

Table 1. Selected literature references to several aspects of the study area (see *Literature References* at the end of Part 1).

Aspect of study area	Literature reference
Geographic limits	Goldblatt (1978).
Fragmentation of Gondwana	Dietz & Holden (1970, 1970a), Schopf (1970), Smith & Hallam (1970), Tarling & Tarling (1971), Raven & Axelrod (1974), Axelrod & Raven (1978), Cooper (1980), Audley-Charles <i>et al.</i> (1981), Dingle <i>et al.</i> (1983), Schuster (1983), Partridge & Maud (1987), De Wit (1990), Pitman III <i>et al.</i> (1993), Reader's Digest (1994), White (1994).
Geology	Truswell (1977), Kent (1980), Dingle <i>et al.</i> (1983), Tankard <i>et al.</i> (1982), White (1983), Visser (1984), Hammerbeck & Allcock (1985), Reader's Digest (1994).
Geomorphology	Wellington (1955), King (1963, 1978), Kruger (1983), White (1983), Partridge & Maud (1987), Moon & Dardis (1988), Reader's Digest (1994), Partridge (1997), Barnard (1998)
Soils	Van der Merwe (1941), MacVicar (1973), Von M. Harmse (1978), Schulze (1997a), Barnard (1998).
Climate	Schulze, B.R. (1965), Schulze & McGee (1978), Reader's Digest (1994), Schulze (1997, 1997a)
Climatic change and variability	Tyson (1986), Preston-Whyte & Tyson (1988), Livingstone (1993).
Vascular plant flora	Goldblatt (1978), Gibbs Russell (1985), Cowling <i>et al.</i> (1989), Cowling & Hilton-Taylor (1994, 1997).

Aspect of study area	Literature reference
Vascular plant vegetation	Giess (1971), Acocks (1975); Werger (1978c), White (1983); Rutherford & Westfall (1986), Irish (1994), Low & Rebelo (1996), Rutherford (1997), Cowling <i>et al.</i> (1997a), Barnard (1998).
Vegetation history	Axelrod & Raven (1978), Van Zinderen Bakker (1978, 1983), Coetzee (1993), Scott <i>et al.</i> (1997), DeBusk (1998)
Origin and evolution of the vascular plant flora.	Raven & Axelrod (1974), Goldblatt (1978), Raven (1983).

Table 2. Some of the most important and most recent checklists and related publications consulted for the world distributions of southern African mosses in the MOSS database. The regions in this table are those of Hollis & Brummitt (1992) with the following changes to the boundaries: 1) the boundary between Northern and Southern America follows the political boundary between Mexico and Guatemala, and 2) the Auckland and Campbell Islands south of New Zealand are included in the Antarctic region. The references are numerically arranged. The full references are given in *Literature References* of Part I.

Region	Source of distribution data
Europe	Koponen <i>et al.</i> (1977, 1995), Corley <i>et al.</i> (1981), Duell (1984, 1985, 1992, 1995), Presten (1984), Townsend (1986), Hallingback & Soderstrom (1987), Dirkse <i>et al.</i> (1988), Casas (1991), Corley & Crundwell (1991), Cortini Pedrotti (1992), Sergio & Schumacker (1992), Greven (1995).
Africa	Cufodontis (1951), Richards & Argent (1968), Bizot & Pocs (1974, 1979, 1982), Schultze-Motel (1975, 1979), Bizot <i>et al.</i> (1976, 1978, 1979, 1985), Egunyomi & Olarinmoye (1979), Egunyomi (1980), Long <i>et al.</i> (1981), Eggers (1982), Ochyra & Pocs (1982, 1985, 1985a, 1986, 1992a, 1994), Duell (1984, 1985), Frahm (1978, 1984, 1988),

Region	Source of distribution data
	Prendergast (1984), Kis (1985), Phiri & Ochyra (1985), Bizot & Tixier (1986-1987), Losada Lima. & Beltran Tejera (1987), Townsend (1984, 1987), Gauthier (1987), Ochyra & Sharp (1988), Tixier (1989, 1995), Best (1990), Kürschner & Onraedt (1990), Gonzalez-Mancebo <i>et al.</i> (1992), Born <i>et al.</i> (1993), Dirkse <i>et al.</i> (1993), O'Shea (1993, 1995), Chuah-Petiot (1994, 1994a, 1995, 1996, 1997), Crundwell <i>et al.</i> (1994), Al-Gifri <i>et al.</i> (1995), Frahm <i>et al.</i> (1996), O'Shea <i>et al.</i> (1996), Enroth (1996), Muller (1996), Perez & Sanchez (1996), Een (1997).
Asia Temperate	Iwatsuki & Noguchi (1973, 1979), Agnew & Vondracek (1975), Frey. & Kürschner (1983), 1988, 1991a), Gao & Chang (1983), El-Oqlah & Lahham (1985), Redfearn & Wu (1986), Hu & Wang (1987), Cetin (1988), El-Oqlah <i>et al.</i> (1988), Vitt & Cao (1989), Redfearn (1990), Herrnstadt & Heyn (1991), Iwatsuki (1991), Townsend (1991), Herrnstadt (1992), Ignatov & Afonina (1992), Koponen & Luo (1992), Koponen & Li (1992), Lin <i>et al.</i> (1992), Wu (1992), Afonina & Czernyadjeva (1995), Tan <i>et al.</i> (1994, 1995), Ignatov (1994), Manakyan (1995), So (1995), So & So (1995), So & Yip (1995, 1995a), So & Zhu (1996), Redfearn <i>et al.</i> (1996), Zhang (1996).
Asia Tropical	Townsend (1978, 1993, 1994a, 1996), Onraedt (1986), Tan (1987, 1989, 1993), Gangulee (1980), Mohamed & Tan (1988), Hegewald & Van Zanten (1986), Hyvonen (1989), Tan & Koponen (1989), Menzel & Passow-Schindhelm (1990), Tan & Iwatsuki (1991, 1993), Long (1992, 1994), Touw (1992), Ninh (1993), Nishimura & Higuchi (1993, 1994), Akiyama (1996).
Australasia	Streimann & Touw (1981), Stone (1982, 1984, 1985, 1990, 1994), Fife (1984, 1995), Ochi & Streimann (1987), Catcheside (1988), Streimann & Curnow (1989), Beaver <i>et al.</i> (1992), Stoneburner <i>et al.</i> (1993).
Pacific	Hoe (1974, 1979), Schultze-Motel (1974), Whittier & Whittier (1974), Pursell & Reese (1982), Higuchi (1996).

