is widely distributed in the wetter parts of the Zambezan Region and further north as a pioneer species in colonizing forest and as a fire-hardy constituent of secondary wooded grassland. Some occurrences are sufficiently extensive to show on the map, but there is little published information.
38. East African evergreen and semi-evergreen bushland and thicket
Note: This unit often forms the transition between the Somalia-Masai and Afromontane Regions. For cartographic reasons it has been placed partly in the former and partly in the latter. In parts of East Africa and the Lake Victoria basin it has been extensively replaced by mapping unit 45 and the surviving remnants are too small to show separately.
39. South African evergreen and semi-evergreen bushland and thicket
40. Itigi deciduous thicket
41. Malagasy deciduous thicket
42. Somalia-Masai *Acacia-Commiphora* deciduous bushland and thicket
43. Sahel *Acacia* wooded grassland and deciduous bushland
44. Kalahari deciduous *Acacia* wooded grassland and bushland
45. Mosaic of East African evergreen bushland and secondary *Acacia* wooded grassland
46. Mosaic of Malagasy deciduous thicket and secondary grassland
47. Mosaic of *Brachystegia bakerana* thicket and edaphic grassland
Note: Apart from Barbosa's brief account (1970) nothing is known. Patches of *Cryptosepalum* forest (page 89) and Kalahari woodland (page 97) also contribute to the mosaic.
48. Tugela basin wooded bushland
Note: The vegetation is intermediate between that of mapping units 29e and 39. It is described in considerable detail by D. Edwards (1967).
- II. Zambezan Region
 X. Guinea-Congolia/Zambezia Regional Transition Zone
 See note in column 1.
- IV. Somalia-Masai Region
 VIII. Afromontane Region
 XVI. Sahel Regional Transition Zone
 XVII. Sahara Regional Transition Zone
 See page 115.
 See note in column 1.
 See page 206.
 See page 224.
- XV. Tongaland-Pondoland Regional Mosaic
 See page 200.
- II. Zambezan Region
 XX. West Malagasy Region
 See page 97.
 See page 242.
- IV. Somalia-Masai Region
 ?XII. Lake Victoria Regional Mosaic
 See page 113.
- XVI. Sahel Regional Transition Zone
 Sahel wooded grassland (page 206).
 Sahel deciduous bushland (page 207).
- II. Zambezan Region (as enclaves)
 XIV. Kalahari-Highveld Regional Transition Zone
 See page 193.
- IV. Somalia-Masai Region
 Somalia-Masai secondary grassland and wooded grassland, p.p. (page 114).
 East African evergreen and semi-evergreen bushland and thicket, p.p. (page 115).
- XII. Lake Victoria Regional Mosaic
 See page 182.
- XX. West Malagasy Region
 West Malagasy deciduous thicket (page 242).
 West Malagasy grassland, p.p. (page 242).
- II. Zambezan Region
 See pages 98, 100.
- XV. Tongaland-Pondoland Regional Mosaic
 Tongaland-Pondoland evergreen and semi-evergreen bushland and thicket, p.p. (page 200).

TABLE 4 *contd.*

Mapping units	Phytocoria	Main vegetation types and page references
49. Transition from Mediterranean <i>Argania</i> scrubland to succulent semi-desert shrubland	XVIII. Mediterranean/Sahara Regional Transition Zone	<i>Argania spinosa</i> scrub forest and bushland (page 227). Succulent sub-Mediterranean shrubland, p.p. (page 228).
50. Cape shrubland (fynbos)	V. Cape Region	See page 132.
51. Bushy Karoo–Namib shrubland	VI. Karoo–Namib Region	See pages 137, 140.
52. Succulent Karoo shrubland	VI. Karoo–Namib Region	See pages 137–142.
53. Dwarf Karoo shrubland	VI. Karoo–Namib Region	See pages 139–140.
54. Semi-desert grassland and shrubland (a) Northern Sahel (b) Somalia–Masai	XVI. Sahel Regional Transition Zone IV. Somalia–Masai Region	See page 206. See page 115.
55. Sub-Mediterranean semi-desert grassland and shrubland	XVIII. Mediterranean/Sahara Regional Transition Zone	Succulent sub-Mediterranean shrubland, p.p. (page 228). Sub-Mediterranean grassland (page 229).
56. The Kalahari/Karoo–Namib transition	XIV. Kalahari–Highveld Regional Transition Zone	See page 193.
57. Grassy shrubland (a) Montane Karoo (b) Transition from Karoo shrubland to Highveld	VI. Karoo–Namib Region XIV. Kalahari–Highveld Regional Transition Zone	See page 139. See page 195.
58. Highveld grassland	XIV. Kalahari–Highveld Regional Transition Zone	See page 194.
59. Edaphic grassland on volcanic soils	IV. Somalia–Masai Region	Somalia–Masai edaphic grassland, p.p. (pages 116 and 125).
60. Edaphic and secondary grassland on Kalahari Sand <i>Note:</i> In the Upper Zambezi basin most of the grasslands are edaphic and are often fringed with scrub woodland dominated by <i>Diplorhynchus condylocarpon</i> (page 99). In Zaire floristically similar grassland occurs on Kalahari Sand on the unrejuvenated plateau. Some of it is edaphic but much is secondary.	II. Zambezan Region X. Guinea–Congo/Zambezia Regional Transition Zone	See page 100. Grassland and wooded grassland, p.p. (page 173).
61. Edaphic grassland in the Upper Nile basin	III. Sudanian Region	Grassland and wooded grassland on Pleistocene clays, p.p. (page 108).
62. Mosaic of edaphic grassland and <i>Acacia</i> wooded grassland	III. Sudanian Region	Grassland and wooded grassland on Pleistocene clays, p.p. (page 108).

