Appendix A. Accessions details for samples analysed, including Genbank accession numbers (in the second table)

Collector	Number	Voucher	SANT accession	Taxon	Country	Major area	Minor area	Locality	lat	ns	long	ew	llunit	llorig	Terminal
Fagúndez, J.	3223	SANT		Calluna vulgaris (L.) Hull	Spain	Pontevedra	Cerdedo		42.4	N	8.3	W	DD		Calluna_vulgaris_ANA
Gehrke, B.	643	NBG		Calluna vulgaris (L.) Hull	Switzerland	Luzern			46.59245	N	8.125136	E			Calluna_vulgaris_BG643
Popp, M.	2009/37	NBG		Calluna vulgaris (L.) Hull	Norway	Vest Agder	Lyngdal		58.08	N	6.57	E			Calluna_vulgaris_Popp37
Wüest, S.	s.n.	-		Calluna vulgaris (L.) Hull	Ireland	County Wicklow	Wiklow Mountains	Glendalough	53.05	N	6.2	W	DMS	FG	Calluna_vulgaris_SW2
Fagúndez, J.	3224	SANT		Daboecia cantabrica (Huds.) K.Koch	Spain	Pontevedra	Cerdedo		42.4	N	8.3	W	DD		Daboecia_cantabrica_ANA
Kay, A.	KKN9	WSY		Daboecia cantabrica (Huds.) K.Koch	Ireland	Galway	Connemara	Lettergesh East	53.35	N	9.54	W	DMS	GAZ	Daboecia_cantabrica_KKN9
Sahuquillo Balbuena, E.	A62935	SANT		Daboecia cantabrica (Huds.) K.Koch	Spain	A Coruña	Valdoviño		43.36	N	8.08	W	DMS	GAZ	Daboecia_PPA
Sahuquillo Balbuena, E.	I s.n.	SANT		Daboecia cantabrica (Huds.) K.Koch	Spain	Galicia			43	N	8	W	DMS	GAZ	Daboecia_PPI

Popp, M.	2009/38	NBG		Empetrum nigrum L.	Norway	Vest Agder	Lyngdal		58.08	N	6.57	E			Empetrum_nig
Hitchcock, A.	156	NBG		Erica abietina L. ssp. abietina	South Africa			Cultivated: KBG	0		0				abietina_abi_ANA
Fagúndez, J.	s.n.	SANT	41476	Erica andevalensis B.Cabezudo & J.Rivera	Spain	Huelva	Andévalo		37.6	N	7.1	W	DD		andevalensis_ANA
Ojeda, F.	(Oliver 12621)	NBG		Erica andevalensis B.Cabezudo & J.Rivera	Spain	Huelva	Nerva		0		0				andevalensis_EO12623
Fagúndez, J.	AAD s.n.	SANT	17714	Erica arborea L.	Turkey				0		0				arborea_n_ANA
Carni, A.	59016	SANT	59016	Erica arborea L.	Greece	Thasos			40.6	N	24.6	E	DD		arborea_i_ANA
Fagúndez, J.	s.n.	SANT	41564	Erica arborea L.	Spain	La Gomera	El Cedro		28.1	N	17.2	W	DD		arborea_h_ANA
Fagúndez, J.	s.n.	SANT	53749	Erica arborea L.	Portugal	Madeira	Manchico		32.7	N	16.9	W	DD		arborea_g_ANA
Fagúndez, J.	3034	SANT	53808	Erica arborea L.	Spain	Vizcaya	Lekeitio		43.3	N	2.4	W	DD		arborea_j_ANA
Fagúndez, J.	3121	SANT		Erica arborea L.	Spain	Jaén	Santa Elena		38.4	N	3.5	W	DD		arborea_c_ANA
Fagúndez, J.	3130	SANT		Erica arborea L.	Spain	León	Manzanal del Puerto		42.5	N	6.2	W	DD		arborea_b_ANA
Fagúndez, J.	3213	SANT	61853	Erica arborea L.	Croatia	Dalmacia	Korçula		42.9	N	17.1	E	DD		arborea_k_ANA

Fagúndez, J.	3225	SANT	Erica arborea L.	Spain	Ciudad Real	Cabañeros		39	N	4	W	DMS		arborea_l_ANA
Fagúndez, J.	3230	SANT	Erica arborea L.	Spain	Ciudad Real	Cabañeros		39	N	4	W	DMS		arborea_m_ANA
Kuppler, A. de	400	-	Erica arborea L.	Spain	Tenerife			0		0				arborea_tenerife_ANA
Miehe, G.	s.n.	-	Erica arborea L.	Ethiopia			Bale Mts.	6.5226	N	39.4916	E			arborea_Miehe
Ojeda, F.	(Oliver 12619)	NBG	Erica arborea L.	Spain	Cádiz		Sierra del Aljibe	0		0				arborea_EO12619
Fagúndez, J.	3123	SANT	Erica australis L.	Spain	Jaén	Santa Elena		38.5	N	3.6	W	DD		australis_b_ANA
Fagúndez, J.	3127	SANT	Erica australis L.	Spain	León	Manzanal del Puerto		42.5	N	6.2	W	DD		australis_a_ANA
Sahuquillo Balbuena, E.	F s.n.	SANT	Erica australis L.	Spain	Lugo	Courel	Alto do Boi, Folgoso do Courelo	42.13	N	7.48	W	DMS	GAZ	australis_PPF
Sahuquillo Balbuena, E.	M 62845	SANT	Erica australis L.	Spain	Ourense	Monteder ramo	Gabín	42.16	N	7.3	W	DMS	GAZ	australis_PPM
Pene, S.	1	SANT	Erica azorica Hochst. ex Seub.	Portugal	Azores	São Jorge		38.42	N	28.11	W	DM		azorica_a_ANA
Pene, S.	5	SANT	Erica azorica Hochst. ex Seub.	Portugal	Azores	Pico Island		38.29		28.24		DM		azorica_b_ANA