Region	Source of distribution data
Northern America	Delgadillo M. (1971, 1979, 1992), Persson & Viereck (1983), Brassard (1984), Ireland <i>et al.</i> (1987), Anderson <i>et al.</i> (1990), Delgadillo & Cardenas (1989), McIntosh (1989), Spence (1987), Vitt <i>et al.</i> (1987), Bourell (1992), Murray (1992), Sharp <i>et al.</i> (1994, 1994a), Belland (1995), Delgadillo <i>et al.</i> (1995).
Southern America	Herzog (1940), Bowers (1974), Hegewald & Hegewald (1975, 1977, 1985), Robinson (1975), Seki (1974), Ochi (1980), Yano (1981, 1989, 1995, 1996), Hassel De Menendez <i>et al.</i> (1984), Wiersma (1984), Buck (1985), Greene (1986), Churchill (1989, 1991), Schafer-Verwimp & Vital (1989), Cornelissen & Gradstein (1990), Porto (1990), Florschütz-De Waard (1990), Churchill <i>et al.</i> (1991-1992), Schafer-Verwimp (1991, 1992), Reese (1991), Arrocha (1992), Menzel (1992), Sipman (1992), Vital & Pursell (1992), Townsend (1994), Delgadillo <i>et al.</i> (1995), Germano & Porto (1996).
Antarctic	Clifford (1953), Van Zanten (1971), Vitt (1979), Seppelt (1981), Gremmen (1982), Greene (1986), Kanda (1987), Smith (1988), Bergstrom & Seppelt (1988-1989), Ochyra & Hertel (1990), Seppelt <i>et al.</i> (1995), Bergstrom & Selkirk (1997).

Table 3. Number of genera and species/infraspecific taxa, and the largest genera and their number of species/infraspecific taxa, in the 54 families of southern African mosses. Families are in alphabetical order.

Families	Genera	Species	Largest genus	Species
Amblystegiaceae	7	9	<i>Drepanocladus</i>	2
			<i>Platyhypnidium</i>	2
Andreaeaceae	1	4	<i>Andreaea</i>	4
Archidiaceae	1	11	<i>Archidium</i>	11
Aulacomniaceae	1	1	<i>Leptotheca</i>	1
Bartramiaceae	7	22	<i>Philonotis</i>	8
Brachytheciaceae	5	17	<i>Brachythecium</i>	8
Bryaceae	9	40	<i>Bryum</i>	19
Bryobartramiaceae	1	1	<i>Bryobartramia</i>	1
Calymperaceae	4	8	<i>Calymperes</i>	3
Catagoniaceae	1	1	<i>Catagonium</i>	1
Cryphaeaceae	1	1	<i>Cryphaea</i>	1
Dicranaceae	15	49	<i>Campylopus</i>	19
Ditrichaceae	9	15	<i>Ditrichum</i>	4
			<i>Pleuridium</i>	4
Encalyptaceae	1	2	<i>Encalypta</i>	2
Entodontaceae	4	7	<i>Entodon</i>	4
Ephemeraceae	1	4	<i>Ephemerum</i>	4
Erpodiaceae	2	5	<i>Erpodium</i>	4
Eustichiaceae	1	1	<i>Eustichia</i>	1
Fabroniaceae	5	14	<i>Fabronia</i>	10
Fissidentaceae	1	29	<i>Fissidens</i>	29
Fontinalaceae	1	2	<i>Fontinales</i>	2
Funariaceae	6	16	<i>Funaria</i>	10
Gigaspermaceae	3	3	<i>Chamaebryum</i>	1
			<i>Gigaspermum</i>	1
			<i>Oedipodiella</i>	1