<i>Note:</i> Vegetation similar to units 62 and 63 is too restricted in the Zambezan Region to map separately and is included in mapping unit 64. 63. Mosaic of edaphic grassland and communities of <i>Acacia</i> and broad-leaved trees <i>Note:</i> The distribution of this and the preceding unit in the Chad basin are shown on the map schematically. A more detailed representation is given by Pias (1970). 64. Mosaic of edaphic grassland and semi-aquatic vegetation 65. Altimontane vegetation in tropical Africa 66. Altimontane vegetation in South Africa 67-73. The Sahara Desert 67. Absolute desert 68a. Atlantic coastal desert 68b. Red Sea coastal desert 69. Desert dunes without perennial vegetation 70. Desert dunes with perennial vegetation 71. Regs, hamadas, wadis	XVI. Sahel Regional Transition Zone III. Sudanian Region II. Zambezan Region III. Sudanian Region XVI. Sahel Regional Transition Zone VIII and IX. Afromontane and Afroalpine Regions VIII and IX. Afromontane and Afroalpine Regions XVII. Sahara Regional Transition Zone XVII. Sahara Regional Transition Zone XVII. Sahara Regional Transition Zone XVII. Sahara Regional Transition Zone XVII. Sahara Regional Transition Zone XVII. Sahara Regional Transition Zone	See page 108. Grassland and wooded grassland on Pleistocene clays, p.p. (page 108). See pages 99, 264 [XXI] See pages 107, 264. See pages 107, 264. Afromontane evergreen bushland and thicket, p.p. (page 167). Afromontane shrubland, p.p. (page 168). Afromontane and Afroalpine grassland, p.p. (page 168). Mixed Afroalpine communities in tropical Africa (page 169). Afromontane evergreen bushland and thicket, p.p. (page 167). Afromontane shrubland, p.p. (page 168). Afromontane and Afroalpine grassland, p.p. (page 168). Mixed Afroalpine communities in South Africa (page 169). See page 223. See page 224. See page 224. Psammophilous vegetation, p.p. (page 220). Psammophilous vegetation, p.p. (page 220). Wadis (page 219). Hamadas (page 220). Regs (page 221).

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TABLE 4 *cont'd*

Mapping units	Phytochoria	Main vegetation types and page references
72. Saharomontane vegetation	XVII. Sahara Regional Transition Zone	See page 221.
73. Oasis	XVII. Sahara Regional Transition Zone XVIII. Mediterranean/Sahara Regional Transition Zone	See page 218. See page 226.
74. The Namib Desert	VI. Karoo-Namib Region	See page 141.
75. Herbaceous swamp and aquatic vegetation <i>Note:</i> Widespread in all but the driest parts, but only sufficiently extensive to be mapped separately in the Zambezan and Sahel Regions. Elsewhere mostly in mosaic (mapping unit 64) or too small to show. Swamp forest is mapped separately (mapping units 8 and 9).	See note in column 1.	See page 264.
76. Halophytic vegetation <i>Note:</i> Areas too small to map also occur in the Karoo-Namib (pages 144, 266), Mediterranean and Lake Victoria Regions.	Azonal (page 266), but most extensive in: II. Zambezan Region IV. Somalia-Masai Region XVII. Sahara Regional Transition Zone XVII. Mediterranean/Sahara Regional Transition Zone	See page 267. See page 266. See page 222. See page 230.
77. Mangrove	Azonal	See page 260.
78. Mediterranean anthropic landscapes	VII. Mediterranean Region	See page 159.
79. Western sub-Mediterranean anthropic landscapes	XVIII. Mediterranean/Sahara Regional Transition Zone	Sub-Mediterranean anthropic landscapes, p.p. (page 230).
80. Eastern sub-Mediterranean anthropic landscapes	XVIII. Mediterranean/Sahara Regional Transition Zone	Sub-Mediterranean anthropic landscapes, p.p. (page 230).