Higher taxonomic groups – their usefulness for the ecological interpretation of ancient plant remains

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Volume 2
Tables and Figures

Thesis submitted in fulfilment of the Degree of Doctor of Philosophy

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December 2002

Table 2.1 The hierarchy of taxonomic ranks, from Stace (1989). The principle ranks are shown in capitals, the other ranks are generally only used to subdivide very large and complex groups. The example shows the classification of a dog-rose known as *Rosa canina* var. *lutetiana* f. *lasiostylis*

Rank	Ending	Example
KINGDOM		Plantae
Subkingdom	-bionta	Embryobionta
DIVISION (phylum)	-phyta	Tracheophyta
Subdivision	-phytina	Spermatophytina
CLASS	-opsida	Angiospermopsida
Subclass	-idea	Dicotyledonidae
ORDER	-ales	Rosales
Suborder	-ineae	Rosineae
FAMILY	-aceae	Rosaceae
Subfamily	-oideae	Rosoideae
Tribe	-eae	Roseae
Subtribe	-inae	
GENUS		*Rosa*
Subgenus		*Rosa*
Section		*Caninae*
Subsection		*Caninae*
Series		
Subseries		
SPECIES		*canina*
Subspecies		
Variety		lutetiana
Subvariety		
Form		lasiostylis
Subform		

Table 4.1 Collected species from the 10 target families and 5 additional families represented in the ARCHFIBS database, arranged according to the 'basic taxonomy'. Shaded taxa were targeted for collection. For each family, the figure in round brackets indicates the number of records in the ABCD of material that could be identified to that family, but not to genus or species. For each genus, the first figure in round brackets is the total number of records in the ABCD, and the second is the number of records of material that could be idenitified to that genus, but not to species. Species in bold are recorded ten or more times in the ABCD. Nomenclature follows Flora Europaea except where species are marked [FP] (follows Flora Palaestina) or [BI] (follows New Flora of the British Isles). For species marked [BI], synonyms from Flora Europaea are given in footnote.

Family	Genus	Species
Apiaceae (114) [BI [1]]	*Aethusa* (84, 0)	***Aethusa cyapium***
	Ainsworthia (0, 0)	*Ainsworthia trachycarpa*
	Ammi (0, 0)	*Ammi majus*
	Apium (95, 12)	*Apium nodiflorum*
	Astoma (0, 0)	*Astoma sesilifolium* [FP]
	Astrantia (0, 0)	*Astrantia major*
	Bifora (0, 0)	*Bifora testiculata*
	Bupleurum (17, 1)	*Bupleurum lancifolium*
		B. nodiflorum [FP]
		B. rotundifolium
	Caucalis (4, 0)	*Caucalis platycarpos*
	Daucus (71, 0)	***Daucus carota***
	Eryngium (0, 0)	*Eryngium creticum*
	Falcaria (0, 0)	*Falcaria vulgaris*
	Orlaya (0, 0)	*Orlaya kochii*
	Ridolfia (0, 0)	*Ridolfia segetum*
	Sanicula (1, 0)	*Sanicula europaea*
	Scandix (14, 0)	***Scandix pecten-veneris***
	Smyrnium (3, 0)	*Smyrnium perfoliatum*
	Tordylium (0, 0)	*Tordylium aegipticum* [FP]
		T. apulum
		T. maximum
	Torilis (78, 18)	*Torilis arvensis*
		T. leptophylla
		T. nodosa
	Turgenia (0, 0)	*T. latifolia*
Asteraceae (110) [BI [2]]	*Achillea* (32, 7)	*Achillea santolina* [FP]
	Anacyclus (0, 0)	*Anacyclus arvensis*
	Anthemis (163, 8)	*Anthemis arvensis*
		A. cotula
		A. hebronica [FP]
		A. palestina [FP]
		A. pseudocotula
		A. segetalis
	Arnoseris (1, 0)	*Arnoseris minima*
	Artemesia (20, 11)	*Artemisia herba-alba*
	Bidens (38, 14)	*Bidens aurea*
	Calendula (8, 3)	*Calendula arvensis*
	Carduus (34, 20)	*Carduus pycnocephalus*
	Carthamus tenuis (0, 0)	*Carthamus tenuis* [FP]
	Centaurea (185, 61)	*Centaurea aspera*
		C. calcitrapa
		C. cyanus
		C. hyalolepis
		C. iberica
		C. linifolia
		C. melitensis
		C. montana
		C. nigra
		C. scabiosa
		C. verutum [FP]
	Chondrilla (0, 0)	*Chondrilla juncea*
	Chrysanthemum (77, 1)	*Chrysanthemum coronarium*
		C. segetum
	Cichorium (0, 0)	*Cichorium intybus*
		C. pumilum [FP]
	Cirsium (109, 50)	*Cirsium acaule*
		C. arvense
		C. helenioides
		C. palustre
	Crepis (15, 11)	*Crepis aspera*
		C. capillaris
	Erigeron (0, 0)	*Erigeron acer*
	Filago (0, 0)	*Filago pyramidata*
		F. vulgaris
	Galinsoga (0, 0)	*Galinsoga ciliata*
		G. parviflora
	Hypochaeris (39, 21)	*Hypochaeris ciliata*
	Lactuca (2, 1)	*Lactuca orientalis* [FP]
		L. saligna
		L. serriola
		L. communis
	Mantisalca (0, 0)	*Mantisalca salmantica*

Table 4.1 cont

Family	Genus	Species
	Matricaria (42, 3)	*Matricaria recutita* [BI [3]]
	Notobasis (0, 0)	*Notobasis syriaca*
	Picnomon (0, 0)	*Picnomon acarna*
	Picris (67, 7)	***Picris echioides***
	Rhagadiolus (0, 0)	*Rhagadiolus stellatus*
	Scolymus (0, 0)	*Scolymus maculatus*
	Senecio (53, 32)	*Senecio erucifolius* *S. jacobaea* *S. squalidus* *S. viscosus* *S. vulgaris*
	Silybum (0, 0)	*Silybum marianum*
	Sonchus (225, 16)	***Sonchus arvensis*** ***S. asper*** ***S. oleraceus***
	Taraxacum (39, 22)	***Taraxacum officionale***
	Tragopogon (2, 0)	*Tragopogon hybridus*
	Tripleurospermum (31, 0)	***Tripleurospermum inodorum*** [BI [4]]
	Urospermum	*Urospermum picroides*
	Xanthium (1, 0)	*Xanthium spinosum* *X. strumarium*
Boraginaceae (4)	*Anchusa* (1, 0)	*Anchusa arvensis* *A. azurea* *A. strigosum* [FP]
	Lithospermum (54, 2)	***Lithospermum arvense*** [BI [5]]
	Myosotis (4, 30)	*Myosotis arvensis* *M. incrassata* *M. ramosissima*
Brassicaceae (81) [BI [6]]	*Arabidopsis* (0, 0)	*Arabidopsis thaliana*
	Brassica (178, 108)	***Brassica nigra*** ***B. rapa***
	Camelina (5, 0)	*Camelina sativa*
	Capsella (54, 0)	***Capsella bursa-pastoris***
	Cardamine (11, 1)	*Cardamine hirsuta*
	Descurainia (10, 0)	*Descurainia sophia*
	Diplotaxis (0, 0)	*Diplotaxis erucoides*
	Erucaria (0, 0)	*Erucaria hispanica*
	Erucastrum (0, 0)	*Erucastrum nasturtiifloium*
	Erysimum (4, 0)	*Erysimum cheiranthoides*
	Hirschfeldia (0, 0)	*Hirschfeldia incana*
	Lepidium (7, 0)	*Lepidium draba* [BI [7]]
	Malcolmia (0, 0)	*Malcolmia africana*
	Neslia (0, 0)	*Neslia apiculata* [BI [8]] *N. paniculata*
	Raphanus (134, 2)	***R. raphanistrum***
	Rapistrum (0, 0)	*Rapistrum rugosum*
	Sinapis (28, 2)	*Sinapis alba* ***S. arvensis***
	Sisymbium (17, 2)	***Sisymbrium officinale***
	Thlaspi (66, 0)	***Thlaspi arvense***
Caryophyllaceae (89)	*Agrostemma* (186, 0)	***Agrostemma githago***
	Arenaria (43, 19)	***Arenaria serpyllifolia***
	Cerastium (126, 67)	*Cerastium arvense* *C. dichotomum* *C. diffusum* ***C. fontanum*** *C. glomeratum* *C. semidecandrum*
	Herniaria (0, 0)	*Herniaria hirsuta*
	Minuartia (1, 0)	*Minuartia hybrida*
	Moehringia (16, 0)	***Moehringia trinerva***
	Petrorhagia (0, 0)	*Petrorhagia prolifera*
	Scleranthus (19, 0)	***Scleranthus annuus***
	Silene (165, 47)	*Silene behen* *S. conoidea* *S. crassipes* *S. cretica* *S. damascena* [FP] *S. dioica* *S. gallica* ***S. latifolia*** *S. noctiflora* ***S. vulgaris***
	Spergula (102, 2)	***Spergula arvensis***
	Stellaria (449, 45)	***Stellaria graminea*** ***S. holostea*** ***S. media*** *S. neglecta* *S. pallida*
	Vaccaria (0, 0)	*Vaccaria hispanica*

Table 4.1 cont

Family	Genus	Species
Chenopodiaceae (119)	*Atriplex* (308, 166)	*Atriplex halimus*
		A. hortensis
		A. littoralis
		A. patula
		A. hastata
		A. rosea
	Bassia (0, 0)	*Bassia scoparia*
	Beta (12, 0)	***Beta vulgaris***
	Chenopodium (617, 116)	***Chenopodium album***
		C. bonus-henricus
		C. ficifolium
		C. glaucum
		C. hybridum
		C. murale
		C. opulifolium
		C. polyspermum
		C. rubrum
		C. vulvaria
	Salsola (0, 0)	*Salsola kali*
Fabaceae (143) [BI [9]]	*Coronilla* (0, 0)	*Coronilla scorpioides*
	Dorycnium (0, 0)	*Dorycnium pentaphyllum*
	Hymenocarpus (0, 0)	*Hymenocarpus circinnatus*
	Lathyrus (98, 4) (Lathyrus/Vicia sp. 69)	*Lathyrus aphaca*
		L. cicera
		L. gorgoni
		L. hierosolymitanus
		L. inconspicuus
		L. montanus
		L. pratensis
		L. sylvestris
		L. tuberosus
	Lotus (5, 0)	*Lotus corniculatus*
		L. tenuis
		L. uliginosus
	Medicago (63, 8)	*Medicago arabica*
		M. lupulina
		M. polymorpha
		M. rotata [FP]
		M. rugosa
		M. sativa
		M. scutellata
		M. turbinata
	Ononis (2, 0)	*Ononis natrix*
		O. spinosa
	Scorpiurus (0, 0)	*Scorpiurus muricatus*
	Tetragonolobus (0, 0)	*Tetragonolobus palaestinus* [FP]
	Trifolium (154, 78)	*Trifolium arvense*
		T. campestre
		T. dasyurum
		T. dubium
		T. fragiferum
		T. glomeratum
		T. hybridum
		T. medium
		T. montanum
		T. pratense
		T. repens
		T. resupinatum
		T. striatum
		T. tomentosum
	Trigonella (0, 0)	*Trigonella caelsyriaca* [FP]
	Vicia (244, 59)	*Vicia cracca*
		V. ervilia
		V. hirsuta
		V. lathyroides
		V. lutea
		V. monantha
		V. narbonensis
		V. pannonica
		V. tenuissima
		V. peregrina
		V. sativa
		V. tenuifolia
		V. tetrasperma
Lamiaceae (90) [BI [10]]	*Galeopsis* (155, 29)	*Galeopsis segetum*
		G. speciosa
		G. tetrahit
	Lamium (94, 39)	*Lamium amplexicaule*
		L. hybridum
		L. purpureum
	Mentha (94, 39)	*Mentha longifolia*
	Nepeta (8, 0)	*Nepeta cataria*
	Origanum (1, 0)	*Origanum vulgare*

Table 4.1 cont.

Family	Genus	Species
	Prunella (159, 0)	***Prunella vulgaris***
	Salvia (1, 0)	*Salvia syriaca* [FP]
	Stachys (73, 6)	*Stachys arabica* [FP]
		S. arvensis
		S. sylvatica
Papaveraceae (0)	*Glaucium* (1, 0)	*Glaucium corniculatum*
	Hypecoum (0, 0)	*Hypecoum procombens*
	Papaver (232, 40)	***Papaver argemone***
		P. dubium
		P. hybridum
		P. rhoeas
	Roemeria hybrida (0, 0)	*R. hybrida*
Poaceae (429) [BI [11]]	*Agrosits* (35, 20)	*Agrostis gigantea*
		A. stolonifera
	Alopecurus (20, 9)	*Alopecorus myosuroides*
	Anisantha (number of records included in the figures for Bromus)	*Anisantha madritensis* [BI [12]]
		A. sterilis [BI [13]]
		A. tectorum [BI [14]]
	Anthoxanthum (2, 0)	*Anthoxanthum aristatum*
	Apera (0, 0)	*Apera spica-venti*
	Arrhenatherum (16, 0)	***Arrenatherum elatius***
	Avena (519, 330)	*Avena barbata*
		A. fatua
		A. sterilis
	Bromopsis (number of records included in the figures for *Bromus*)	*Bromopis erecta* [BI [15]]
		B. ramosa [BI [16]]
	Bromus (inc. *Anisantha*, *Bromposis* and *Ceratochloa*: 225, 91)	*Bromus arvensis*
		B. commutatus
		B. hordeaceus
		B. lanceolatus
		B. secalinus
	Catapodium (0, 0)	*Catapodium rigidum* [BI [17]]
	Cynodon (0, 0)	*Cynodon dactylon*
	Cynosurus (3, 0)	*Cynosurus echinatus*
	Dactylis (3, 0)	*Dactylis glomerata*
	Digitaria (0, 0)	*Digitaria ischaemum*
	Echinochloa (0, 0)	*Echinochloa colonum*
		E. crus-galli
	Elymus (1, 0)	*Elymus caninus*
	Elytrigia (3, 0)	*Elytrigia repens* [BI [18]]
	Festuca (32, 10)	*Festuca arundinacea*
		F. gigantea
		F. ovina
		F. pratensis
		F. rubra
	Holcus (6, 0)	*Holcus lanatus*
		H. mollis
	Hordeum (643, 281)	*Hordeum bulbosum*
		H. murinum
	Lolium (33, 4)	*Lolium multiflorum*
		L. perenne
		L. rigidum
		L. subulatum
		L. temulentum
	Lophochloa (0, 0)	*Lophochloa berythea*
	Phalaris (2, 0)	*Phalaris aquatica*
		P. brachystachys
		P. canariensis
		P. minor
		P. paradoxa
	Phleum (13, 4)	*Phleum bertolonii* [BI [19]]
		P. pratense [BI [20]]
	Poa (82, 21)	*Poa angustifolia*
		P. annua
		P. bulbosa
		P. compressa
		P. subcaerulea
		P. pratensis
		P. trivialis
	Setaria (1, 0)	*Setaria pumila*
		S. verticillata
		S. veridis
Polygonaceae (45)	*Fallopia* (241, 0)	***Fallopia convolvulus***
	Persicaria (number of records included in the figures for Polygonum)	*Persicaria amphibia* [BI [21]]
		P. bistorta [BI [22]]
		P. hydropiper [BI [23]]
		P. lapathifolia [BI [24]]
		P. maculosa [BI [25]]
	Polygonum (797, 100)	*P. arenastrum*
		P. aviculare
		P. bellardii

Table 4.1 cont.

Family	Genus	Species
		P. patulum
		P. rurivagum
	Rumex (783, 360)	***Rumex acetosa***
		R. acetosella
		R. conglomeratus
		R. crispus
		R. hydrolapathum
		R. obtusifolius
		R. pseudoalpinus
		R. pulcher
		R. sanguineus
		R. thyrsiflorus
Ranunculaceae (13)	*Adonis* (1, 0)	*Adonis aestivalis*
		A. annua
	Consolida (0, 0)	*Consolida regalis*
	Myosurus (0, 0)	*Myosurus minimus*
	Ranunculus (732, 69)	***Ranunculus acris***
		R. arvensis
		R. auricomus
		R. bulbosus
		R. chius
		R. ficaria
		R. flammula
		R. muricatus
		R. parviflorus
		R. repens
		R. sardous
	Thalictrum (37, 3)	*Thalictrum aquilegiifolium*
		T. flavum
		T. minus
Rosaceae (45)	*Aphanes* (83, 2)	*Aphanes arvensis*
		A. microcarpa
	Potentilla (339, 90)	***Potentilla anserina***
		P. argentea
		P. crantzii
		P. erecta
		P. tabernaemontani
		P. palustris
		P. reptans
		P. sterilis
	Prunus (543, 118)	***Prunus avium***
		P. laurocerasus
		P. padus
		P. persica
		P. spinosa
	Sanguisorba (12, 1)	*Sanguisorba minor*
	Rubus (390, 67)	*Rubus caesius*
		R. fruticosus
		R. idaeus
		R. saxatilis
Rubiaceae (8)	*Asperula* (0, 0)	*Asperula arvensis*
		A. cynanchica
	Cruciata (3, 0)	*Cruciata laevipes*
	Galium (246, 86)	***Galium aparine***
		G. mollugo
		G. palustre
		G. parisiense
		G. saxatile
		G. spurium
		G. sterneri
		G. tricornutum
		G. uliginosum
		G. verrucosum
		G. verum
	Rubia (6, 1)	*Rubia peregrina*
		R. tinctorum
	Sherardia (16, 0)	***Sherardia arvensis***
	Theligonum (0, 0)	*Theligonum cynocrambe*
Scrophulariaceae (2)	*Chaenorhinum* (2, 0)	*Chaenorhinum minus*
	Kickxia (2, 0)	*Kickxia elatine*
		K. spuria
	Linaria (8, 0)	*Linaria chalepensis* [FP]
	Misopates (0, 0)	*Misopates orontium*
	Odontites (14, 0)	***Odontites verna***
	Scrophularia (17, 7)	*Scrophularia auriculata*
		S. canina
		S. nodosa
		S. peregrina
	Verbascum (3 , 1)	*Verbascum nigrum*
		Verbascum pulverulentum
		Verbascum sinuatum
		Verbascum thapsus
		Verbascum virgatum

Table 4.1 cont.

Family	Genus	Species
Scrophulariaceae cont.	*Veronica* (54, 13)	*Veronica agrestis*
		V. arvensis
		V. beccabunga
		V. chamaedrys
		V. cymbalaria
		V. filiformis
		V. glauca
		V. hederifolia
		V. montana
		V. persica
		V. polita
		V. serpyllifolia
		V. triphyllos
Total: 15 families	172 genera	413 species

Synonyms from *Flora Europaea:* [1] Umbelliferae, [2] Compositae, [3] Chamomila recutita, [4] Matricaria perforata, [5] Buglossoides arvensis, [6] Cruciferae, [7] Cardaria draba, [8] Neslia paniculata thracica, [9] Leguminosae, [10] Labiatae, [11] Gramineae, [12] Bromus madritensis, [13] Bromus sterilis, [14] Bromus tectorum, [15] Bromus erectus, [16] Bromus ramosus, [17] Desmazaria rigida, [18] Elymus repens, [19] phleum pratense bertolonii, [20] Phleum pratense pratense, [21] Polygonum amphibium, [22] Polygonum bistorta, [23] Polygonum hydropiper, [24] Polygonum lapathifolium, [25] Polygonum persicaria

Table 4.2 Classes of flowering start for plants collected from different geographical regions, based on month of flowering start (1 = January, 2 = February, etc).

	Flowering start class		
Region where plant was collected	Early	Intermediate	Late
Temperate Europe	1-3	4-6	7-12
Mediterranean	1-2	3-5	6-12
Middle East	1-2	3-4	5-12

Table 4.3 Classes of flowering length for plants collected from different geographical regions. Numbers indicate how many months the species are in flower.

	Flowering length class		
Region where plant was collected	Short	Medium	Long
Temperate Europe	1-3	4-5	6-12
Mediterranean	1-2	3-5	6-12
Middle East	1-2	3-5	6-12

Table 4.4 Classes of flowering period for all plants, based on a combination of flowering start and flowering length classes

Flowering period class	Flowering start	Flowering length
Short-flowering	Early	Short
	Intermediate	Short
Late-flowering	Late	Short
	Late	Medium
Long-flowering	Early	Long
	Intermediate	Long
	Late	Long
Medium-flowering	Early	Medium
	Intermediate	Medium

Table 5.1 ARCHFIBS species arranged according to the 'revised taxonomy'. Shaded taxa are classified differently in the basic taxonomy (see Table 4.1). Nomenclature as for Table 4.1.

Family	Genus	Species
Apiaceae	Aethusa	Aethusa cynapium
	Ainsworthia	Ainsworthia trachycarpa
	Ammi	Ammi majus
	Apium	Apium nodiflorum
	Astoma	Astoma sesilifolium
	Astrantia	Astrantia major
	Bifora	Bifora testiculata
	Bupleurum	Bupleurum lancifolium
		B. nodiflorum
		B. rotundifolium
	Caucalis	Caucalis platycarpos
	Daucus	Daucus carota
	Eryngium	Eryngium creticum
	Falcaria	Falcaria vulgaris
	Orlaya	Orlaya kochii
	Ridolfia	Ridolfia segetum
	Sanicula	Sanicula europaea
	Scandix	Scandix pecten-veneris
	Smyrnium	Smyrnium perfoliatum
	Tordylium	Tordylium aegypticum
		T. apulum
		T. maximum
	Torilis	Torilis arvensis
		T. leptophylla
		T. nodosa
	Turgenia	T. latifolia
Asteraceae	Achillea	Achillea santolina
	Anacyclus	Anacyclus clavatus
	Anthemis	Anthemis arvensis
		A. cotula
		A. hebronica
		A. palestina
		A. pseudocotula
		A. segetalis
	Arnoseris	Arnoseris minima
	Artemisia	Artemisia herba-alba
	Bidens	Bidens aurea
	Calendula	Calendula arvensis
	Carduus	Carduus pycnocephalus
	Centaurea group	Carthamus tenuis
		Centaurea aspera
		C. calcitrapa
		C. cyanus
		C. hyalolepis
		C. iberica
		C. linifolia
		C. melitensis
		C. montana
		C. nigra
		C. scabiosa
		C. verutum
	Chondrilla	Chondrilla juncea
	Chrysanthemum	Chrysanthemum coronarium
		C. segetum
	Cichorium	Cichorium intybus
		C. pumilum
	Cirsium	Cirsium acaule
		C. arvense
		C. helenioides
		C. palustre
	Crepis	Crepis aspera
		C. capillaris
	Erigeron	Erigeron acer
	Filago	Filago pyramidata
		F. vulgaris
	Galinsoga	Galinsoga ciliata
		G. parviflora
	Hypochaeris	Hypochaeris cretensis

Table 5.1 cont.

Family	Genus	Species
	Lactuca	Lactuca orientalis
		L. saligna
		L. serriola
		L. communis
	Mantisalca	Mantisalca salmantica
	Matricaria	Matricaria recutita
	Notobasis	Notobasis syriaca
	Picnomon	Picnomon acarna
	Picris	Picris echioides
	Rhagadiolus	Rhagadiolus stellatus
	Scolymus	Scolymus maculatus
	Senecio	Senecio erucifolius
		S. jacobaea
		S. squalidus
		S. viscosus
		S. vulgaris
	Silybum	Silybum marianum
	Sonchus	Sonchus arvensis
		S. asper
		S. oleraceus
	Taraxacum	Taraxacum officinale
	Tragopogon	Tragopogon hybridus
	Tripleurospermum	Tripleurospermum inodorum
	Urospermum	Urospermum picroides
	Xanthium	Xanthium spinosum
		X. strumarium
Boraginaceae	Anchusa	Anchusa arvensis
		A. azurea
		A. strigosa
	Lithospermum	Lithospermum arvense
	Myosotis	Myosotis arvensis
		M. incrassata
		M. ramosissima
Brassicaceae	Arabidopsis	Arabidopsis thaliana
	Brassica group	Brassica nigra
		B. rapa
		Diplotaxis erucoides
		Erucastrum nasturtiifolium
		Raphanus raphanistrum
		Sinapis alba
		S. arvensis
	Capsella	Capsella bursa-pastoris
	Cardamine	Cardamine hirsuta
	Descurainia	Descurainia sophia
	Erucaria	Erucaria hispanica
	Erysimum	Erysimum cheiranthoides
	Hirschfeldia	Hirschfeldia incana
	Lepidium	Lepidium draba
	Malcomia	Malcolmia africana
	Neslia group	Camelina sativa
		Neslia apiculata
		N. paniculata
	Rapistrum	Rapistrum rugosum
	Sisymbrium	Sisymbrium officinale
	Thlaspi	Thlaspi arvense
Caryophyllaceae	Agrostemma	Agrostemma githago
	Arenaria	Arenaria serpyllifolia
	Cerastium	Cerastium arvense
		C. dichotomum
		C. diffusum
		C. fontanum
		C. glomeratum
		C. semidecandrum
	Herniaria	Herniaria hirsuta
	Minuartia	Minuartia hybrida
	Moehringia	Moehringia trinervia
	Petrorhagia	Petrorhagia prolifera
	Scleranthus	Scleranthus annuus
	Silene	Silene behen
		S. conoidea

Table 5.1 cont.

Family	Genus	Species
		S. crassipes
		S. cretica
		S. damascena
		S. dioica
		S. gallica
		S. latifolia
		S. noctiflora
		S. vulgaris
	Spergula	Spergula arvensis
	Stellaria	Stellaria graminea
		S. holostea
		S. media
		S. neglecta
		S. pallida
	Vaccaria	Vaccaria hispanica
Chenopodiaceae group	Amaranthus	Amaranthus retroflexus
1 species (*Amaranthus retroflexus*)	Atriplex	Atriplex halimus
more than in basic taxonomy		A. hastata
		A. hortensis
		A. littoralis
		A. patula
		A. rosea
	Bassia	Bassia scoparia
	Beta	Beta vulgaris
	Chenopodium	Chenopodium album
		C. bonus-henricus
		C. ficifolium
		C. glaucum
		C. hybridum
		C. murale
		C. opulifolium
		C. polyspermum
		C. rubrum
		C. vulvaria
	Salsola	Salsola kali
Fabaceae	Coronilla	Coronilla scorpioides
	Dorycnium	Dorycnium pentaphyllum
	Hymenocarpus	Hymenocarpus circinnatus
	Lathyrus	Lathyrus aphaca
		L. cicera
		L. gorgoni
		L. hierosolymitanus
		L. inconspicuus
		L. montanus
		L. pratensis
		L. sylvestris
		L. tuberosus
	Lotus	Lotus corniculatus
		Lotus tenuis
		L. uliginosus
	Medicago	Medicago arabica
		M. lupulina
		M. polymorpha
		M. rotata
		M. rugosa
		M. sativa
		M. scutellata
		M. turbinata
	Ononis	Ononis natrix
		O. spinosa
	Scorpiurus	Scorpiurus muricatus
	Tetragonolobus	Tetragonolobus palaestinus
	Trifolium	Trifolium arvense
		T. campestre
		T. dasyurum
		T. dubium
		T. fragiferum
		T. glomeratum
		T. hybridum
		T. medium

Table 5.1 cont.

Family	Genus	Species
		T. montanum
		T. pratense
		T. repens
		T. resupinatum
		T. striatum
		T. tomentosum
	Trigonella	Trigonella caelesyriaca
	Vicia	Vicia cracca
		V. ervilia
		V. hirsuta
		V. lathyroides
		V. lutea
		V. monantha
		V. narbonensis
		V. pannonica
		V. peregrina
		V. sativa
		V. tenuifolia
		V. tenuissima
		V. tetrasperma
Lamiaceae	Galeopsis	Galeopsis segetum
		G. speciosa
		G. tetrahit
	Lamium	Lamium amplexicaule
		L. hybridum
		L. purpureum
	Mentha	Mentha longifolia
	Nepeta	Nepeta cataria
	Origanum	Origanum vulgare
	Prunella	Prunella vulgaris
	Salvia	Salvia syriaca
	Stachys	Stachys arabica
		S. arvensis
		S. sylvatica
Papaveraceae group 3 species (*Fumaria spp.*) more than in basic taxonomy	Fumaria	Fumaria capreolata
		F. officinalis
		F. parviflora
	Glaucium	Glaucium corniculatum
	Hypecoum	Hypecoum procumbens
	Papaver group	Papaver argemone
		P. dubium
		P. hybridum
		P. rhoeas
		Roemeria hybrida
Poaceae	Agrostis	Agrostis gigantea
		A. stolonifera
	Alopecurus	Alopecurus myosuroides
	Anisantha	Anisantha madritensis
		A. sterilis
		A. tectorum
	Anthoxanthum	Anthoxanthum aristatum
	Apera	Apera spica-venti
	Arrhenatherum	Arrhenatherum elatius
	Avena	Avena barbata
		A. fatua
		A. sterilis
	Bromopsis	Bromopsis erecta
		B. ramosa
	Bromus	Bromus arvensis
		B. commutatus
		B. hordeaceus
		B. lanceolatus
		B. secalinus
	Catapodium	Catapodium rigidum
	Cynodon	Cynodon dactylon
	Cynosurus	Cynosurus echinatus
	Dactylis	Dactylis glomerata
	Digitaria	Digitaria ischaemum
	Echinochloa	Echinochloa colonum
		E. crus-galli

Table 5.1 cont.

Family	Genus	Species
	Elymus	Elymus caninus
	Elytrigia	Elytrigia repens
	Festuca group	Festuca arundinacea
		F. gigantea
		F. ovina
		F. pratensis
		F. rubra
		Lolium multiflorum
		L. perenne
		L. rigidum
		L. subulatum
		L. temulentum
	Holcus	Holcus lanatus
		H. mollis
	Hordeum	Hordeum bulbosum
		H. murinum
	Lophochloa	Lophochloa berythea
	Phalaris	Phalaris aquatica
		P. brachystachys
		P. canariensis
		P. minor
		P. paradoxa
	Phleum	Phleum bertolonii
		P. pratense
	Poa	Poa angustifolia
		P. annua
		P. bulbosa
		P. compressa
		P. pratensis
		P. subcaerulea
		P. trivialis
	Setaria	Setaria pumila
		S. verticillata
		S. viridis
Polygonaceae	Fallopia	Fallopia convolvulus
	Persicaria	Persicaria amphibia
		P. bistorta
		P. hydropiper
		P. lapathifolia
		P. maculosa
	Polygonum	Polygonum arenastrum
		P. aviculare
		P. bellardii
		P. patulum
		P. rurivagum
	Rumex	Rumex acetosa
		R.acetosella
		R. conglomeratus
		R. crispus
		R. hydrolapathum
		R. obtusifolius
		R. pseudoalpinus
		R. pulcher
		R. sanguineus
		R. thyrsiflorus
Ranunculaceae	Adonis	Adonis aestivalis
		A. annua
	Consolida	Consolida regalis
	Myosurus	Myosurus minimus
	Ranunculus	Ranunculus acris
		R. arvensis
		R. auricomus
		R. bulbosus
		R. chius
		R. ficaria
		R. flammula
		R. muricatus
		R. parviflorus
		R. repens
		R. sardous

Table 5.1 cont.

Family	Genus	Species
	Thalictrum	Thalictrum aquilegiifolium
		T. flavum
		T. minus
Rosaceae	Potentilla group	Aphanes arvensis
		A. microcarpa
		Potentilla anserina
		P. argentea
		P. crantzii
		P. erecta
		P. tabernaemontani
		P. palustris
		P. reptans
		P. sterilis
	Prunus	Prunus avium
		P. laurocerasus
		P. padus
		P. persica
		P. spinosa
	Rubus	Rubus caesius
		R. fruticosus
		R. idaeus
		R. saxatilis
	Sanguisorba	Sanguisorba minor
Rubiaceae	Galium group	Asperula arvensis
		A. cynanchica
		Cruciata laevipes
		Galium aparine
		G. mollugo
		G. palustre
		G. parisiense
		G. saxatile
		G. spurium
		G. sterneri
		G. tricornutum
		G. uliginosum
		G. verrucosum
		G. verum
		Sherardia arvensis
	Rubia	Rubia peregrina
		R. tinctorum
	Theligonum	Theligonum cynocrambe
Scrophulariaceae A group 19 species (*Chaenorhinum, Kickxia, Linaria, Misopates, Odontites,* and *Veronica* spp.) less than in revised taxonomy	Scrophularia	Scrophularia auriculata
		S. canina
		S. nodosa
		S. peregrina
	Verbascum	Verbascum nigrum
		V. pulverulentum
		V. sinuatum
		V. thapsus
		V. virgatum
Total: 15 families	156 genera	398 species

Table 6.1. The number of species collected for this project for each ARCHFIBS genus compared with the number of species listed in the Flora Europaea for the same genera.

ARCHFIBS genera represented by two or more species	Number of species in ARCHFIBS database	Number of species in *Flora Europaea*	% of *Flora Europaea* species in ARCHFIBS database
Crepis	2	70	3
Festuca	5	170	3
Asperula	2	66	3
Ononis	2	45	4
Centaurea	11	221	5
Silene	10	194	5
Stachys	3	58	5
Rubus	4	75	5
Verbascum	5	87	6
Cirsium	4	60	7
Myosotis	3	41	7
Senecio	5	67	7
Galium	11	145	8
Bupleurum	3	39	8
Agrostis	2	25	8
Ranunculus	11	133	8
Brassica	2	22	9
Anthemis	6	62	10
Lotus	3	30	10
Cerastium	6	58	10
Potentilla	8	75	11
Anchusa	3	24	13
Filago	2	16	13
Scrophularia	4	30	13
Trifolium	14	99	14
Poa	7	49	14
Bromopsis	2	12	17
Lathyrus	9	54	17
Hordeum	2	11	18
Phleum	2	11	18
Adonis	2	10	20
Thalictrum	3	15	20
Veronica	13	62	21
Avena	3	14	21
Medicago	8	37	22
Rumex	10	44	23
Lamium	3	13	23
Lactuca	4	17	24
Vicia	13	55	24
Prunus	5	21	24
Holcus	2	8	25
Papaver	4	16	25
Stellaria	5	18	28
Atriplex	6	21	29
Bromus	5	16	31
Galeopsis	3	9	33
Sonchus	3	8	38
Chenopodium	10	25	40
Kickxia	2	5	40
Anisantha	3	7	43
Aphanes	2	4	50
Rubia	2	4	50
Sinapis	2	4	50
Torilis	3	6	50
Tordylium	3	5	60
Phalaris	5	8	63
Cichorium	2	3	67
Echinochloa	2	3	67
Setaria	3	4	75
Chrysanthemum	2	2	100
Galinsoga	2	2	100
Lolium	5	5	100
Neslia	2	2	100
Xanthium	2	2	100
Persicaria	5	?	
Polygonum	5	?	

Table 6.2. The number of species collected for this project for each ARCHFIBS family compared with the number of species listed in the Flora Europaea for the same families.

ARCHFIBS families	Number of species in ARCHFIBS database	Number of species in *Flora Europaea*	% of *Flora Europaea* species in ARCHFIBS database
Boraginaceae	7	262	3
Lamiaceae	14	452	3
Brassicaceae	22	660	3
Rosaceae	20	478	4
Caryophyllaceae	30	693	4
Asteraceae	68	1411	5
Scrophulariaceae	28	516	5
Ranunculaceae	18	302	6
Apiaceae	26	432	6
Fabaceae	55	845	7
Poaceae	60	878	7
Papaveraceae	7	92	8
Rubiaceae	18	234	8
Chenopodiaceae	19	164	12
Polygonaceae	21	106	20

Table 6.3 Nested ANOVA results for maximum canopy height

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	0	14	0
Genera within families	45	55	48	52
Species within genera	223	45	222	48

Table 6.4 Nested ANOVA results for maximum canopy diameter

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	10	14	10
Genera within families	48	18	49	15
Species within genera	230	72	229	75

Table 6.5 Nested ANOVA results for maximum canopy dimension

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	7	14	6
Genera within families	45	31	48	31
Species within genera	221	62	220	63

Table 6.6 Nested ANOVA results for maximum leaf area per node

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	0	14	8
Genera within families	48	54	49	43
Species within genera	232	46	231	49

Table 6.7 Nested ANOVA results for maximum leaf weight per node

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	0	14	9
Genera within families	47	60	49	47
Species within genera	231	40	230	44

Table 6.8 Nested ANOVA results for maximum leaf width

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	12	31	13	31
Genera within families	46	34	47	32
Species within genera	220	35	220	37

Table 6.9 Nested ANOVA results for mean leaf thickness

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	29	14	32
Genera within families	49	19	49	20
Species within genera	233	52	232	48

Table 6.10 Nested ANOVA results for ratio of leaf area to leaf thickness

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	0	14	5
Genera within families	51	49	49	39
Species within genera	230	51	229	56

Table 6.11 Nested ANOVA results for mean SLA

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	0	14	0
Genera within families	48	25	49	21
Species within genera	232	75	231	79

Table 6.12 Nested ANOVA results for mean DMC

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	46	14	45
Genera within families	48	10	49	12
Species within genera	232	44	231	43

Table 6.13 Nested ANOVA results for mean stomatal size

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	38	14	38
Genera within families	46	36	49	38
Species within genera	227	26	227	24

Table 6.14 Nested ANOVA results for mean stomatal density

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	30	14	32
Genera within families	46	32	49	33
Species within genera	228	38	227	35

Table 6.15 Nested ANOVA results for mean epidermal cell size

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	43	14	45
Genera within families	45	25	49	25
Species within genera	222	32	222	31

Table 6.16 Nested ANOVA results for estimated endopolyploidy

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	50	14	52
Genera within families	43	10	49	12
Species within genera	213	40	211	36

Table 6.17 Nested ANOVA results for mean epidermal cell wall undulation

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	71	15	69
Genera within families	44	3	42	4
Species within genera	225	26	229	27

Table 6.18 Nested ANOVA results for mean root diameter

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	10	20	11	21
Genera within families	26	23	30	20
Species within genera	109	57	114	59

Table 6.19 Nested ANOVA results for mean seed weight

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	3	14	9
Genera within families	43	50	46	64
Species within genera	218	47	218	27

Table 6.20 Nested ANOVA results for mean seed shape

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	65	14	62
Genera within families	43	14	46	12
Species within genera	218	21	218	26

Table 6.21 Nested ANOVA results for mean seed longevity

	Basic taxonomy		Revised taxonomy	
Source of variation	df	Variance explained (%)	df	Variance explained (%)
Families within dataset	13	16	14	9
Genera within families	43	58	46	64
Species within genera	218	26	218	27

Table 6.22. Nested ANOVA results using data arranged by the basic taxonomy. Divided into groups in which the attributes behave similarly in the partitioning of variance between the three taxonomic levels (based on Figure 6.1).

		Percentage of variance explained at the different taxonomic levels		
Group	**Attribute**	**Genera**	**Families**	**Dataset**
1	Seed shape	21	14	65
	Epidermal cell wall undulation	26	3	71
2	Seed longevity	26	58	16
3	Stomatal size	26	36	38
	Epidermal cell size	32	25	43
	Leaf width	35	34	31
	Stomatal density	38	32	30
4	Endopolyploidy	40	10	50
	DMC	44	10	46
5	Leaf weight per node	40	60	0
	Canopy height	45	55	0
	Leaf area per node	46	54	0
	Seed weight	47	50	3
	Leaf area:thickness	51	49	0
6	Canopy dimension	62	31	7
	Canopy diameter	72	18	10
	SLA	75	25	0
Ungrouped	Leaf thickness	52	19	29
	Root diameter	57	23	20

Table 6.23. Nested ANOVA results using data arranged by the revised taxonomy. Divided into groups in which the attributes behave similarly in the partitioning of variance between the three taxonomic levels (based on Figure 6.2).