Families	Genera	Species	Largest genus	Species
Grimmiaceae	4	8	<i>Grimmia</i>	1
			<i>Racomitrium</i>	1
Hedwigiaceae	4	4	<i>Braunia</i>	1
			<i>Hedwigia</i>	1
			<i>Hedwigidium</i>	1
			<i>Rhacocarpus</i>	1
Hookeriaceae	8	9	<i>Distichophyllum</i>	2
Hypnaceae	6	18	<i>Isopterygium</i>	6
Leptodontaceae	2	2	<i>Forsstroemia</i>	1
			<i>Leptodon</i>	1
Leskeaceae	7	13	<i>Lindbergia</i>	4
Leucodontaceae	2	2	<i>Leucodon</i>	1
			<i>Pterogonium</i>	1
Meteoriaceae	5	5	<i>Aerobryopsis</i>	1
			<i>Floribundaria</i>	1
			<i>Papillaria</i>	1
			<i>Pilotrichella</i>	1
			<i>Squamidium</i>	1
Mniaceae	1	1	<i>Plagiomnium</i>	1
Neckeraceae	1	1	<i>Neckera</i>	1
Orthotrichaceae	9	30	<i>Orthotrichum</i>	8
Plagiotheciaceae	1	2	<i>Plagiothecium</i>	2
Polytrichaceae	5	13	<i>Oligotrichum</i>	4
			<i>Polytrichum</i>	4
Pottiaceae	30	69	<i>Syntrichia</i>	8
Prionodontaceae	1	1	<i>Prionodon</i>	1
Pterobryaceae	3	6	<i>Pterobryopsis</i>	3
Ptychomitriaceae	2	10	<i>Ptychomitrium</i>	8
Racopilaceae	1	1	<i>Racopilum</i>	1
Rhabdoweisiaceae	1	2	<i>Rhabdoweisia</i>	2
Rhachithecaceae	1	1	<i>Rhachithecium</i>	1

Families	Genera	Species	Largest genus	Species
Rhizogoniaceae	1	2	<i>Pyrrhobryum</i>	2
Rigodiaceae	1	1	<i>Rigodium</i>	1
Seligeriaceae	1	1	<i>Blindia</i>	1
Sematophyllaceae	5	12	<i>Sematophyllum</i>	7
Sphagnaceae	1	7	<i>Sphagnum</i>	7
Splachnaceae	1	2	<i>Tayloria</i>	2
Stereophyllaceae	2	3	<i>Stereophyllum</i>	2
Thamnobryaceae	3	5	<i>Porotrichum</i>	3
Thuidiaceae	5	7	<i>Cyrtohypnum</i>	3
Trachypodaceae	2	2	<i>Trachypodopsis</i>	1
			<i>Trachypus</i>	1
Wardiaceae	1	1	<i>Wardia</i>	1
Total	204	503		

Table 4. Numbers and percentages of southern African mosses in the African regions of Hollis & Brummit (1992).

Geographic region	No. of taxa (% of FSA mosses)
Northern Africa	76 (15%)
Macaronesia	85 (17%)
West Tropical Africa	63 (13%)
Northeast Tropical Africa	84 (17%)
West-Central Tropical Africa	165 (33%)
East Tropical Africa	252 (50%)
Western Indian Ocean	166 (33%)
South Tropical Africa	261 (52%)
Middle Atlantic Ocean	11 (2%)

Table 5. The 10 (11) largest moss families in southern Africa according to the number of genera in each. The number of species in each family as well as the largest genus, with it's number of species, are also listed.

Family	No. of genera	No. of species	Largest genus	No. of species
Pottiaceae	30	69	<i>Syntrichia</i>	8
Dicranaceae	15	49	<i>Campylopus</i>	19
Bryaceae	9	40	<i>Bryum</i>	19
Ditrichaceae	9	15	<i>Ditrichum</i>	4
			<i>Pleuridium</i>	4
Orthotrichaceae	9	30	<i>Orthotrichum</i>	8
Hookeriaceae	8	9	<i>Distichophyllum</i>	2
Amblystegiaceae	7	9	<i>Drepanocladus</i>	2
			<i>Platyhypnidium</i>	2
Bartramiaceae	7	22	<i>Philonotis</i>	8
Leskeaceae	7	13	<i>Lindbergia</i>	4
Funariaceae	6	16	<i>Funaria</i>	10
Hypnaceae	6	18	<i>Isopterygium</i>	6

Table 6. The 10 largest moss families in southern Africa according to the number of species in each.

Family	No. of species	No. of genera	Largest genus	No. of species
Pottiaceae	69	30	<i>Syntrichia</i>	8
Dicranaceae	49	15	<i>Campylopus</i>	19
Bryaceae	40	9	<i>Bryum</i>	19
Orthotrichaceae	30	9	<i>Orthotrichum</i>	8
Fissidentaceae	29	1	<i>Fissidens</i>	29
Bartramiaceae	22	7	<i>Philonotis</i>	8
Hypnaceae	18	6	<i>Isopterygium</i>	6
Brachytheciaceae	17	5	<i>Brachythecium</i>	8
Funariaceae	16	6	<i>Funaria</i>	10
Ditrichaceae	15	9	<i>Ditrichum</i>	4
			<i>Pleuridium</i>	4

Table 7. The 10 largest moss genera in southern Africa.

Genera	No. of species
Fissidens	29
Bryum	19
Campylopus	19
Archidium	11
Fabronia	10
Funaria	10
Brachythecium	8
Orthotrichum	8
Philonotis	8
Ptychomitrium	8

Table 8. The 10 most frequently collected mosses in southern Africa according to the number of specimens in PRECIS.

Taxon	No. of specimens
Trichostomum brachydontium	829
Bryum argenteum	586
Fissidens glaucescens	531
Pseudocrossidium crinitum	514
Macrocoma tenue <i>subsp.</i> tenue	423
Papillaria africana	370
Campylopus pilifer	345
Tortula atrovirens	328
Polytrichum commune	324
Hypnum cupressiforme	318

Table 9. The 10 moss species in PRECIS which occur in the greatest number of grid squares.

Taxon	No. of grid squares
Trichostomum brachydontium	331
Bryum argenteum	262
Pseudocrossidium crinitum	211
Fissidens glaucescens	163
Tortula atrovirens	136
Bryum pycnophyllum	131
Campylopus pilifer	129
Grimmia pulvinata	127
Funaria hygrometrica	118
Fissidens rufescens	117

Table 10. List of aquatic/semi-aquatic mosses in Glen *et al.* (1999) - see key on next page.

TAXON	COMMON NAME	HABITAT	GROWTH FORM	STATUS	ORIGIN
SPHAGNACEAE					
<i>Sphagnum capense</i>	Peat-moss	5,7	D	nt	In
<i>Sphagnum fimbriatum</i>	Peat-moss	5	D	nt	Al?
<i>Sphagnum perichaetiale</i>	Peat-moss	5,7	D	nt	In
<i>Sphagnum pycnocladulum</i>	Peat-moss	5,7	D	nt	In
<i>Sphagnum strictum</i> subsp. <i>pappeanum</i>	Peat-moss	5,7,8	D	nt	In
<i>Sphagnum truncatum</i>	Peat-moss	5,7,8	D	nt	In
<i>Sphagnum violascens</i>	Peat-moss	5	D	nt	In
FISSIDENTACEAE					
<i>Fissidens fasciculatus</i>	Fork-moss	4,5,7	D	nt	En
<i>Fissidens palmifolius</i>	Fork-moss	4,5	C	nt	In
<i>Fissidens glaucescens</i>	Fork-moss	4,5,7	D	nt	In
<i>Fissidens porrectus</i>	Fork-moss	5	D	nt	In
POTTIACEAE					
<i>Barbula ehrenbergii</i>	Little beard-moss	5,7	D	nt	In
<i>Timmiella pelindaba</i>	Timmiella	4,7	D	nt	En
BRYACEAE					
<i>Bryum apiculatum</i>	Pointed thread-moss	4,5,7	D	nt	In
<i>Bryum cellulare</i>	Thread-moss	5,7	D	nt	In
FONTINALACEAE					
<i>Fontinalis antipyretica</i> var. <i>gracilis</i>	Greater water-moss	5	C	nt	Al

TAXON	COMMON NAME	HABITAT	GROWTH FORM	STATUS	ORIGIN
<i>Fontinalis squamosa</i>	Alpine water-moss	5	C	nt	Al
WARDIACEAE					
<i>Wardia hygrometrica</i>	Ward's moss	4,5	C,D	nt	En
LESKEACEAE					
<i>Pseudoleskea chilensis</i>	Pseudoleskea	7	D	nt	In
AMBLYSTEGIACEAE					
<i>Campyliadelphus polygamus</i>	Curved moss	8	D	nt	In
<i>Cratoneuron filicinum</i>	Strongly nerved moss	7	D	nt	Cos
<i>Drepanocladus aduncus</i>	Sickle-moss	6,7,8	C,D	nt	Cos
<i>Leptodictyum riparium</i>	Short-beaked water-moss	3,5,7	C,D	nt	Cos
<i>Platyhypnidium aquaticum</i>	Platyhypnidium	4	C	nt	In
<i>Vittia pachyloma</i>	Vitt's moss	4	C,D	nt	In
PLAGIOTHECIACEAE					
<i>Plagiothecium rhynchostegioides</i>	Oblique-capsuled moss	4,7	D	nt	In
HYPNACEAE)					
<i>Isopterygium strangulatum</i>	Equal-winged moss	4,5	D	R	En

Key

Habitats:

1. Sea
2. Estuaries, brackish lagoons, saltmarshes, coastal seepage areas

3. Mangroves, coastal swamps
4. Rivers/streams: rapids/waterfalls, wet vertical rockfaces
5. Rivers/streams: slow-flowing, pools
6. Open waters: lakes, pans, dams, permanent pools
7. Seepage areas
8. Swamps, marshes, vleis (standing water)
9. Seasonal pans and streams (arid areas)
10. High altitude bogs, mountain rock pools

Growth form:

- A Floating unattached plants (Riemer, 1993)
- B Floating attached plants (Riemer, 1993)
- C Submerged plants (Riemer, 1993)
- D Emergent plants (Riemer, 1993)
- E Sudd plants
- H Haptophyte: a specialised group of plants that are attached to but not penetrate the substrate, usually rocks in fast flowing rivers or the face of a waterfall. (Cook,1990).

Status:

- E Endangered (according to Hilton-Taylor 1996)
- V Vulnerable (according to Hilton-Taylor 1996)
- R Rare (according to Hilton-Taylor 1996)
- nt Not threatened or natural
- ? Insufficient information available
- I Invader: introduced plant which is a problem plant, destroying the natural aquatic life
- O Opportunistic, occurring naturally but in biologically disturbed aquatic environments, tend to become the dominant plant to the detriment of the other aquatic taxa.

Origin:

- Al - Introduced alien; In - Indigenous; En - Endemic;
Cos - Cosmopolitan.

Table 11. Endemism in the moss families of southern Africa.

Families	endemic species	% endemism	endemic genera	% endemism
Amblystegiaceae	0	0	0	0
Andreaeaceae	1	25	0	0
Archidiaceae	6	55	0	0
Aulacomniaceae	0	0	0	0
Bartramiaceae	7	32	1	14
Brachytheciaceae	8	47	0	0
Bryaceae	2	5	0	0
Bryobartramiaceae	0	0	0	0
Calymperaceae	0	0	0	0
Catagoniaceae	1	100	0	0
Cryphaeaceae	0	0	0	0
Dicranaceae	5	10	0	0
Ditrichaceae	1	7	0	0
Encalyptaceae	0	0	0	0
Entodontaceae	1	14	0	0
Ephemeraceae	2	50	0	0
Erpodiaceae	1	20	0	0
Eustichiaceae	0	0	0	0
Fabroniaceae	6	43	0	0
Fissidentaceae	4	14	0	0
Fontinalaceae	0	0	0	0
Funariaceae	7	44	2	33
Gigaspermaceae	1	33	0	0
Grimmiaceae	1	13	0	0
Hedwigiaceae	0	0	0	0
Hookeriaceae	1	11	0	0
Hypnaceae	5	28	0	0
Leptodontaceae	0	0	0	0