		Percentage of variance explained at the different taxonomic levels		
Group	**Attribute**	**Genera**	**Families**	**Dataset**
1	Seed shape	26	12	62
	Epidermal cell wall undulation	27	4	69
2	Seed longevity	27	64	9
	Seed weight	27	64	9
3	Stomatal size	24	38	38
	Epidermal cell size	30	25	45
	Stomatal density	35	33	32
	Leaf width	37	32	31
4	Endopolyploidy	36	12	52
	DMC	43	12	45
5	Leaf weight per node	44	47	9
	Canopy height	48	52	0
	Leaf area per node	49	43	8
	Leaf area:thickness	56	39	5
6	Canopy dimension	63	31	6
	Canopy diameter	75	15	10
	SLA	79	21	0
Ungrouped	Leaf thickness	48	20	32
	Root diameter	59	20	21

Table 6.24. Coefficients of variation (CV*) for canopy height (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Galinsoga	2	0.32			
Sinapis	**2**	**0.46**			
Thalictrum	3	2.66			
Rubia	2	3.26			
Adonis	2	3.27			
Sonchus	3	3.78			
Lotus	3	4.00			
Asperula	**2**	**4.09**			
Anthemis	6	4.89			
Setaria	3	4.99			
Crepis	2	5.40			
Aphanes	**2**	**5.40**			
Lamium	3	5.64			
Phalaris	5	6.27			
Kickxia	2	6.67			
Medicago	8	6.76			
Chrysanthemum	2	7.21			
Silene	10	7.36			
Brassica	**2**	**7.39**			
Galeopsis	3	7.61			
Bromus	5	7.72	**Papaver group**	**5**	**7.68**
Anchusa	3	7.83			
Holcus	2	7.93			
Papaver	**4**	**8.47**			
Anisantha	3	8.64			
Rumex	10	8.71			
Polygonum	5	9.27			
Phleum	2	10.16			
Cichorium	2	10.31			
Avena	3	10.48			
Torilis	3	10.73			
Prunus	5	10.80			
Senecio	5	10.97			
Chenopodiaceae	**18**	**11.35**	**Chenopodiaceae group**	**19**	**11.03**
Chenopodium	10	11.62	**Brassica/Sinapis group**	**7**	**11.15**
Polygonaceae	21	11.93	**Papaveraceae group**	**10**	**11.90**
Hordeum	2	12.15			
Papaveraceae	**7**	**12.57**			
Trifolium	14	12.65			
Bromopsis	2	12.91			
Lolium	**5**	**12.96**			
Apiaceae	26	13.03			
Atriplex	5	13.13			
Ranunculus	11	13.40	**Festuca/Lolium group**	**10**	**13.29**
Centaurea	11	13.57			
Rubus	3	13.61			
Poaceae	57	13.92			
Fabaceae	53	14.09			
Verbascum	5	14.93	**ScrophulariaceaeA group**	**9**	**14.61**
Brassicaceae	21	15.49			
Festuca	**5**	**15.52**			
Scrophularia	4	15.65			
Asteraceae	59	15.66			
Stachys	3	15.68			
Lathyrus	9	16.03			
Bupleurum	3	16.28			
Lamiaceae	13	17.07			
Boraginaceae	7	17.98			
Ranunculaceae	18	18.04			
Persicaria	5	18.15			
Veronica	12	18.29			
Rubiaceae	18	18.34			
Caryophyllaceae	30	18.39			
Vicia	12	18.97			
Tordylium	3	19.00			
Cirsium	4	19.43	**Galium/Asperula group**	**15**	**19.05**
Poa	7	19.97			
Galium	**11**	**22.03**			
Cerastium	6	23.26			
Scrophulariaceae	**26**	**23.29**			
Stellaria	5	23.31			
Myosotis	3	28.45			
Rosaceae	16	44.73	**Potentilla/Aphanes group**	**7**	**38.09**
Potentilla	**5**	**47.32**			

Table 6.25. Coefficients of variation (CV*) for canopy diameter (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded.The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Setaria	3	0.71			
Hordeum	2	2.33			
Cichorium	2	2.33			
Neslia	**2**	**2.89**			
Torilis	3	3.52			
Asperula	**2**	**3.63**			
Rubus	4	3.72			
Bromopsis	2	3.76			
Lotus	3	4.74			
Verbascum	5	5.64			
Aphanes	**2**	**5.71**			
Holcus	2	5.74			
Sonchus	3	5.82			
Galinsoga	2	6.46			
Brassica	**2**	**7.51**			
Prunus	5	7.88			
Anthemis	6	9.11	**Neslia group**	**3**	**8.60**
Anisantha	3	9.24			
Papaveraceae	**7**	**9.91**	**Brassica/Sinapis group**	**7**	**9.76**
Medicago	8	11.74	**Scrophulariaceae A group**	**9**	**10.84**
Papaver	**4**	**12.28**	**Papaver group**	**5**	**11.62**
Adonis	2	12.73			
Avena	3	13.00			
Anchusa	3	13.02			
Bromus	5	13.20			
Persicaria	5	14.08			
Kickxia	2	14.40			
Rumex	10	14.57			
Senecio	5	14.65			
Galium	**11**	**14.68**			
Cirsium	4	14.75			
Polygonaceae	21	14.92			
Potentilla	**7**	**16.04**			
Centaurea	**11**	**16.46**			
Scrophularia	4	16.94			
Apiaceae	26	17.25			
Atriplex	6	17.41	**Papaveraceae group**	**10**	**17.40**
Rubia	2	17.49			
Silene	10	18.80			
Thalictrum	3	19.43	**Galium/Asperula group**	**15**	**19.05**
Polygonum	5	19.68	**Centaurea group**	**12**	**19.63**
Rubiaceae	18	19.89			
Bupleurum	3	20.56			
Fabaceae	53	20.82	**Chenopodiaceae group**	**20**	**20.71**
Chenopodiaceae	**19**	**21.14**			
Galeopsis	3	21.35			
Poa	7	21.44			
Sinapis	**2**	**21.44**			
Asteraceae	67	21.60			
Veronica	13	21.79			
Lathyrus	8	21.97			
Poaceae	57	22.20			
Stellaria	5	22.33			
Rosaceae	19	22.58			
Chrysanthemum	2	22.61			
Lamium	3	23.42	**Potentilla/Aphanes group**	**9**	**23.28**
Vicia	12	24.25			
Stachys	3	24.61			
Lamiaceae	14	24.61			
Ranunculaceae	18	24.81			
Chenopodium	10	24.81			
Tordylium	3	25.10			
Lolium	**5**	**25.21**			
Scrophulariaceae	**28**	**25.23**			
Boraginaceae	7	25.40			
Phalaris	4	25.46			
Lactuca	3	25.69			
Trifolium	14	25.79			
Ranunculus	11	26.29			
Caryophyllaceae	30	26.79	**Festuca/Lolium group**	**10**	**26.66**
Brassicaceae	22	26.89			
Crepis	2	27.27			
Festuca	**5**	**28.68**			
Myosotis	3	31.82			
Phleum	2	32.42			
Cerastium	6	38.02			
Ononis	2	56.74			

Table 6.26. Coefficients of variation (CV*) for canopy dimension (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Aphanes	**2**	**0.50**			
Brassica	**2**	**1.36**			
Holcus	2	1.86			
Galinsoga	2	1.96			
Sonchus	3	2.15			
Setaria	3	2.39			
Lotus	3	2.51			
Phalaris	4	2.52			
Crepis	2	3.06			
Rubus	3	3.21			
Cichorium	2	3.93			
Asperula	**2**	**4.06**			
Bromopsis	2	5.64			
Persicaria	5	5.89			
Thalictrum	3	6.40			
Adonis	2	6.50			
Anthemis	6	6.65			
Prunus	5	7.08	**Brassica/Sinapis group**	**7**	**6.68**
Papaveraceae	**7**	**7.15**			
Rumex	10	7.46			
Polygonaceae	21	7.67			
Centaurea	11	7.85			
Hordeum	2	8.17			
Torilis	3	8.66	**Papaver group**	**5**	**8.33**
Bromus	5	8.77			
Anisantha	3	8.86			
Polygonum	5	9.02			
Medicago	8	9.07			
Verbascum	5	9.18			
Papaver	**4**	**9.65**			
Silene	10	9.78			
Senecio	5	10.07			
Cirsium	4	10.61			
Chenopodium	10	10.67			
Anchusa	3	11.03			
Galeopsis	3	11.16			
Avena	3	11.37	**Chenopodiaceae group**	**19**	**11.23**
Chenopodiaceae	**18**	**11.54**			
Chrysanthemum	2	11.65			
Atriplex	5	11.85	**Scrophulariaceae A group**	**9**	**11.75**
Apiaceae	26	12.17			
Bupleurum	3	13.28			
Kickxia	2	13.40			
Lamium	3	13.77	**Papaveracaea group**	**10**	**13.68**
Poaceae	56	13.85			
Sinapis	**2**	**14.28**			
Scrophulariaceae	**26**	**14.51**			
Asteraceae	59	14.79			
Veronica	12	14.89			
Rubia	2	15.22			
Galium	**11**	**15.87**			
Scrophularia	4	15.89			
Phleum	2	16.00			
Tordylium	3	16.04			
Lolium	**5**	**16.09**			
Poa	7	16.22	**Galium/Asperula group**	**15**	**16.11**
Lamiaceae	13	16.28			
Fabaceae	52	16.45			
Lathyrus	8	16.79			
Rubiaceae	18	17.15	**Festuca/Lolium group**	**10**	**16.87**
Caryophyllaceae	30	17.50			
Brassicaceae	21	18.32			
Festuca	**5**	**18.39**			
Stachys	3	19.38			
Stellaria	5	20.03			
Ranunculaceae	18	20.12			
Ranunculus	11	20.24			
Vicia	12	20.67			
Potentilla	**5**	**20.68**			
Trifolium	14	20.78			
Boraginaceae	7	21.67			
Cerastium	6	24.65	**Potentilla/Aphanes group**	**7**	**22.45**
Rosaceae	16	27.59			
Myosotis	3	29.47			

Table 6.27. Coefficients of variation (CV*) for leaf area per node (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Holcus	2	0.50			
Setaria	3	0.65			
Kickxia	2	1.54			
Rubus	4	2.00			
Galinsoga	2	2.42			
Torilis	3	3.48			
Galeopsis	3	3.77			
Hordeum	2	3.92			
Lamium	3	4.30			
Anchusa	3	4.80			
Thalictrum	3	4.96			
Anthemis	6	5.16	**Neslia group**	**3**	**4.96**
Sonchus	3	5.45			
Tordylium	3	5.73			
Neslia	**2**	**5.83**			
Chrysanthemum	2	7.19	**Brassica group**	**6**	**6.85**
Rubia	2	7.31			
Cirsium	4	7.37			
Bromus	5	7.67			
Crepis	2	7.87			
Filago	2	8.02			
Anisantha	3	8.03			
Verbascum	5	8.09			
Adonis	2	8.41			
Persicaria	5	9.23			
Senecio	5	9.72			
Ranunculus	11	10.18			
Lathyrus	8	10.28			
Avena	3	10.56			
Aphanes	**2**	**10.96**			
Phalaris	5	11.12	**Papaveraceae group**	**10**	**11.08**
Medicago	8	11.28			
Brassica	**2**	**11.46**			
Lolium	**5**	**11.88**			
Lamiaceae	14	12.07			
Papaveraceae	**7**	**12.11**			
Lotus	3	12.32			
Myosotis	3	12.38			
Silene	10	12.58	**Papaver/Roemeria group**	**5**	**12.49**
Prunus	5	12.59			
Veronica	13	12.61			
Apiaceae	25	13.38			
Bromopsis	2	14.37			
Papaver	**4**	**14.48**			
Brassicaceae	21	14.56			
Poaceae	59	14.72			
Fabaceae	54	14.93			
Poa	7	15.33			
Stachys	3	15.67			
Ranunculaceae	18	15.84			
Ononis	2	16.18			
Vicia	13	16.25			
Potentilla	**8**	**16.79**			
Phleum	2	17.19	**Festuca/Lolium group**	**10**	**17.00**
Centaurea	**11**	**18.27**	**ScrophulariaceaeA group**	**9**	**17.23**
Boraginaceae	7	18.41	**Centaurea group**	**12**	**17.39**
Trifolium	14	18.74			
Rumex	10	21.07			
Chenopodium	10	21.70			
Stellaria	5	22.14			
Atriplex	6	22.14			
Festuca	**5**	**22.14**			
Rosaceae	20	22.17			
Lactuca	2	22.28			
Asperula	**2**	**22.77**	**Galium/Asperula group**	**15**	**22.34**
Polygonum	5	23.14	**Chenopodiaceae group**	**19**	**22.75**
Chenopodiaceae	**18**	**23.20**			
Asteraceae	67	23.38			
Scrophularia	4	23.46			
Cerastium	5	23.69			
Bupleurum	3	24.96			
Rubiaceae	18	25.06			
Scrophulariaceae	**28**	**25.24**			
Galium	**11**	**25.36**	**Potentilla/Aphanes group**	**10**	**25.31**
Echinochloa	2	26.22			
Polygonaceae	21	27.75			
Caryophyllaceae	29	33.18			
Cichorium	2	36.61			

Table 6.28. Coefficients of variation (CV*) for leaf weight per node (n is the number of species from which coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Adonis	2	0.72			
Galeopsis	3	1.37			
Cirsium	4	2.10			
Kickxia	2	2.22			
Chrysanthemum	2	3.12			
Setaria	3	3.20			
Galinsoga	2	3.66			
Torilis	3	5.54			
Holcus	2	6.39			
Bromus	5	6.61			
Sonchus	3	7.33	**Brassica group**	**6**	**7.22**
Rubia	2	7.36			
Crepis	2	7.76	**Neslia group**	**3**	**7.68**
Neslia	**2**	**8.69**			
Rubus	4	9.27			
Lotus	3	10.22			
Verbascum	5	10.78			
Hordeum	2	12.22			
Thalictrum	3	12.52			
Brassica	**2**	**12.83**			
Tordylium	3	13.75			
Bromopsis	2	14.42	**Papaveraceae group**	**10**	**14.06**
Anisantha	3	14.85			
Anchusa	3	15.33			
Lolium	**5**	**15.37**			
Papaveraceae	**7**	**16.10**			
Silene	10	16.18			
Lamium	3	16.58			
Persicaria	5	16.70			
Avena	3	17.58	**Papaver group**	**5**	**16.76**
Medicago	8	17.89			
Myosotis	3	18.01			
Anthemis	6	18.70			
Papaver	**4**	**19.59**			
Prunus	5	20.43			
Apiaceae	25	20.47			
Senecio	5	20.62			
Lathyrus	8	20.72			
Ranunculus	11	22.16			
Phalaris	5	22.25			
Lamiaceae	14	24.39	**Festuca/Lolium group**	**10**	**23.30**
Potentilla	**8**	**24.57**	**Centaurea group**	**12**	**23.98**
Brassicaceae	21	25.06			
Atriplex	6	25.23	**Scrophulariaceae A group**	**9**	**25.12**
Centaurea	**11**	**25.26**			
Fabaceae	54	25.72			
Poaceae	58	26.56			
Veronica	13	27.19			
Lactuca	3	27.60			
Ranunculaceae	18	28.23			
Vicia	13	28.33			
Festuca	**5**	**29.10**			
Rumex	10	29.71			
Stachys	3	29.81			
Ononis	2	31.57	**Chenopodiaceae group**	**19**	**31.34**
Chenopodiaceae	**18**	**31.73**			
Scrophularia	4	32.70			
Aphanes	**2**	**32.72**			
Asteraceae	66	32.98			
Trifolium	14	33.39			
Poa	7	34.09			
Chenopodium	10	34.58			
Bupleurum	3	35.52			
Rosaceae	20	35.84			
Phleum	2	37.57			
Boraginaceae	7	38.25			
Polygonaceae	21	40.53			
Polygonum	5	41.80			
Stellaria	5	44.55			
Scrophulariaceae	**28**	**47.11**	**Galium/Asperula group**	**15**	**44.98**
Galium	**11**	**48.94**	**Potentilla/Aphanes group**	**10**	**47.10**
Rubiaceae	17	52.19			
Cichorium	2	58.36			
Caryophyllaceae	29	59.77			
Cerastium	5	61.08			
Filago	2	72.01			
Asperula	**2**	**78.22**			

Table 6.29. Coefficients of variation (CV*) for leaf width (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Galinsoga	2	0.00			
Rubus	4	0.88			
Holcus	2	1.09			
Kickxia	2	1.43			
Ononis	2	2.31			
Lamium	3	2.36			
Galeopsis	3	2.66			
Agrostis	2	2.91			
Crepis	2	3.00			
Brassica	**2**	**3.47**			
Setaria	3	3.62			
Cirsium	4	3.68			
Rubia	2	4.02	**Neslia group**	**3**	**3.94**
Filago	2	4.70			
Neslia	**2**	**4.81**			
Anisantha	3	4.88			
Myosotis	3	4.90			
Anchusa	3	5.04			
Verbascum	5	5.07			
Potentilla	**8**	**5.51**	**Brassica group**	**6**	**5.11**
Prunus	5	5.52	**Potentilla/Aphanes group**	**10**	**5.26**
Lamiaceae	14	5.63			
Asperula	**2**	**5.86**			
Veronica	12	5.87			
Bromus	5	5.95			
Lolium	**5**	**6.07**			
Phalaris	3	6.23			
Persicaria	5	6.49			
Aphanes	**2**	**6.49**			
Medicago	8	6.58			
Sonchus	3	6.62			
Thalictrum	3	6.79			
Stachys	3	7.15			
Ranunculus	11	7.28			
Trifolium	14	7.81			
Silene	10	7.93			
Senecio	5	8.56			
Lathyrus	8	8.58			
Boraginaceae	7	9.31			
Rosaceae	20	9.94	**Centaurea/Carthamus group**	**12**	**9.64**
Cerastium	5	9.99			
Rumex	10	10.08			
Centaurea	**11**	**10.11**			
Poa	7	10.32			
Fabaceae	52	10.37			
Vicia	10	10.51			
Poaceae	56	10.54			
Lotus	3	10.70			
Chenopodium	10	11.80			
Scrophulariaceae	**21**	**12.19**	**Scrophulariaceae A group**	**9**	**11.89**
Brassicaceae	21	12.20	**Galium/Asperula group**	**15**	**12.08**
Polygonum	5	12.33			
Galium	**11**	**12.36**			
Phleum	2	12.39			
Avena	3	12.66			
Stellaria	5	12.68			
Atriplex	6	13.10			
Chrysanthemum	2	14.27			
Polygonaceae	21	14.70			
Rubiaceae	18	14.99			
Chenopodiaceae	**18**	**15.75**	**Festuca/Lolium group**	**10**	**15.04**
Papaver	**4**	**16.35**	**Chenopodiaceae group**	**19**	**15.35**
Scrophularia	4	16.69	**Papaver group**	**5**	**15.97**
Asteraceae	66	16.91			
Ranunculaceae	18	17.19			
Cichorium	2	17.21			
Caryophyllaceae	29	17.90			
Papaveraceae	**7**	**19.33**			
Lactuca	3	19.76			
Bromopsis	2	21.00			
Festuca	**5**	**22.24**			
Anthemis	6	24.51	**Papaveraceae group**	**10**	**23.08**
Adonis	2	30.64			

Table 6.30. Coefficients of variation (CV*) for leaf thickness (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Rubia	2	1.89			
Anisantha	3	2.11			
Myosotis	3	2.46			
Galeopsis	3	2.58			
Holcus	2	2.72	**Papaver group**	**5**	**2.71**
Papaver	**4**	**2.78**			
Aphanes	**2**	**3.26**			
Setaria	3	3.41			
Agrostis	2	3.48			
Lolium	**5**	**3.63**			
Sonchus	3	3.72			
Avena	3	4.12			
Kickxia	2	4.29			
Crepis	2	5.07			
Cerastium	5	5.57			
Trifolium	14	6.12			
Centaurea	**11**	**6.31**			
Silene	10	6.68			
Lactuca	3	7.03			
Torilis	3	7.07			
Bromus	5	7.45	**Centaurea group**	**12**	**7.19**
Filago	2	7.45			
Stellaria	5	8.07			
Senecio	5	8.20	**Potentilla/Aphanes group**	**10**	**8.19**
Anthemis	6	8.68			
Potentilla	**8**	**9.04**	**Festuca/Lolium group**	**10**	**8.80**
Brassica	**2**	**9.04**			
Phalaris	5	9.15			
Tordylium	3	9.20			
Asperula	**2**	**9.97**			
Phleum	2	10.00			
Papaveraceae	**7**	**10.06**			
Ononis	2	10.07			
Rosaceae	20	10.15			
Medicago	8	10.51			
Chrysanthemum	2	10.62			
Galium	**11**	**10.62**			
Vicia	12	11.20	**Galium/Asperula group**	**15**	**10.72**
Chenopodium	10	11.30			
Brassicaceae	22	11.31			
Atriplex	6	11.58			
Festuca	**5**	**11.62**			
Rubus	4	11.62			
Polygonum	5	11.68			
Bromopsis	2	11.80	**Neslia group**	**3**	**11.76**
Hordeum	2	11.86			
Poaceae	59	11.87			
Asteraceae	67	12.03			
Lotus	3	12.11			
Ranunculus	11	12.41			
Lathyrus	9	12.47			
Caryophyllaceae	29	12.51			
Poa	7	12.60			
Prunus	5	12.81			
Rubiaceae	18	13.25	**Papaveraceae group**	**10**	**12.87**
Ranunculaceae	18	13.27	**Brassica/Sinapis group**	**7**	**13.12**
Cirsium	4	13.50			
Scrophularia	4	13.88			
Polygonaceae	21	13.88			
Persicaria	5	14.15			
Fabaceae	54	14.20			
Lamiaceae	14	14.20			
Apiaceae	25	14.68			
Anchusa	3	15.08	**Chenopodiaceae group**	**19**	**14.70**
Chenopodiaceae	**18**	**15.13**			
Scrophulariaceae	**28**	**15.45**			
Rumex	10	15.81			
Veronica	13	16.14			
Adonis	2	16.16			
Galinsoga	2	17.10	**Scrophulariaceae A group**	**9**	**17.01**
Neslia	**2**	**17.30**			
Thalictrum	3	17.40			
Boraginaceae	7	17.45			
Lamium	3	17.83			
Bupleurum	3	18.60			
Stachys	3	19.95			
Verbascum	5	19.99			
Sinapis	**2**	**21.49**			
Cichorium	2	21.89			

Table 6.31. Coefficients of variation (CV*) for leaf area:leaf thickness (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Holcus	2	0.41			
Kickxia	2	0.43			
Setaria	3	0.44			
Filago	2	2.24			
Rubus	4	3.01			
Galeopsis	3	3.29			
Torilis	3	3.57			
Anchusa	3	3.58			
Bromus	5	5.15			
Lamium	3	5.21			
Sonchus	3	5.84			
Thalictrum	3	6.16			
Anisantha	3	6.17			
Persicaria	5	6.25			
Anthemis	6	6.32			
Galinsoga	2	6.51			
Tordylium	3	6.82			
Lathyrus	8	7.06			
Hordeum	2	7.21			
Rubia	2	7.26			
Ranunculus	11	7.44			
Phalaris	5	7.73			
Crepis	2	7.83			
Avena	3	7.92			
Ononis	2	8.26	**Neslia group**	**3**	**8.23**
Lolium	**5**	**8.57**	**Papaveraceae group**	**10**	**8.33**
Prunus	5	8.68	**Brassica group**	**6**	**8.63**
Aphanes	**2**	**8.78**			
Papaveraceae	**7**	**9.59**			
Medicago	8	9.78			
Chrysanthemum	2	9.84			
Senecio	5	10.00			
Verbascum	5	10.04			
Veronica	13	10.05			
Lamiaceae	14	10.15			
Phleum	2	10.45			
Boraginaceae	7	10.47			
Cirsium	4	10.59			
Poa	7	10.68			
Apiaceae	25	10.94			
Myosotis	3	11.19	**Papaver group**	**5**	**11.00**
Poaceae	58	11.20			
Silene	10	11.63			
Neslia	**2**	**11.70**			
Fabaceae	53	11.96			
Adonis	2	12.18			
Brassicaceae	21	12.46			
Papaver	**4**	**12.68**			
Vicia	12	12.81			
Brassica	**2**	**12.93**			
Trifolium	14	13.07			
Asperula	**2**	**13.11**			
Lotus	3	13.86			
Potentilla	**8**	**14.15**			
Ranunculaceae	18	14.56			
Bupleurum	3	14.90			
Bromopsis	2	14.91			
Stachys	3	16.15	**Festuca/Lolium group**	**10**	**15.43**
Centaurea	**11**	**16.24**	**Centaurea group**	**12**	**15.60**
Rubiaceae	18	17.46	**Scrophulariaceae A group**	**9**	**16.51**
Cerastium	5	17.94	**Galium/Asperula group**	**15**	**16.91**
Rosaceae	20	18.08			
Stellaria	5	18.29			
Galium	**11**	**18.83**			
Polygonum	5	19.29			
Rumex	10	19.96	**Potentilla/Aphanes group**	**10**	**19.73**
Asteraceae	67	20.28			
Chenopodium	10	20.34			
Lactuca	3	20.85			
Scrophulariaceae	**28**	**21.00**			
Festuca	**5**	**21.70**			
Scrophularia	4	23.21			
Cichorium	2	23.58	**Chenopodiaceae group**	**19**	**23.53**
Atriplex	6	23.82			
Polygonaceae	12	23.94			
Chenopodiaceae	**18**	**24.16**			
Caryophyllaceae	29	27.76			

Table 6.32 Coefficients of variation (CV*) for SLA (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Kickxia	2	0.66			
Neslia	**2**	**1.61**			
Cichorium	2	1.91			
Ononis	2	2.37			
Sonchus	3	3.12			
Anisantha	3	3.27			
Torilis	3	3.30			
Setaria	3	3.64			
Cerastium	5	3.66			
Aphanes	**2**	**3.86**			
Avena	3	6.69			
Rubia	2	7.21			
Myosotis	3	7.62			
Chenopodium	10	7.99			
Phalaris	5	8.02			
Crepis	2	8.05			
Brassica	**2**	**8.21**			
Veronica	13	8.61			
Trifolium	14	8.68			
Lamium	3	8.77			
Lactuca	3	8.79			
Holcus	2	8.84			
Stachys	3	8.97			
Galeopsis	3	9.66			
Persicaria	5	9.74			
Stellaria	5	9.77			
Silene	10	9.98			
Rumex	10	10.14	**Centaurea group**	**12**	**10.06**
Centaurea	**11**	**10.21**			
Galinsoga	2	10.35			
Filago	2	10.38			
Ranunculus	11	10.39			
Medicago	8	10.82			
Polygonaceae	21	11.73			
Lathyrus	8	11.75			
Bromus	5	11.95			
Tordylium	3	12.29			
Fabaceae	54	12.45			
Brassicaceae	21	12.46			
Prunus	5	12.47			
Chrysanthemum	2	12.86			
Ranunculaceae	18	12.89			
Bupleurum	3	12.94	**Neslia group**	**3**	**12.90**
Anthemis	3	13.08			
Lamiaceae	14	13.33			
Rubiaceae	18	13.40	**Galium/Asperula group**	**15**	**13.35**
Poaceae	59	13.47			
Papaveraceae	**7**	**13.55**			
Vicia	13	13.65	**Brassica group**	**6**	**13.60**
Agrostis	2	13.83			
Papaver	**4**	**14.20**			
Polygonum	5	14.24			
Bromopsis	2	14.28			
Phleum	2	14.33	**Papaver group**	**5**	**14.28**
Galium	**11**	**14.68**	**Festuca group**	**10**	**14.56**
Scrophulariaceae	**28**	**14.96**			
Rosaceae	20	15.04			
Lolium	**5**	**15.11**			
Rubus	4	15.21			
Verbascum	5	15.22			
Caryophyllaceae	29	15.33			
Asteraceae	67	15.73	**Papaveraceae group**	**10**	**15.46**
Festuca	**5**	**16.29**			
Lotus	3	16.54			
Potentilla	**8**	**16.85**	**Potentilla/Aphanes group**	**10**	**16.80**
Atriplex	6	17.21	**Chenopodiaceae group**	**19**	**16.94**
Chenopodiaceae	**18**	**17.30**	**Scrophulariaceae A group**	**9**	**17.11**
Apiaceae	25	18.61			
Scrophularia	4	18.72			
Asperula	**2**	**18.93**			
Thalictrum	3	19.11			
Boraginaceae	7	19.20			
Cirsium	4	19.98			
Poa	7	20.59			
Senecio	5	22.01			
Adonis	2	22.82			
Hordeum	2	23.30			
Anchusa	3	23.86			

Table 6.33. Coefficients of variation (CV*) for DMC (n is the number of species from which coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded.The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Asperula	**2**	**0.04**			
Kickxia	2	1.05			
Chrysanthemum	2	1.27			
Galeopsis	3	1.70			
Aphanes	**2**	**1.87**			
Holcus	2	2.22			
Cirsium	4	3.09			
Sonchus	3	3.11			
Lotus	3	3.14			
Prunus	5	3.54			
Polygonum	5	4.10			
Ranunculus	11	4.10			
Rubus	4	4.11			
Hordeum	2	4.12			
Papaver	**4**	**4.22**			
Cerastium	5	4.28			
Potentilla	**8**	**4.68**			
Lamium	3	4.79	**Potentilla/Aphanes group**	**10**	**4.79**
Persicaria	5	4.91	**Papaver group**	**5**	**4.81**
Bupleurum	3	4.91			
Rosaceae	20	5.06	**Brassica group**	**6**	**4.93**
Torilis	3	5.07			
Vicia	13	5.24			
Myosotis	3	5.24			
Avena	3	5.36			
Neslia	**2**	**5.39**			
Ononis	2	5.41			
Tordylium	3	5.48			
Scrophularia	4	5.79			
Adonis	2	5.86			
Verbascum	5	5.86			
Medicago	8	6.15			
Rubia	2	6.39	**Galium/Asperula group**	**15**	**6.22**
Lathyrus	8	6.58	**Scrophulariaceae A group**	**9**	**6.24**
Trifolium	14	6.58			
Apiaceae	25	6.75			
Phalaris	5	6.78			
Anthemis	6	6.88			
Galium	**11**	**6.90**			
Rubiaceae	18	7.03	**Centaurea group**	**12**	**6.96**
Brassicaceae	21	7.19			
Centaurea	**11**	**7.31**			
Brassica	**2**	**7.51**			
Fabaceae	54	7.75	**Papaveraceae group**	**10**	**7.65**
Papaveraceae	**7**	**7.80**			
Chenopodiaceae	**18**	**8.28**	**Chenopodiaceae group**	**19**	**8.21**
Lactuca	3	8.38			
Boraginaceae	7	8.47			
Thalictrum	3	8.49			
Poaceae	59	8.66			
Poa	7	8.67			
Festuca	**5**	**9.02**			
Atriplex	6	9.04			
Lamiaceae	14	9.05			
Stellaria	5	9.08			
Anisantha	3	9.27			
Chenopodium	10	9.30			
Caryophyllaceae	29	9.43			
Lolium	**5**	**9.51**			
Bromopsis	2	9.69			
Stachys	3	9.71			
Scrophulariaceae	**28**	**9.79**			
Phleum	2	9.85	**Festuca/Lolium group**	**10**	**9.84**
Ranunculaceae	18	10.11			
Setaria	3	10.34			
Polygonaceae	21	10.65			
Asteraceae	67	10.69			
Silene	10	11.13			
Cichorium	2	11.20			
Rumex	11	11.30			
Bromus	5	11.48			
Veronica	13	12.21			
Anchusa	3	13.11			
Galinsoga	2	13.32			
Senecio	5	17.81	**Neslia group**	**3**	**14.51**
Agrostis	2	21.81			
Crepis	2	22.00			
Filago	2	25.42			

Table 6.34. Coefficients of variation (CV*) for stomatal size (n is the number of species from which coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Galinsoga	2	1.57			
Holcus	2	1.93			
Hordeum	2	3.23			
Papaver	**4**	**3.26**			
Stachys	3	4.63			
Avena	3	4.66			
Polygonum	5	5.60	**Papaver group**	**5**	**5.09**
Ranunculus	11	6.05	**Brassica group**	**6**	**5.85**
Brassica	**2**	**6.29**			
Rubia	2	6.41			
Lathyrus	8	6.57			
Anisantha	3	6.61			
Adonis	2	6.87			
Bromus	5	6.92			
Silene	10	7.28			
Stellaria	5	7.56			
Sonchus	3	7.62			
Phalaris	5	7.86			
Kickxia	2	8.90	**Neslia group**	**3**	**8.44**
Myosotis	3	9.02			
Brassicaceae	21	9.08			
Lactuca	3	9.38			
Galeopsis	3	9.40			
Centaurea	**11**	**9.66**			
Galium	**11**	**9.78**			
Cirsium	4	9.78			
Neslia	**2**	**9.81**			
Verbascum	5	9.86			
Rubiaceae	18	9.88			
Senecio	5	9.94	**Galium/Asperula group**	**15**	**9.88**
Poa	7	10.00			
Cichorium	2	10.68	**Centaurea group**	**12**	**10.06**
Lotus	3	10.88			
Cerastium	6	10.95			
Vicia	13	10.99			
Bromopsis	2	11.11	**Papaveraceae group**	**10**	**11.10**
Lolium	**5**	**11.25**			
Papaveraceae	**7**	**11.26**			
Lamiaceae	14	11.26			
Medicago	8	11.57			
Persicaria	5	11.60			
Anthemis	6	11.86			
Caryophyllaceae	30	12.61			
Rumex	10	13.17			
Anchusa	3	13.22			
Lamium	3	13.68			
Potentilla	**7**	**13.89**			
Phleum	2	13.97			
Thalictrum	3	14.16			
Scrophularia	4	15.18			
Scrophulariaceae	**27**	**15.63**	**Festuca/Lolium group**	**10**	**15.49**
Chenopodium	10	15.71			
Asteraceae	66	15.76			
Tordylium	3	16.00			
Chenopodiaceae	17	16.27	**Potentilla/Aphanes group**	**9**	**16.05**
Torilis	3	16.81	**Scrophulariaceae A group**	**9**	**16.65**
Polygonaceae	21	16.90			
Veronica	13	17.10			
Poaceae	58	17.72			
Asperula	**2**	**17.81**			
Boraginaceae	7	18.46			
Atriplex	5	18.54			
Ranunculaceae	18	19.62			
Apiaceae	24	19.90			
Rosaceae	19	20.11			
Ononis	2	20.18			
Aphanes	**2**	**20.56**			
Festuca	**5**	**21.00**			
Trifolium	14	21.26			
Fabaceae	54	23.78			
Prunus	5	24.77			
Rubus	4	29.77			
Bupleurum	2	30.49			
Crepis	2	31.66			
Setaria	3	38.36			
Chrysanthemum	2	38.62			

Table 6.35. Coefficients of variation (CV*) for stomatal density (n is the number of speces from which coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Adonis	2	0.65			
Cichorium	2	1.15			
Ononis	2	1.52	**Neslia group**	**3**	**1.41**
Avena	3	1.53			
Anchusa	3	2.02			
Neslia	**2**	**2.04**			
Aphanes	**2**	**2.61**			
Holcus	2	4.02			
Lamium	3	4.08			
Brassica	**2**	**4.12**			
Lolium	**5**	**4.63**			
Galeopsis	3	5.05			
Thalictrum	3	5.12			
Anthemis	6	5.32			
Cirsium	4	5.64	**Brassica group**	**6**	**5.51**
Medicago	8	5.78			
Lotus	3	5.98			
Polygonum	5	6.19			
Poa	7	6.23			
Phleum	2	6.87	**Potentilla/Aphanes group**	**9**	**6.61**
Lathyrus	8	6.96			
Atriplex	5	7.02			
Bromus	5	7.04			
Hordeum	2	7.60			
Potentilla	**7**	**7.61**			
Bupleurum	2	7.86	**Papaver group**	**5**	**7.63**
Vicia	13	8.07			
Scrophularia	4	8.31			
Papaver	**4**	**8.36**			
Galinsoga	2	8.70			
Brassicaceae	21	8.94			
Torilis	3	9.63			
Trifolium	14	9.67			
Rosaceae	19	9.67			
Stellaria	5	9.87			
Rubus	4	9.91			
Phalaris	5	10.09			
Cerastium	6	10.09			
Crepis	2	10.39			
Senecio	5	10.44			
Myosotis	3	10.49			
Silene	10	11.20	**Papaveraceae group**	**10**	**10.70**
Boraginaceae	7	11.31	**Galium/Asperula group**	**15**	**11.26**
Asteraceae	65	11.39			
Papaveraceae	**7**	**11.57**			
Galium	**11**	**11.64**			
Chenopodiaceae	17	11.80			
Verbascum	5	12.23			
Stachys	3	12.39	**Centaurea group**	**12**	**12.24**
Apiaceae	24	12.50			
Scrophulariaceae	**27**	**12.50**			
Chenopodium	10	12.63			
Persicaria	5	12.77			
Veronica	13	12.83			
Centaurea	**11**	**12.85**			
Kickxia	2	12.90			
Ranunculus	11	12.97			
Rubiaceae	18	13.42			
Tordylium	3	13.55			
Asperula	**2**	**13.57**			
Lactuca	3	13.68			
Polygonaceae	21	13.70			
Fabaceae	54	13.95			
Lamiaceae	14	14.00			
Sonchus	3	14.25			
Bromopsis	2	14.91			
Caryophyllaceae	30	14.98			
Rumex	10	15.23			
Rubia	2	16.09			
Poaceae	58	16.48			
Prunus	5	16.96			
Anisantha	3	17.94			
Ranunculaceae	18	18.40			
Setaria	3	22.95			
Chrysanthemum	2	23.88			
Festuca	**5**	**37.09**	**Festuca/Lolium group**	**10**	**24.31**

Table 6.36. Coefficients of variation (CV*) for epidermal cell size (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Holcus	2	1.26			
Anchusa	3	3.23			
Phalaris	5	3.52			
Neslia	**2**	**3.57**			
Galinsoga	2	3.67			
Aphanes	**2**	**4.15**			
Cichorium	2	4.62			
Avena	3	5.61			
Chrysanthemum	2	6.56			
Adonis	2	6.92			
Lactuca	3	7.60			
Bromus	5	7.60			
Vicia	13	7.67			
Polygonum	5	7.85			
Lathyrus	8	8.03			
Ononis	2	8.69			
Ranunculus	11	8.91			
Kickxia	2	9.36			
Anisantha	3	9.70			
Galeopsis	2	10.00	**Brassica group**	**6**	**9.81**
Poa	7	10.22	**Neslia group**	**3**	**9.81**
Lolium	**5**	**10.50**			
Senecio	5	10.63			
Stellaria	5	11.00			
Chenopodium	10	11.10			
Atriplex	5	11.16			
Phleum	2	11.24			
Verbascum	5	11.42			
Bromopsis	2	11.59			
Bupleurum	2	11.65			
Lotus	3	12.20			
Brassicaceae	21	12.40			
Lamium	3	12.40			
Sonchus	3	12.47			
Chenopodiaceae	17	12.71			
Rubiaceae	17	13.45			
Cerastium	6	13.74			
Crepis	2	13.95	**Galium group**	**14**	**13.88**
Polygonaceae	21	14.18			
Silene	10	14.23			
Veronica	12	14.68			
Galium	**11**	**14.82**			
Medicago	8	15.25	**Festuca/Lolium group**	**10**	**15.09**
Poaceae	58	15.54			
Hordeum	2	15.68			
Caryophyllaceae	28	15.83			
Stachys	2	16.11	**Papaveraceae group**	**10**	**15.86**
Persicaria	5	16.13			
Rumex	10	17.09			
Scrophulariaceae	**26**	**17.20**			
Asteraceae	65	17.20			
Scrophularia	4	17.23			
Anthemis	6	17.65	**ScrophulariaceaeA group**	**9**	**17.23**
Myosotis	3	17.72	**Papaver group**	**5**	**17.63**
Brassica	**2**	**18.41**	**Potentilla/Aphanes group**	**8**	**18.21**
Boraginaceae	7	18.51			
Trifolium	14	18.79			
Apiaceae	22	18.96			
Centaurea	**11**	**19.05**			
Papaveraceae	**7**	**19.36**	**Centaurea group**	**12**	**19.13**
Thalictrum	3	19.77			
Fabaceae	54	19.82			
Rubia	2	20.02			
Papaver	**4**	**20.36**			
Festuca	**5**	**20.72**			
Potentilla	**6**	**20.77**			
Ranunculaceae	18	21.37			
Cirsium	4	21.76			
Torilis	2	23.81			
Setaria	3	24.30			
Rubus	4	26.26			
Lamiaceae	12	26.26			
Rosaceae	18	26.39			
Tordylium	3	30.95			
Prunus	5	36.30			