Families	endemic species	% endemism	endemic genera	% endemism
Leskeaceae	3	23	0	0
Leucodontaceae	0	0	0	0
Meteoriaceae	0	0	0	0
Mniaceae	0	0	0	0
Neckeraceae	0	0	0	0
Orthotrichaceae	14	47	0	0
Plagiotheciaceae	1	50	0	0
Polytrichaceae	5	39	0	0
Pottiaceae	21	30	1	3
Prionodontaceae	0	0	0	0
Pterobryaceae	1	17	0	0
Ptychomitriaceae	5	50	1	50
Racopilaceae	0	0	0	0
Rhabdoweisiaceae	0	0	0	0
Rhachithecaceae	0	0	0	0
Rhizogoniaceae	1	50	0	0
Rigodiaceae	0	0	0	0
Seligeriaceae	0	0	0	0
Sematophyllaceae	2	17	0	0
Sphagnaceae	0	0	0	0
Splachnaceae	0	0	0	0
Stereophyllaceae	0	0	0	0
Thamnobryaceae	0	0	0	0
Thuidiaceae	0	0	0	0
Trachypodaceae	0	0	0	0
Wardiaceae	1	100	1	100
Totals	114		6	

Table 12. Species/infraspecific endemism in the moss genera of southern Africa.

Genera	No. of species	Endemics	Percentage endemism
Abietinella	1	0	0
Acaulon	2	1	50
Aerobryopsis	1	0	0
Aloina	1	0	0
Amphidium	2	0	0
Anacolia	1	0	0
Andreaea	4	1	25
Anoetangium	1	1	100
Anomobryum	2	1	50
Aongstroemia	2	0	0
Aongstroemiopsis	1	0	0
Archidium	11	6	55
Astomiopsis	1	0	0
Atrichum	1	0	0
Aulacopilum	1	0	0
Barbula	5	1	20
Bartramia	5	2	40
Blindia	1	0	0
Brachymenium	6	0	0
Brachythecium	8	4	50
Braunia	1	0	0
Breutelia	5	3	60
Bruchia	3	0	0
Bryobartramia	1	0	0
Bryoerythrophyllum	2	0	0
Bryum	19	0	0
Callicostella	1	0	0
Calymperes	3	0	0
Calyptrochaeta	1	0	0

Genera	No. of species	Endemics	Percentage endemism
Campyliadelphus	1	0	0
Campylopus	19	0	0
Cardotiella	1	1	100
Catagonium	1	1	100
Ceratodon	1	0	0
Chamaebryum	1	1	100
Cheilothela	1	0	0
Chenia	1	0	0
Chorisodontium	1	0	0
Chrysohypnum	1	0	0
Cladophascum	1	0	0
Conostomum	1	0	0
Cratoneuron	1	0	0
Crossidium	1	1	100
Cryphaea	1	0	0
Cyclodictyon	1	0	0
Cygnicollum	1	1	100
Cyrtohypnum	3	0	0
Dicranella	3	1	33
Dicranoloma	2	1	50
Didymodon	6	2	33
Dimerodontium	1	1	100
Distichium	1	0	0
Distichophyllum	2	1	50
Ditrichum	4	0	0
Drepanocladus	2	0	0
Eccremidium	1	0	0
Ectropothecium	3	0	0
Encalypta	2	0	0
Entodon	4	1	25
Entodontopsis	1	0	0

Genera	No. of species	Endemics	Percentage endemism
Ephemerum	4	2	50
Erpodium	4	1	25
Erythrodonium	1	0	0
Eustichia	1	0	0
Fabronia	10	4	40
Fissidens	29	4	14
Floribundaria	1	0	0
Fontinalis	2	0	0
Forsstroemia	1	0	0
Funaria	10	3	30
Gigaspermum	1	0	0
Goniomitrium	1	1	100
Grimmia	3	0	0
Gymnostomum	3	2	67
Haplocladium	1	0	0
Haplohymenium	1	0	0
Hedwigia	1	0	0
Hedwigidium	1	0	0
Helicodontium	1	1	100
Henediella	1	0	0
Herpetineuron	1	0	0
Holomitrium	1	0	0
Hookeriopsis	1	0	0
Hymenostylium	1	0	0
Hyophila	2	0	0
Hypnum	2	0	0
Hypodontium	2	0	0
Hypopterygium	1	0	0
Ischyrodon	1	0	0
Isopterygium	6	5	83
Jaegerina	1	0	0

Genera	No. of species	Endemics	Percentage endemism
Lepidopilidium	1	0	0
Leptobryum	1	0	0
Leptodictyum	1	0	0
Leptodon	1	0	0
Leptodontium	3	0	0
Leptoischyrodon	1	0	0
Leptoterigynandrum	1	0	0
Leptotheca	1	0	0
Leskeella	1	1	100
Leucobryum	3	1	33
Leucodon	1	0	0
Leucoloma	4	1	25
Leucoperichaetium	1	1	100
Levierella	1	0	0
Lindbergia	4	1	25
Lopidium	1	0	0
Macrocoma	3	2	67
Macromitrium	5	2	40
Meiothecium	1	1	100
Microbryum	3	3	100
Microcrossidium	1	1	100
Microdus	1	0	0
Micropoma	1	0	0
Mielichhoferia	2	1	50
Mittenothamnium	5	0	0
Neckera	1	0	0
Octoblepharum	1	0	0
Oedipodiella	1	0	0
Oligotrichum	4	4	100
Oreoweisia	1	0	0
Orthodontium	1	0	0