Table 6.37. Coefficients of variation (CV*) for endopolyploidy (n is the number of species from which the coefficients were calculated. For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Bromopsis	2	0.63			
Neslia	**2**	**0.79**			
Bupleurum	2	0.81			
Rubus	3	0.88			
Lotus	2	0.97			
Torilis	2	1.02			
Galeopsis	2	1.10			
Papaver	2	1.28			
Scrophularia	4	1.64			
Cichorium	2	2.15			
Atriplex	5	2.56			
Potentilla	**6**	**3.14**	**Brassica group**	**6**	**2.81**
Setaria	3	3.56	**Potentilla/Aphanes group**	**7**	**2.91**
Phleum	2	3.59	**Scrophulariaceae A group**	**9**	**3.10**
Persicaria	5	3.66			
Holcus	2	3.70			
Brassica	**2**	**3.75**			
Rosaceae	16	3.79			
Verbascum	5	3.82			
Rumex	10	3.85			
Scrophulariaceae	**24**	**3.99**			
Galium	**11**	**4.10**			
Polygonum	5	4.29	**Galium group**	**14**	**4.11**
Chenopodiaceae	17	4.40			
Centaurea	**11**	**4.50**			
Bromus	5	4.53			
Polygonaceae	21	4.57			
Cirsium	3	4.86	**Centaurea group**	**12**	**4.63**
Chenopodium	10	4.94			
Veronica	12	4.97			
Ranunculus	11	4.99			
Prunus	5	4.99			
Avena	3	5.07			
Senecio	5	5.22			
Stellaria	5	5.24			
Kickxia	2	5.25			
Lathyrus	8	5.38			
Lamiaceae	11	5.64			
Lamium	3	5.70			
Rubiaceae	17	5.78			
Brassicaceae	21	6.04			
Phalaris	5	6.08			
Trifolium	14	6.16			
Ranunculaceae	18	6.23			
Papaveraceae	**4**	**6.36**			
Cerastium	6	6.38			
Apiaceae	21	6.75			
Fabaceae	53	6.83			
Sonchus	2	6.90			
Crepis	2	7.10	**Festuca/Lolium group**	**10**	**6.94**
Festuca	**5**	**7.12**			
Lactuca	3	7.36			
Caryophyllaceae	28	7.62			
Vicia	13	7.68			
Boraginaceae	7	7.73			
Lolium	**5**	**7.74**			
Ononis	2	7.77			
Poaceae	58	7.77			
Poa	7	8.00			
Asteraceae	56	8.01			
Myosotis	3	8.11	**Neslia group**	**3**	**8.08**
Chrysanthemum	2	8.32			
Adonis	2	8.91	**Papaveraceae group**	**7**	**8.34**
Silene	10	9.10			
Anisantha	3	9.64			
Medicago	8	9.74			
Rubia	2	9.78			
Tordylium	3	9.78			
Anchusa	3	11.16			
Stachys	2	12.25			
Thalictrum	3	12.55			
Anthemis	3	13.89			
Hordeum	2	15.54			

Table 6.38. Coefficients of variation (CV*) for cell wall undulation (n is the number of speces from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Phleum	2	0.17			
Aphanes	**2**	**0.27**			
Bromus	5	0.31			
Bupleurum	2	0.34			
Avena	3	0.78			
Poa	7	0.82			
Hordeum	2	0.94			
Neslia	**2**	**1.49**			
Atriplex	5	1.69			
Bromopsis	2	1.89			
Cirsium	4	2.19			
Tordylium	3	2.26			
Ononis	2	2.26			
Trifolium	14	2.36			
Lactuca	3	2.71	**Neslia group**	**3**	**2.61**
Phalaris	5	2.79			
Festuca	**5**	**2.86**			
Anisantha	3	2.92	**Festuca/Lolium group**	**10**	**2.91**
Medicago	8	3.02			
Cichorium	2	3.39			
Lolium	**5**	**3.40**			
Polygonum	5	3.70			
Senecio	5	3.99			
Anchusa	3	4.16			
Chenopodiaceae	17	4.24			
Rumex	10	4.25			
Polygonaceae	21	4.77	**Potentilla/Aphanes group**	**8**	**4.37**
Chenopodium	10	4.87			
Potentilla	**6**	**4.97**			
Cerastium	6	5.04			
Papaver	**4**	**5.10**			
Setaria	3	5.24			
Rubus	4	5.29			
Poaceae	58	5.48			
Chrysanthemum	2	5.75			
Vicia	13	5.97			
Persicaria	5	6.02			
Thalictrum	3	6.50			
Fabaceae	54	6.73			
Rosaceae	18	6.90			
Centaurea	**11**	**7.10**	**Centaurea group**	**12**	**7.02**
Holcus	2	7.52	**Papaver group**	**5**	**7.29**
Apiaceae	24	7.66			
Silene	10	7.71			
Brassicaceae	21	7.80			
Lotus	3	7.93			
Verbascum	5	8.57			
Rubia	2	8.78	**Scrophulariaceae A group**	**9**	**8.69**
Sonchus	3	9.04	**Brassica group**	**6**	**8.99**
Lathyrus	8	9.07			
Galium	**11**	**9.12**			
Anthemis	6	9.20			
Lamium	3	9.77			
Scrophularia	4	10.30	**Galium group**	**14**	**10.06**
Prunus	5	10.30			
Asteraceae	65	10.55			
Ranunculus	11	10.58			
Caryophyllaceae	29	10.86	**Papaveraceae group**	**10**	**10.63**
Ranunculaceae	18	11.05			
Rubiaceae	17	11.08			
Adonis	2	11.35			
Veronica	13	11.54			
Torilis	3	11.64			
Papaveraceae	**7**	**11.87**			
Boraginaceae	7	11.92			
Scrophulariaceae	**27**	**12.20**			
Brassica	**2**	**13.85**			
Lamiaceae	14	14.26			
Crepis	2	15.22			
Stachys	3	17.42			
Kickxia	2	17.48			
Galeopsis	3	18.33			
Stellaria	5	19.33			
Myosotis	3	20.03			

Table 6.39. Coefficients of variation (CV*) for root diameter (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Ononis	2	3.21			
Polygonum	5	6.91			
Sonchus	3	8.24			
Rumex	7	8.37			
Papaver	**3**	**8.39**			
Anthemis	6	8.50			
Atriplex	5	9.25			
Papaveraceae	**6**	**9.98**	**Papaver group**	**4**	**9.52**
Sinapis	**2**	**11.81**			
Lactuca	3	11.82			
Senecio	4	12.73			
Tordylium	3	13.14			
Bupleurum	2	13.66			
Torilis	3	13.99			
Centaurea	**6**	**15.88**	**Galium group**	**7**	**14.63**
Galium	**5**	**17.39**	**Centaurea group**	**7**	**15.41**
Chenopodiaceae	**16**	**18.59**	**Papaveraceae group**	**9**	**15.87**
Rubiaceae	9	19.95	**Chenopodiaceae group**	**17**	**18.62**
Brassicaceae	19	20.16	**Brassica/Sinapis group**	**7**	**19.62**
Asteraceae	52	20.44			
Apiaceae	20	20.47			
Chenopodium	9	22.56			
Verbascum	5	23.83	**Neslia group**	**3**	**22.84**
Polygonaceae	16	24.01			
Neslia	**2**	**25.89**			
Cichorium	2	26.53			
Vicia	8	27.06			
Medicago	8	27.30			
Anchusa	3	27.78			
Brassica	**2**	**31.12**			
Galeopsis	2	31.17			
Fabaceae	35	32.02	**Scrophulariaceae A group**	**9**	**31.93**
Boraginaceae	5	33.72			
Scrophularia	4	33.72			
Stachys	2	34.49			
Stellaria	3	34.90			
Veronica	6	35.32			
Persicaria	3	35.52			
Trifolium	6	40.38			
Cerastium	4	41.20			
Caryophyllaceae	20	42.46			
Scrophulariaceae	**20**	**43.58**			
Crepis	2	47.11			
Silene	8	52.58			
Lamiaceae	7	54.08			
Lathyrus	5	61.05			
Kickxia	2	73.97			

Table 6.40. Coefficients of variation (CV*) for seed weight (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Rubia	2	0.12			
Crepis	2	1.97			
Bromopsis	2	3.30			
Phalaris	3	4.05			
Tordylium	3	4.15			
Prunus	4	4.54			
Lamium	3	4.81			
Adonis	2	4.82			
Chrysanthemum	2	5.11			
Thalictrum	3	5.15			
Setaria	3	5.23			
Cichorium	2	5.40			
Brassica	**2**	**6.14**			
Ononis	2	6.17			
Cirsium	4	6.21			
Bromus	5	6.30			
Galeopsis	3	7.04			
Holcus	2	7.23			
Torilis	3	7.32			
Verbascum	5	7.51			
Galinsoga	2	7.59			
Avena	3	8.68			
Rubus	4	9.13			
Lathyrus	9	9.35			
Centaurea	**11**	**9.58**			
Persicaria	4	10.27			
Polygonum	5	10.53			
Senecio	5	10.77			
Filago	2	11.82	**Centaurea group**	**12**	**10.78**
Anisantha	3	13.04	**Papaver group**	**5**	**11.98**
Lotus	3	13.30			
Anchusa	3	13.70			
Silene	10	13.80			
Papaver	**4**	**14.01**			
Asperula	**2**	**14.02**			
Polygonaceae	20	14.74			
Potentilla	**8**	**14.87**			
Sonchus	3	15.12			
Rumex	10	15.45			
Festuca	**5**	**15.57**			
Myosotis	3	15.91			
Atriplex	6	16.24	**Potentilla group**	**9**	**16.15**
Lolium	**5**	**17.00**			
Ranunculus	10	17.25			
Vicia	12	17.30			
Papaveraceae	**7**	**17.37**			
Trifolium	13	18.91	**Scrophulariaceae A group**	**9**	**18.73**
Anthemis	6	20.31	**Festuca/Lolium group**	**10**	**19.31**
Stachys	3	20.97			
Ranunculaceae	17	22.34			
Lactuca	3	22.37			
Medicago	8	23.95			
Chenopodiaceae	**17**	**25.47**	**Chenopodiaceae group**	**18**	**25.16**
Chenopodium	10	25.59			
Rubiaceae	18	26.24	**Galium/Asperula group**	**15**	**26.14**
Scrophularia	4	26.29			
Lamiaceae	14	27.90			
Poaceae	50	28.16			
Apiaceae	22	29.78			
Poa	5	29.92			
Fabaceae	53	30.01			
Galium	**11**	**30.59**			
Asteraceae	64	30.63			
Cerastium	6	31.11			
Bupleurum	2	34.14			
Caryophyllaceae	28	35.84			
Veronica	13	38.29			
Scrophulariaceae	**27**	**39.41**			
Stellaria	4	40.60			
Boraginaceae	7	42.33	**Papaveraceae group**	**10**	**40.67**
Brassicaceae	20	42.36			
Rosaceae	18	45.70	**Brassica group**	**6**	**44.09**
Kickxia	2	106.57			

Table 6.41. Coefficients of variation (CV*) for seed shape (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Bromopsis	2	0.13			
Anisantha	3	0.16			
Cichorium	2	0.38			
Lolium	**5**	**0.39**			
Poa	5	0.95	**Festuca/Lolium group**	**10**	**0.88**
Lactuca	3	1.01			
Cirsium	4	1.16			
Bromus	5	1.22			
Festuca	**5**	**1.24**			
Setaria	3	1.25			
Sonchus	3	1.31			
Holcus	2	1.48			
Tordylium	3	1.74			
Chrysanthemum	2	1.92			
Phalaris	3	1.96			
Anchusa	3	1.98			
Centaurea	**11**	**1.98**			
Stellaria	4	2.34			
Senecio	5	2.39			
Galinsoga	2	2.47			
Filago	2	2.55			
Thalictrum	3	2.58			
Atriplex	6	2.84			
Rubus	4	2.95			
Potentilla	**8**	**3.08**			
Avena	3	3.09			
Bupleurum	2	3.19			
Lamium	3	3.45			
Brassica	**2**	**3.47**			
Rubia	2	3.70			
Anthemis	6	3.93			
Poaceae	50	4.04			
Papaver	**4**	**4.22**	**Papaver group**	**5**	**4.17**
Crepis	2	4.35			
Chenopodium	10	4.36			
Verbascum	5	4.69			
Lotus	3	4.77			
Trifolium	13	5.40	**Scrophulariaceae A group**	**9**	**4.92**
Kickxia	2	5.51	**Potentilla group**	**9**	**5.03**
Rumex	10	5.57			
Ranunculus	10	5.58			
Scrophularia	4	5.65			
Papaveraceae	**7**	**5.71**			
Asteraceae	64	6.01			
Polygonum	5	6.03			
Chenopodiaceae	**17**	**6.35**			
Adonis	2	6.60	**Chenopodiaceae group**	**18**	**6.48**
Persicaria	4	6.63			
Stachys	3	6.78			
Boraginaceae	7	6.88			
Galeopsis	3	6.98			
Polygonaceae	20	7.03			
Prunus	4	7.18			
Myosotis	3	7.22			
Ranunculaceae	17	7.74			
Rosaceae	18	7.95			
Cerastium	6	8.36			
Silene	10	8.59			
Scrophulariaceae	**27**	**9.00**			
Lamiaceae	14	9.41	**Centaurea group**	**12**	**9.29**
Lathyrus	9	10.25			
Galium	**11**	**10.55**			
Veronica	13	10.67			
Rubiaceae	18	12.04			
Torilis	3	12.81	**Papaveraceae group**	**10**	**12.13**
Vicia	12	13.07			
Apiaceae	22	14.56	**Galium/Asperula group**	**15**	**13.27**
Asperula	**2**	**16.40**			
Caryophyllaceae	28	17.23			
Ononis	2	18.42			
Brassicaceae	20	19.67			
Fabaceae	53	21.71			
Medicago	8	41.11	**Brassica group**	**6**	**36.19**

Table 6.42. Coefficients of variation (CV*) for seed longevity (n is the number of species from which the coefficients were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	CV*	Groups following revised taxonomy	*n*	CV*
Torilis	3	0.57			
Ononis	2	0.93			
Rubia	2	1.34			
Adonis	2	1.88			
Bromopsis	2	2.62			
Lamium	3	2.74			
Chrysanthemum	2	3.31			
Galinsoga	2	3.52			
Phalaris	3	4.14			
Tordylium	3	4.23			
Holcus	2	4.25			
Cichorium	2	4.54			
Brassica	**2**	**4.55**			
Setaria	3	4.83			
Galeopsis	3	4.83			
Crepis	2	4.94			
Bromus	5	5.13			
Cirsium	4	5.27			
Thalictrum	3	5.66			
Persicaria	4	5.89			
Prunus	4	6.02			
Asperula	**2**	**6.25**			
Polygonum	5	6.28			
Rubus	4	6.61			
Avena	3	6.87			
Verbascum	5	7.71			
Senecio	5	7.81			
Centaurea	**11**	**8.27**	**Centaurea group**	**12**	**7.89**
Lathyrus	9	8.89			
Filago	2	10.17			
Sonchus	3	10.19			
Anisantha	3	10.36			
Anchusa	3	11.12			
Silene	10	11.65			
Lotus	3	12.03	**Papaver group**	**5**	**11.82**
Festuca	**5**	**12.28**			
Potentilla	**8**	**12.66**	**Potentilla group**	**9**	**12.44**
Ranunculus	10	13.59			
Papaver	**4**	**13.71**			
Atriplex	6	13.96			
Lolium	**5**	**13.97**			
Polygonaceae	20	14.49			
Papaveraceae	**7**	**15.12**			
Rumex	10	15.31			
Stachys	3	17.04	**Festuca/Lolium group**	**10**	**15.42**
Myosotis	3	17.14	**Scrophulariaceae A group**	**9**	**16.96**
Lactuca	3	17.92			
Anthemis	6	18.19			
Ranunculaceae	17	18.27			
Trifolium	13	18.44			
Vicia	12	18.92			
Medicago	8	19.78			
Cerastium	6	20.36			
Chenopodium	10	20.54			
Poa	5	21.51			
Poaceae	50	22.85			
Scrophularia	4	23.01	**Chenopodiaceae group**	**18**	**22.91**
Chenopodiaceae	**17**	**23.03**			
Lamiaceae	14	23.12			
Asteraceae	64	23.33			
Rubiaceae	18	24.87	**Galium/Asperula group**	**15**	**24.39**
Bupleurum	2	25.09			
Apiaceae	22	25.14			
Fabaceae	53	25.51			
Veronica	13	26.54			
Galium	**11**	**28.09**			
Caryophyllaceae	28	29.08			
Scrophulariaceae	**27**	**30.81**			
Stellaria	4	33.52	**Papaveraceae/Fumaria group**	**10**	**31.83**
Brassicaceae	20	34.64			
Boraginaceae	7	38.08			
Rosaceae	18	38.28			
Kickxia	2	82.19	**Brassica group**	**6**	**40.64**

Table 6.43. Indices of diversity (ID) for stomatal distribution class (n is the number of species from which the indices were calculated). For the 'basic' taxonomic groups in the left half of the table, The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	ID	Groups following revised taxonomy	*n*	ID
Adonis	2	0.00	**Festuca/Lolium group**	**10**	**0.00**
Anchusa	3	0.00	**Galium/Asperula group**	**15**	**0.00**
Anisantha	3	0.00	**Papaver group**	**5**	**0.00**
Aphanes	**2**	**0.00**	**Potentilla/Aphanes group**	**9**	**0.00**
Asperula	**2**	**0.00**			
Boraginaceae	7	0.00			
Brassica	**2**	**0.00**			
Bromopsis	2	0.00			
Cerastium	6	0.00			
Chrysanthemum	2	0.00			
Cirsium	4	0.00			
Crepis	2	0.00			
Festuca	**5**	**0.00**			
Galeopsis	3	0.00			
Galinsoga	2	0.00			
Galium	**11**	**0.00**			
Holcus	2	0.00			
Kickxia	2	0.00			
Lamiaceae	14	0.00			
Lamium	3	0.00			
Lolium	**5**	**0.00**			
Lotus	3	0.00			
Myosotis	3	0.00			
Neslia	**2**	**0.00**			
Papaver	**4**	**0.00**			
Persicaria	5	0.00			
Phalaris	5	0.00			
Phleum	2	0.00			
Poa	6	0.00			
Polygonaceae	21	0.00			
Polygonum	5	0.00			
Potentilla	**7**	**0.00**			
Prunus	5	0.00			
Rosaceae	19	0.00			
Rubia	2	0.00			
Rubiaceae	18	0.00			
Rubus	4	0.00			
Rumex	10	0.00			
Senecio	5	0.00			
Setaria	3	0.00			
Sinapis	**2**	**0.00**			
Sonchus	3	0.00			
Stachys	3	0.00			
Thalictrum	3	0.00			
Tordylium	3	0.00			
Torilis	3	0.00			
Verbascum	5	0.00			
Veronica	13	0.00			
Apiaceae	24	0.25			
Scrophulariaceae	**27**	**0.38**			
Ranunculus	11	0.44			
Ranunculaceae	18	0.50	**Scrophulariaceae A group**	**9**	**0.50**
Caryophyllaceae	30	0.57			
Papaveraceae	**7**	**0.59**			
Vicia	13	0.62			
Anthemis	6	0.65	**Brassica/Sinapis group**	**6**	**0.65**
Poaceae	58	0.66			
Brassicaceae	21	0.70			
Bromus	5	0.72	**Papaveraceae group**	**10**	**0.72**
Chenopodium	10	0.72			
Silene	10	0.72			
Stellaria	5	0.72			
Scrophularia	4	0.81			
Chenopodiaceae	17	0.87			
Asteraceae	65	0.91			
Avena	3	0.92	**Neslia group**	**3**	**0.92**
Lactuca	3	0.92			
Trifolium	14	0.94			
Centaurea	**11**	**0.95**			
Fabaceae	54	0.95			
Lathyrus	8	0.95			
Medicago	8	0.95			
Atriplex	5	0.97			
Bupleurum	2	1.00	**Centaurea group**	**12**	**0.98**
Cichorium	2	1.00			
Hordeum	2	1.00			
Ononis	2	1.00			

Table 6.44 Indices of diversity (ID) for life history (n is the number of species from which the indices of diversity were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	ID	Groups following revised taxonomy	*n*	ID
Anisantha	6	0.00	**Neslia group**	**7**	**0.00**
Aphanes	**4**	**0.00**			
Avena	14	0.00			
Bromopsis	5	0.00			
Chrysanthemum	2	0.00			
Echinochloa	3	0.00			
Festuca	**170**	**0.00**			
Filago	16	0.00			
Galeopsis	9	0.00			
Galinsoga	2	0.00			
Neslia	**2**	**0.00**			
Prunus	21	0.00			
Rubia	4	0.00			
Rubus	75	0.00			
Setaria	4	0.00			
Thalictrum	15	0.00			
Torilis	6	0.00			
Xanthium	2	0.00			
Asperula	**66**	**0.07**			
Rosaceae	176	0.17	**Festuca/Lolium group**	**175**	**0.10**
Potentilla	**75**	**0.18**			
Chenopodium	26	0.25			
Poa	49	0.26			
Rubiaceae	218	0.27	**Galium/Asperula group**	**217**	**0.27**
Galium	**145**	**0.32**			
Stachys	67	0.36	**Papaveraceae group**	**59**	**0.33**
Chenopodiaceae	**51**	**0.36**	**Chenopodiaceae group**	**52**	**0.36**
Stellaria	18	0.41			
Ranunculus	133	0.42			
Ranunculaceae	160	0.43			
Rumex	44	0.43			
Atriplex	21	0.44			
Kickxia	5	0.46	**Potentilla/Aphanes group**	**79**	**0.46**
Lolium	**5**	**0.46**			
Tordylium	5	0.46			
Agrostis	25	0.46			
Poaceae	359	0.49			
Sinapis	**4**	**0.51**			
Lamiaceae	94	0.52			
Verbascum	87	0.52			
Holcus	11	0.53			
Crepis	70	0.56			
Scrophularia	30	0.57			
Veronica	62	0.57			
Medicago	37	0.57			
Cerastium	58	0.58			
Cichorium	3	0.58			
Persicaria	15	0.58			
Bromus	26	0.59			
Bupleurum	60	0.59			
Lotus	30	0.60			
Lathyrus	54	0.60			
Sonchus	8	0.60			
Polygonaceae	82	0.61			
Adonis	10	0.61			
Polygonum	22	0.62			
Phalaris	7	0.62			
Ononis	49	0.63	**Papaver group**	**27**	**0.63**
Vicia	55	0.63			
Hordeum	11	0.63			
Phleum	11	0.63			
Papaveraceae	**39**	**0.63**			
Lamium	13	0.63			
Papaver	**26**	**0.63**			
Cirsium	60	0.63			
Centaurea	**221**	**0.65**			
Fabaceae	330	0.66			
Trifolium	99	0.66			
Caryophyllaceae	279	0.71	**ScrophulariaceaeA group**	**117**	**0.69**
Brassicaceae	59	0.72	**Centaurea group**	**228**	**0.70**
Silene	194	0.73	**Brassica/Sinapis group**	**40**	**0.72**
Apiaceae	88	0.74			
Anthemis	62	0.77			
Senecio	77	0.78			
Brassica	**22**	**0.81**			
Myosotis	41	0.85			
Asteraceae	617	0.85			
Boraginaceae	66	0.86			
Anchusa	24	0.89			
Scrophulariaceae	188	0.93			
Lactuca	17	0.94			

Table 6.45. Indices of diversity (ID) for vegetative spread (n is the number of species from which the indices were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	ID	Groups following revised taxonomy	*n*	ID
Adonis	2	0.00	**Brassica/Sinapis group**	**7**	**0.00**
Agrostis	2	0.00	**Chenopodiaceae group**	**20**	**0.00**
Anchusa	3	0.00	**Neslia group**	**3**	**0.00**
Anisantha	3	0.00	**Papaver group**	**5**	**0.00**
Anthemis	6	0.00	**Papaveraceae group**	**10**	**0.00**
Aphanes	**2**	**0.00**	**Scrophulariaceae A group**	**9**	**0.00**
Asperula	**2**	**0.00**			
Atriplex	6	0.00			
Avena	3	0.00			
Boraginaceae	7	0.00			
Brassica	**2**	**0.00**			
Bromopsis	2	0.00			
Bromus	5	0.00			
Bupleurum	3	0.00			
Chenopodiaceae	**19**	**0.00**			
Chenopodium	10	0.00			
Chrysanthemum	2	0.00			
Cichorium	2	0.00			
Cirsium	4	0.00			
Crepis	2	0.00			
Echinochloa	2	0.00			
Filago	2	0.00			
Galeopsis	3	0.00			
Galinsoga	2	0.00			
Hordeum	2	0.00			
Kickxia	2	0.00			
Lactuca	3	0.00			
Lamium	3	0.00			
Lolium	**5**	**0.00**			
Medicago	8	0.00			
Myosotis	3	0.00			
Neslia	**2**	**0.00**			
Ononis	2	0.00			
Papaver	**4**	**0.00**			
Papaveraceae	**7**	**0.00**			
Phleum	2	0.00			
Polygonum	5	0.00			
Rubus	4	0.00			
Scrophularia	4	0.00			
Setaria	3	0.00			
Sinapis	**2**	**0.00**			
Sonchus	3	0.00			
Thalictrum	3	0.00			
Tordylium	3	0.00			
Torilis	3	0.00			
Verbascum	4	0.00			
Xanthium	2	0.00			
Brassicaceae	22	0.27			
Silene	10	0.47	**Festuca/Lolium group**	**10**	**0.47**
Apiaceae	26	0.52			
Asteraceae	68	0.60			
Vicia	13	0.62			
Caryophyllaceae	30	0.65			
Scrophulariaceae	**28**	**0.68**			
Ranunculus	11	0.68			
Polygonaceae	21	0.70			
Fabaceae	55	0.72			
Festuca	**5**	**0.72**			
Phalaris	5	0.72			
Rumex	10	0.72			
Senecio	5	0.72			
Trifolium	14	0.75			
Poaceae	60	0.75			
Potentilla	**8**	**0.81**	**Centaurea group**	**12**	**0.81**
Centaurea	**11**	**0.85**			
Ranunculaceae	18	0.85			
Poa	7	0.86			
Cerastium	6	0.92			
Lotus	3	0.92			
Stachys	3	0.92			
Lamiaceae	14	0.94			
Veronica	13	0.96			
Persicaria	5	0.97	**Potentilla/Aphanes group**	**10**	**0.97**
Prunus	5	0.97			
Stellaria	5	0.97			
Rosaceae	20	0.97			
Lathyrus	9	0.99			
Rubiaceae	18	0.99			
Galium	**11**	**0.99**			
Holcus	2	1.00	**Galium/Asperula group**	**15**	**1.00**
Rubia	2	1.00			

Table 6.46. Indices of diversity (ID) for flowering start (n is the number of species from which the indices were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	ID	Groups following revised taxonomy	*n*	ID
Adonis	2	0.00	**Festuca/Lolium group**	**10**	**0.00**
Agrostis	2	0.00	**Papaver group**	**5**	**0.00**
Anchusa	3	0.00			
Anisantha	3	0.00			
Anthemis	6	0.00			
Aphanes	**2**	**0.00**			
Asperula	**2**	**0.00**			
Avena	3	0.00			
Boraginaceae	7	0.00			
Brassica	**2**	**0.00**			
Bromopsis	2	0.00			
Bromus	5	0.00			
Bupleurum	3	0.00			
Chrysanthemum	2	0.00			
Cirsium	4	0.00			
Crepis	2	0.00			
Echinochloa	2	0.00			
Festuca	**5**	**0.00**			
Galeopsis	3	0.00			
Galinsoga	2	0.00			
Holcus	2	0.00			
Hordeum	2	0.00			
Kickxia	2	0.00			
Lactuca	3	0.00			
Lamium	3	0.00			
Lolium	**5**	**0.00**			
Medicago	8	0.00			
Myosotis	3	0.00			
Ononis	2	0.00			
Papaver	**4**	**0.00**			
Papaveraceae	7	0.00			
Phalaris	5	0.00			
Phleum	2	0.00			
Scrophularia	4	0.00			
Sinapis	**2**	**0.00**			
Thalictrum	3	0.00			
Tordylium	3	0.00			
Trifolium	14	0.00			
Xanthium	2	0.00			
Ranunculaceae	18	0.20			
Galium	**11**	**0.28**	**Galium/Asperula group**	**15**	**0.22**
Ranunculus	11	0.28			
Potentilla	**8**	**0.34**	**Papaveraceae group**	**10**	**0.30**
Poa	7	0.37	**Potentilla/Aphanes group**	**10**	**0.30**
Vicia	13	0.39	**Brassica/Sinapis group**	**7**	**0.37**
Apiaceae	26	0.39	**Chenopodiaceae group**	**20**	**0.38**
Atriplex	6	0.41			
Brassicaceae	22	0.43			
Centaurea	**11**	**0.43**			
Chenopodium	10	0.46			
Persicaria	5	0.46			
Polygonum	5	0.46			
Silene	10	0.46			
Fabaceae	55	0.47			
Poaceae	60	0.47			
Chenopodiaceae	**19**	**0.47**			
Lathyrus	9	0.48			
Caryophyllaceae	30	0.49			
Rubiaceae	18	0.51	**Centaurea group**	**12**	**0.51**
Rubus	4	0.51			
Rumex	10	0.56			
Rosaceae	20	0.56			
Cerastium	6	0.58	**Scrophulariaceae A group**	**9**	**0.58**
Lotus	3	0.58	**Neslia group**	**3**	**0.58**
Setaria	3	0.58			
Sonchus	3	0.58			
Stachys	3	0.58			
Torilis	3	0.58			
Polygonaceae	21	0.60			
Prunus	5	0.61			
Stellaria	5	0.61			
Verbascum	4	0.61			
Veronica	13	0.63			
Cichorium	2	0.63			
Filago	2	0.63			
Neslia	**2**	**0.63**			
Rubia	2	0.63			
Asteraceae	68	0.65			
Scrophulariaceae	**28**	**0.89**			
Senecio	5	0.96			
Lamiaceae	14	1.00			

Table 6.47. Indices of diversity (ID) for flowering length (n is the number of species from which the indices were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	ID	Groups following revised taxonomy	*n*	ID
Adonis	2	0.00	**Centaurea group**	**12**	**0.00**
Anchusa	3	0.00			
Anisantha	3	0.00			
Asperula	**2**	**0.00**			
Centaurea	**11**	**0.00**			
Cichorium	2	0.00			
Cirsium	4	0.00			
Crepis	2	0.00			
Echinochloa	2	0.00			
Galinsoga	2	0.00			
Holcus	2	0.00			
Hordeum	2	0.00			
Kickxia	2	0.00			
Ononis	2	0.00			
Phleum	2	0.00			
Rubia	2	0.00			
Scrophularia	4	0.00			
Setaria	3	0.00			
Sonchus	3	0.00			
Thalictrum	3	0.00			
Xanthium	2	0.00			
Festuca	**5**	**0.46**			
Phalaris	5	0.46			
Silene	10	0.46			
Stellaria	5	0.46			
Papaver	**4**	**0.51**			
Rubus	4	0.51			
Chenopodium	10	0.56			
Anthemis	6	0.58	**Neslia group**	**3**	**0.58**
Avena	3	0.58			
Bupleurum	3	0.58			
Galeopsis	3	0.58			
Lactuca	3	0.58			
Lamium	3	0.58			
Lotus	3	0.58			
Stachys	3	0.58			
Tordylium	3	0.58			
Torilis	3	0.58			
Ranunculus	11	0.60			
Bromus	5	0.61	**Festuca/Lolium group**	**10**	**0.61**
Lolium	**5**	**0.61**	**Papaver group**	**5**	**0.61**
Persicaria	5	0.61			
Prunus	5	0.61			
Rumex	10	0.61			
Papaveraceae	**7**	**0.62**			
Lathyrus	9	0.63	**Potentilla/Aphanes group**	**10**	**0.63**
Ranunculaceae	**18**	**0.63**			
Rosaceae	**20**	**0.63**			
Medicago	8	0.63			
Potentilla	**8**	**0.63**			
Agrostis	2	0.63			
Aphanes	**2**	**0.63**			
Brassica	2	0.63			
Bromopsis	2	0.63			
Chrysanthemum	2	0.63			
Filago	2	0.63			
Neslia	**2**	**0.63**			
Sinapis	**2**	**0.63**			
Caryophyllaceae	**30**	**0.66**			
Asteraceae	**68**	**0.69**			
Brassicaceae	**22**	**0.69**			
Boraginaceae	**7**	**0.72**	**Chenopodiaceae group**	**20**	**0.72**
Poa	7	0.72			
Chenopodiaceae	**19**	**0.74**			
Apiaceae	**26**	**0.75**			
Rubiaceae	**18**	**0.78**			
Poaceae	**60**	**0.78**			
Cerastium	6	0.79			
Trifolium	14	0.80	**Galium/Asperula group**	**15**	**0.80**
Fabaceae	**55**	**0.81**			
Vicia	13	0.83			
Galium	**11**	**0.83**			
Polygonaceae	**21**	**0.86**	**Scrophulariaceae A group**	**9**	**0.85**
Scrophulariaceae	**28**	**0.86**	**Papaveraceae group**	**10**	**0.86**
Verbascum	4	0.86			
Lamiaceae	**14**	**0.87**	**Brassica/Sinapis group**	**7**	**0.87**
Atriplex	6	0.92			
Polygonum	5	0.96			
Senecio	5	0.96			
Veronica	13	0.96			
Myosotis	3	1.00			

Table 6.48. Indices of diversity (ID) for flowering period (n is the number of species from which the indices were calculated). For the 'basic' taxonomic groups in the left half of the table, families are shaded and genera unshaded. The 'basic' taxa printed in bold have species in common with the 'revised' groups in the right half of the table.

Genera and families following basic taxonomy	*n*	J	Groups following revised taxonomy	*n*	J'
Adonis	2	0.00			
Anchusa	3	0.00			
Anisantha	3	0.00			
Asperula	**2**	**0.00**			
Cirsium	4	0.00			
Crepis	2	0.00			
Echinochloa	2	0.00			
Galinsoga	2	0.00			
Holcus	2	0.00			
Hordeum	2	0.00			
Kickxia	2	0.00			
Lactuca	3	0.00			
Ononis	2	0.00			
Phleum	2	0.00			
Scrophularia	4	0.00			
Thalictrum	3	0.00			
Xanthium	2	0.00			
Atriplex	6	0.33			
Centaurea	**11**	**0.34**			
Chenopodium	10	0.36			
Festuca	**5**	**0.36**			
Persicaria	5	0.36			
Phalaris	5	0.36			
Silene	10	0.36			
Stellaria	5	0.36			
Chenopodiaceae	**19**	**0.39**	**Chenopodiaceae group**	**20**	**0.37**
Papaver	**4**	**0.41**	**Centaurea group**	**12**	**0.41**
Anthemis	6	0.46	**Neslia group**	**3**	**0.46**
Avena	3	0.46			
Bupleurum	3	0.46			
Galeopsis	3	0.46			
Lamium	3	0.46			
Setaria	3	0.46			
Sonchus	3	0.46			
Stachys	3	0.46			
Tordylium	3	0.46			
Ranunculus	11	0.47			
Bromus	5	0.49	**Festuca/Lolium group**	**10**	**0.49**
Lolium	**5**	**0.49**	**Papaver group**	**5**	**0.49**
Prunus	5	0.49			
Papaveraceae	**7**	**0.49**			
Ranunculaceae	18	0.50	**Potentilla/Aphanes group**	**10**	**0.50**
Agrostis	2	0.50			
Aphanes	**2**	**0.50**			
Brassica	**2**	**0.50**			
Bromopsis	2	0.50			
Chrysanthemum	2	0.50			
Cichorium	2	0.50			
Filago	2	0.50			
Medicago	8	0.50			
Neslia	**2**	**0.50**			
Potentilla	**8**	**0.50**			
Rubia	2	0.50			
Sinapis	**2**	**0.50**			
Caryophyllaceae	30	0.53			
Brassicaceae	22	0.55			
Boraginaceae	7	0.57			
Poa	7	0.57			
Rosaceae	20	0.62			
Cerastium	6	0.63			
Trifolium	14	0.63			
Vicia	13	0.66			
Lathyrus	9	0.72	**Papaveraceae group**	**10**	**0.68**
Rubus	4	0.75	**Brassica/Sinapis group**	**7**	**0.69**
Polygonum	5	0.76			
Senecio	5	0.76			
Veronica	13	0.76			
Fabaceae	55	0.77			
Poaceae	60	0.78	**Galium/Asperula group**	**15**	**0.78**
Rumex	10	0.79			
Lotus	3	0.79			
Myosotis	3	0.79			
Torilis	3	0.79			
Rubiaceae	18	0.82			
Apiaceae	26	0.83			
Asteraceae	68	0.84			
Galium	**11**	**0.84**			
Scrophulariaceae	28	0.86			
Polygonaceae	21	0.92			
Lamiaceae	14	0.93			
Verbascum	4	0.96			

Table 6.49. FIBS functional attributes that were selected and rejected for the calculation of the mean variability ranks.

Selected attributes	Rejected attributes that are calculated from the same measurements as the corresponding selected attribute	Rejected attribute that is inversely related to the corresponding selected attribute	Attributes rejected due to missing data
Canopy dimension	canopy height, canopy diameter		
Leaf area:thickness	leaf area, leaf thickness		
DMC	SLA, leaf weight		
Flowering period	Flowering start, flowering length		
Epidermal cell size	Endopolyploidy		
Seed longevity	Seed weight, seed shape		
Stomatal density		Stomatal size	
Cell wall undulation			
Life history			
Vegetative spread			
Stomatal distribution			
			leaf width, root diameter

Table 6.50. The CV* or ID rank of each of the ARCHFIBS genera and families for each of the eleven chosen attributes, and the mean rank of each genus and family.