Genera	No. of species	Endemics	Percentage endemism
Orthostichopsis	2	0	0
Orthotrichum	8	4	50
Oxyrrhynchium	2	2	100
Palamocladium	1	0	0
Papillaria	1	0	0
Phascum	1	0	0
Philonotis	8	1	13
Physcomitrellopsis	1	1	100
Physcomitrium	2	1	50
Pilotrichella	1	0	0
Pinnatella	1	0	0
Plagiobryum	1	0	0
Plagiomnium	1	0	0
Plagiopus	1	0	0
Plagiothecium	2	1	50
Platyhypnidium	2	0	0
Plaubelia	1	1	100
Pleuridium	4	1	25
Pogonatum	3	1	33
Pohlia	4	0	0
Polytrichastrum	1	0	0
Polytrichum	4	0	0
Porothamnium	1	0	0
Porotrichum	3	0	0
Pottia	1	1	100
Prionodon	1	0	0
Pseudocrossidium	4	0	0
Pseudoleskea	2	0	0
Pseudoleskeopsis	3	1	33
Pterobryopsis	3	1	33
Pterogonium	1	0	0

Genera	No. of species	Endemics	Percentage endemism
Pterygoneurum	1	0	0
Ptychomitriopsis	2	2	100
Ptychomitrium	8	3	38
Pyrrhobryum	2	1	50
Quathlamba	1	1	100
Racomitrium	3	0	0
Racopilum	1	0	0
Raiiella	1	0	0
Rhabdoweisia	2	0	0
Rhachithecium	1	0	0
Rhacocarpus	1	0	0
Rhacopilopsis	2	0	0
Rhodobryum	4	0	0
Rhynchostegiella	3	1	33
Rhynchostegium	3	1	33
Rigodium	1	0	0
Saelania	1	0	0
Sanionia	1	0	0
Schistidium	1	0	0
Schlotheimia	3	1	33
Sematophyllum	7	1	14
Sphaerothecium	1	0	0
Sphagnum	7	0	0
Squamidium	1	0	0
Stereophyllum	2	0	0
Stoneobryum	1	1	100
Streptocalyptra	1	1	100
Syntrichia	8	1	13
Syrrhopodon	2	0	0
Tayloria	2	0	0
Tetrapterum	1	1	100

Genera	No. of species	Endemics	Percentage endemism
Thuidium	1	0	0
Timmiella	1	0	0
Tortella	3	0	0
Tortula	4	1	25
Trachyphyllum	1	0	0
Trachypodopsis	1	0	0
Trachypus	1	0	0
Trematodon	6	1	17
Trichosteleum	1	0	0
Trichostomum	3	0	0
Triquetrella	1	0	0
Tristichium	1	0	0
Ulota	1	1	100
Vesicularia	1	0	0
Vittia	1	0	0
Wardia	1	1	100
Weisiopsis	1	0	0
Weissia	5	3	60
Wijkia	1	0	0
Zygodon	6	2	33
Totals	503	114	

Table 13. Comparison between moss and vascular plant diversity and endemism in the Flora of Southern Africa area. Moss figures from this study, vascular plant figures from various sources quoted in Cowling & Hilton-Taylor (1997).

Taxonomic level	Mosses	Vascular plants
Families		
Total no.	54	226
endemics/% endemism	1/2%	10/23%
Genera		
Total no.	204	1930
Endemics/% endemism	6/3%	560/29%
Species/infraspecific taxa		
Total no.	503	23352
Endemics/% endemism	114/23%	c. 80%

Table 14. Floristic diversity and endemism in the four bryogeographic Regions of southern Africa. **Diagnostic** = species/infraspecific taxa restricted to this Region in southern Africa but not necessarily endemic, may occur in other parts of the world; **endemic** = species/infraspecific taxa that only occur in this Region and nowhere else in the world. Totals for the FSA area: 503 species, 204 genera and 54 families.

Flora	Zambeziian	Afromontane	Karoo-Namib	Highlands
Families				
No./% of total	31/57%	54/100%	37/69%	29/54%
Diagnostic/%	0	11/20%	0	0
Endemic/%	0	0	0	0
Largest fam. - no. genera /species	Bryaceae 7/21 Pottiaceae 10/17 Dicranaceae 5/15	Pottiaceae 24/61 Dicranaceae 14/48 Bryaceae 9/40	Pottiaceae 19/38 Dicranaceae 10/19 Bryaceae 5/16	Pottiaceae 16/37 Bryaceae 5/21 Dicranaceae 5/11
Genera				
No./% of total	74/36%	197/97%	93/46%	71/35%
Diagnostic/%	0	70/36%	6/7%	0
Endemic/%	0	2/1%	2/2%	0
Largest genera - no. species.	<i>Fissidens</i> -13 <i>Bryum</i> -12 <i>Campylopus</i> - 11	<i>Fissidens</i> -28 <i>Bryum</i> -19 <i>Campylopus</i> - 19 <i>Funaria</i> -10	<i>Fissidens</i> -11 <i>Bryum</i> - 10 <i>Campylopus</i> -7 <i>Funaria</i> -7	<i>Bryum</i> -15 <i>Fissidens</i> -9 <i>Syntrichia</i> -8
Species				
No./% of total	136/27%	481/96%	196/39%	152/30%
Diagnostic/%	3/2%	188/39%	14/7%	3/2%
Endemic/%	1/1%	47/10%	11/6%	2/1%

Table 15. Floristic diversity and endemism in the eight biogeographic Domains of southern Africa. **W Cape** = Western Cape Domain, **Alpine** = Drakensberg Alpine Domain, **Karoo** = Upper Karoo Domain. **Diagnostic** = species/infraspecific taxa restricted to this Domain in southern Africa but not necessarily endemic, may occur in other parts of the world; **endemic** = taxa that only occur in this Domain and nowhere else in the world. % = percentage of the total number of taxa in that particular phytochorion. Totals for the FSA area: 503 species, 204 genera and 54 families.

Flora	Caprivi	Bushveld	Drakensberg	Cape	W Cape	Namaqua	Alpine	Karoo
Families								
No./% of total	12/22%	30/56%	50/93%	44/82%	37/69%	10/19%	27/50%	15/28%
Diagnostic no./%	0	0	8/16%	1/2%	0	0	0	0
Endemic no./%	0	0	0	0	0	0	0	0
Largest family (no. of genera/species)	Dicranaceae 1/3 Pottiaceae 2/3 Bartramiaceae 1/3	Bryaceae 7/20 pottiaceae 10/17 Dicranaceae 5/14	Pottiaceae 21/53 Dicranaceae 13/40 Bryaceae 8/36	Pottiaceae 17/33 Dicranaceae 11/29 Bryaceae 7/23	Pottiaceae 19/37 Dicranaceae 10/19 Bryaceae 5/14	Pottiaceae 5/6 Bryaceae 2/4 Funariaceae 1/3	Pottiaceae 16/36 Bryaceae 5/20 Dicranaceae 5/11	Pottiaceae 11/18 Bryaceae 2/12 Funariaceae 3/8
Genera								
No./% of total	15/7%	73/36%	179/88%	127/62%	93/46%	15/7%	67/33%	32/16%
Diagnostic no./%	0	0	45/25%	6/5%	6/7%	0	0	0
Endemic no./%	0	0	1/1%	0	2/2%	0	0	0

Flora	Caprivi	Bushveld	Drakensberg	Cape	W Cape	Namaqua	Alpine	Karoo
Largest genus	<i>Campylopus</i> -3	<i>Fissidens</i> -12	<i>Fissidens</i> -24	<i>Fissidens</i> -14	<i>Fissidens</i> -10	<i>Bryum</i> -3	<i>Bryum</i> -14	<i>Bryum</i> -11
-no. of species	<i>Philonotis</i> -3 <i>Erpodium</i> -2	<i>Bryum</i> -12 <i>Campylopus</i> -10	<i>Bryum</i> -18 <i>Campylopus</i> -17	<i>Bryum</i> -13 <i>Campylopus</i> -13	<i>Bryum</i> -8 <i>Campylopus</i> -7	<i>Funaria</i> -3 <i>Pseudocrossidium</i> -2	<i>Fissidens</i> -8 <i>Syntrichia</i> -7 <i>Funaria</i> -7	<i>Funaria</i> -6 <i>Fissidens</i> -5
Species								
No./% of total	22/4%	130/26%	409/81%	284/57%	190/38%	20/4%	142/28%	63/13%
Diagnostic no./%	2/9%	1/1%	153/37%	35/12%	14/7%	0	2/1%	0
Endemic no./%	1/5%	0	28/7%	19/7%	11/6%	0	1/1%	0

Table 16. Comparison between the moss flora (this study) and vascular plant flora (Goldblatt 1978 and White 1983, as summarised by Beentje *et al.* 1994) of the Zambezian Region (regional centre of endemism). Where available, the number of endemic taxa and it's percentage of the total number of taxa present in the phytochorion is given.

Flora of the Zambezian Region	Mosses	Vascular plants - (Goldblatt 1978)	Vascular plants - (White 1983)
Number of species	137		c. 8500
% of total flora	27%		c. 36%
Species endemism	1/1%	Few	54%
Endemic genera	None	2	Few
Endemic families	None	None	None

Table 17. Comparison between the moss flora of the Afromontane Region (this study) and the vascular plant floras of the (whole) Afromontane archipelago-like regional centre of endemism (Region) of White (1983), and the Maputaland-Pondoland Region of Van Wyk (1994) as summarised by Beentje *et al.* (1994).

Flora	Afromontane Mosses	Afromontane (White 1993)	Maputaland - Pondoland (Van Wyk 1994)
number of species	481	c. 4000	6000-7000
% of total	96%	c. 10%	25%-29%
% Species endemism	10%	75%	c. 20%
Endemic genera	2	c. 200	c. 58
Endemic families	none	1-2	2

Table 18. Comparison between the moss flora of the Drakensberg Domain and the flora of the Maputaland-Pondoland Region of Van Wyk (1994) as summarised by Beentje *et al.* (1994).

Drakensberg Flora	Mosses of the Drakensberg Domain	Maputaland-Pondoland flora (Van Wyk 1994)
number of species	409	6000–7000
% of total	81%	25%–29%
% Species endemism	7%	c.20%
Endemic families (%)	0	2
Endemic genera (%)	1/1%	c.58

Table 19. Comparison between the moss flora of the Cape Domain and the vascular plant flora of the Cape Region (Bond & Goldblatt 1984).

Flora of the Cape region	Mosses	Vascular plants
number of species	284	8600
% of total	57%	36%
% species endemism	12%	68%
Endemic families	0	6
Endemic genera	0	193/20%

Table 20. Comparison between the moss flora (this study) and vascular plant flora (White 1983, Hilton-Taylor 1987) of the Karoo-Namib Region.