Taxonomic group	Canopy dimension	Leaf area : thickness	DMC	Stomatal density	Cell size	Cell wall undulation	Seed longevity	Stomatal distribution class	Life history	Vegetative spread	Flowering period	Mean rank
Adonis	16	46	30	1	10	61	4	24.5	54.5	24	9	25.5
Agrostis			76						34.5	24	48	45.6
Anchusa	35	8	73	5	2	24	33	24.5	79	24	9	28.8
Anisantha	26	13	56	72	19	18	32	24.5	9.5	24	9	27.5
Anthemis	17	15	38	14	53	52	48	56	73	24	32	38.4
Aphanes	1	28	5	7	6	2		24.5	9.5	24	48	15.5
Asperula	12	52	1	60			22	24.5	19	24	9	24.8
Atriplex	40	74	53	22	26	9	40	73	32	24	18	37.4
Avena	37	24	25	4	8	5	25	66.5	9.5	24	32	23.6
Brassica	2	50	43	10	55	67	13	24.5	75	24	48	37.4
Bromopsis	13	57	60	66	29	10	5	24.5	9.5	24	48	31.5
Bromus	25	9	71	23	12	3	17	60.5	49.5	24	39.5	30.3
Bupleurum	42	56	20	26	30	4	62	75.5	49.5	24	32	38.3
Centaurea	22	59	42	55	59	41	28	70.5	66	65.5	19	47.9
Cerastium	72	61	16	38	37	30	53	24.5	47	69	60.5	46.2
Chenopodium	34	68	57	52	25	28	54	60.5	22	24	22.5	40.6
Chrysanthemum	39	31	3	75	9	35	7	24.5	9.5	24	48	27.7
Cichorium	11	73	69	2	7	20	12	75.5	47	24	48	35.3
Cirsium	33	38	7	15	68	11	18	24.5	61.5	24	9	28.1
Crepis	9	23	77	39	38	69	16	24.5	42	24	9	33.7
Echinochloa									9.5	24	9	14.2
Festuca	63	71	52	76	65	17	36	24.5	9.5	59	22.5	45.0
Filago		4	78				30		9.5	24	48	32.3
Galeopsis	36	6	4	12	20	72	15	24.5	9.5	24	32	23.2
Galinsoga	4	16	74	30	5		8	24.5	9.5	24	9	20.4
Galium	51	64	39	46	42	51	66	24.5	25	78	76.5	51.2
Holcus	3	1	6	8	1	42	11	24.5	41	80.5	9	20.6
Hordeum	23	19	14	24	45	7		75.5	61.5	24	9	30.2
Kickxia	43	2	2	56	18	71	73	24.5	34.5	24	9	32.5
Lactuca		69	47	61	11	15	47	66.5	81	24	9	43.1
Lamium	44	10	18	9	33	53	6	24.5	61.5	24	32	28.6
Lathyrus	59	18	34	21	15	50	29	70.5	52	78	63	44.5
Lolium	55	26	59	11	22	21	41	24.5	34.5	24	39.5	32.5
Lotus	7	53	9	17	31	46	35	24.5	52	69	71.5	37.7
Medicago	28	30	32	16	43	19	52	70.5	44	24	48	37.0
Myosotis	74	41	24	41	54	74	46	24.5	76.5	24	71.5	50.0
Neslia		44	26	6	4	8		24.5	9.5	24	48	21.6
Ononis		25	27	3	16	13	2	75.5	61.5	24	9	25.6
Papaver	30	48	15	29	64	31	39	24.5	61.5	24	27	35.7
Persicaria	14	14	19	53	48	37	20	24.5	47	74.5	22.5	34.0
Phalaris	8	22	37	37	3	16	9	24.5	56.5	59	22.5	26.8
Phleum	53	36	63	20	27	1		24.5	61.5	24	9	31.9
Poa	56	39	51	19	21	6	55	24.5	23	67	57.5	38.1
Polygonum	27	65	11	18	14	22	23	24.5	56.5	24	66	31.9

Table 6.50 (continued)

Taxonomic group	Canopy dimension	Leaf area : thickness	DMC	Stomatal density	Cell size	Cell wall undulation	Seed longevity	Stomatal distribution class	Life history	Vegetative spread	Flowering period	Mean rank
Potentilla	69	54	17	25	66	29	37	24.5	21	64	48	41.3
Prunus	18	27	10	71	75	55	21	24.5	9.5	74.5	39.5	38.6
Ranunculus	67	21	12	57	17	57	38	51	29	54.5	37	40.0
Rubia	50	20	33	69	63	48	3	24.5	9.5	80.5	48	40.8
Rubus	10	5	13	36	71	33	24	24.5	9.5	24	64	28.5
Rumex	20	66	70	68	49	26	44	24.5	30.5	59	71.5	48.0
Scrophularia	52	72	29	28	52	54	57	63	44	24	9	44.0
Senecio	32	32	75	40	23	23	27	24.5	74	59	66	43.2
Setaria	6	3	65	74	70	32	14	24.5	9.5	24	32	32.2
Silene	31	43	68	42	40	44	34	60.5	71	49	22.5	45.9
Sinapis	46							24.5	38	24	48	36.1
Sonchus	5	11	8	65	34	49	31	24.5	52	24	32	30.5
Stachys	64	58	61	49	47	70	45	24.5	26.5	69	32	49.6
Stellaria	65	63	55	35	24	73	69	60.5	28	74.5	22.5	51.8
Thalictrum	15	12	49	13	61	38	19	24.5	9.5	24	9	24.9
Tordylium	54	17	28	59	74	12	10	24.5	34.5	24	32	33.5
Torilis	24	7	22	32	69	63	1	24.5	9.5	24	71.5	31.6
Trifolium	70	51	35	33	57	14	50	68	67.5	62.5	60.5	51.7
Verbascum	29	33	31	48	28	47	26	24.5	39.5	24	81	37.4
Veronica	49	34	72	54	41	62	65	24.5	44	72	66	53.0
Vicia	68	49	23	27	13	36	51	55	61.5	52	62	45.2
Xanthium									9.5	24	9	14.2
Apiaceae	41	40	36	50	58	43	63	49	72	50	75	52.5
Asteraceae	48	67	67	44	51	56	60	65	76.5	51	76.5	60.2
Boraginaceae	71	37	48	43	56	65	71	24.5	78	24	57.5	52.3
Brassicaceae	62	47	41	31	32	45	70	58	70	48	56	50.9
Caryophyllaceae	61	77	58	67	46	58	67	53	69	53	55	60.4
Chenopodiaceae	38	76	46	47	35	25	58	64	26.5	24	26	42.3
Fabaceae	58	45	44	63	62	39	64	70.5	67.5	59	68	58.2
Lamiaceae	57	35	54	64	72	68	59	24.5	39.5	71	80	56.7
Papaveraceae	19	29	45	45	60	64	43	54	61.5	24	39.5	44.0
Poaceae	45	42	50	70	44	34	56	57	37	62.5	69	51.5
Polygonaceae	21	75	66	62	39	27	42	24.5	54.5	56	79	49.6
Ranunculaceae	66	55	64	73	67	59	49	52	30.5	65.5	48	57.2
Rosaceae	73	62	21	34	73	40	72	24.5	20	74.5	59	50.3
Rubiaceae	60	60	40	58	36	60	61	24.5	24	78	74	52.3
Scrophulariaceae	47	70	62	51	50	66	68	50	80	54.5	78	61.5

Table 6.51. Mean variability ranks for all the ARCHFIBS genera and families, arranged in ascending order of rank. *n* is the maximum number of species on which calculations of CV* and ID were based. Families are shaded and genera unshaded.

Taxonomic group	*n*	Mean rank
Echinochloa	2	14.2
Xanthium	2	14.2
Aphanes	2	15.5
Galinsoga	2	20.4
Holcus	2	20.6
Neslia	2	21.6
Galeopsis	3	23.2
Avena	3	23.6
Asperula	2	24.8
Thalictrum	3	24.9
Adonis	2	25.5
Ononis	2	25.6
Phalaris	5	26.8
Anisantha	3	27.5
Chrysanthemum	2	27.7
Cirsium	4	28.1
Rubus	4	28.5
Lamium	3	28.6
Anchusa	3	28.8
Hordeum	2	30.2
Bromus	5	30.3
Sonchus	3	30.5
Bromopsis	2	31.5
Torilis	3	31.6
Phleum	2	31.9
Polygonum	5	31.9
Setaria	3	32.2
Filago	2	32.3
Kickxia	2	32.5
Lolium	5	32.5
Tordylium	3	33.5
Crepis	2	33.7
Persicaria	5	34.0
Cichorium	2	35.3
Papaver	4	35.7
Sinapis	2	36.1
Medicago	8	37.0
Atriplex	6	37.4
Verbascum	5	37.4
Brassica	2	37.4
Lotus	3	37.7
Poa	7	38.1
Bupleurum	3	38.3
Anthemis	6	38.4
Prunus	5	38.6
Ranunculus	11	40.0
Chenopodium	10	40.6
Rubia	2	40.8
Potentilla	8	41.3
Chenopodiaceae	19	42.3
Lactuca	4	43.1
Senecio	5	43.2
Scrophularia	4	44.0
Papaveraceae	7	44.0
Lathyrus	9	44.5
Festuca	5	45.0
Vicia	13	45.2
Agrostis	2	45.6
Silene	10	45.9
Cerastium	6	46.2
Centaurea	11	47.9
Rumex	10	48.0
Stachys	3	49.6
Polygonaceae	21	49.6
Myosotis	3	50.0
Rosaceae	20	50.3
Brassicaceae	22	50.9
Galium	11	51.2
Poaceae	60	51.5
Trifolium	14	51.7
Stellaria	5	51.8
Boraginaceae	7	52.3
Rubiaceae	18	52.3
Apiaceae	26	52.5
Veronica	13	53.0
Lamiaceae	14	56.7
Ranunculaceae	18	57.2
Fabaceae	55	58.2
Asteraceae	68	60.2
Caryophyllaceae	30	60.4
Scrophulariaceae	28	61.5

Table 6.52. The *mean* difference in CV* between each of the relevant genera and families from the basic taxonomy and the revised groups for all the attributes for which data are available, and the mean number of rank order places separating them. Arranged in ascending order of the number of rank order places separating the basic and revised groups.

Basic taxonomy genus or family	Revised taxonomy group	Basic taxonomy mean number of species	Revised taxonomy mean number of species	Mean difference in CV* between taxonomies	Mean number of rank places different
Chenopodiaceae	Chenopodiaceae group	18	19	0.31	2
Papaver	Papaver group	4	5	1.22	5
Galium	Galium group	11	15	1.75	5
Centaurea	Centaurea group	11	12	1.03	6
Potentilla	Potentilla group	7	9	3.49	8
Festuca	Festuca group	5	10	3.61	9
Papaveraceae	Papaveraceae group	7	10	4.39	11
Scrophulariaceae	Scrophulariaceae A group	26	9	6.24	15
Lolium	Festuca group	5	10	3.95	16
Neslia	Neslia group	2	3	3.86	18
Brassica	Brassica group	2	6	8.78	22
Asperula	Asperula group	2	15	9.15	23
Sinapis	Brassica group	2	7	9.45	25
Aphanes	Potentilla group	2	9	10.92	33

Table 6.53. The *mean* difference in ID between each of the relevant genera and families from the basic taxonomy and the revised groups for all the attributes for which data are available. Arranged in ascending order of the size of the difference in the IDs.

Basic taxonomy genus or family	Revised taxonomy group	Basic taxonomy mean number of species	Revised taxonomy mean number of species	Mean difference in ID between taxonomies
Chenopodiaceae	Chenopodiaceae group	19	20	0.03
Papaver	Papaver group	4	5	0.03
Galium	Galium group	11	15	0.04
Centaurea	Centaurea group	11	12	0.05
Potentilla	Potentilla group	8	10	0.08
Festuca	Festuca group	5	10	0.09
Lolium	Festuca group	5	10	0.14
Neslia	Neslia group	2	3	0.18
Papaveraceae	Papaveraceae group	7	10	0.19
Scrophulariaceae	Scrophulariaceae A group	28	9	0.23
Brassica	Brassica group	2	7	0.26
Sinapis	Sinapis group	2	7	0.28
Aphanes	Potentilla group	2	10	0.29
Asperula	Galium group	2	15	0.50

Table 6.54. Mean CV* of the ARCHFIBS genera and families for each of the ratio-scale functional attributes.

CV* group	Functional attribute	Mean CV* of genera	Mean CV* of families	Difference between genera and families	ANOVA group
A	Endopolyploidy	5.76	6.10	0.34	4
	Seed shape	5.35	10.36	5.01	1
	Cell wall undulation	6.62	9.16	2.54	1
	DMC	7.49	8.45	0.96	4
	Leaf width	8.71	13.35	4.64	3
	Stomatal density	9.72	12.98	3.26	3
B	Leaf thickness	10.21	13.30	3.09	u (3/6)
	Leaf area : thickness	10.79	16.27	5.48	5
	Canopy dimension	10.93	15.78	4.85	6
	SLA	11.49	14.63	3.14	6
	Canopy height	11.66	17.73	6.07	5
	Leaf area per node	12.61	19.73	7.12	5
	Stomatal size	12.84	15.88	3.04	3
	Epidermal cell size	13.36	17.95	4.59	3
	Canopy diameter	16.70	21.60	4.90	6
C	Seed longevity	12.23	25.76	13.53	2
	Seed weight	15.28	30.55	15.27	5
	Leaf weight per node	22.24	33.66	11.42	5
D	Root diameter	25.62	28.29	2.67	u (3/6)

Table 6.55. Mean ID of the ARCHFIBS genera and families for each of the nominal-scale functional attributes.

ID Group	Functional attribute	Mean ID of genera	Mean ID of families	Difference between genera and families
X	Flowering start	0.23	0.48	0.25
	Stomatal distribution	0.26	0.43	0.17
	Vegetative spread	0.28	0.58	0.30
Y	Life history	0.41	0.60	0.19
	Flowering period	0.40	0.69	0.29
	Flowering length	0.45	0.74	0.29

Table 6.56. Summary of the nested ANOVA results of section 6.1.1 and the CV* results of section 6.2.3.1.

Nested ANOVAs		**CV*s**		**Functional attributes**	
Groups	**Group properties**	**Groups**	**Group properties**	**Groups**	
1	genera and families unvarying	A	little variation within and between genera; little variation within and between families	I	cell wall undulation, seed shape
2	genera unvarying; families either variable or large *differences* in variance between different genera within families	C	moderate variation within genera; large variation within families; large variation between genera and between families	II	seed longevity
3	genera and families unvarying, or genera and families variable, or large *differences* in variance between species within genera and genera within families	A	little variation within and between genera; little variation within and between families	III	leaf width, stomatal density
		B	little to moderate variation within genera and families; quite large variation between genera and between families	IV	stomatal size, epidermal cell size
4	genera variable or large *differences* in variance between the different species within genera; families unvarying	A	little variation within and between genera; little variation within and between families	V	endopolyploidy, DMC
5	genera and families variable, or large *differences* in variance between species within genera and genera within families	B	little to moderate variation within genera and families; quite large variation between genera and between families	VI	leaf area:thickness, canopy height, leaf area per node
		C	moderate variation within genera; large variation within families; large variation between genera and between families	VII	seed weight, leaf weight
6	genera variable or large *differences* in variance between the different species within genera; families unvarying	B	little to moderate variation within genera and families; quite large variation between genera and between families	VIII	SLA, canopy dimension, canopy diameter
Ungrouped	between groups 3 and 6	B	little to moderate variation within genera and families; quite large variation between genera and between families	IX	leaf thickness
		D	large variation within and between genera; large variation within and between families	X	root diameter

Table 6.57. Relationships between genera and functional attributes based on figures 6.7-6.8.

Genera	Independently adapted attributes	Conservative attributes	Axes
Brassica Holcus Lamium Lotus Myosotis	cell wall undulation, life history	DMC, stomatal density	1x2
Adonis Anthemis Lathyrus Polygonum Vicia	life history	stomatal density, epidermal cell size	1x2
Anchusa	life history, stomatal distribution	stomatal density, epidermal cell size	1x2
Avena Bupleurum Cichorium Lolium	stomatal distribution, leaf area:thickness	epidermal cell size, cell wall undulation	1x2
Medicago	stomatal density	epidermal cell size	1x2
Bromus Atriplex Poa	leaf area:thickness, DMC, stomatal distribution	cell wall undulation	1x2
Chenopodium	DMC, leaf area:thickness	cell wall undulation	1x2
Anisantha Bromopsis Festuca Rumex	stomatal density, DMC	life history, cell wall undulation	1x2
Setaria Thalictrum Tordylium	stomatal density	life history	1x2
Chrysanthemum	epidermal cell size, stomatal density	Stomatal distribution, life history	1x2
Prunus Rubia Rubus	epidermal cell size	stomatal distribution, life history, leaf area:thickness	1x2
Torilis Sonchus Persicaria	epidermal cell size, cell wall undulation	leaf area:thickness, DMC, stomatal distribution	1x2
Kickxia Galeopsis	cell wall undulation	DMC, leaf area:thickness	1x2
Phalaris	DMC, cell wall undulation, stomatal density	leaf area:thickness, flowering period	3x4
Crepis	DMC, cell wall undulation	leaf area:thickness, flowering period, canopy dimension, seed longevity	3x4
Cirsium Papaver	epidermal cell size, leaf area:thickness, flowering period	vegetative spread, stomatal density	3x4
Potentilla	leaf area:thickness, flowering period	DMC, cell wall undulation	3x4
Cerastium	canopy dimension, seed longevity, leaf area:thickness, flowering period	DMC, life history	3x4
Ranunculus	canopy dimension, seed longevity, vegetative spread	epidermal cell size, life history	3x4
Centaurea Galium Scrophularia Senecio Silene Stachys Stellaria Trifolium Verbascum Veronica	unclear	unclear	1x2, 3x4

Table 6.58. Relationships between families and functional attributes, based on figures 6.9-6.10.

Families	Independently adapted attributes	Conservative attributes	axes
Polygonaceae	leaf area:thickness, stomatal density	cell wall undulation	1x2
Poaceae Ranunculaceae	stomatal density, vegetative spread	life history, cell wall undulation	1x2
Rosaceae Rubiaceae	vegetative spread	stomatal distribution, life history	1x2
Lamiaceae	canopy dimension, epidermal cell size	stomatal distribution, DMC	1x2
Boraginaceae	cell wall undulation, life history	leaf area:thickness, stomatal density	1x2
Asteraceae Apiaceae Papaveraceae	life history	leaf area:thickness, vegetative spread, stomatal density	1x2
Chenopodiaceae	stomatal distribution, DMC, leaf area:thickness	cell wall undulation, epidermal cell size	1x2
Fabaceae	stomatal distribution, cell size	flowering period, life history	3x4
Scrophulariaceae	life history, flowering period	stomatal distribution, cell size	3x4
Brassicaceae	seed longevity, leaf area:thickness	stomatal density , DMC, cell wall undulation	3x4
Caryophyllaceae	unclear	unclear	1x2, 3x4

Table 7.1 Canopy height CV* for genera and families represented in Borja irrigation study. Genera included in the Borja study are highlighted and families included are presented in bold capitals. The thick line represents the CV* cut-off for genera in this study.

Genera and families	*n*	*CV	
Galinsoga	2	0.32	
Sinapis	2	0.46	
Thalictrum	3	2.66	
Rubia	2	3.26	
Adonis	2	3.27	
Sonchus	3	3.78	
Lotus	3	4.00	
Asperula	2	4.09	
Anthemis	6	4.89	
Setaria	3	4.99	
Crepis	2	5.40	
Aphanes	2	5.40	
Lamium	3	5.64	
Phalaris	5	6.27	
Kickxia	2	6.67	
Medicago	8	6.76	
Chrysanthemum	2	7.21	
Silene	10	7.36	
Brassica	2	7.39	
Galeopsis	3	7.61	
Bromus	5	7.72	
Anchusa	3	7.83	
Holcus	2	7.93	
Papaver	4	8.47	genus CV* cut-off
Anisantha	3	8.64	
Rumex	10	8.71	
Polygonum	5	9.27	
Phleum	2	10.16	
Cichorium	2	10.31	
Avena	3	10.48	
Torilis	3	10.73	
Prunus	5	10.80	
Senecio	5	10.97	
CHENOPODIACEAE	**18**	**11.35**	
Chenopodium	10	11.62	
POLYGONACEAE	**21**	**11.93**	
Hordeum	2	12.15	
PAPAVERACEAE	**7**	**12.57**	
Trifolium	14	12.65	
Bromopsis	2	12.91	
Lolium	5	12.96	
APIACEAE	**26**	**13.03**	
Atriplex	5	13.13	
Ranunculus	11	13.40	
Centaurea	11	13.57	
Rubus	3	13.61	
POACEAE	**57**	**13.92**	
FABACEAE	**53**	**14.09**	
Verbascum	5	14.93	
BRASSICACEAE	**21**	**15.49**	
Festuca	5	15.52	
Scrophularia	4	15.65	
ASTERACEAE	**59**	**15.66**	
Stachys	3	15.68	
Lathyrus	9	16.03	
Bupleurum	3	16.28	
Lamiaceae	13	17.07	
BORAGINACEAE	**7**	**17.98**	
RANUNCULACEAE	**18**	**18.04**	
Persicaria	5	18.15	
Veronica	12	18.29	
RUBIACEAE	**18**	**18.34**	
CARYOPHYLLACEAE	**30**	**18.39**	
Vicia	12	18.97	
Tordylium	3	19.00	
Cirsium	4	19.43	
Poa	7	19.97	
Galium	11	22.03	
Cerastium	6	23.26	
SCROPHULARIACEAE	**26**	**23.29**	
Stellaria	5	23.31	
Myosotis	3	28.45	
ROSACEAE	**16**	**44.73**	
Potentilla	5	47.32	

Table 7.2 Canopy height CV* for genera and families represented in Evvia cultivation intensity study. Genera included in the Evvia study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Galinsoga	2	0.32	
Sinapis	2	0.46	
Thalictrum	3	2.66	
Rubia	2	3.26	
Adonis	2	3.27	
Sonchus	3	3.78	
Lotus	3	4.00	
Asperula	2	4.09	
Anthemis	6	4.89	
Setaria	3	4.99	
Crepis	2	5.40	
Aphanes	2	5.40	
Lamium	3	5.64	
Phalaris	5	6.27	
Kickxia	2	6.67	
Medicago	8	6.76	
Chrysanthemum	2	7.21	
Silene	10	7.36	
Brassica	2	7.39	
Galeopsis	3	7.61	
Bromus	5	7.72	
Anchusa	3	7.83	
Holcus	2	7.93	
Papaver	4	8.47	
Anisantha	3	8.64	
Rumex	10	8.71	
Polygonum	5	9.27	
Phleum	2	10.16	
Cichorium	2	10.31	
Avena	3	10.48	
Torilis	3	10.73	
Prunus	5	10.80	
Senecio	5	10.97	
Chenopodiaceae	18	11.35	
Chenopodium	10	11.62	
POLYGONAECEAE	**21**	**11.93**	
Hordeum	2	12.15	
PAPAVERACEAE	**7**	**12.57**	
Trifolium	14	12.65	
Bromopsis	2	12.91	
Lolium	5	12.96	
APIACEAE	**26**	**13.03**	
Atriplex	5	13.13	
Ranunculus	11	13.40	
Centaurea	11	13.57	
Rubus	3	13.61	
POACEAE	**57**	**13.92**	
FABACEAE	**53**	**14.09**	
Verbascum	5	14.93	
BRASSICACEAE	**21**	**15.49**	family CV* cut-off
Festuca	5	15.52	
Scrophularia	4	15.65	
ASTERACEAE	**59**	**15.66**	
Stachys	3	15.68	
Lathyrus	9	16.03	
Bupleurum	3	16.28	
Lamiaceae	13	17.07	
BORAGINACEAE	**7**	**17.98**	
RANCUNCULACEAE	**18**	**18.04**	
Persicaria	5	18.15	
Veronica	12	18.29	
RUBIACEAE	**18**	**18.34**	
CARYOPHYLLACAE	**30**	**18.39**	
Vicia	12	18.97	
Tordylium	3	19.00	
Cirsium	4	19.43	
Poa	7	19.97	
Galium	11	22.03	
Cerastium	6	23.26	
SCROPHULARIACEAE	**26**	**23.29**	
Stellaria	5	23.31	
Myosotis	3	28.45	genus CV* cut-off
ROSACEAE	**16**	**44.73**	
Potentilla	5	47.32	

Table 7.3 Canopy height CV* for genera and families represented in Germany sowing time study. Genera included in the Germany study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Galinsoga	2	0.32	
Sinapis	2	0.46	
Thalictrum	3	2.66	
Rubia	2	3.26	
Adonis	2	3.27	
Sonchus	3	3.78	
Lotus	3	4.00	
Asperula	2	4.09	
Anthemis	6	4.89	
Setaria	3	4.99	
Crepis	2	5.40	
Aphanes	2	5.40	
Lamium	3	5.64	
Phalaris	5	6.27	
Kickxia	2	6.67	
Medicago	8	6.76	
Chrysanthemum	2	7.21	
Silene	10	7.36	
Brassica	2	7.39	
Galeopsis	3	7.61	
Bromus	5	7.72	
Anchusa	3	7.83	
Holcus	2	7.93	
Papaver	4	8.47	
Anisantha	3	8.64	
Rumex	10	8.71	
Polygonum	5	9.27	
Phleum	2	10.16	
Cichorium	2	10.31	
Avena	3	10.48	
Torilis	3	10.73	
Prunus	5	10.80	
Senecio	5	10.97	
CHENOPODIACEAE	**18**	**11.35**	
Chenopodium	10	11.62	
POLYGONACEAE	**21**	**11.93**	
Hordeum	2	12.15	
PAPAVERACEAE	**7**	**12.57**	
Trifolium	14	12.65	
Bromopsis	2	12.91	
Lolium	5	12.96	
APIACEAE	**26**	**13.03**	family CV* cut-off
Atriplex	5	13.13	
Ranunculus	11	13.40	
Centaurea	11	13.57	
Rubus	3	13.61	
POACEAE	**57**	**13.92**	
FABACEAE	**53**	**14.09**	
Verbascum	5	14.93	
BRASSICACEAE	**21**	**15.49**	
Festuca	5	15.52	
Scrophularia	4	15.65	
ASTERACEAE	**59**	**15.66**	
Stachys	3	15.68	
Lathyrus	9	16.03	
Bupleurum	3	16.28	
Lamiaceae	13	17.07	
BORAGINACEAE	**7**	**17.98**	
RANUNCULACEAE	**18**	**18.04**	
Persicaria	5	18.15	
Veronica	12	18.29	
RUBIACEAE	**18**	**18.34**	
CARYOPHYLLACEAE	**30**	**18.39**	
Vicia	12	18.97	
Tordylium	3	19.00	
Cirsium	4	19.43	
Poa	7	19.97	
Galium	11	22.03	
Cerastium	6	23.26	
SCROPHULARIACEAE	**26**	**23.29**	
Stellaria	5	23.31	
Myosotis	3	28.45	genus CV* cut-off
ROSACEAE	**16**	**44.73**	
Potentilla	5	47.32	

Table 7.4 Canopy diameter CV* for genera and families represented in Evvia cultivation intensity study. Genera included in the Evvia study are highlighted and families included are presented in bold capitals. The lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Setaria	3	0.71	
Hordeum	2	2.33	
Cichorium	2	2.33	
Neslia	2	2.89	
Torilis	3	3.52	
Asperula	2	3.63	
Rubus	4	3.72	
Bromopsis	2	3.76	
Lotus	3	4.74	
Verbascum	5	5.64	
Aphanes	2	5.71	
Holcus	2	5.74	
Sonchus	3	5.82	
Galinsoga	2	6.46	
Brassica	2	7.51	
Prunus	5	7.88	
Anthemis	6	9.11	
Anisantha	3	9.24	
PAPAVERACEAE	**7**	**9.91**	
Medicago	8	11.74	
Papaver	4	12.28	
Adonis	2	12.73	
Avena	3	13.00	genus CV* cut-off
Anchusa	3	13.02	
Bromus	5	13.20	
Persicaria	5	14.08	
Kickxia	2	14.40	
Rumex	10	14.57	
Senecio	5	14.65	
Galium	11	14.68	
Cirsium	4	14.75	
POLYGONACEAE	**21**	**14.92**	
Potentilla	7	16.04	
Centaurea	11	16.46	
Scrophularia	4	16.94	
APIACEAE	**26**	**17.25**	family CV* cut-off
Atriplex	6	17.41	
Rubia	2	17.49	
Silene	10	18.80	
Thalictrum	3	19.43	
Polygonum	5	19.68	
RUBIACEAE	**18**	**19.89**	
Bupleurum	3	20.56	
FABACEAE	**53**	**20.82**	
Chenopodiaceae	19	21.14	
Galeopsis	3	21.35	
Poa	7	21.44	
Sinapis	2	21.44	
Asteraceae	67	21.60	
Veronica	13	21.79	
Lathyrus	8	21.97	
POACEAE	**57**	**22.20**	
Stellaria	5	22.33	
ROSACEAE	**19**	**22.58**	
Chrysanthemum	2	22.61	
Lamium	3	23.42	
Vicia	12	24.25	
Stachys	3	24.61	
LAMIACEAE	**14**	**24.61**	
RANUNCULACEAE	**18**	**24.81**	
Chenopodium	10	24.81	
Tordylium	3	25.10	
Lolium	5	25.21	
SCROPHULARIACEAE	**28**	**25.23**	
BORAGINACEAE	**7**	**25.40**	
Phalaris	4	25.46	
Lactuca	3	25.69	
Trifolium	14	25.79	
Ranunculus	11	26.29	
CARYOPHYLLACEAE	**30**	**26.79**	
BRASSICACEAE	**22**	**26.89**	
Crepis	2	27.27	
Festuca	5	28.68	
Myosotis	3	31.82	
Phleum	2	32.42	
Cerastium	6	38.02	
Ononis	2	56.74	

Table 7.5 Leaf area per node CV* for genera and families represented in Evvia cultivation intensity study. Genera included in the Evvia study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Holcus	2	0.50	
Setaria	3	0.65	
Kickxia	2	1.54	
Rubus	4	2.00	
Galinsoga	2	2.42	
Torilis	3	3.48	
Galeopsis	3	3.77	
Hordeum	2	3.92	
Lamium	3	4.30	
Anchusa	3	4.80	
Thalictrum	3	4.96	
Anthemis	6	5.16	
Sonchus	3	5.45	
Tordylium	3	5.73	
Neslia	2	5.83	
Chrysanthemum	2	7.19	
Rubia	2	7.31	
Cirsium	4	7.37	
Bromus	5	7.67	
Crepis	2	7.87	
Filago	2	8.02	
Anisantha	3	8.03	
Verbascum	5	8.09	
Adonis	2	8.41	
Persicaria	5	9.23	
Senecio	5	9.72	
Ranunculus	11	10.18	
Lathyrus	8	10.28	
Avena	3	10.56	
Aphanes	2	10.96	
Phalaris	5	11.12	
Medicago	8	11.28	
Brassica	2	11.46	
Lolium	5	11.88	
LAMIACEAE	**14**	**12.07**	
PAPAVERACEAE	**7**	**12.11**	
Lotus	3	12.32	
Myosotis	3	12.38	
Silene	10	12.58	
Prunus	5	12.59	
Veronica	13	12.61	
APIACEAE	**25**	**13.38**	
Bromopsis	2	14.37	
Papaver	4	14.48	
BRASSICACEAE	**21**	**14.56**	
POACEAE	**59**	**14.72**	
FABACEAE	**54**	**14.93**	
Poa	7	15.33	
Stachys	3	15.67	
RANUNCULACEAE	**18**	**15.84**	
Ononis	2	16.18	
Vicia	13	16.25	
Potentilla	8	16.79	
Phleum	2	17.19	
Centaurea	11	18.27	
BORAGINACEAE	**7**	**18.41**	family CV* cut-off
Trifolium	14	18.74	
Rumex	10	21.07	
Chenopodium	10	21.70	
Stellaria	5	22.14	
Atriplex	6	22.14	
Festuca	5	22.14	
ROSACEAE	**20**	**22.17**	
Lactuca	2	22.28	
Asperula	2	22.77	
Polygonum	5	23.14	
Chenopodiaceae	18	23.20	
ASTERACEAE	**67**	**23.38**	
Scrophularia	4	23.46	
Cerastium	5	23.69	
Bupleurum	3	24.96	
RUBIACEAE	**18**	**25.06**	
SCROPHULARIACEAE	**28**	**25.24**	
Galium	11	25.36	genus CV* cut-off
Echinochloa	2	26.22	
POLYGONACEAE	**21**	**27.75**	
CARYOPHYLLACEAE	**29**	**33.18**	
Cichorium	2	36.61	

Table 7.6 Leaf area per node CV* for genera and families represented in Germany sowing time study. Genera included in the Germany study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Holcus	2	0.50	
Setaria	3	0.65	
Kickxia	2	1.54	
Rubus	4	2.00	
Galinsoga	2	2.42	
Torilis	3	3.48	
Galeopsis	3	3.77	
Hordeum	2	3.92	
Lamium	3	4.30	
Anchusa	3	4.80	
Thalictrum	3	4.96	
Anthemis	6	5.16	
Sonchus	3	5.45	
Tordylium	3	5.73	
Neslia	2	5.83	
Chrysanthemum	2	7.19	
Rubia	2	7.31	
Cirsium	4	7.37	
Bromus	5	7.67	
Crepis	2	7.87	
Filago	2	8.02	
Anisantha	3	8.03	
Verbascum	5	8.09	
Adonis	2	8.41	
Persicaria	5	9.23	
Senecio	5	9.72	
Ranunculus	11	10.18	
Lathyrus	8	10.28	
Avena	3	10.56	
Aphanes	2	10.96	
Phalaris	5	11.12	
Medicago	8	11.28	
Brassica	2	11.46	
Lolium	5	11.88	
LAMIACEAE	**14**	**12.07**	family CV* cut-off
PAPAVERACEAE	**7**	**12.11**	
Lotus	3	12.32	
Myosotis	3	12.38	
Silene	10	12.58	genus CV* cut-off
Prunus	5	12.59	
Veronica	13	12.61	
APIACEAE	**25**	**13.38**	
Bromopsis	2	14.37	
Papaver	4	14.48	
BRASSICACEAE	**21**	**14.56**	
POACEAE	**59**	**14.72**	
FABACEAE	**54**	**14.93**	
Poa	7	15.33	
Stachys	3	15.67	
RANUNCULACEAE	**18**	**15.84**	
Ononis	2	16.18	
Vicia	13	16.25	
Potentilla	8	16.79	
Phleum	2	17.19	
Centaurea	11	18.27	
BORAGINACEAE	**7**	**18.41**	
Trifolium	14	18.74	
Rumex	10	21.07	
Chenopodium	10	21.70	
Stellaria	5	22.14	
Atriplex	6	22.14	
Festuca	5	22.14	
ROSACEAE	**20**	**22.17**	
Lactuca	2	22.28	
Asperula	2	22.77	
Polygonum	5	23.14	
CHENOPODIACEAE	**18**	**23.20**	
ASTERACEAE	**67**	**23.38**	
Scrophularia	4	23.46	
Cerastium	5	23.69	
Bupleurum	3	24.96	
RUBIACEAE	**18**	**25.06**	
SCROPHULARIACEAE	**28**	**25.24**	
Galium	11	25.36	
Echinochloa	2	26.22	
POLYGONACEAE	**21**	**27.75**	
CARYOPHYLLACEAE	**29**	**33.18**	
Cichorium	2	36.61	

Table 7.7 Leaf weight per node CV* for genera and families represented in Evvia cultivation intensity study. Genera included in the Evvia study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Adonis	2	0.72	
Galeopsis	3	1.37	
Cirsium	4	2.10	
Kickxia	2	2.22	
Chrysanthemum	2	3.12	
Setaria	3	3.20	
Galinsoga	2	3.66	
Torilis	3	5.54	
Holcus	2	6.39	
Bromus	5	6.61	
Sonchus	3	7.33	
Rubia	2	7.36	
Crepis	2	7.76	
Neslia	2	8.69	
Rubus	4	9.27	
Lotus	3	10.22	
Verbascum	5	10.78	
Hordeum	2	12.22	
Thalictrum	3	12.52	
Brassica	2	12.83	
Tordylium	3	13.75	
Bromopsis	2	14.42	
Anisantha	3	14.85	
Anchusa	3	15.33	
Lolium	5	15.37	genus CV* cut-off
PAPAVERACEAE	**7**	**16.10**	family CV* cut-off
Silene	10	16.18	
Lamium	3	16.58	
Persicaria	5	16.70	
Avena	3	17.58	
Medicago	8	17.89	
Myosotis	3	18.01	
Anthemis	6	18.70	
Papaver	4	19.59	
Prunus	5	20.43	
APIACEAE	**25**	**20.47**	
Senecio	5	20.62	
Lathyrus	8	20.72	
Ranunculus	11	22.16	
Phalaris	5	22.25	
LAMIACEAE	**14**	**24.39**	
Potentilla	8	24.57	
BRASSICACEAE	**21**	**25.06**	
Atriplex	6	25.23	
Centaurea	11	25.26	
FABACEAE	**54**	**25.72**	
POACEAE	**58**	**26.56**	
Veronica	13	27.19	
Lactuca	3	27.60	
RANUNCULACEAE	**18**	**28.23**	
Vicia	13	28.33	
Festuca	5	29.10	
Rumex	10	29.71	
Stachys	3	29.81	
Ononis	2	31.57	
Chenopodiaceae	18	31.73	
Scrophularia	4	32.70	
Aphanes	2	32.72	
ASTERACEAE	**66**	**32.98**	
Trifolium	14	33.39	
Poa	7	34.09	
Chenopodium	10	34.58	
Bupleurum	3	35.52	
ROSACEAE	**20**	**35.84**	
Phleum	2	37.57	
BORAGINACEAE	**7**	**38.25**	
POLYGONACEAE	**21**	**40.53**	
Polygonum	5	41.80	
Stellaria	5	44.55	
SCROPHULARIACEAE	**28**	**47.11**	
Galium	11	48.94	
RUBIACEAE	**17**	**52.19**	
Cichorium	2	58.36	
CARYOPHYLLACEAE	**29**	**59.77**	
Cerastium	5	61.08	
Filago	2	72.01	
Asperula	2	78.22	

Table 7.8 Leaf area:thickness CV* for genera and families represented in Germany sowing time study. Genera included in the Germany study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Holcus	2	0.41	
Kickxia	2	0.43	
Setaria	3	0.44	
Filago	2	2.24	
Rubus	4	3.01	
Galeopsis	3	3.29	
Torilis	3	3.57	
Anchusa	3	3.58	
Bromus	5	5.15	
Lamium	3	5.21	
Sonchus	3	5.84	
Thalictrum	3	6.16	
Anisantha	3	6.17	
Persicaria	5	6.25	
Anthemis	6	6.32	
Galinsoga	2	6.51	
Tordylium	3	6.82	
Lathyrus	8	7.06	
Hordeum	2	7.21	
Rubia	2	7.26	
Ranunculus	11	7.44	
Phalaris	5	7.73	
Crepis	2	7.83	
Avena	3	7.92	
Ononis	2	8.26	
PAPAVERACEAE	**7**	**9.59**	
Lolium	5	8.57	
Prunus	5	8.68	
Aphanes	2	8.78	
Medicago	8	9.78	
Chrysanthemum	2	9.84	
Senecio	5	10.00	
Verbascum	5	10.04	
Veronica	13	10.05	
LAMIACEAE	**14**	**10.15**	
Phleum	2	10.45	
BORAGINACEAE	**7**	**10.47**	family CV* cut-off
Cirsium	4	10.59	
Poa	7	10.68	
APIACEAE	**25**	**10.94**	
Myosotis	3	11.19	
POACEAE	**58**	**11.20**	
Silene	10	11.63	
Neslia	2	11.70	
FABACEAE	**53**	**11.96**	
Adonis	2	12.18	
BRASSICACEAE	**21**	**12.46**	
Papaver	4	12.68	genus CV* cut-off
Vicia	12	12.81	
Brassica	2	12.93	
Trifolium	14	13.07	
Asperula	2	13.11	
Lotus	3	13.86	
Potentilla	8	14.15	
RANUNCULACEAE	**18**	**14.56**	
Bupleurum	3	14.90	
Bromopsis	2	14.91	
Stachys	3	16.15	
Centaurea	11	16.24	
RUBIACEAE	**18**	**17.46**	
Cerastium	5	17.94	
ROSACEAE	**20**	**18.08**	
Stellaria	5	18.29	
Galium	11	18.83	
Polygonum	5	19.29	
Rumex	10	19.96	
ASTERACEAE	**67**	**20.28**	
Chenopodium	10	20.34	
Lactuca	3	20.85	
SCROPHULARIACEAE	**28**	**21.00**	
Festuca	5	21.70	
Scrophularia	4	23.21	
Cichorium	2	23.58	
Atriplex	6	23.82	
POLYGONACEAE	**12**	**23.94**	
CHENOPODIACEAE	**18**	**24.16**	
CARYOPHYLLACEAE	**29**	**27.76**	

Table 7.9 SLA CV* for genera and families represented in Borja irrigation study. Genera included in the Borja study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Kickxia	2	0.66	
Neslia	2	1.61	
Cichorium	2	1.91	
Ononis	2	2.37	
Sonchus	3	3.12	
Anisantha	3	3.27	
Torilis	3	3.30	
Setaria	3	3.64	
Cerastium	5	3.66	
Aphanes	2	3.86	
Avena	3	6.69	
Rubia	2	7.21	
Myosotis	3	7.62	
Chenopodium	10	7.99	
Phalaris	5	8.02	
Crepis	2	8.05	
Brassica	2	8.21	
Veronica	13	8.61	
Trifolium	14	8.68	
Lamium	3	8.77	
Lactuca	3	8.79	
Holcus	2	8.84	
Stachys	3	8.97	
Galeopsis	3	9.66	
Persicaria	5	9.74	
Stellaria	5	9.77	
Silene	10	9.98	genus CV* cut-off
Rumex	10	10.14	
Centaurea	11	10.21	
Galinsoga	2	10.35	
Filago	2	10.38	
Ranunculus	11	10.39	
Medicago	8	10.82	
POLYGONACEAE	**21**	**11.73**	
Lathyrus	8	11.75	
Bromus	5	11.95	
Tordylium	3	12.29	
FABACEAE	**54**	**12.45**	family CV* cut-off
BRASSICACEAE	**21**	**12.46**	
Prunus	5	12.47	
Chrysanthemum	2	12.86	
RANUNCULACEAE	**18**	**12.89**	
Bupleurum	3	12.94	
Anthemis	3	13.08	
LAMIACEAE	**14**	**13.33**	
RUBIACEAE	**18**	**13.40**	
POACEAE	**59**	**13.47**	
PAPAVERACEAE	**7**	**13.55**	
Vicia	13	13.65	
Agrostis	2	13.83	
Papaver	4	14.20	
Polygonum	5	14.24	
Bromopsis	2	14.28	
Phleum	2	14.33	
Galium	11	14.68	
SCROPHULARIACEAE	**28**	**14.96**	
ROSACEAE	**20**	**15.04**	
Lolium	5	15.11	
Rubus	4	15.21	
Verbascum	5	15.22	
CARYOPHYLLACEAE	**29**	**15.33**	
ASTERACEAE	**67**	**15.73**	
Festuca	5	16.29	
Lotus	3	16.54	
Potentilla	8	16.85	
Atriplex	6	17.21	
CHENOPODIACEAE	**18**	**17.30**	
APIACEAE	**25**	**18.61**	
Scrophularia	4	18.72	
Asperula	2	18.93	
Thalictrum	3	19.11	
BORAGINACEAE	**7**	**19.20**	
Cirsium	4	19.98	
Poa	7	20.59	
Senecio	5	22.01	
Adonis	2	22.82	
Hordeum	2	23.30	
Anchusa	3	23.86	

Table 7.10 SLA CV* for genera and families represented in Germany sowing time study. Genera included in the Germany study are highlighted and families included are presented in bold capitals. The thick lines represent the CV* cut-offs for genera and families in this study.

Genera and families	*n*	*CV	
Kickxia	2	0.66	
Neslia	2	1.61	
Cichorium	2	1.91	
Ononis	2	2.37	
Sonchus	3	3.12	
Anisantha	3	3.27	
Torilis	3	3.30	
Setaria	3	3.64	
Cerastium	5	3.66	
Aphanes	2	3.86	
Avena	3	6.69	
Rubia	2	7.21	
Myosotis	3	7.62	
Chenopodium	10	7.99	
Phalaris	5	8.02	
Crepis	2	8.05	
Brassica	2	8.21	
Veronica	13	8.61	
Trifolium	14	8.68	
Lamium	3	8.77	
Lactuca	3	8.79	
Holcus	2	8.84	
Stachys	3	8.97	
Galeopsis	3	9.66	
Persicaria	5	9.74	
Stellaria	5	9.77	
Silene	10	9.98	
Rumex	10	10.14	
Centaurea	11	10.21	
Galinsoga	2	10.35	
Filago	2	10.38	
Ranunculus	11	10.39	
Medicago	8	10.82	
POLYGONACEAE	**21**	**11.73**	
Lathyrus	8	11.75	
Bromus	5	11.95	
Tordylium	3	12.29	
FABACEAE	**54**	**12.45**	
BRASSICACEAE	**21**	**12.46**	
Prunus	5	12.47	
Chrysanthemum	2	12.86	
RANUNCULACEAE	**18**	**12.89**	
Bupleurum	3	12.94	
Anthemis	3	13.08	
LAMIACEAE	**14**	**13.33**	
RUBIACEAE	**18**	**13.40**	
POACEAE	**59**	**13.47**	
PAPAVERACEAE	**7**	**13.55**	family CV* cut-off
Vicia	13	13.65	
Agrostis	2	13.83	
Papaver	4	14.20	
Polygonum	5	14.24	
Bromopsis	2	14.28	
Phleum	2	14.33	
Galium	11	14.68	
SCROPHULARIACEAE	**28**	**14.96**	
ROSACEAE	**20**	**15.04**	
Lolium	5	15.11	
Rubus	4	15.21	
Verbascum	5	15.22	
CARYOPHYLLACEAE	**29**	**15.33**	
ASTERACEAE	**67**	**15.73**	
Festuca	5	16.29	
Lotus	3	16.54	
Potentilla	8	16.85	
Atriplex	6	17.21	
CHENOPODIACEAE	**18**	**17.30**	
APIACEAE	**25**	**18.61**	
Scrophularia	4	18.72	
Asperula	2	18.93	
Thalictrum	3	19.11	
BORAGINACEAE	**7**	**19.20**	
Cirsium	4	19.98	
Poa	7	20.59	
Senecio	5	22.01	
Adonis	2	22.82	
Hordeum	2	23.30	
Anchusa	3	23.86	genus CV* cut-off

Table 7.11 Flowering period ID for genera and families represented in Germany sowing time study. Genera included in the Germany study are highlighted and families included are presented in bold capitals. The thick line represents the ID cut-off both for genera and families in this study.

Genera and families	*n*	J	
Adonis	2	0.00	
Anchusa	3	0.00	
Anisantha	3	0.00	
Asperula	2	0.00	
Cirsium	4	0.00	
Crepis	2	0.00	
Echinochloa	2	0.00	
Galinsoga	2	0.00	
Holcus	2	0.00	
Hordeum	2	0.00	
Kickxia	2	0.00	
Lactuca	3	0.00	
Ononis	2	0.00	
Phleum	2	0.00	
Scrophularia	4	0.00	
Thalictrum	3	0.00	
Xanthium	2	0.00	
Atriplex	6	0.33	
Centaurea	11	0.34	
Chenopodium	10	0.36	
Festuca	5	0.36	
Persicaria	5	0.36	
Phalaris	5	0.36	
Silene	10	0.36	
Stellaria	5	0.36	
CHENOPODIACEAE	**19**	**0.39**	
Papaver	4	0.41	
Anthemis	6	0.46	
Avena	3	0.46	
Bupleurum	3	0.46	
Galeopsis	3	0.46	
Lamium	3	0.46	
Setaria	3	0.46	
Sonchus	3	0.46	
Stachys	3	0.46	
Tordylium	3	0.46	
Ranunculus	11	0.47	
Bromus	5	0.49	
Lolium	5	0.49	
Prunus	5	0.49	
PAPAVERACEAE	**7**	**0.49**	
RANUNCULACEAE	**18**	**0.50**	
Agrostis	2	0.50	
Aphanes	2	0.50	
Brassica	2	0.50	
Bromopsis	2	0.50	
Chrysanthemum	2	0.50	
Cichorium	2	0.50	
Filago	2	0.50	
Medicago	8	0.50	
Neslia	2	0.50	
Potentilla	8	0.50	
Rubia	2	0.50	
Sinapis	2	0.50	genera and families ID cut-off
CARYOPHYLLACEAE	**30**	**0.53**	
BRASSICACEAE	**22**	**0.55**	
BORAGINACEAE	**7**	**0.57**	
Poa	7	0.57	
ROSACEAE	**20**	**0.62**	
Cerastium	6	0.63	
Trifolium	14	0.63	
Vicia	13	0.66	
Lathyrus	9	0.72	
Rubus	4	0.75	
Polygonum	5	0.76	
Senecio	5	0.76	
Veronica	13	0.76	
FABACEAE	**55**	**0.77**	
POACEAE	**60**	**0.78**	
Rumex	10	0.79	
Lotus	3	0.79	
Myosotis	3	0.79	
Torilis	3	0.79	
RUBIACEAE	**18**	**0.82**	
APIACEAE	**26**	**0.83**	
ASTERACEAE	**68**	**0.84**	
Galium	11	0.84	
SCROPHULARIACEAE	**28**	**0.86**	
POLYGONACEAE	**21**	**0.92**	
LAMIACEAE	**14**	**0.93**	
Verbascum	4	0.96	

Table 7.12 Summary of results for genera from Section 7.2. In column four, underlined CV*s/IDs are *minimum* cut-offs. In column five, only underlined classes are functionally significant.

functional attribute	weed study	pattern when all species reclassified by genus value	CV*/ID cut-off for predictive value	classification of functional attribute	% species in the broadest class	values of CV*/ID most represented (from Tables 7.1 to 7.11)
canopy height	Borja	obscured	CV* 8.47 (low)	<60, ≥60 cm	57% (20 of 35)	evenly distributed
	Evvia	preserved	CV* 28.45 (high)	<85, ≥85 cm	84% (41 of 49)	evenly distributed
	Germany	preserved	CV* 28.45 (high)	<25, 25-65, >65 cm	47% (22 of 47)	low-mod
canopy diameter	Evvia	obscured	CV* 13.00 (low)	<100, ≥100 cm	78% (39 of 50)	evenly distributed
leaf area per node	Evvia	preserved	CV* 25.36 (high)	<200, 200-3700, >3700 mm^2	84% (42 of 50)	evenly distributed
	Germany	obscured	CV* 12.58 (mod)	<150, 150-1300, >1300 mm^2	63% (29 of 46)	low-mod
leaf weight per node	Evvia	obscured	CV* 15.37 (low)	<5, 5-124, >124 mg	84% (42 of 50)	evenly distributed
leaf area:thickness	Germany	obscured	CV* 12.68 (mod)	<1000, 1000-9000, >9000 mm	57% (25 of 44)	low-mod
SLA	Borja	obscured	CV* 9.98 (mod)	<5, 5-20, >20 mm^2	77% (30 of 39)	evenly distributed
	Germany	preserved	CV* 23.86 (high)	<28, ≥28 mm^2	72% (33 of 46)	low-mod
Flowering period	Germany	preserved	ID 0.50 (mod)	Short, late, long, intermediate	35% (16 of 46)	low-mod

Table 7.13 Summary of results for families from Section 7.2. In column four, underlined CV*s/IDs are *minimum* cut-offs. In column five, only underlined classes are functionally significant.

functional attribute	weed study	pattern when all species reclassified by family value	CV*/ID cut-off for predictive value	classification of functional attribute	% species in the broadest class	values of CV*/ID most represented
canopy height	Borja	obscured	none	<60, ≥60 cm	66% (44 of 67)	mod-high
	Evvia	obscured	CV*15.49 (mod)	<85, ≥85 cm	83% (59 of 71)	mod-high
	Germany	obscured	CV*13.03 (mod)	<25, 25-65, >65 cm	53% (37 of 69)	mod-high
canopy diameter	Evvia	obscured	CV*17.25 (mod)	<100, ≥100 cm	77% (55 of 71)	mod-high, 1 low
leaf area per node	Evvia	obscured	CV*18.41 (mod)	<200, 200-3700, >3700 mm^2	85% (60 of 71)	mod-high
	Germany	obscured	CV*12.07 (mod)	<150, 150-1300, >1300 mm^2	54% (32 of 59)	mod-high
leaf weight per node	Evvia	obscured	CV*16.10 (low)	<5, 5-124, >124 mg	83% (58 of 70)	mod-high, 1 low
leaf area:thickness	Germany	obscured	CV*10.47 (mod)	<1000, 1000-9000, >9000 mm	58% (40 of 69)	mod-high, 1 low
SLA	Borja	obscured	CV*12.45 (mod)	<5, 5-20, >20 mm^2	81% (54 of 67)	mod-high
	Germany	obscured	CV*13.6 (mod)	<28, ≥28 mm^2	77% (53 of 69)	mod-high
Flowering period	Germany	preserved	CV*0.50 (mod)	Short, late, long, intermediate	37% (25 of 68)	mod-high

Figure 2.1 Simple phylogeny of three groups in the Rosaceae family, based on fruit type (after Judd *et al* 2002)

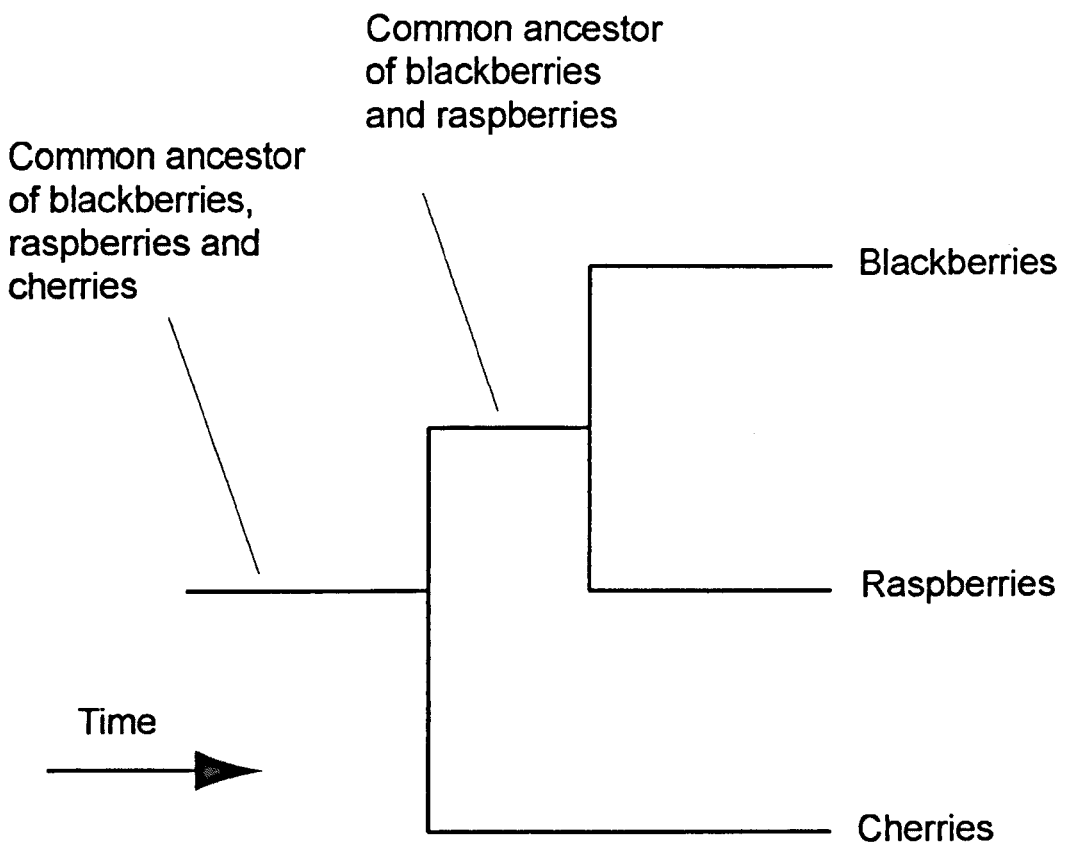


Figure 3.1 CCA plot showing the position of modern pollen samples from 44 grazed and 24 mowed and pollarded sites in relation to scores for grazing, mowing and polarding variables. The scores for the land-use variables (large circles) are represented by their centroid or weighted average of the site scores (small circles). The dashed line delimits the distribution of individual mowed or mowed and pollarded sites. From Gaillard *et al.* (1994).

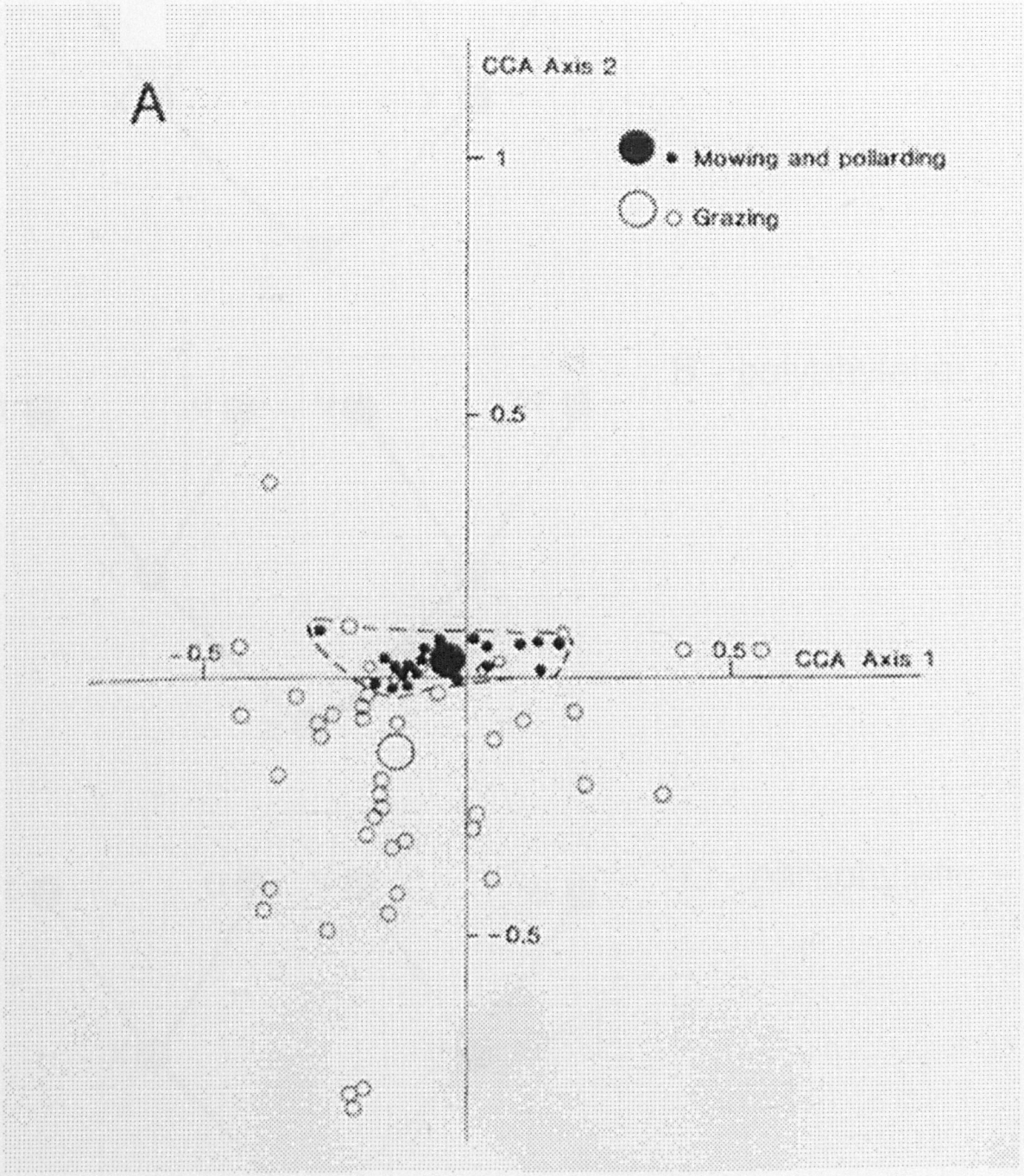
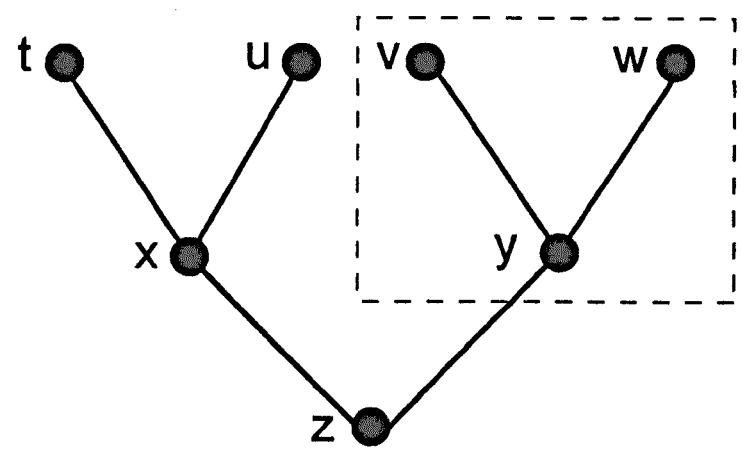
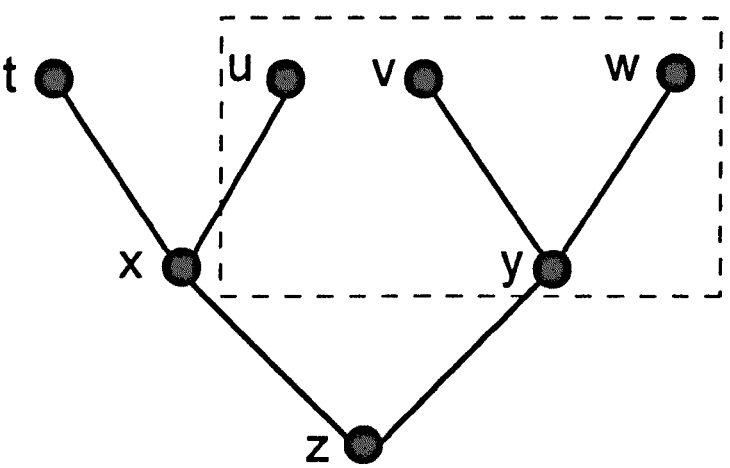


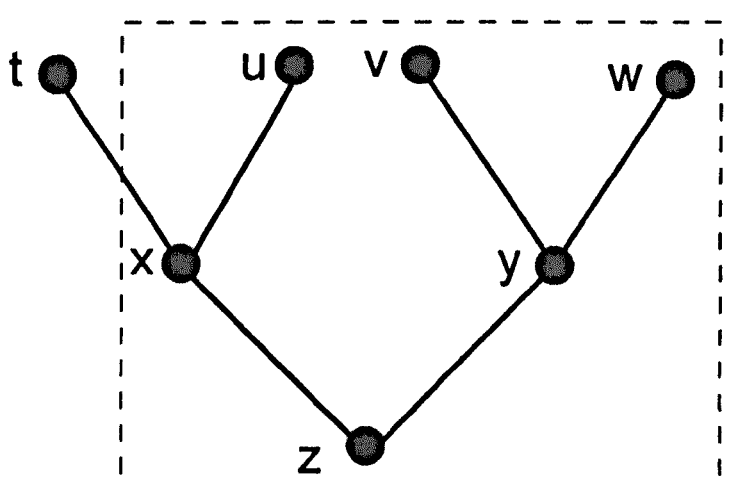
Figure 5.1 Phylogenetic trees for four extant species: t, u, v, and w. Species x, y and z are extinct ancestral species. The dotted lines show subgroups of these species, which are defined by the subheadings.



A - monophyletic



B - polyphyletic



C - paraphyletic

Figure 5.2 Phylogenetic tree of the Apiaceae tribes Caucalideae, Sandiceae, and related species. Ta is the smallest monophyletic group that contains all the *Torillis* species included in the analysis. After Lee and Downie (2000).

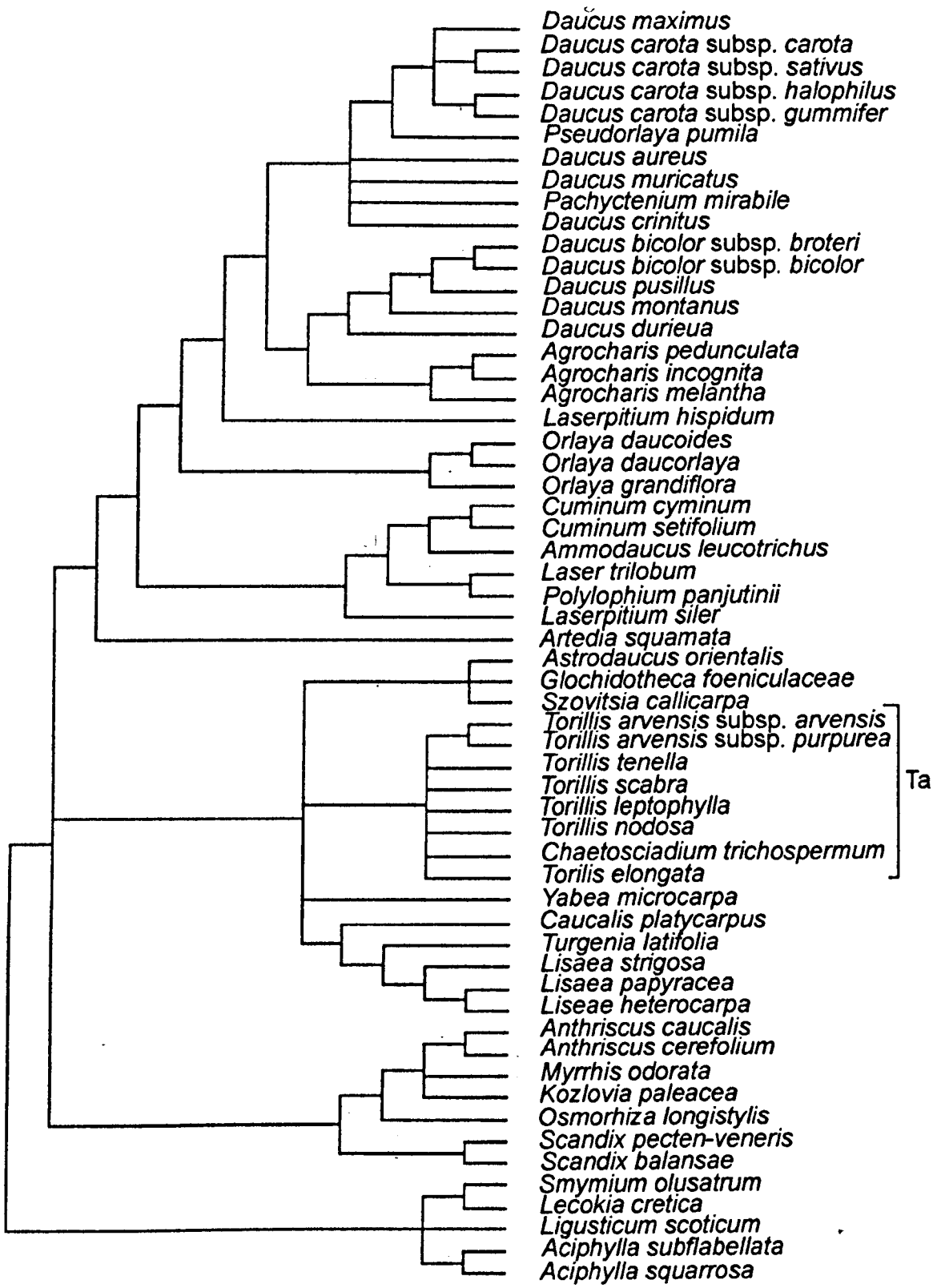


Figure 5.3 Phylogenetic tree of the Rosaceae subfamily Rosideae and related species. Group Pa is the smallest monophyletic group that contains all the *Potentilla* species included in the analysis, groups Pb, Pc and Pd are monophyletic subgroups of Pd. After Eriksson *et al* (1998).

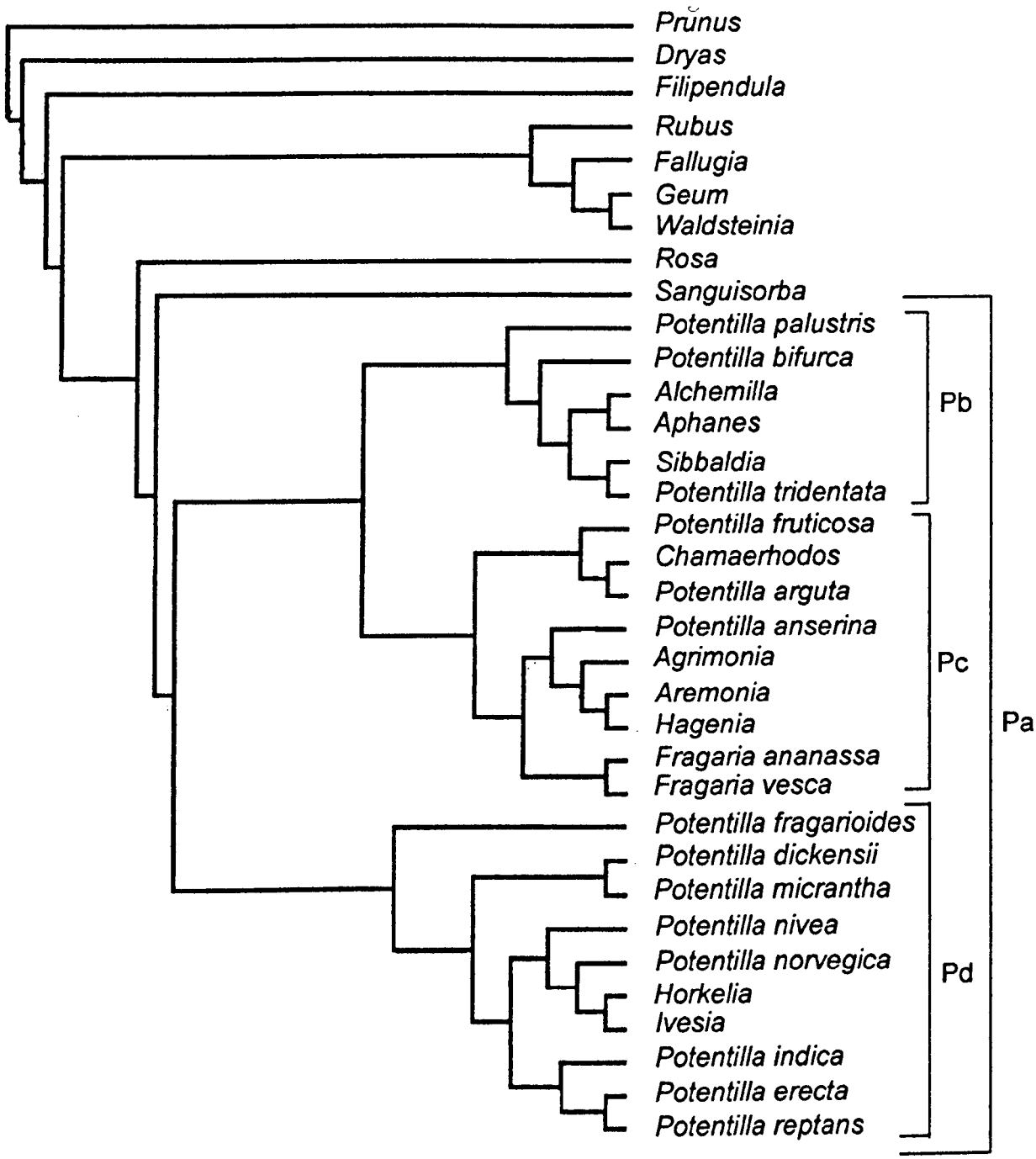


Figure 6.1. Ternary graph based on the nested ANOVA results obtained from data arranged by the basic taxonomy. Each ratio-scale attribute is plotted according to the relative percentage of variance in the ARCHFIBS taxa that is accounted for at each of the taxonomic levels of within-genera, within-families and within-dataset.

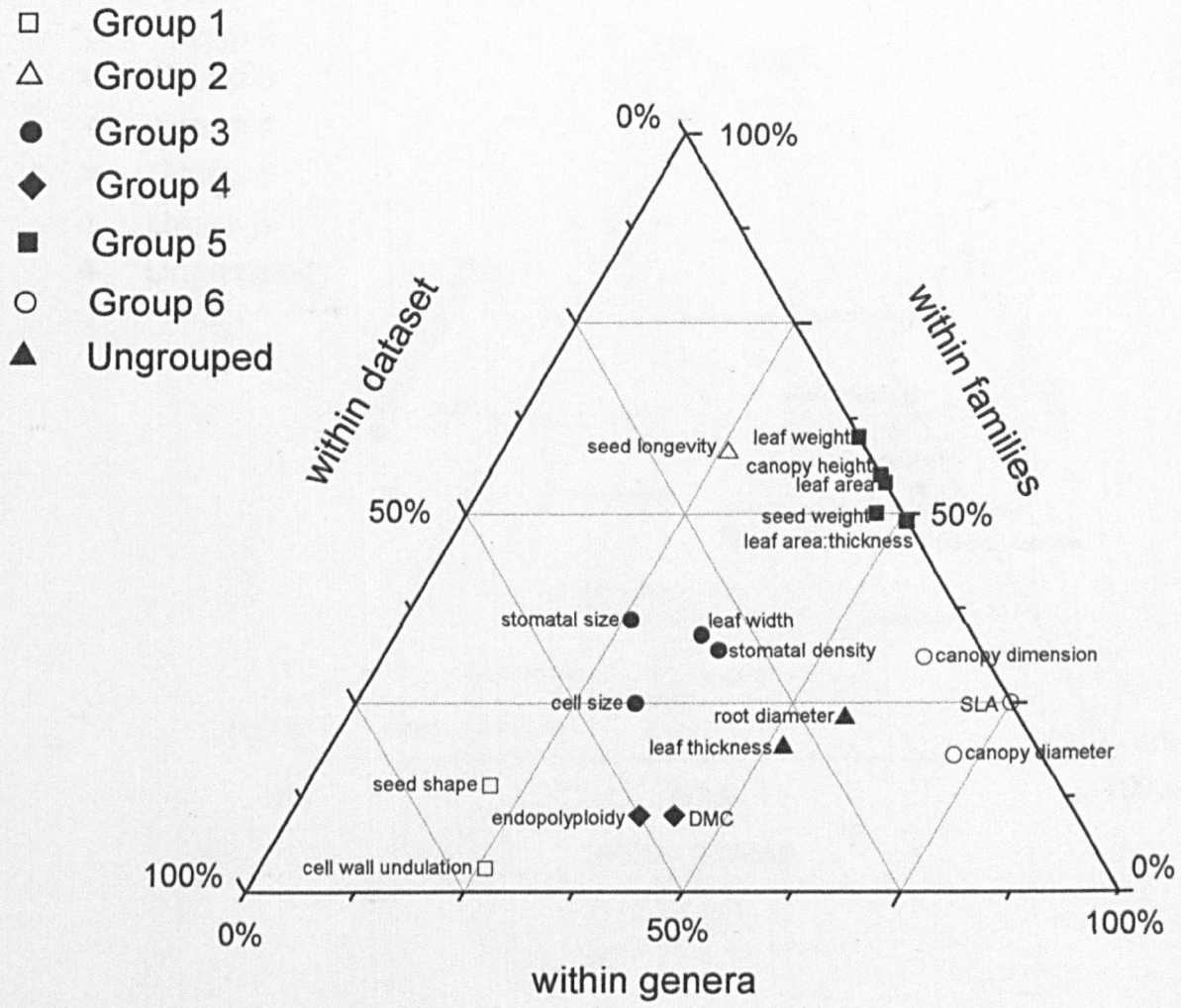


Figure 6.2. Ternary graph based on the nested ANOVA results obtained from data arranged by the revised taxonomy. Each ratio-scale attribute is plotted according to the relative percentage of variance in the ARCHFIBS taxa that is accounted for at each of the taxonomic levels of within-genera, within-families and within-dataset.

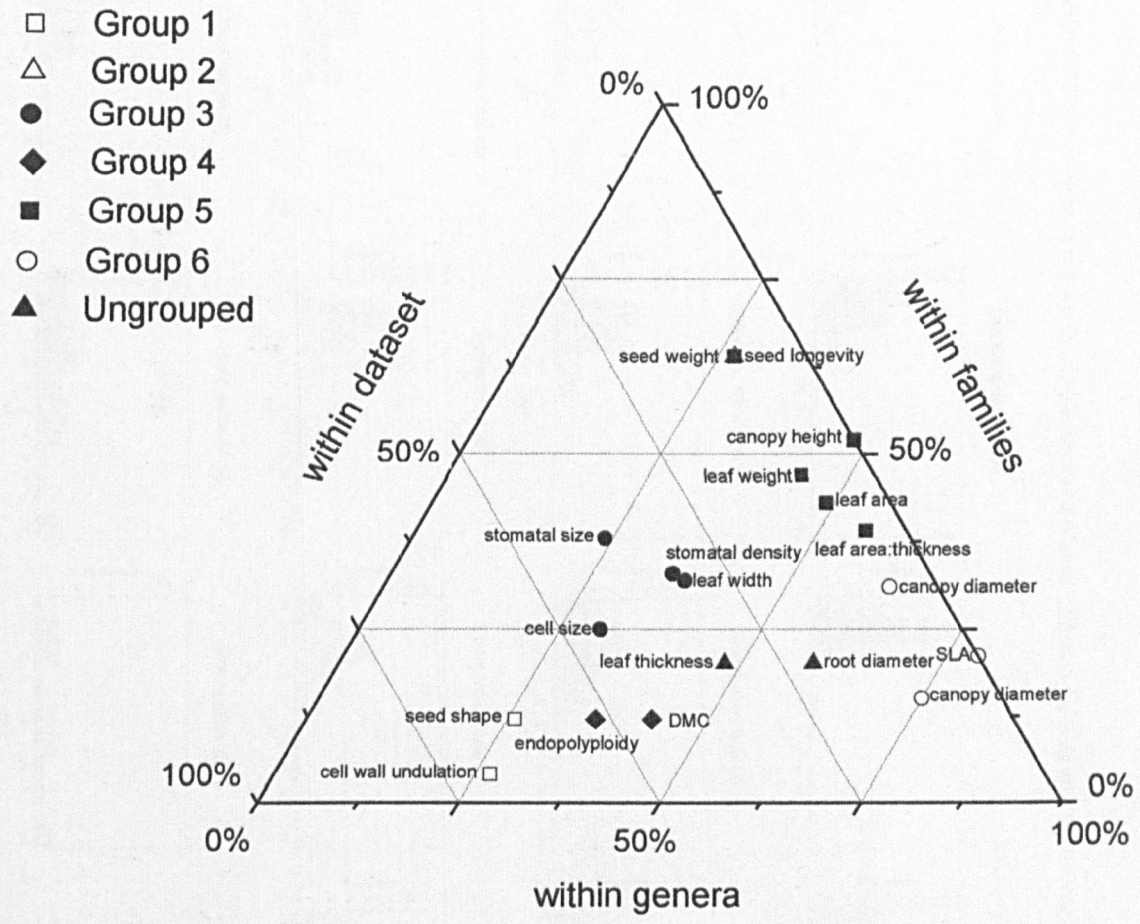


Figure 6.3. Histograms of the CV*s of the ARCHFIBS genera for each of the ratio-scale functional attributes. Letters in brackets after the functional attribute names refer to the CV* groups based on mean CV* (Table 6.54).