Karoo-Namib Flora	Mosses	Vascular plants
number of species	196	c.7000
% of total	39%	c.29%
% Species endemism	6%	35–50%
Endemic families	0	1
Endemic genera	2/2%	c.160

Table 21. Comparison between the moss flora (this study) and vascular plant flora (Hilton-Taylor 1996) of the Western Cape Domain.

Karoo-Namib Flora	Mosses	Vascular plants
number of species	19	4849
% of total	38%	20%
% Species endemism	6%	40%
Endemic families	0	1
Endemic genera	2/2%	58/8%

Table 22. Comparison between the moss flora of the Highlands Region (this study) and the vascular plant flora of the Kalahari-Highveld transition zone (White 1983).

Highlands Flora	Mosses	Vascular plants
number of species	153	c.3000
% of total	30%	c.13%
% Species endemism	1%	few
Endemic families	0	?
Endemic genera	0	few

Table 23. Comparison between the moss flora (this study) and vascular plant flora (Killick 1994, Beentje *et al.* 1994) of the Drakensberg Alpine Domain (Region).

Flora	Mosses	Vascular plants
number of species	142	>2000
% of total	28%	c.8%
% Species endemism	1%	c.30%
Endemic families	0	?
Endemic genera	0	?

Table 24. Eigenvalues and gradient lengths (in SD units) for the four principal axes of the TWINSpan 3+ and TWINSpan 5+ DCA ordinations. TW = TWINSpan.

Database/DCA axis	Eigenvalues		Gradient lengths	
	TW 3+	TW 5+	TW 3+	TW 5+
axis 1	0.477	0.466	5.19	4.63
axis 2	0.374	0.322	4.84	4.54
axis 3	0.281	0.240	4.28	3.74
axis 4	0.234	0.201	5.01	5.21

Table 25. Abundance of the Eastern Highlands Element in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	1	2
Grassland	43	92
Succulent Karoo	15	32
Forest (sensu lato)	14	30
Nama-Karoo	34	72
Savanna	23	49
Fynbos	22	47

Table 26. Abundance of the **Cape Element** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	38	45
Succulent Karoo	46	55
Forest (sensu lato)	16	19
Nama-Karoo	29	35
Savanna	31	37
Fynbos	70	83

Table 27. Abundance of the **Afromontane Grassland Element** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	1	2
Grassland	59	94
Succulent Karoo	14	22
Forest (sensu lato)	35	56
Nama-Karoo	35	56
Savanna	48	76
Fynbos	40	64

Table 28. Abundance of the **Afromontane Forest Element** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	234	76
Succulent Karoo	2	0.16
Forest (sensu lato)	168	55
Nama-Karoo	35	11
Savanna	180	59
Fynbos	139	45

Table 29. Abundance of the **Mont Aux Sources Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	31	89
Succulent Karoo	11	31
Forest (sensu lato)	5	14
Nama-Karoo	25	71
Savanna	11	31
Fynbos	14	40

Table 30. Abundance of the **Widespread Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	1	8
Grassland	12	100
Succulent Karoo	4	33
Forest (sensu lato)	7	58
Nama-Karoo	9	75
Savanna	12	100
Fynbos	8	67

Table 31. Abundance of the **West Coast Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	24	42
Succulent Karoo	41	72
Forest (sensu lato)	9	16
Nama-Karoo	23	40
Savanna	24	42
Fynbos	43	75

Table 32. Abundance of the **Boland Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	14	52
Succulent Karoo	5	19
Forest (sensu lato)	7	26
Nama-Karoo	6	22
Savanna	7	26
Fynbos	27	100

Table 33. Abundance of the **Disjunct Cape Peninsula Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	9	82
Succulent Karoo	3	27
Forest (sensu lato)	3	27
Nama-Karoo	3	27
Savanna	9	82
Fynbos	9	82

Table 34. Abundance of the **Drakensberg Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	1	2
Grassland	50	96
Succulent Karoo	11	21
Forest (sensu lato)	32	62
Nama-Karoo	32	62
Savanna	39	75
Fynbos	31	60

Table 35. Abundance of the **Widespread Afromontane Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	46	94
Succulent Karoo	1	2
Forest (sensu lato)	37	76
Nama-Karoo	8	16
Savanna	45	92
Fynbos	39	80

Table 36. Abundance of the **Tropical Afromontane Subelement** in the Biomes of southern Africa.

Biome	No. of species	Percentage
Desert	0	0
Grassland	188	73
Succulent Karoo	1	0,4
Forest (sensu lato)	131	51
Nama-Karoo	27	11
Savanna	135	52
Fynbos	100	39

Table 37. Percentages of FSA endemics in the Elements and Subelements of southern African mosses. The numbers represent: % of element/% of FSA endemics.

Elements and Subelements	Endemic Families	Endemic Genera	Endemic Species
Eastern Highlands Element	0	0	21/9
Mont Aux Sources Subelement	0	0	26/8
Widespread Subelement	0	0	8/1
Cape Element	4/2	6/50	36/26
West Coast Subelement	0	8/33	40/35
Boland Subelement	4/2	0	26/6
Afromontane Grassland Element	0	0	16/9
Disjunct Cape Peninsula Subelement	0	0	27/3
Drakensberg Subelement	0	0	14/6
Afromontane Forest Element	0	1/33	20/54
Widespread Afromontane Subelement	0	0	12/5
Tropical Afromontane Subelement	0	1/33	22/49