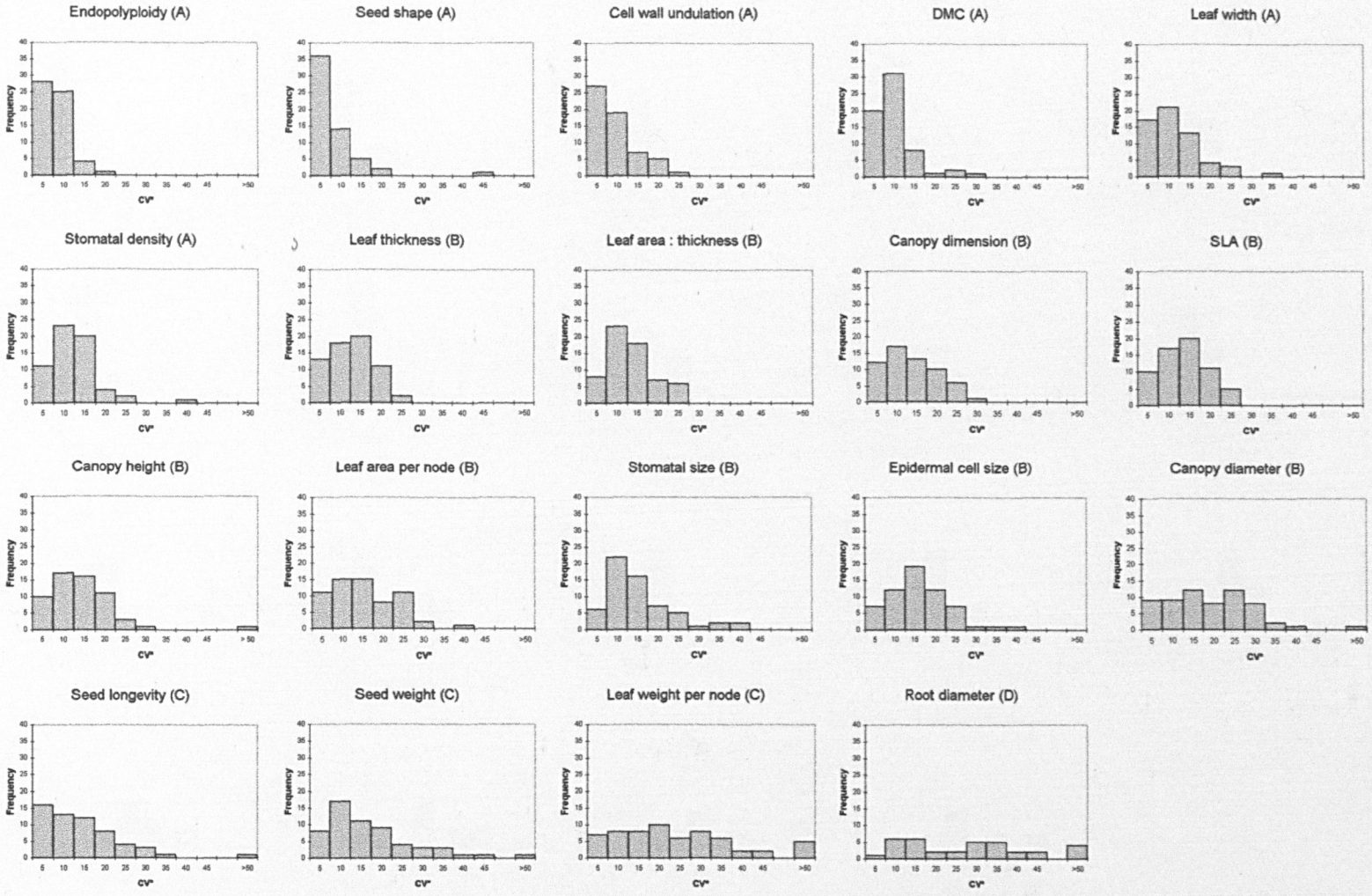


Figure 6.4. Histograms of the CV*s of the ARCHFIBS families for each of the ratio-scale functional attributes. Letters in brackets after the functional attribute names refer to the CV* groups based on mean CV* (Table 6.54)

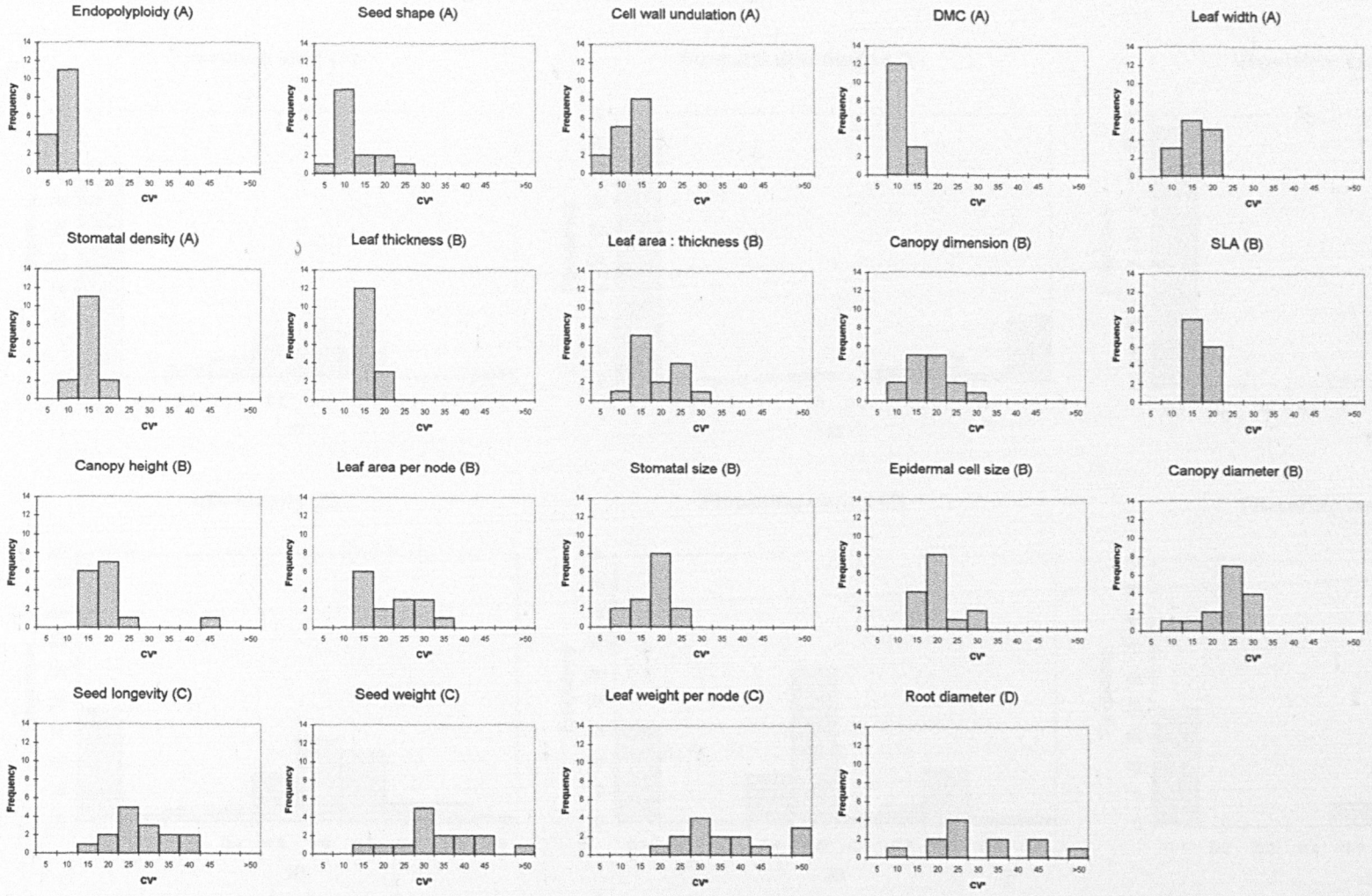


Figure 6.5. Histograms of the IDs of the ARCHFIBS genera for each of the nominal-scale functional attributes. Letters in brackets after the functional attribute names refer to the ID groups based on mean ID (Table 6.55)

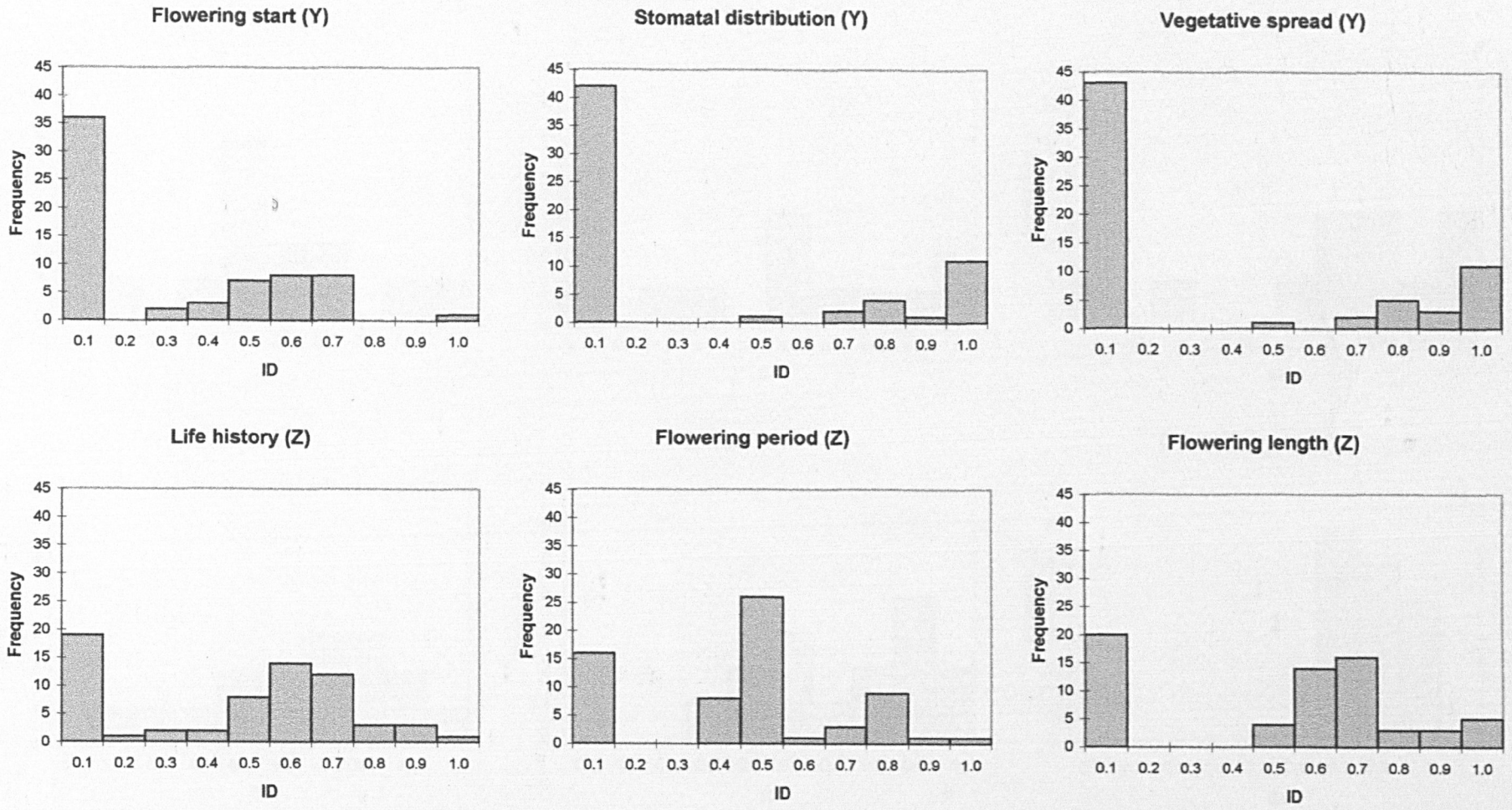


Figure 6.6. Histograms of the IDs of the ARCHFIBS families for each of the nominal-scale functional attributes. Letters in brackets after the functional attribute names refer to the ID groups based on mean ID (Table 6.55).

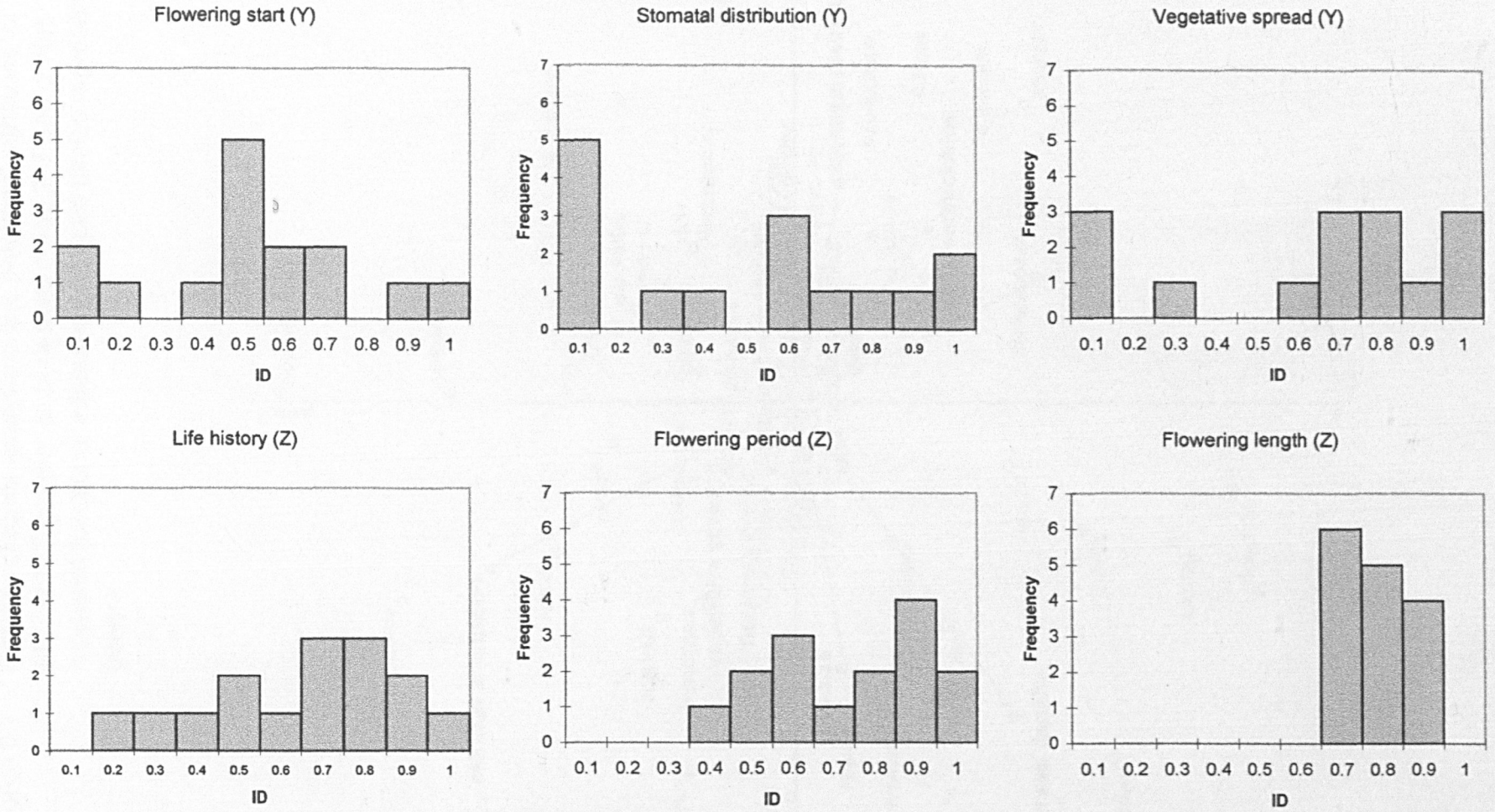


Figure 6.7 Correspondence analysis of the functional attributes for ARCHFIBS genera: plots of axes 1 and 2. Filled circles represent functional attributes and open circles represent genera.

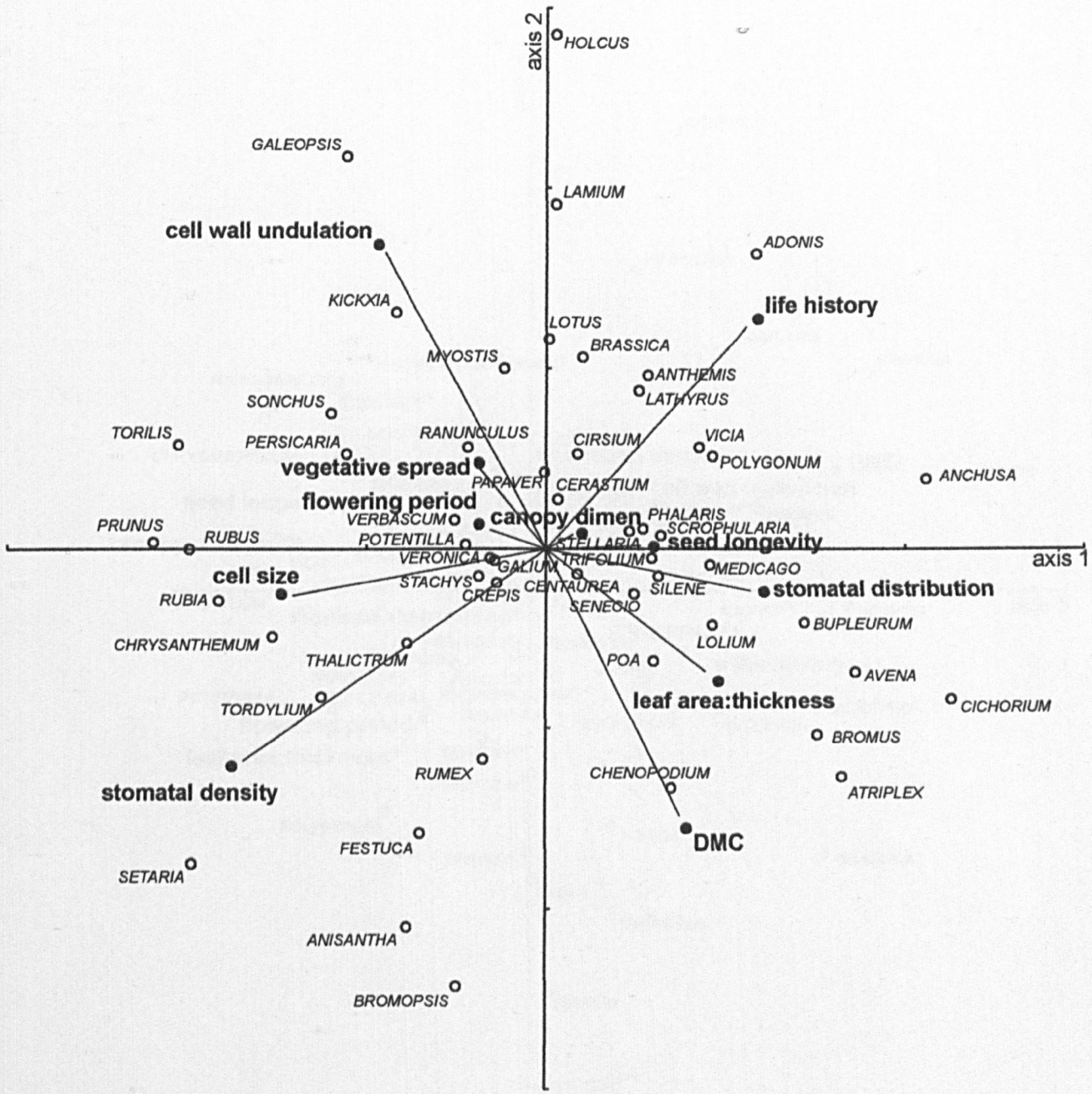


Figure 6.8 Correspondence analysis of the functional attributes for ARCHFIBS genera: plots of axes 3 and 4. Filled circles represent functional attributes and open circles represent genera.

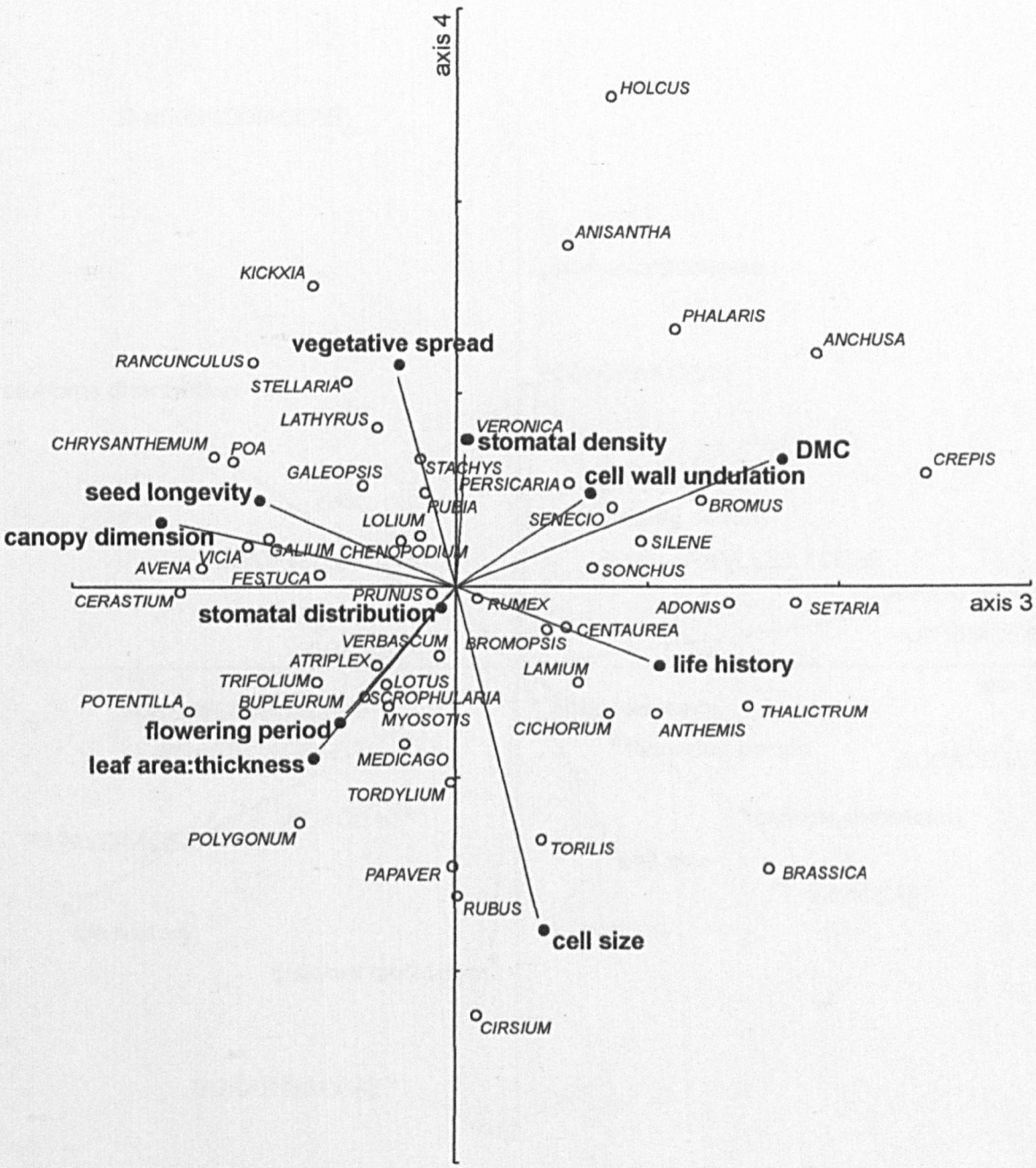


Figure 6.9 Correspondence analysis of the functional attribtues for ARCHFIBS families: plots of axes 1 and 2. Filled circles represent functional attributes and open circles represent families.

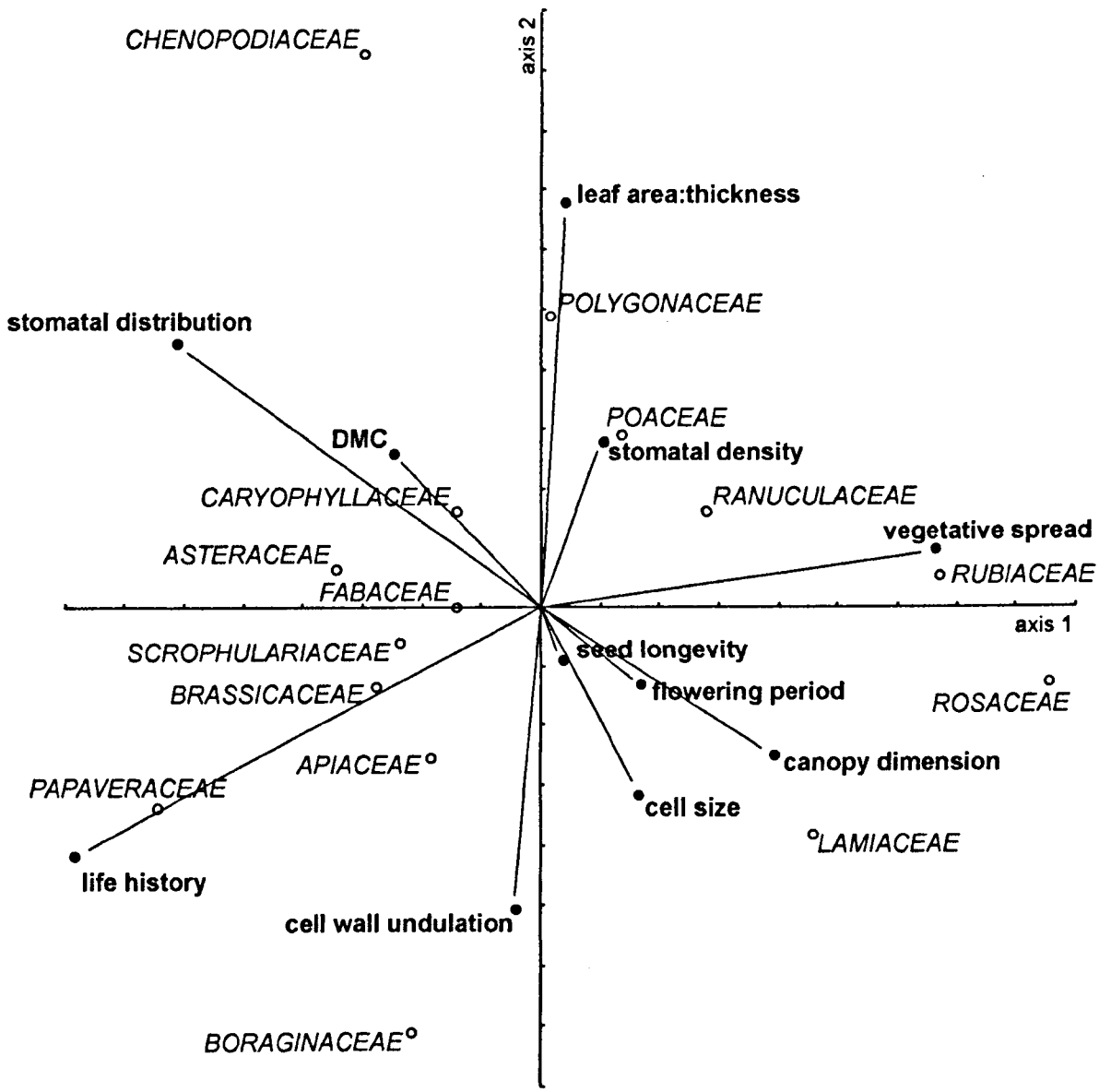


Figure 6.10 Correspondence analysis of the functional attributes for ARCHFIBS families: plots of axes 3 and 4. Filled circles represent functional attributes and open circles represent families.

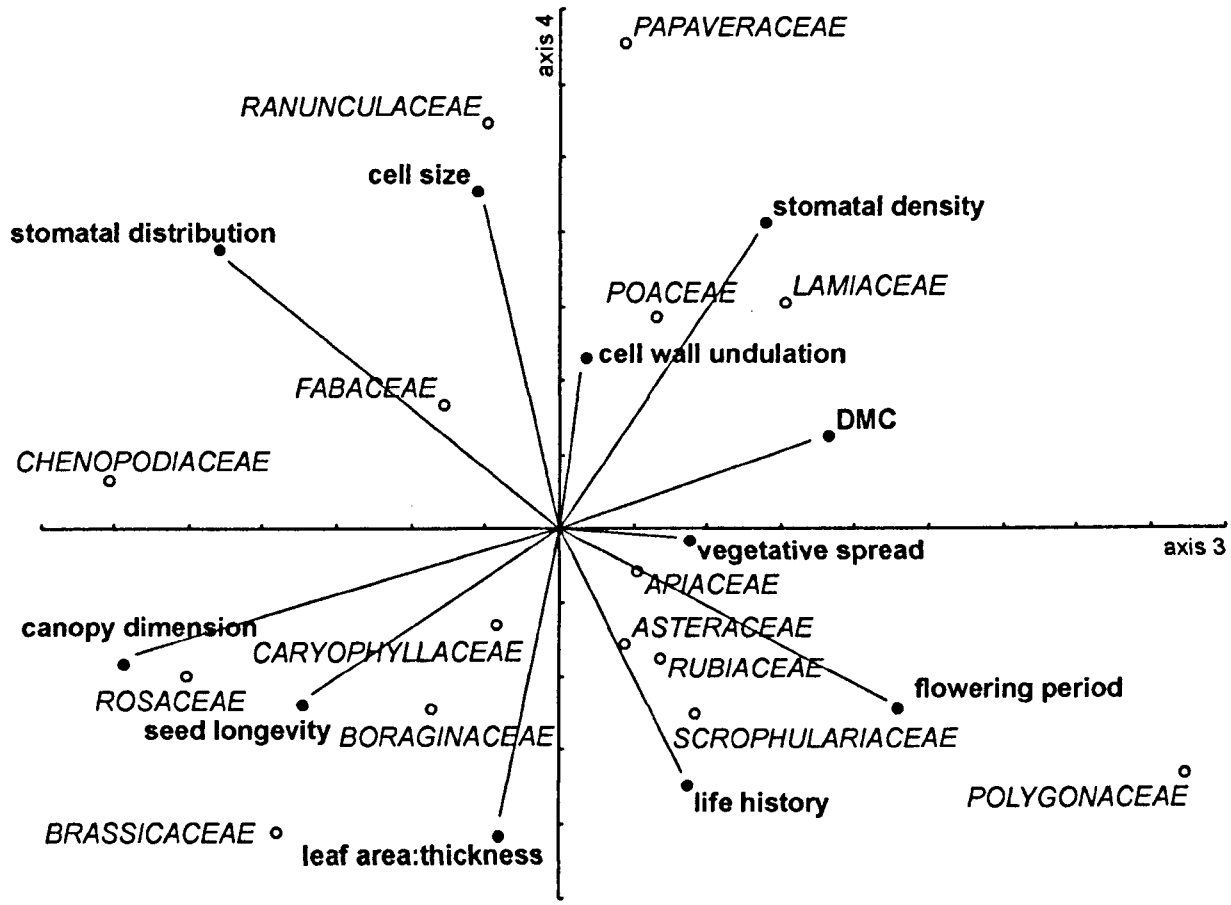


Figure 7.1 Correspondence analyses from weed studies. Plots of fields classified according to: (a) irrigation level (Borja), (b) fertility and disturbance (Evvia) and (c) crop sowing time (Germany)

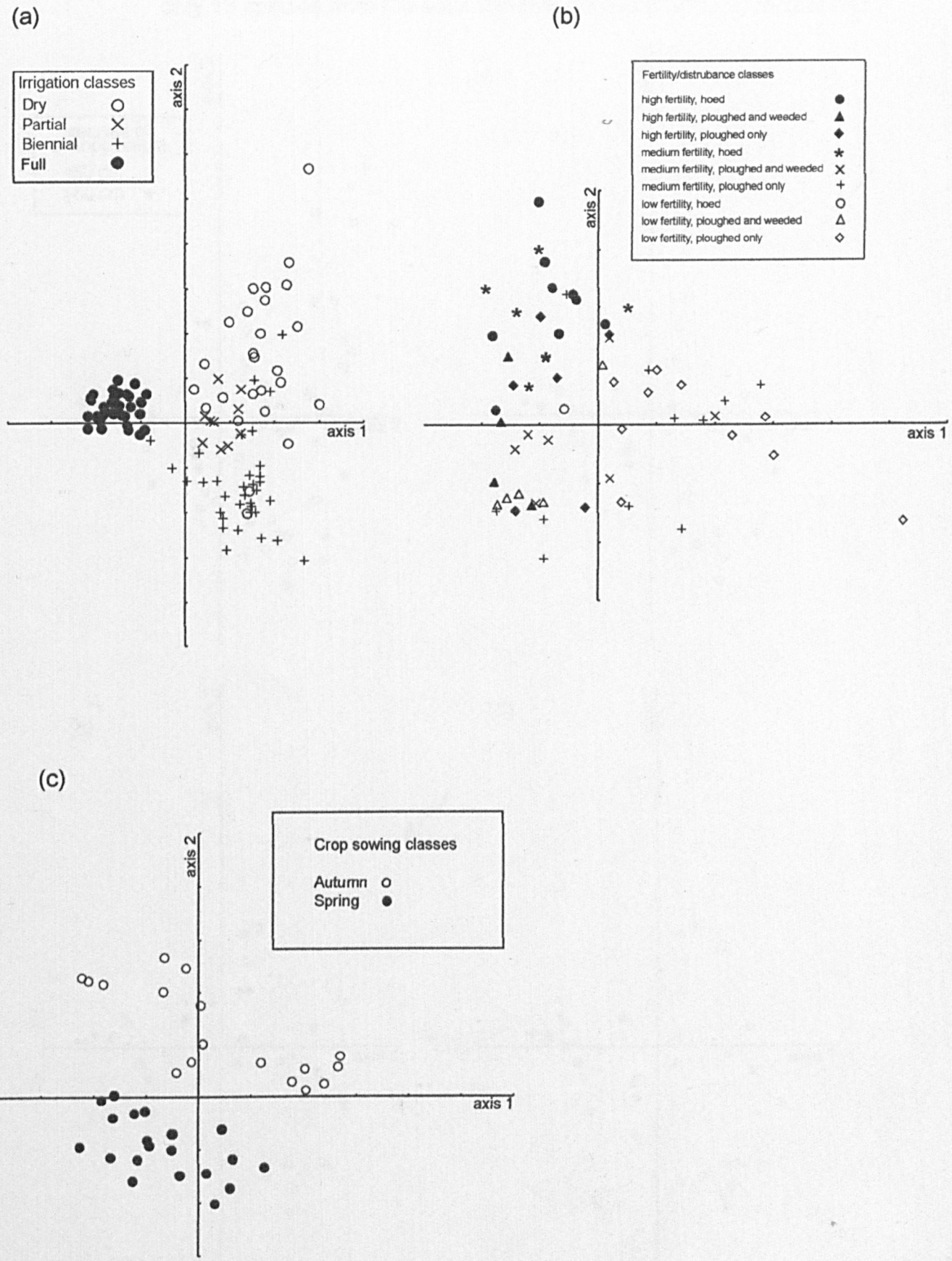


Figure 7.2 Application of canopy height values of genera, based on correspondence analysis from Borja irrigation study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species with each species reclassified according to the canopy height value of its genus, (d) plot of decreased species with only 13 species from the least variable genera (CV*≤7.9) reclassified

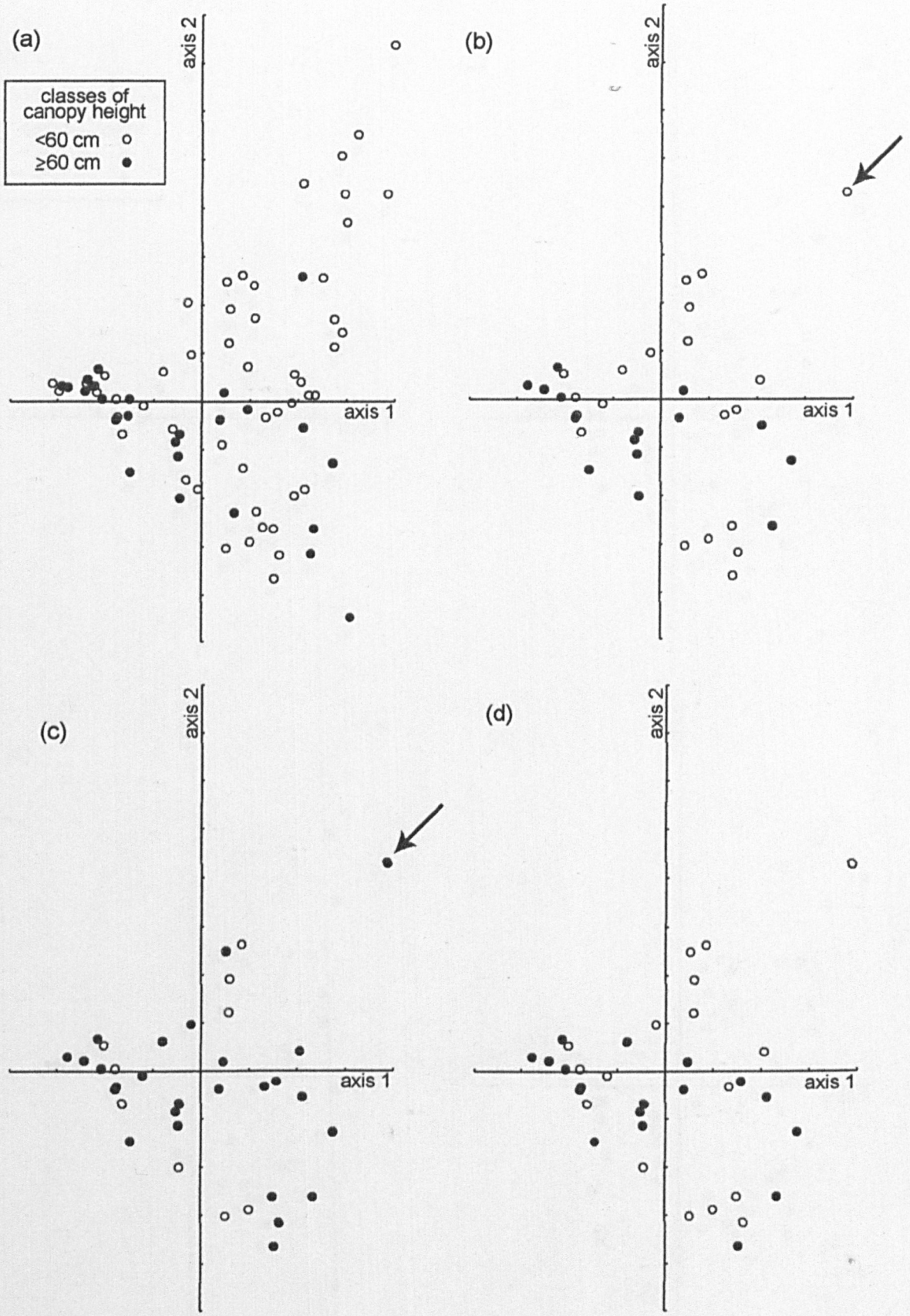


Figure 7.3 Application of canopy height values of families, based on correspondence analysis from Borja irrigation study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species with each species reclassified according to the canopy height value of its family, (d) plot of decreased species with only 6 species from the least variable family (CV* 11.4) reclassified

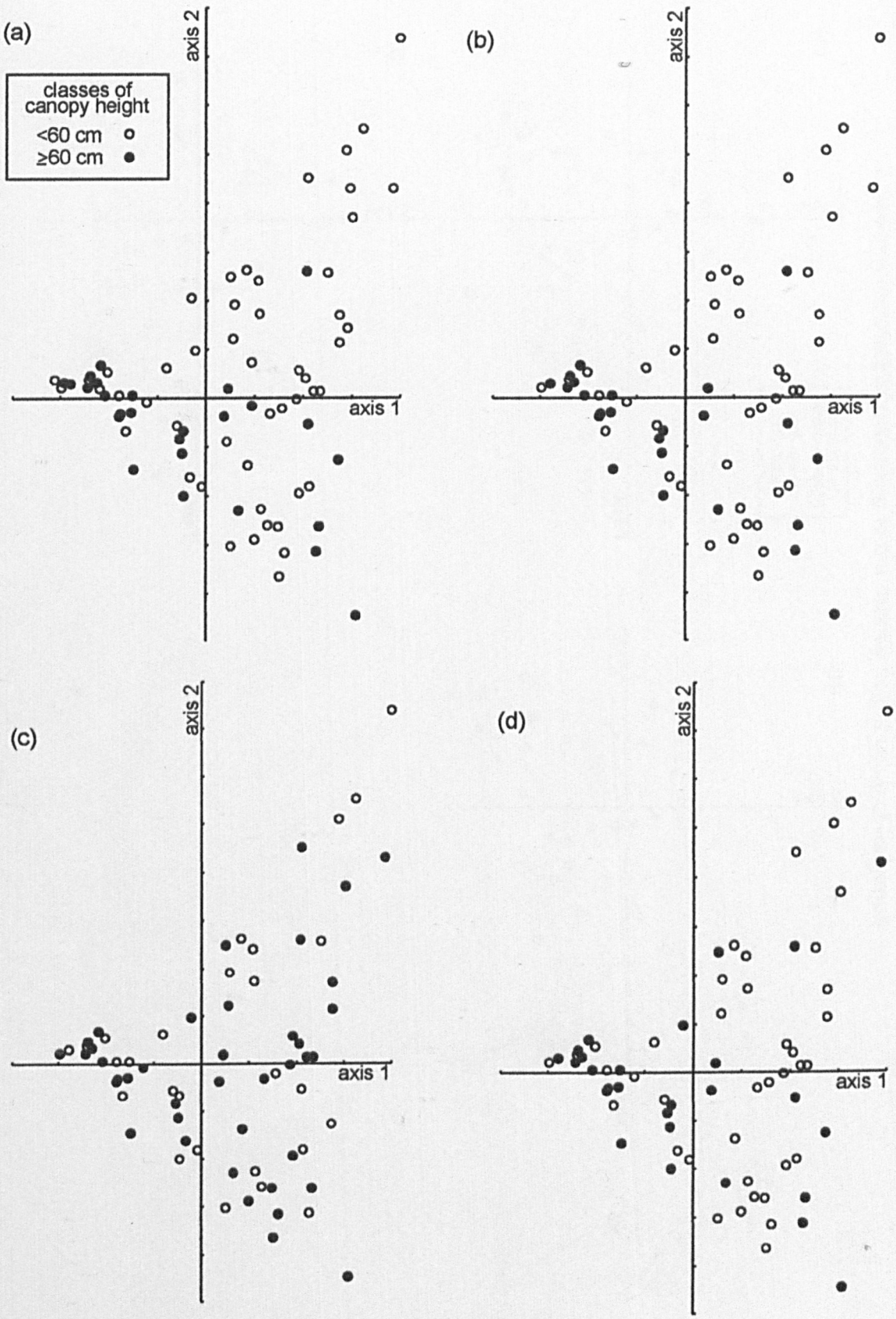


Figure 7.4 Application of canopy height values of genera, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of species (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species with each species reclassified according to the canopy height value of its genus

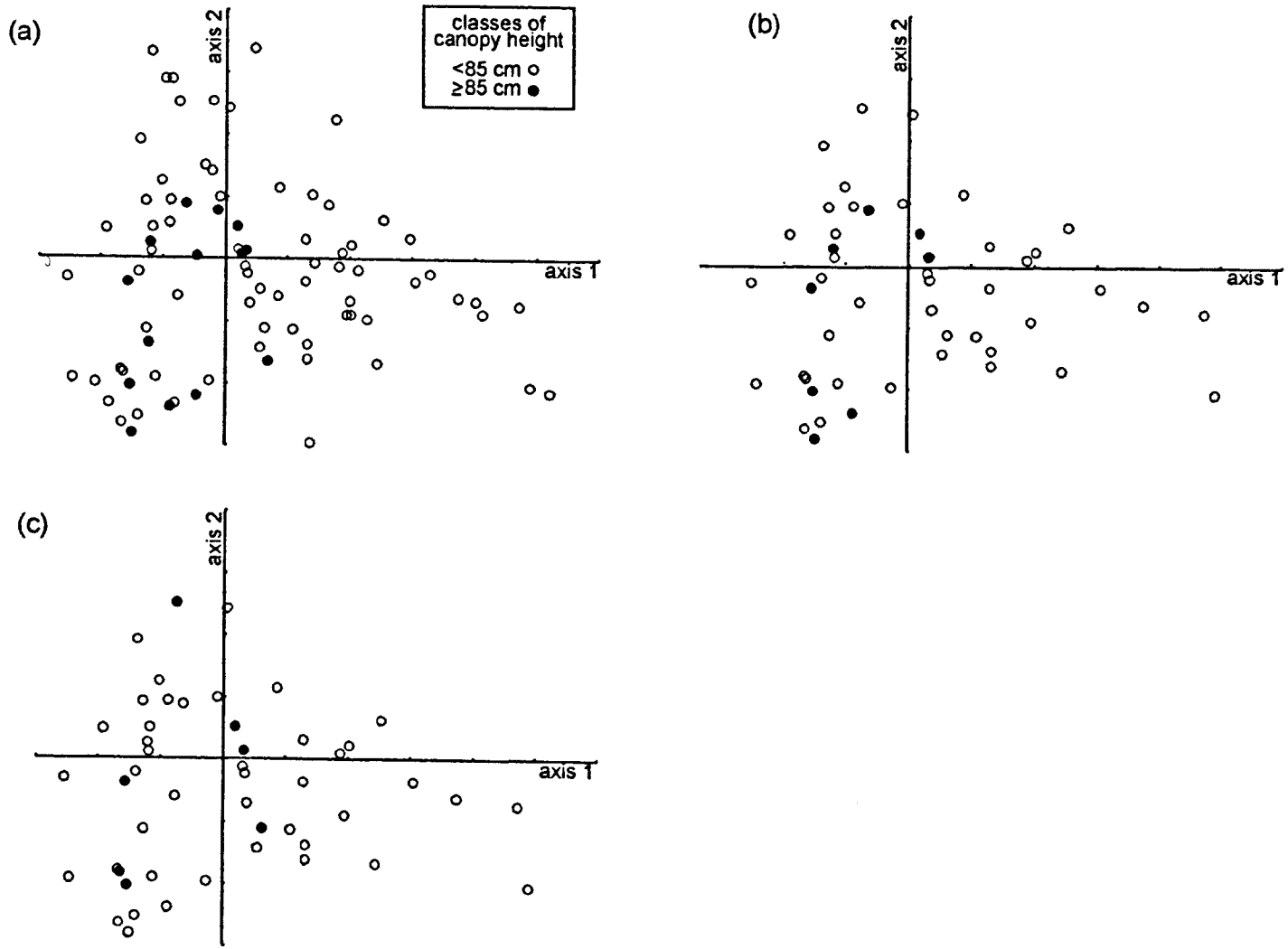


Figure 7.5 Application of canopy height values of families, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of species (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species each reclassified according to the canopy height value of its family, (d) plot of decreased species with only 39 species from the least variable families (CV*≤ 14.1) reclassified.

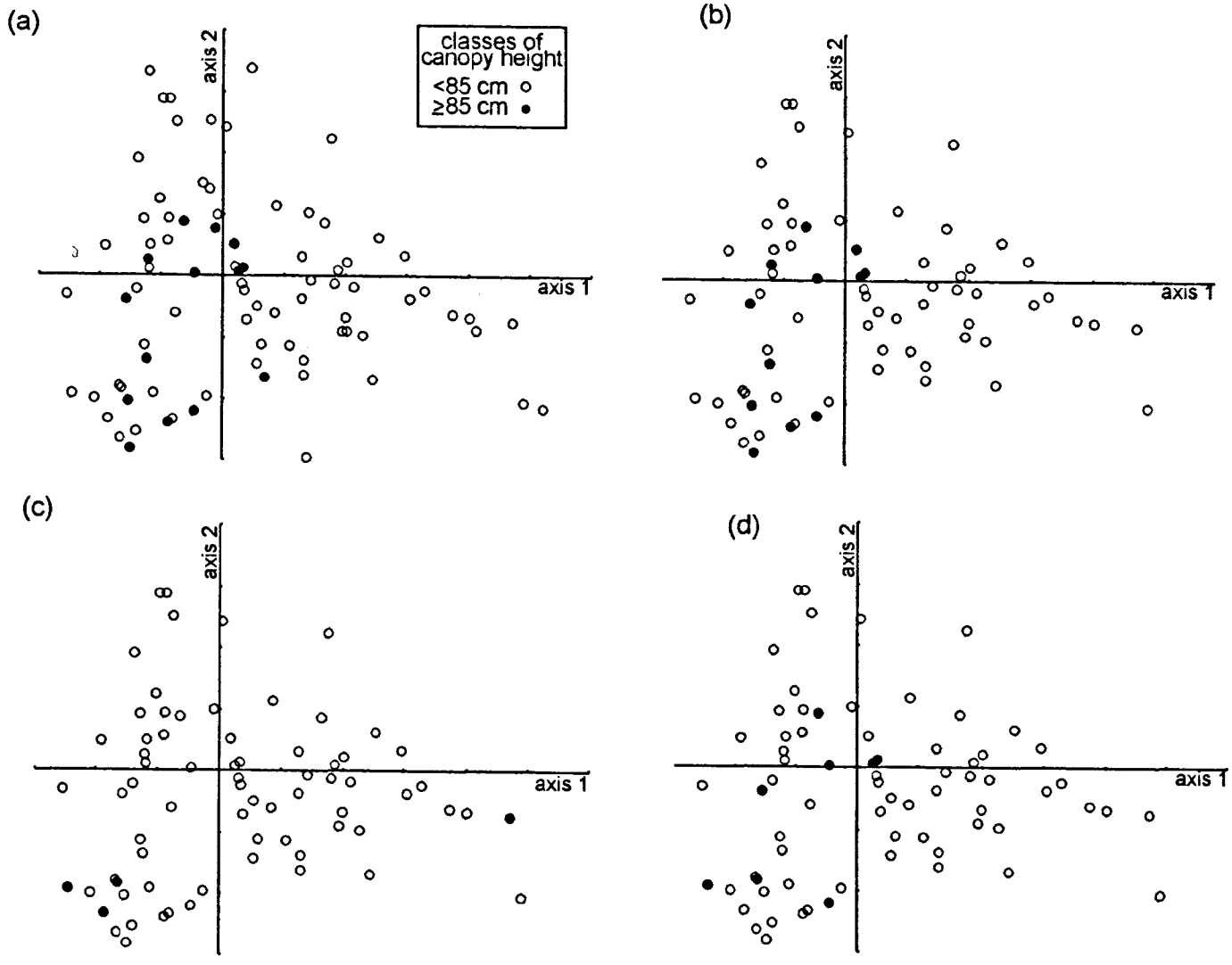


Figure 7.6 Application of canopy height values of genera, based on correspondence analysis from Germany sowing time study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS genera,(c) plot of decreased species with each species reclassified according to the canopy height value of its genus.

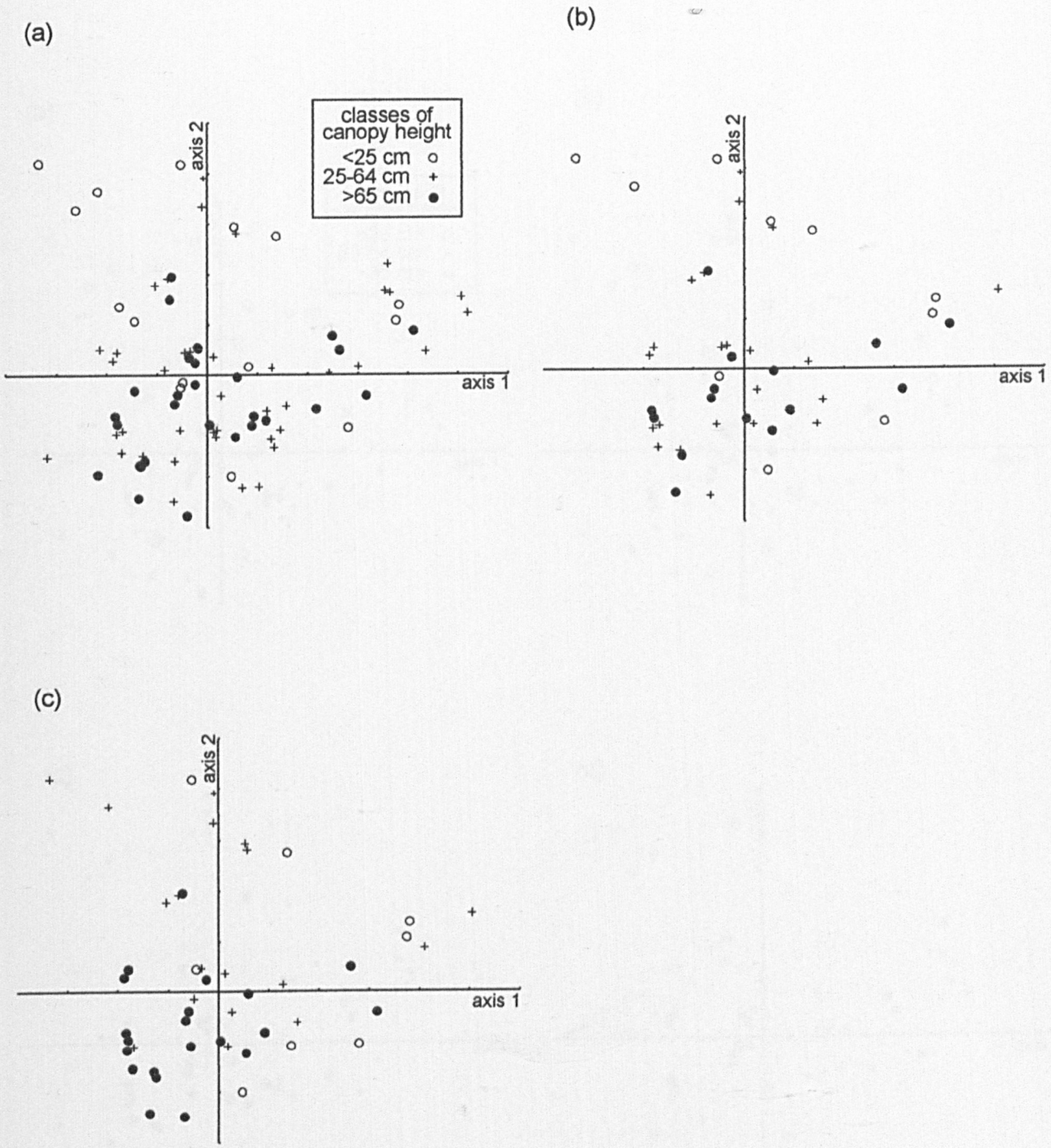


Figure 7.7 Application of canopy height values of families, based on correspondence analysis from Germany sowing time study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species with each species reclassified according to the canopy height value of its family, (d) plot of decreased species with only 47 species from the least variable families (CV*≤12.6) reclassified

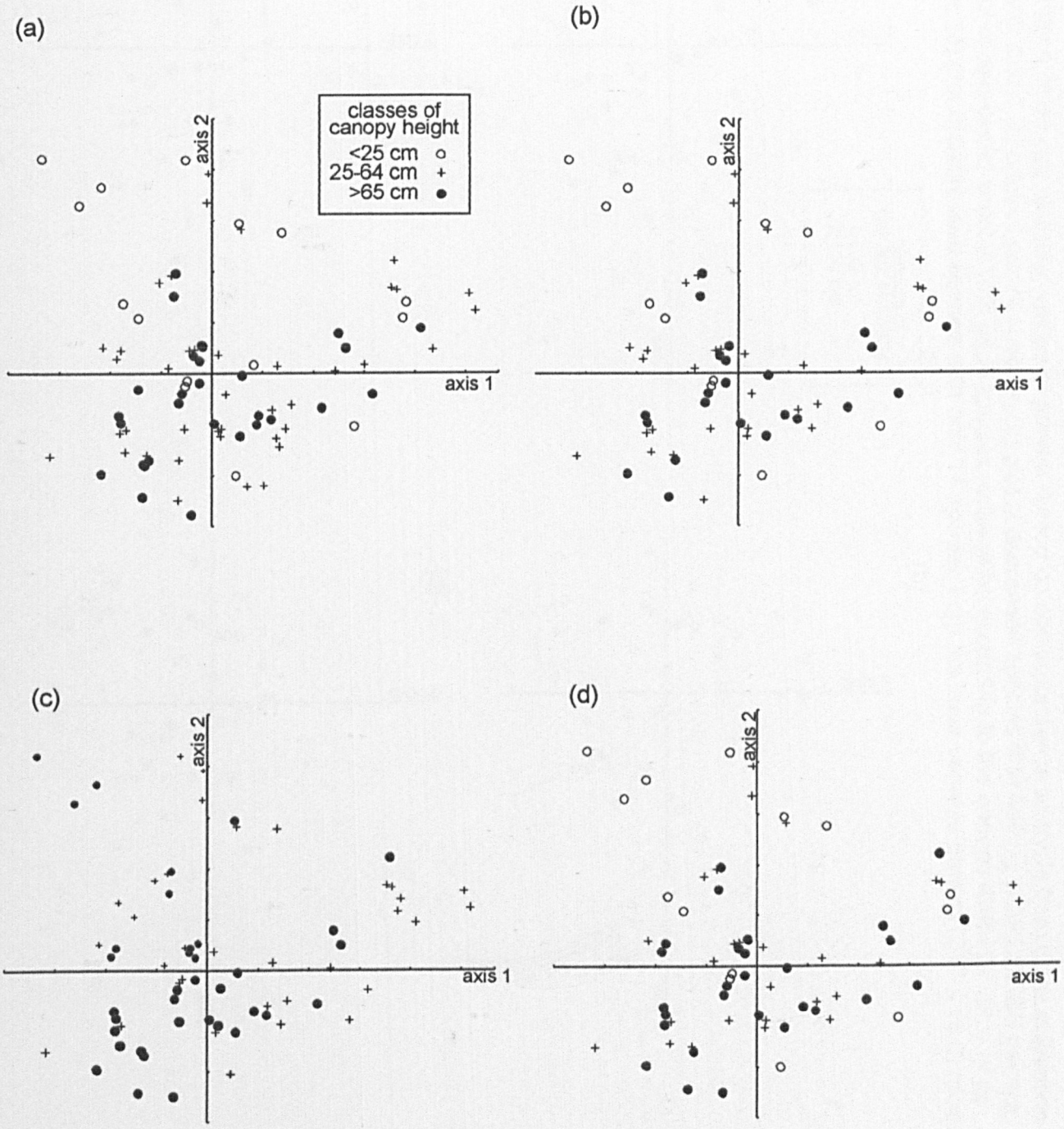


Figure 7.8 Application of canopy diameter values of genera, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species with each species reclassified according to the canopy diameter value of its genus, (d) plot of decreased species with only 14 species from the least variable genera (CV* ≤ 13.0) reclassified.

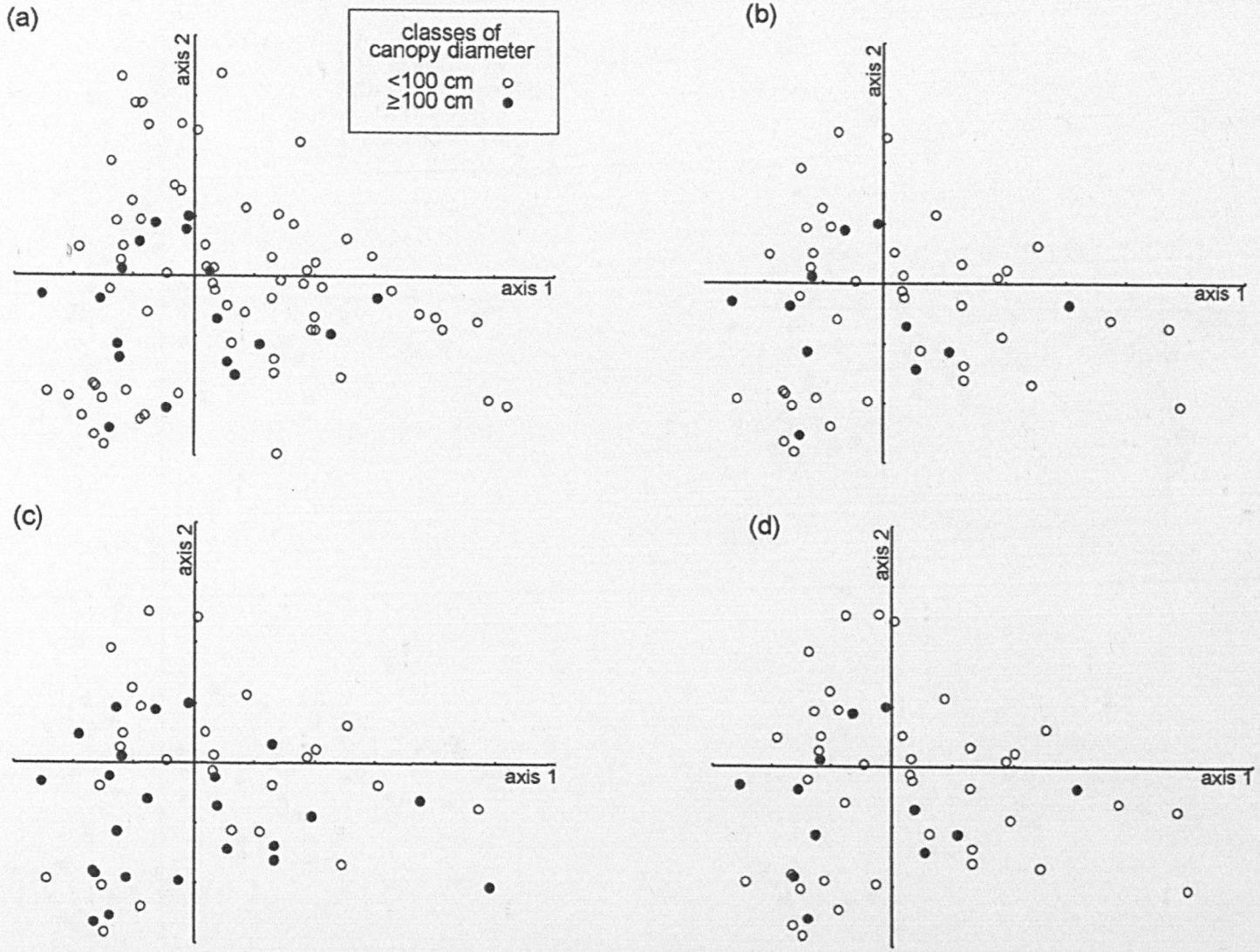


Figure 7.9 Application of canopy diameter values of families, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the canopy diameter value of its family, (d) plot of decreased species, only 10 species from the least variable families (CV* ≤ 17.3) reclassified

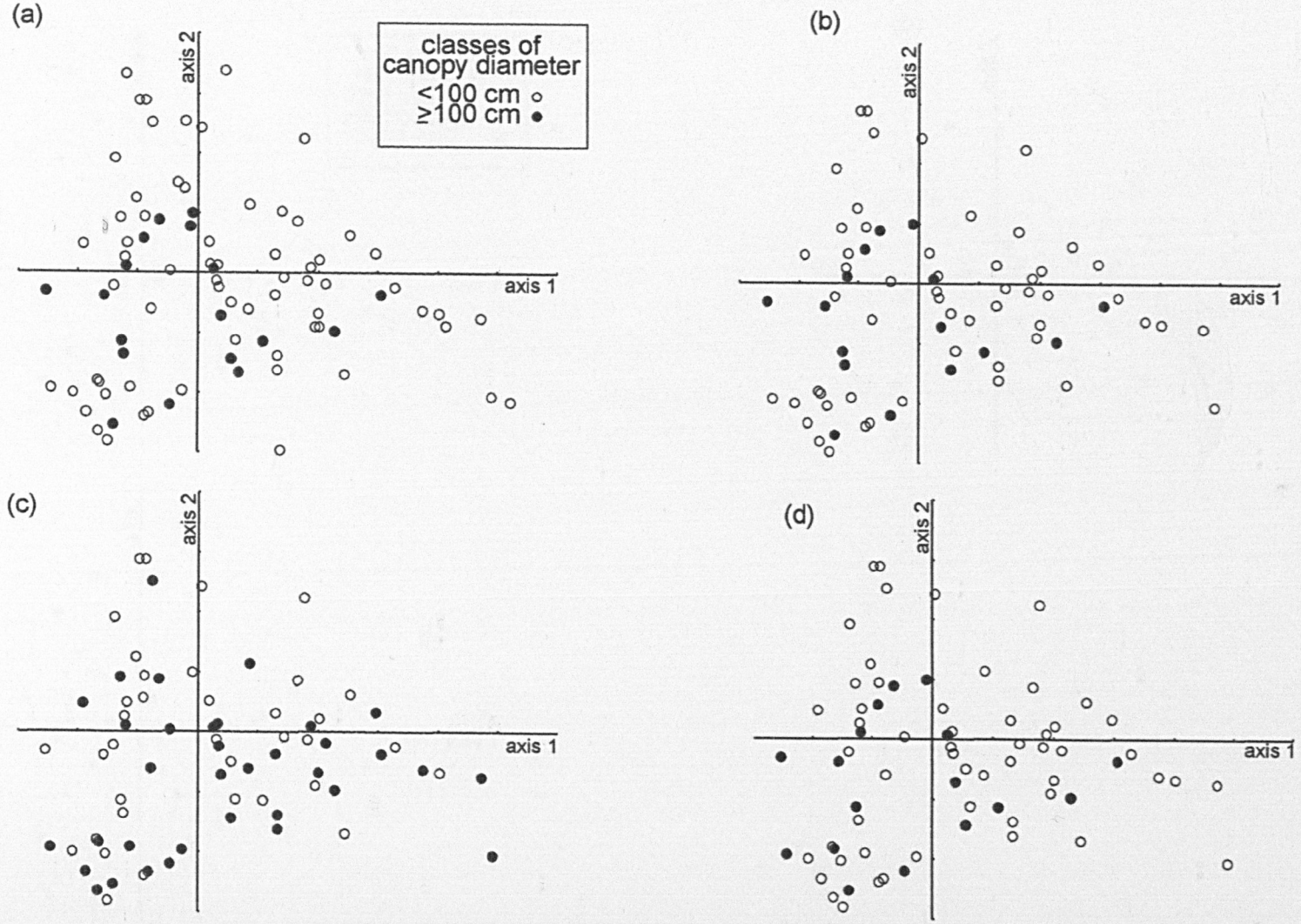


Figure 7.10 Application of leaf area per node values of genera, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the leaf area per node value of its genus

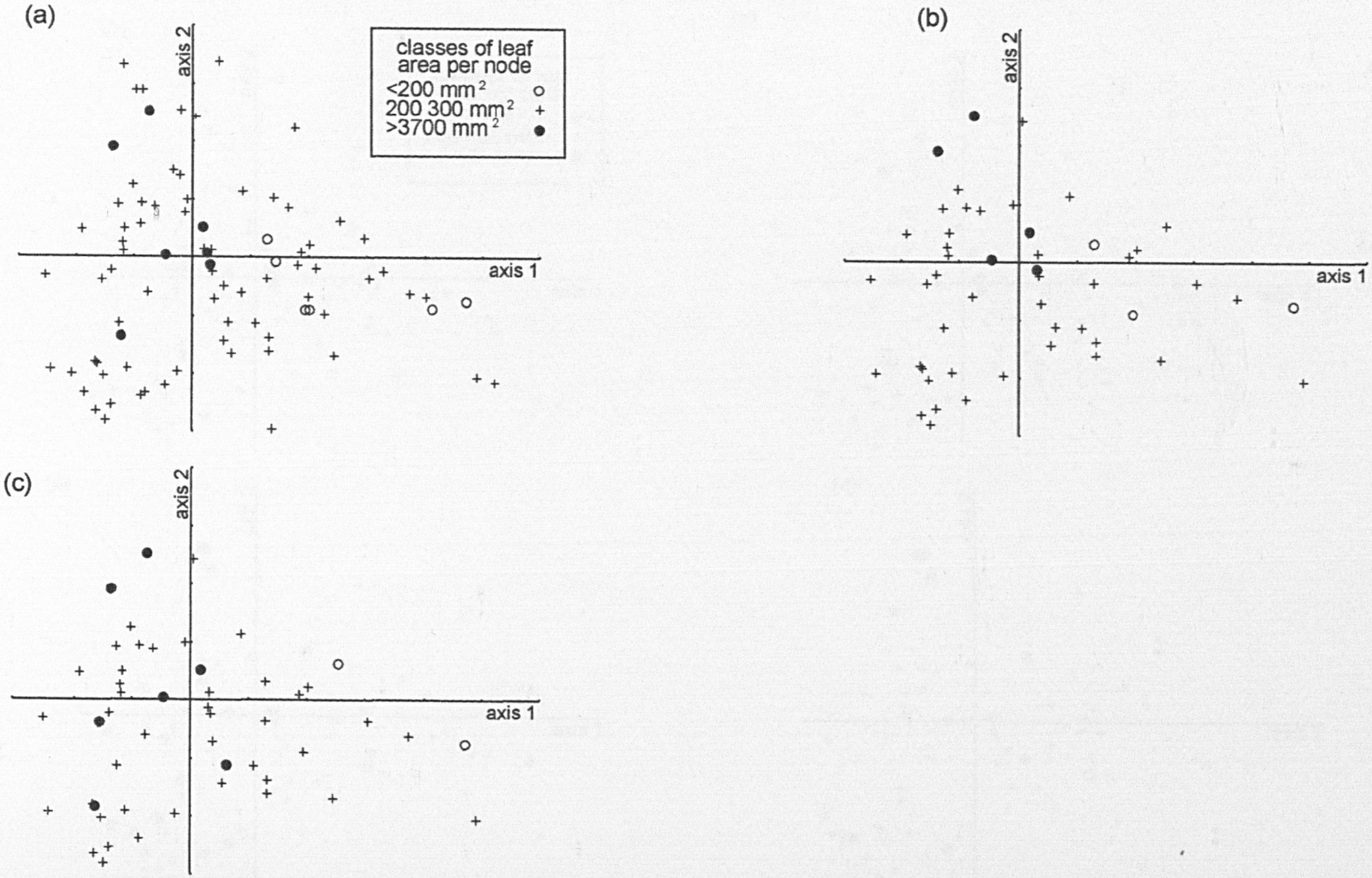


Figure 7.11 Application of leaf area per node values of families based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the leaf area per node value of its family, (d) plot of decreased species, only 43 species from the least variable families (CV* ≤18.5) reclassified

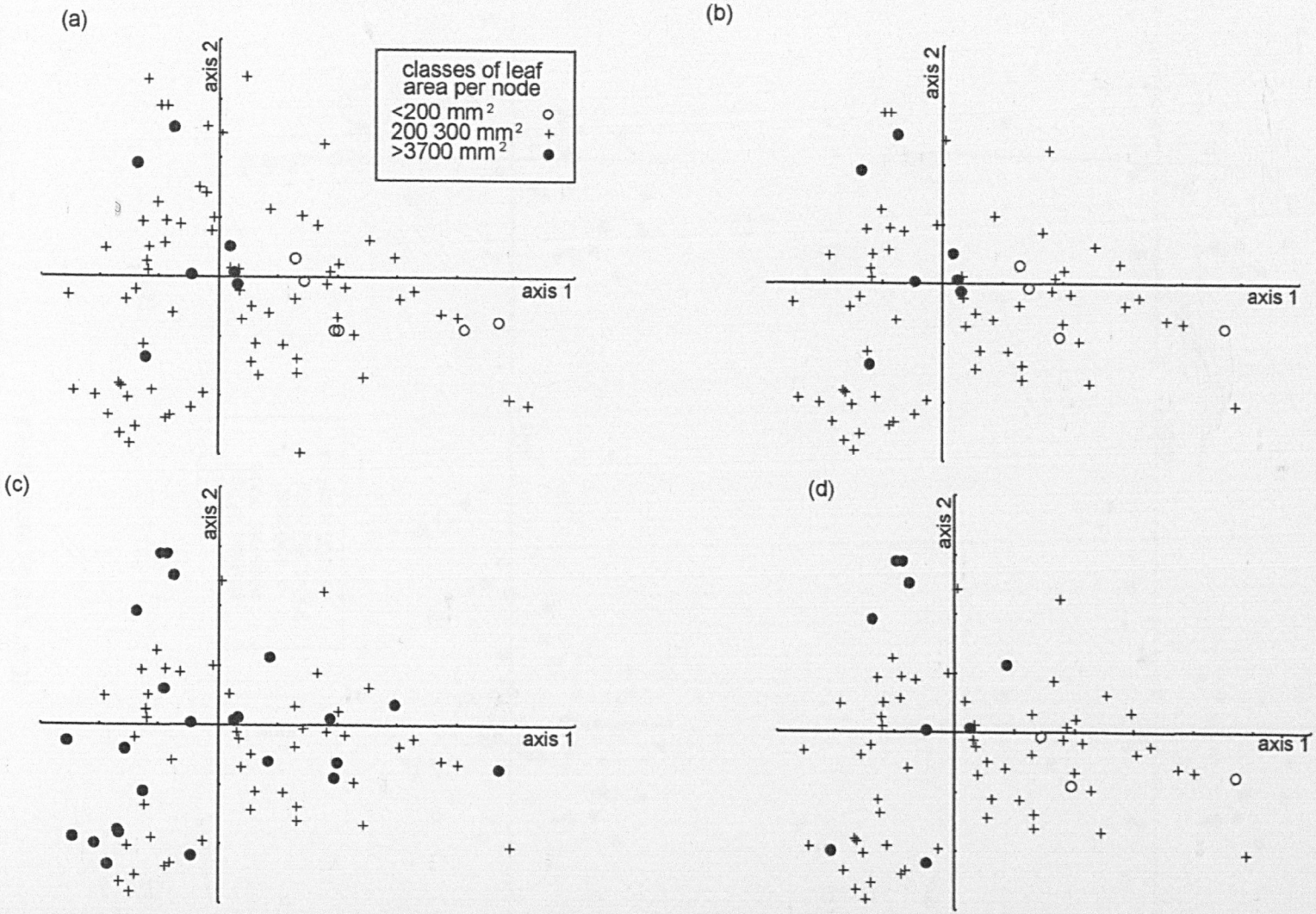


Figure 7.12 Application of leaf area per node values of genera, based on correspondence analysis from Germany sowing time study (a) orignial plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the leaf area per node value of its genus, (d) plot of decreased species, only 25 species from the least variable genera (CV*≤12.6) reclassified

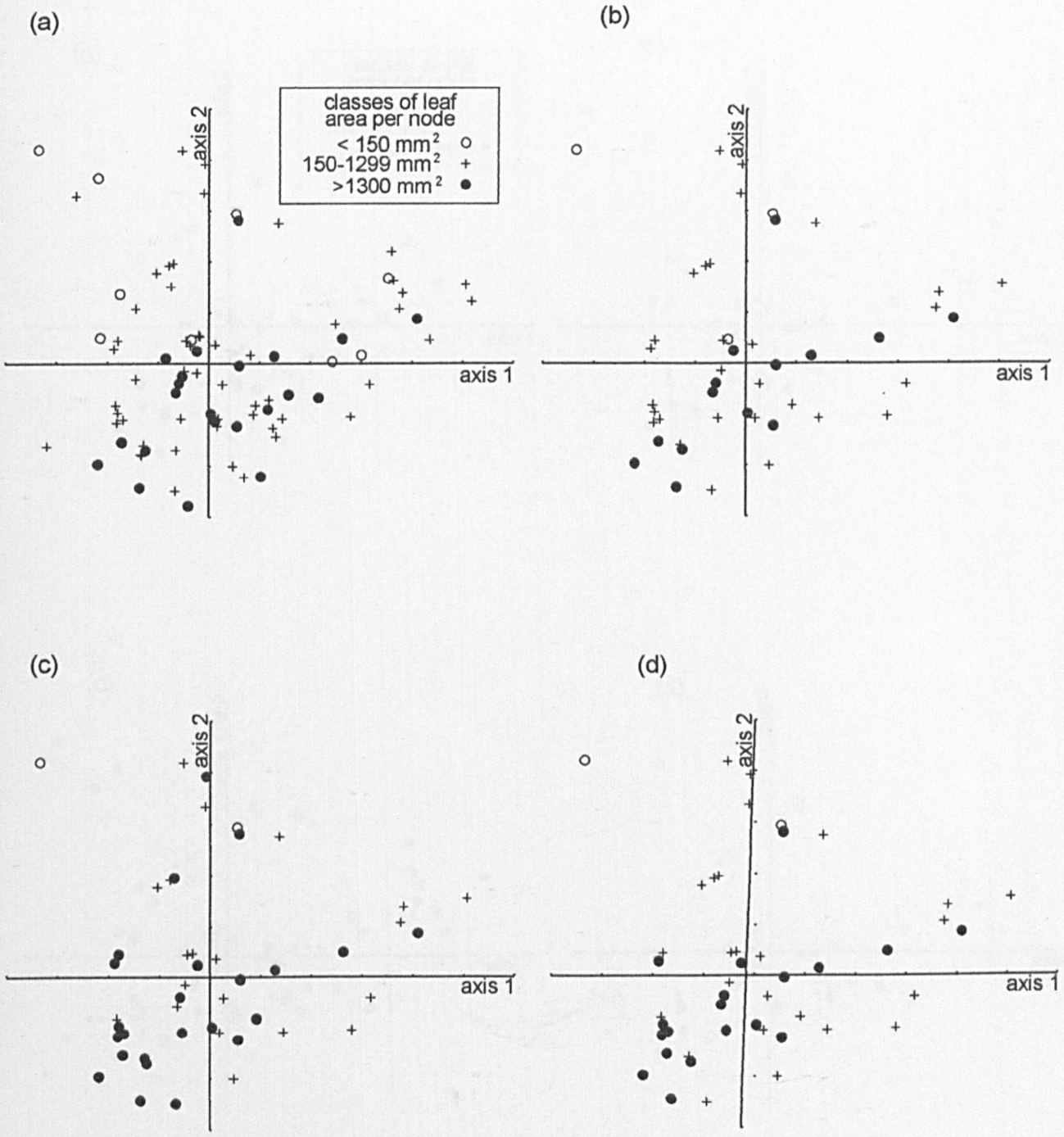


Figure 7.13 Application of leaf area per node values of families, based on Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the leaf area per node value of its family, (d) plot of decreased species, only 5 species from the least variable family (CV* 12.1) reclassified

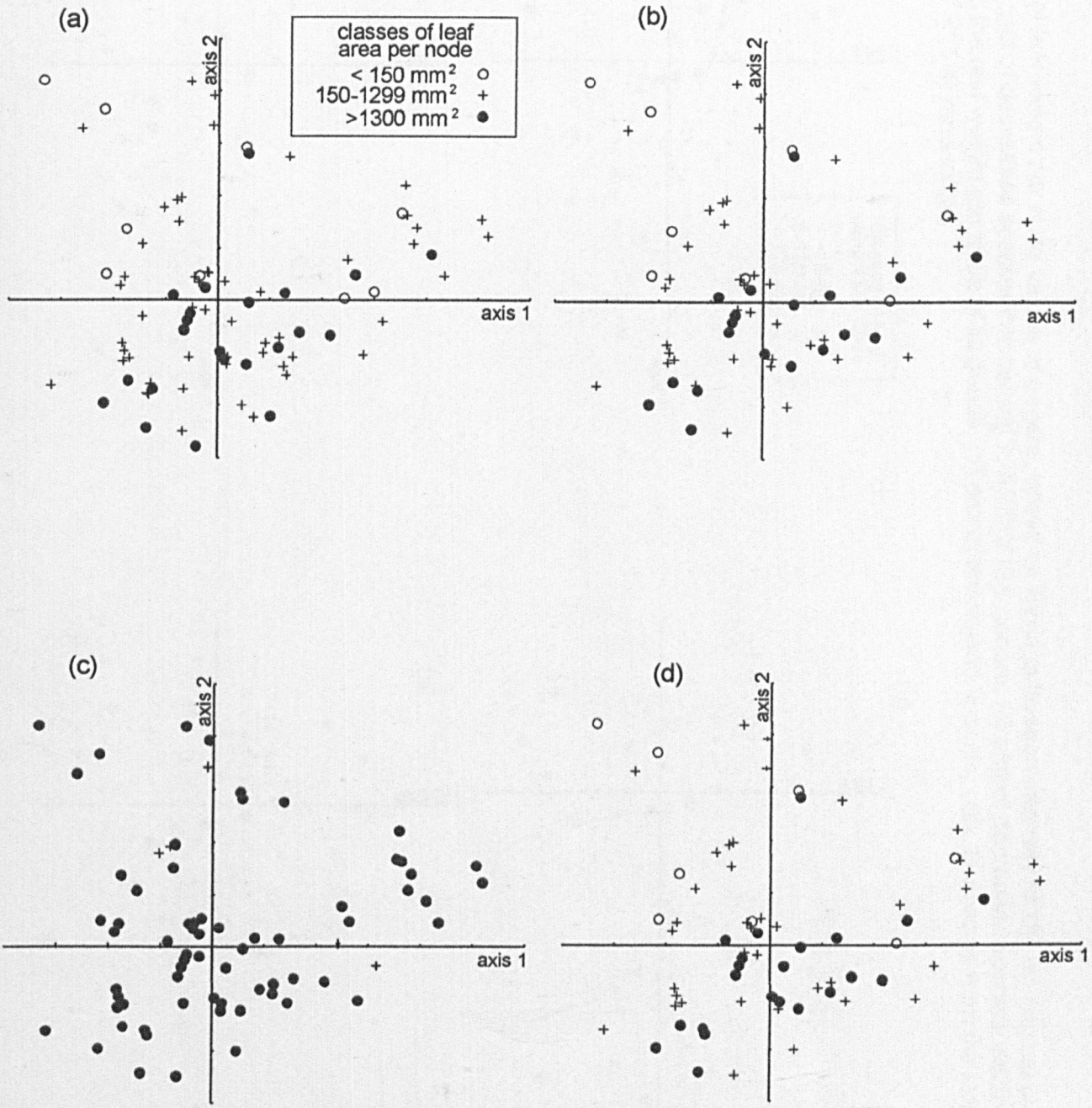


Figure 7.14 Application of leaf weight per node values of genera, based on Evvia cultivation intensity study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the leaf weight per node of its genus, (d) plot of decreased species, only 11 species from the least variable genera (CV* ≤15.4) reclassified

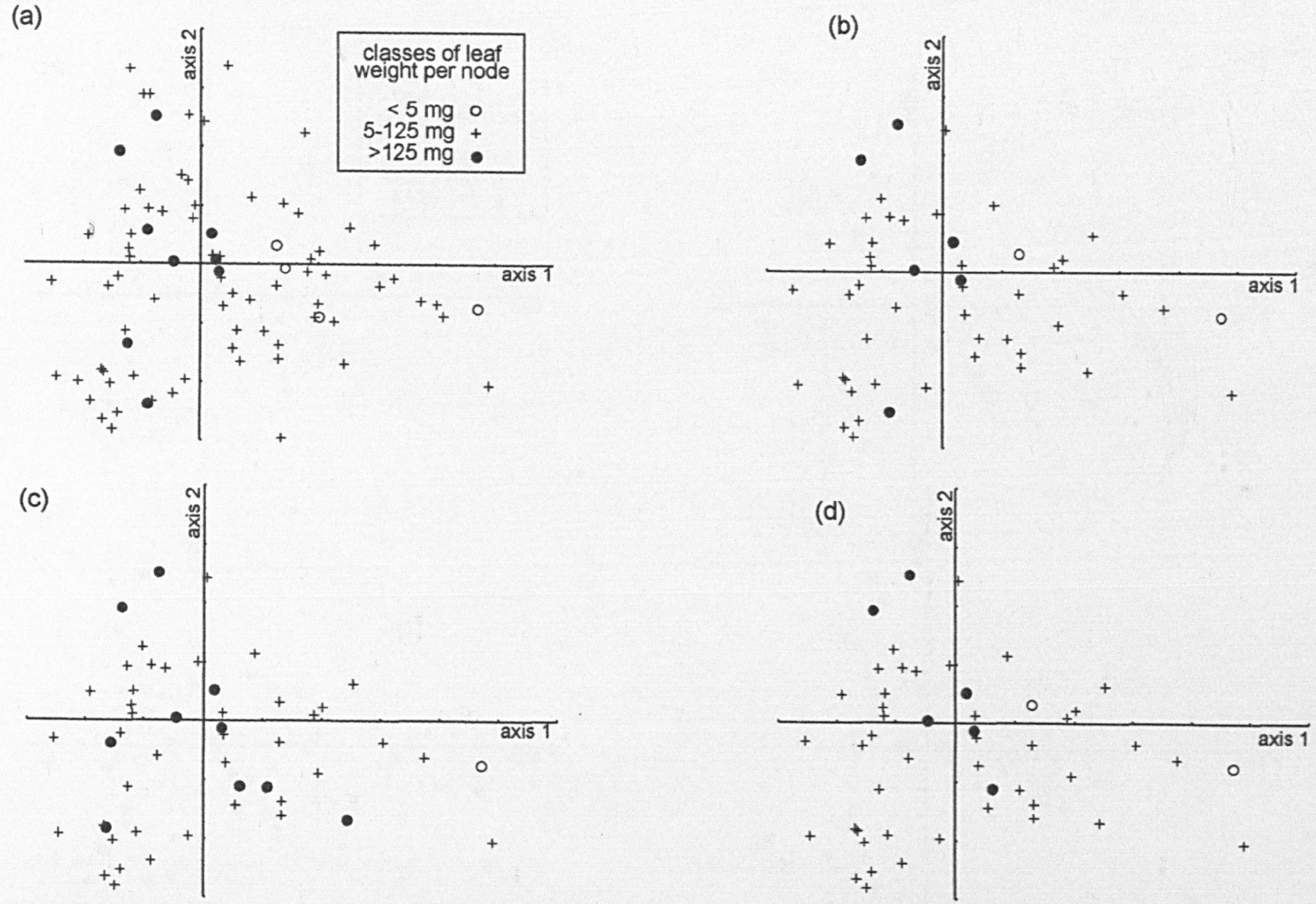


Figure 7.15 Application of leaf weight per node values of families, based on correspondence analysis from Evvia cultivation intensity study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the leaf weight per node value of its family, (d) plot of decreased species, only 1 species from the least variable family (CV* 16.1) reclassified

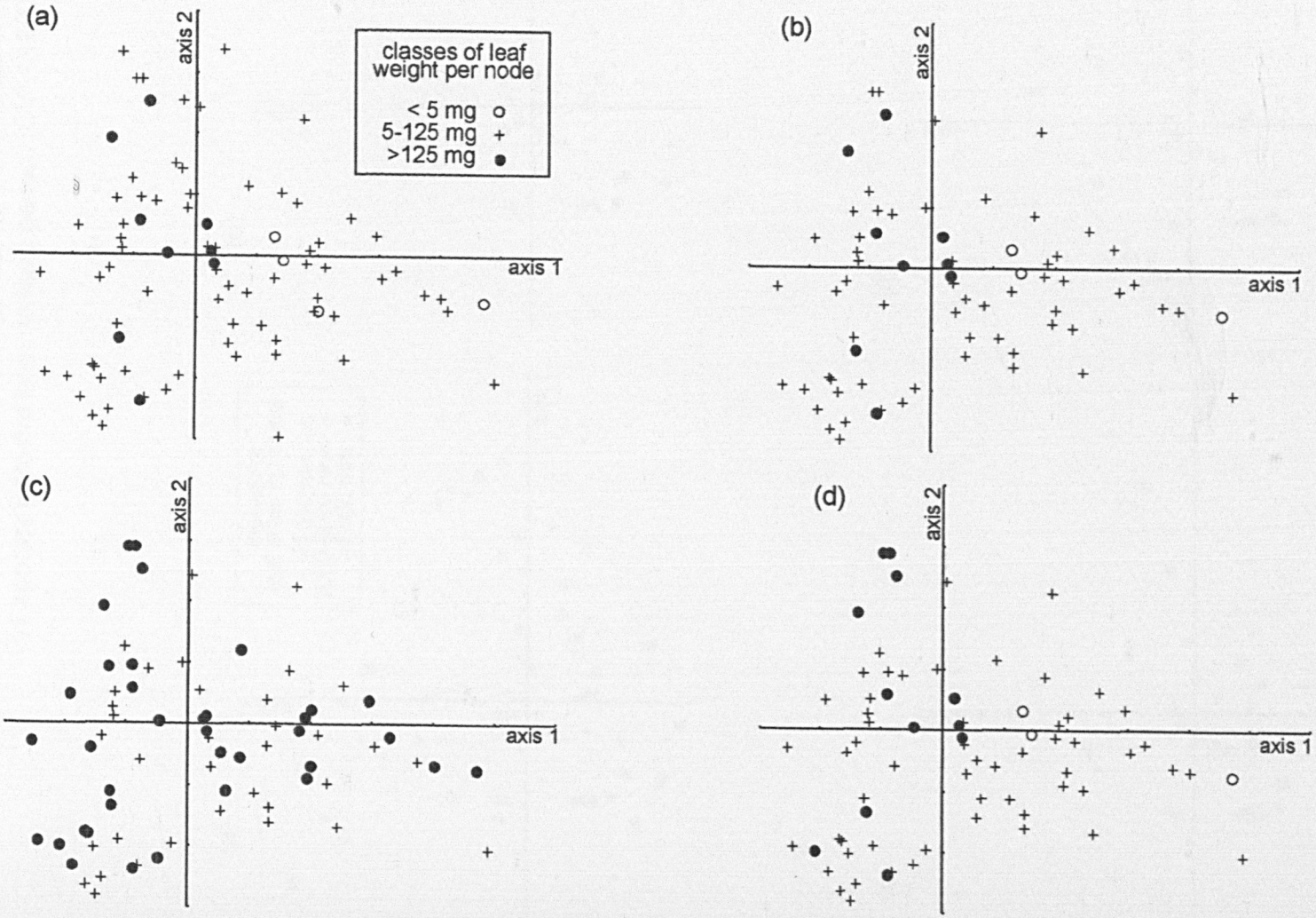


Figure 7.16 Application of leaf area:thickness values of genera, based on Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the leaf area:thickness value of its genus, (d) plot of decreased species, only 31 species from the least variable genera (CV* ≤12.7) reclassified

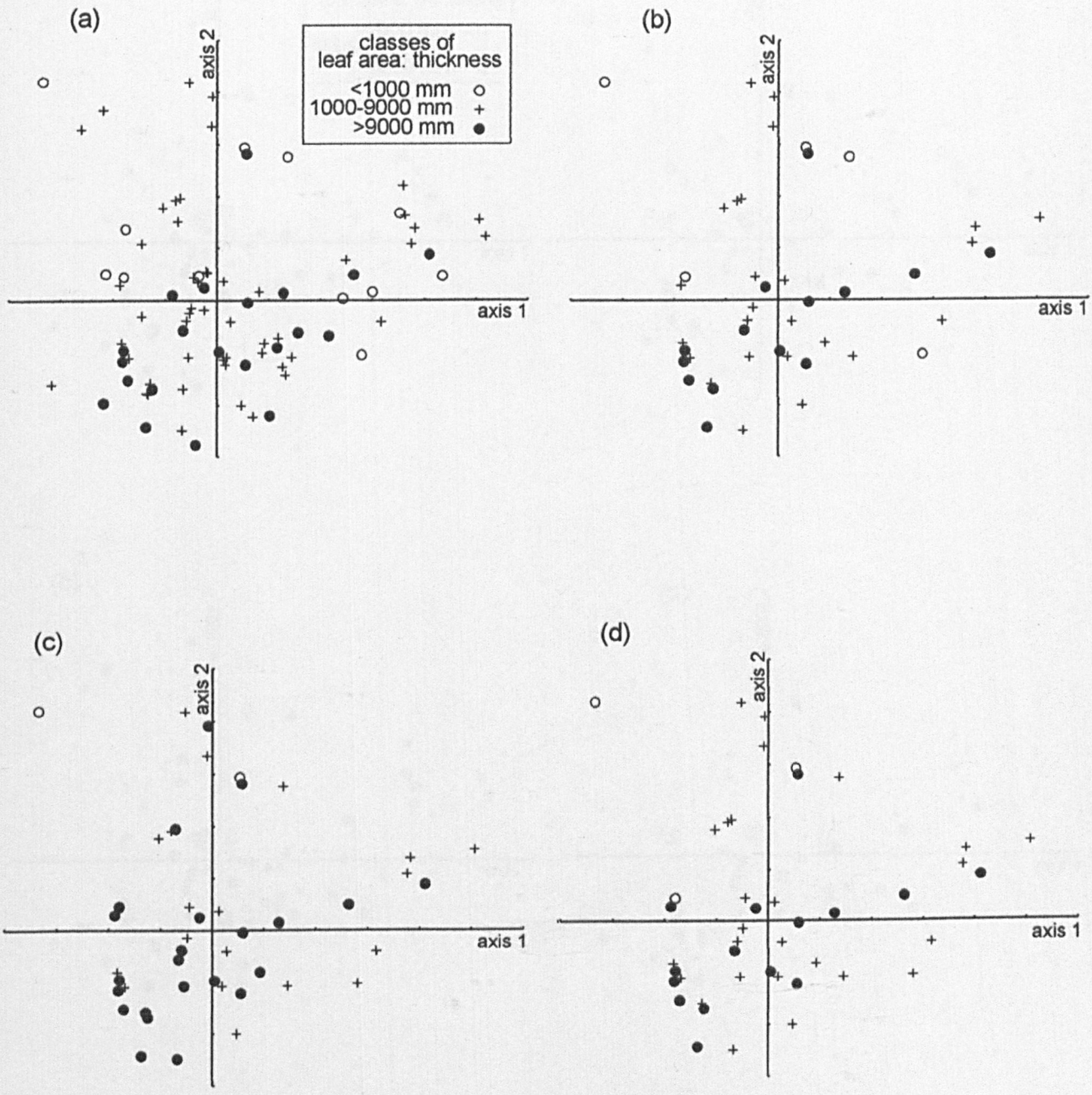


Figure 7.17 Application of leaf area:thickness values of families, based on correspondence analysis from Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the leaf area:thickness value of its family, (d) plot of decreased species, only 9 species from the least variable families (CV* ≤10.5) reclassified

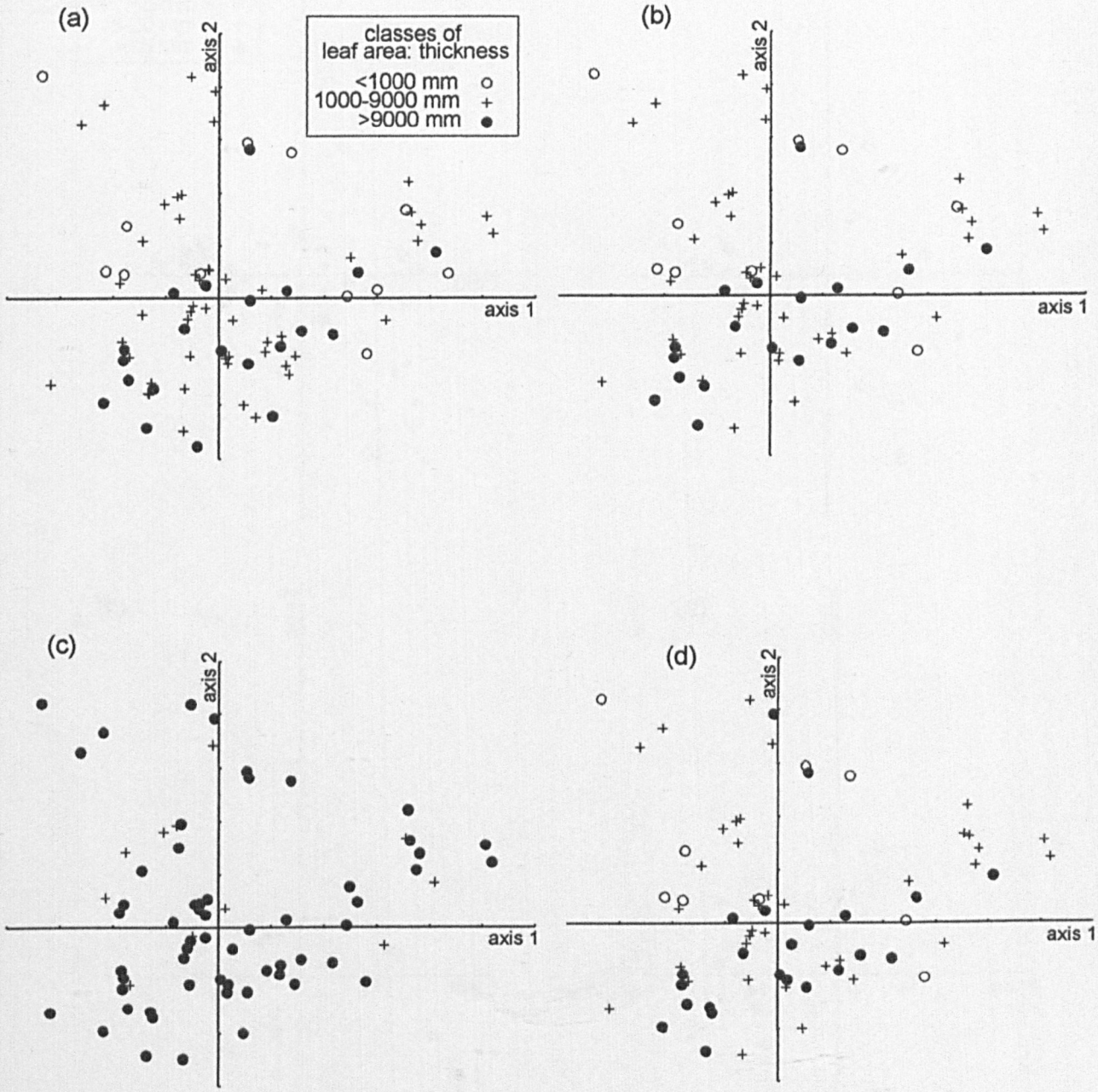


Figure 7.18 Application of SLA values of genera, based on correspondence analysis from Borja irrigation study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the SLA value of its genus, (d) plot of decreased species, only 17 species from the least variable genera (CV* ≤10) reclassified

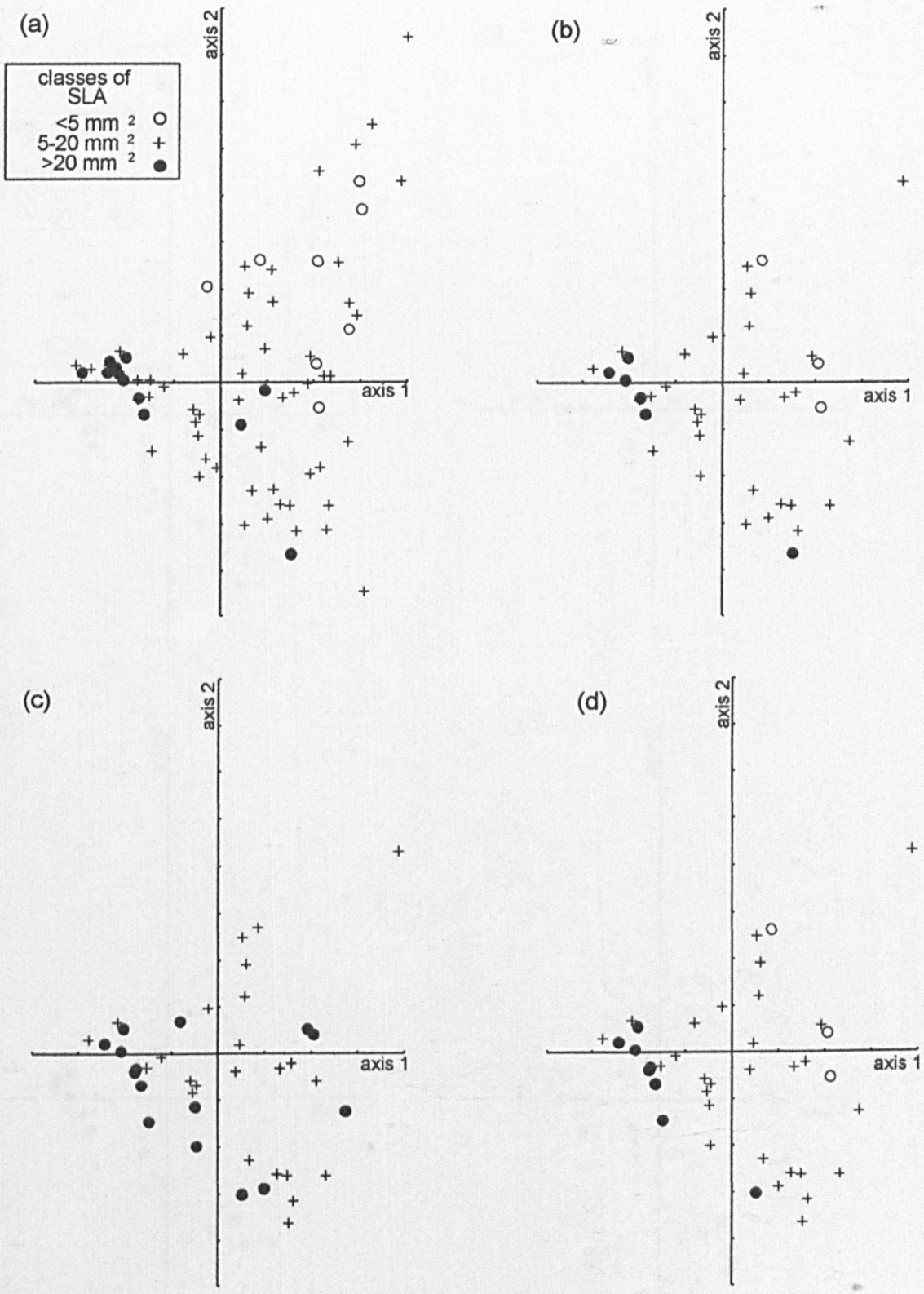


Figure 7.19 Application of SLA values of families, based on correspondence analysis from Borja irrigation study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the SLA value of its family (d) plot of decreased species, only 15 species from the least variable families (CV* ≤12.5) reclassified

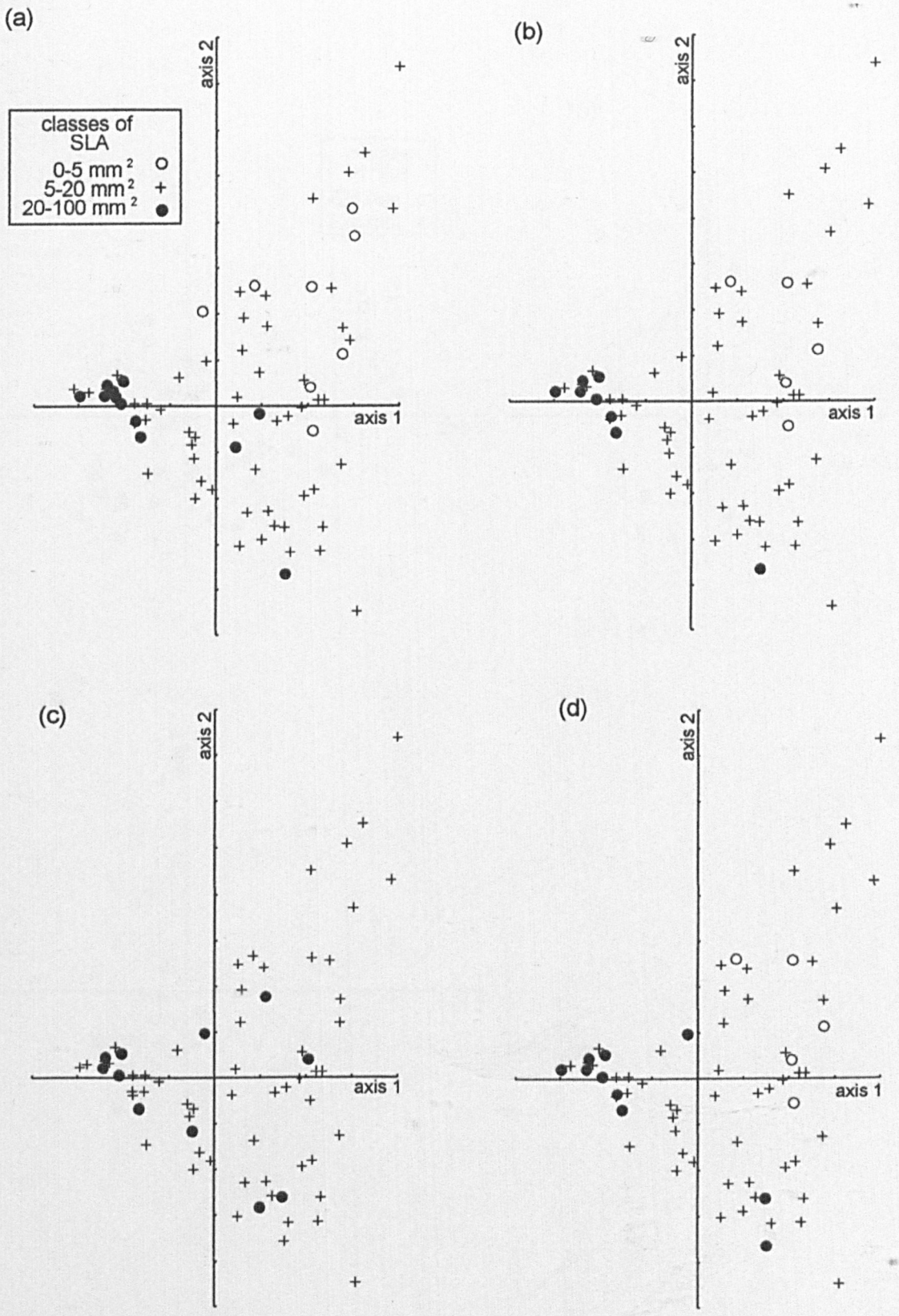


Figure 7.20 Application of SLA values of genera, based on correspondence analysis from Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, each reclassified according to the SLA value of its genus

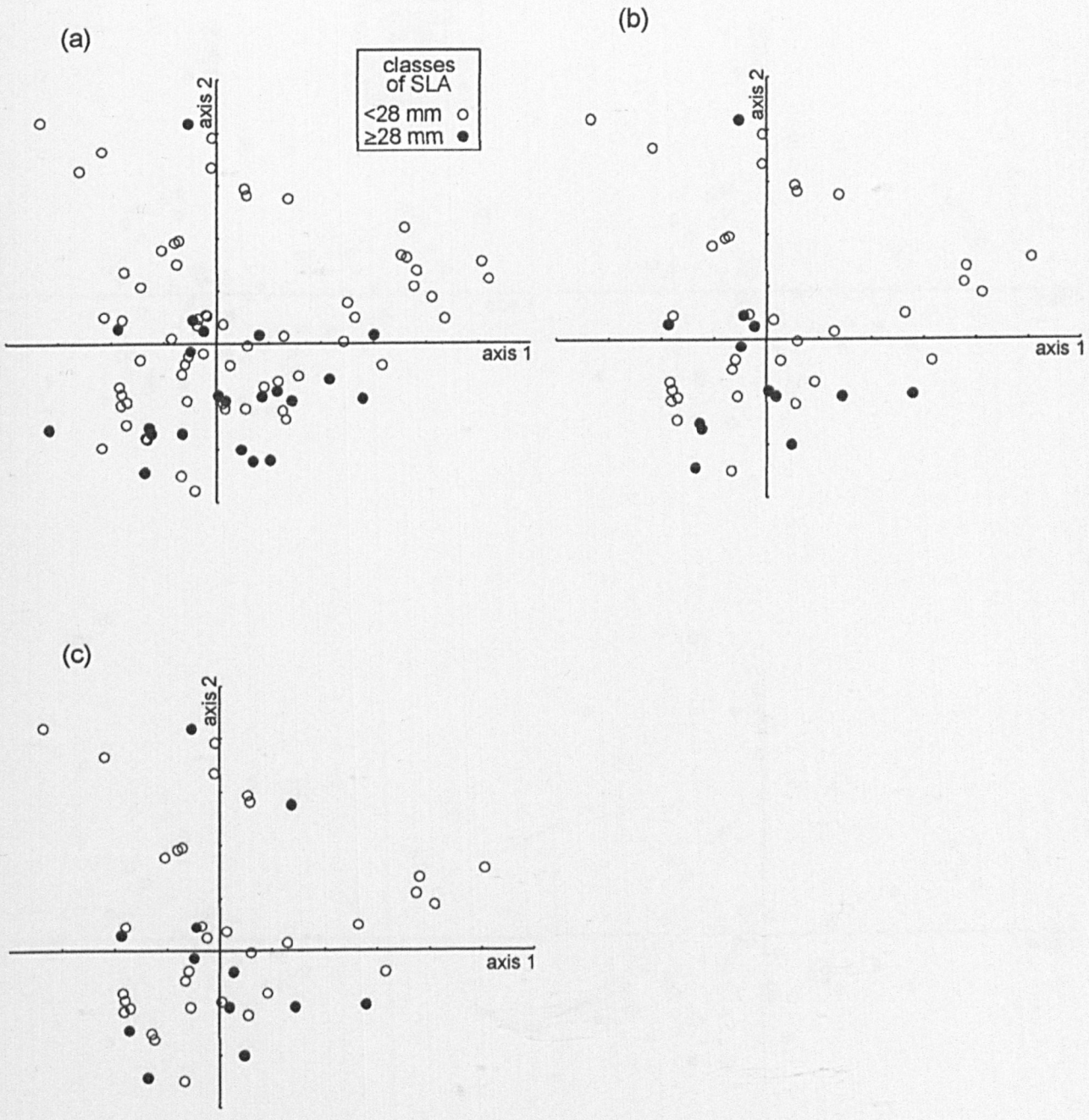


Figure 7.21 Application of SLA values of families, based on correspondence analysis from Germany sowing time study, (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, each reclassified according to the SLA value of its family, (d) plot of decreased species, only 32 species from the least variable families (CV* ≤13.6) reclassified

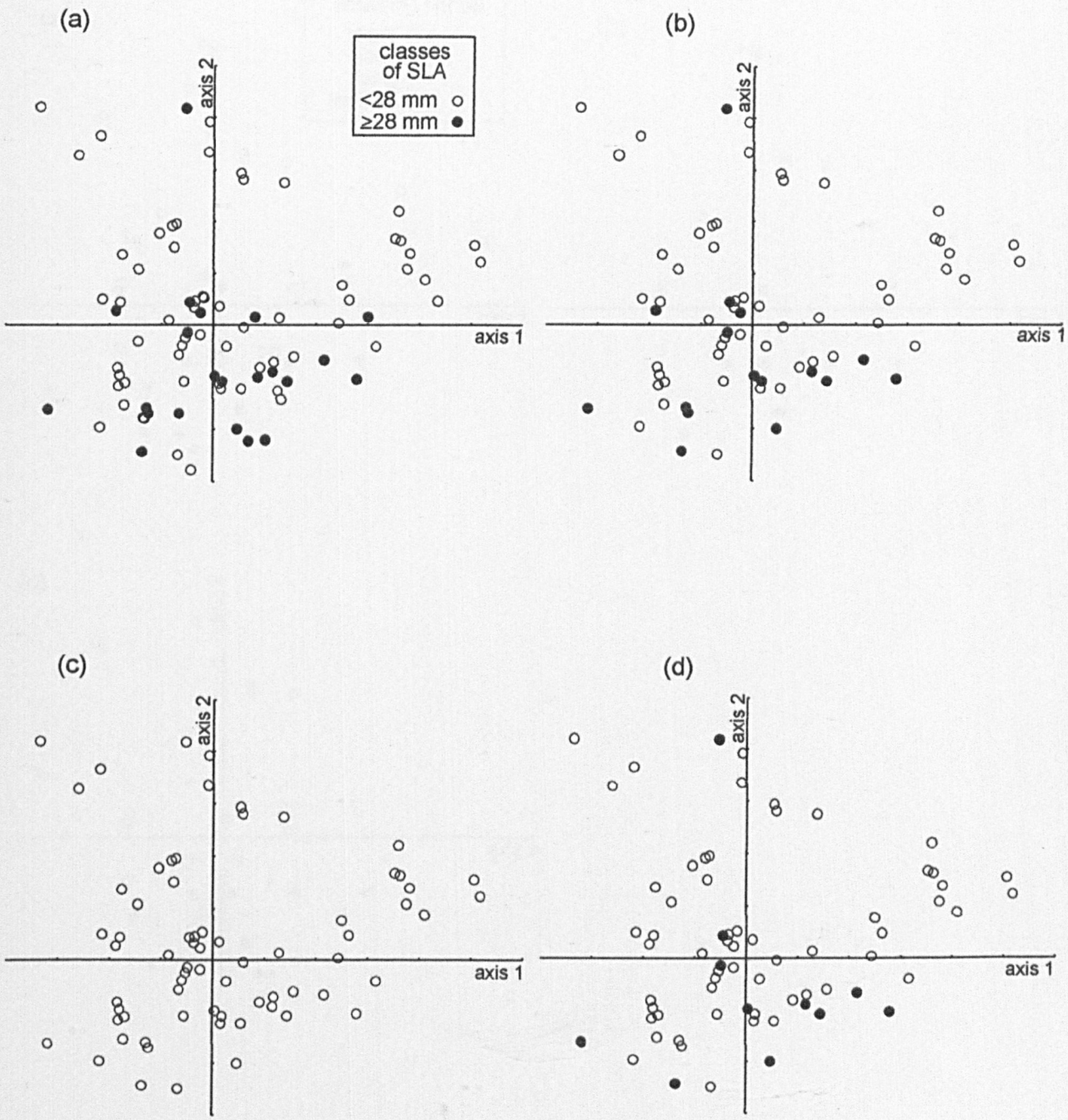


Figure 7.22 Application of flowering period values of genera, based on correspondence analysis from Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS genera, (c) plot of decreased species, only 29 species from genera with ID ≤0.50 reclassified according to the flowering period value of those genera

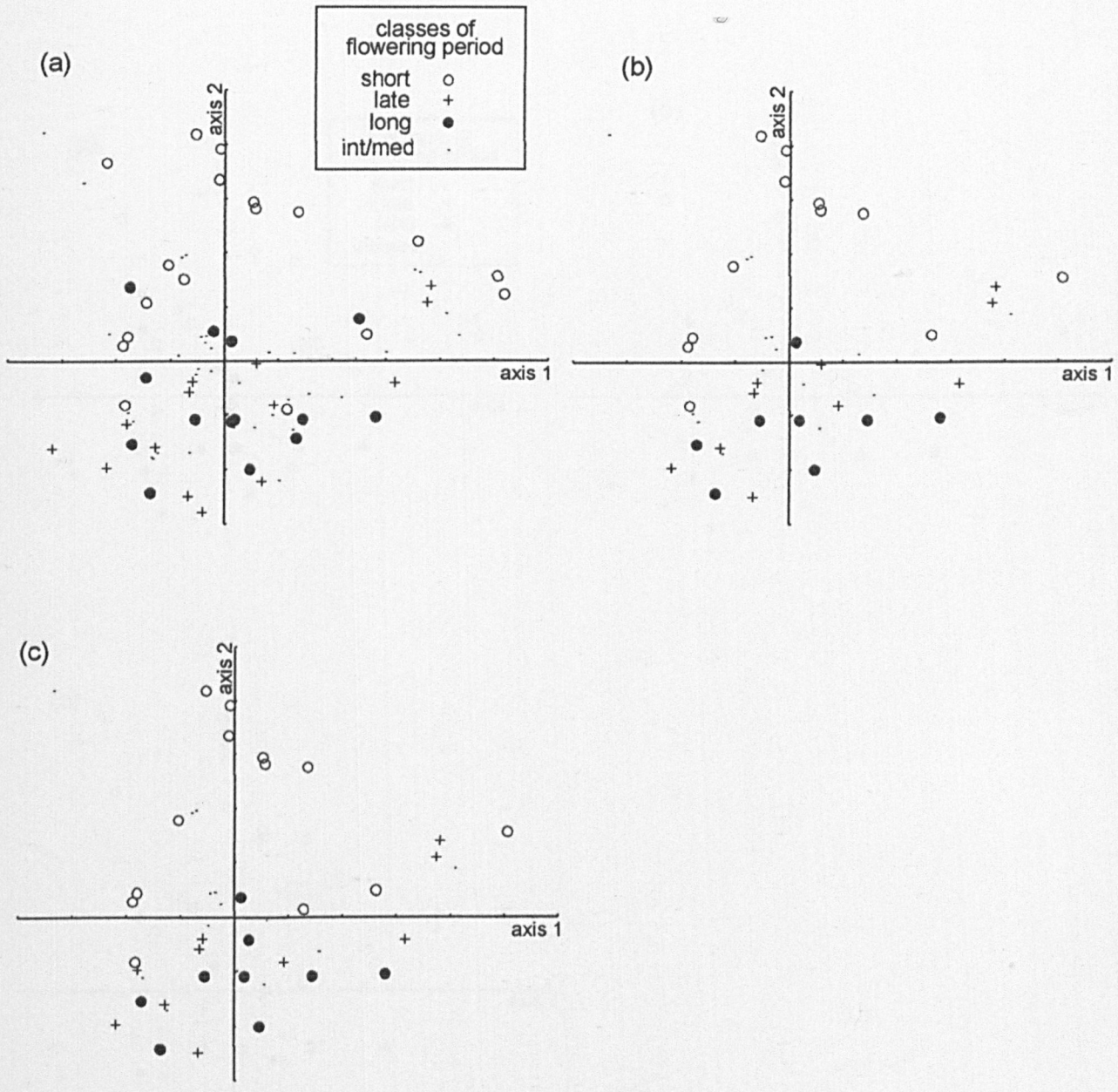


Figure 7.23 Application of flowering period values of families, based on correspondence analysis from Germany sowing time study: (a) original plot of all species, (b) plot of decreased species that belong to ARCHFIBS families, (c) plot of decreased species, only 8 species from families with ID ≤0.50 reclassified according to the flowering period value of those families