Vanderpoorten, A.	s.n.	tbc		Erica azorica Hochst. ex Seub.	Portugal	Azores	São Jorge		38.3837	N	28.0327	W	DMS	GPS	azorica_AV
Pirie, M.D.	1087	TAN; MO; U		Erica bojeri Dorr & E.G.H.Oliv.	Madagascar			Ankaratra Mts.	19.21277	S	47.15147	E	DMS	GPS	bojeri_MP1087
		SANT		Erica carnea L.				Cultivated: BBG							carnea_b_ANA
Andrés	s.n.	SANT	59013	Erica carnea L.	Italy			Madonna di Campiglio	46.14	N	10.49	E	DMS	GAZ	carnea_a_ANA
Tribsch, A.	s.n. 5	NBG		Erica carnea L.	Austria	Salzburg		Strubklamm, Faistenau	47.4631	N	13.1207	E	DMS		carnea_ATsn5
	16917			Erica cerinthoides L. var. cerinthoides	South Africa			Cultivated: BBG	0		0				cerinthoides_ANA
Fagúndez, J.	s.n.	SANT	47665	Erica ciliaris L.	Spain	Cádiz	Los Alcornocales		36.3	N	5.6	W	DD		ciliaris_d_ANA
Fagúndez, J.	3147	SANT		Erica ciliaris L.	Spain	Lugo	Viveiro		43.6	N	7.5	W	DD		ciliaris_b_ANA
Fagúndez, J.	3159	SANT		Erica ciliaris L.	Spain	A Coruña	Brandomil		43	N	8.9	W	DD		ciliaris_a_ANA
Fagúndez, J.	3166	SANT		Erica ciliaris L.	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	DD		ciliaris_c_ANA
Kay, A.	KKN 1	WSY		Erica ciliaris L.	Ireland	Galway	Connemara	Craiggamore	53.27	N	9.58	W	DMS	GAZ	ciliaris_KKN1

Ojeda, F.	(Oliver 12622)	NBG	Erica ciliaris L.	Spain	Cádiz		Sierra de la Palma	0		0					ciliaris_EO12622
Edge, D.	(Oliver 12698)	NBG	Erica cinerea L.	UK	England		Isle of Lundy, Bristol Channel	51.1	N	4.4	W	DMS	GAZ		cinerea_EO12698
Fagúndez, J.	3145	SANT	Erica cinerea L.	Spain	Lugo	Viveiro		43.6	N	7.5	W	DD			cinerea_a_ANA
Fagúndez, J.	3161	SANT	Erica cinerea L.	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	DD			cinerea_b_ANA
Fagúndez, J.	3162	SANT	Erica cinerea L.	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	DD			cinerea_c_ANA
Fagúndez, J.	3171	SANT	Erica cinerea L.	Ireland	Galway	Connemara		53	N	9	W	DM			cinerea_e_ANA
Fagúndez, J.	3185	SANT	Erica cinerea L.	Ireland	Galway	Connemara		53	N	9	W	DM			cinerea_d_ANA
Pirie, M.D.	967	NBG	Erica cinerea L.	UK	England	Cornwall	The Lizard	50.02345 8	N	5.094862	W				cinerea_MP967
Popp, M.	s.n.		Erica cinerea L.	Norway			Stavanger area	58.5812	N	5.4359	E	DMS	GAZ		cinerea_Popp
Wüest, S.	s.n.		Erica cinerea L.	Ireland	County Wicklow		Glendalough, Wiklow Mountains	53.05	N	6.2	W	DMS	FG		cinerea_SW3
Fagúndez, J.	3157	SANT	Erica erigena R.Ross	Spain	A Coruña	Brandomil		43	N	8.9	W	DD			erigena_a_ANA

Fagúndez, J.	3165	SANT		Erica erigena R.Ross	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	D D			erigena_b_ANA
Fagúndez, J.	3184	SANT		Erica erigena R.Ross	Ireland	Galway	Connemara		53	N	9	W	D M			erigena_c_ANA
Ojeda, F.	(Oliver 12623)	NBG		Erica erigena R.Ross	Spain	Cádiz		Sierra de la Palma	0		0					erigena_EO12623
Kay, S.	(Oliver 12616)	NBG		Erica erigena R.Ross	Ireland	Galway	Connemara	Connemara, Lettergesh	53.35	N	9.53	W	D M	G AZ		erigena_EO12616
Pimentel Pereira, M.	s.n.			Erica erigena R.Ross	Spain				0		0					erigena_Pim
Hitchcock, A.	136			Erica halicacaba L.	South Africa			Cultivated: KBG	0		0					halicacaba_ANA
Hansford, G.	45			Erica inflata Thunb.	South Africa			Cultivated: KBG	0		0					inflata_ANA
	116			Erica lusitanica Rudolph				Cultivated: BGV	0		0					lusitanica_f_ANA
Fagúndez, J.	3032	SANT	51627	Erica lusitanica Rudolph	Spain	Guipuzkoa	Deba		43.2	N	2.3	W	D D			lusitanica_D_ANA
Fagúndez, J.	3033	SANT	51629	Erica lusitanica Rudolph	Spain	Asturias	Sueve mts.		43.4	N	5.2	W	D D			lusitanica_C_ANA
Jiménez, P.	18PJM05 s.n.	UPOS		Erica lusitanica Rudolph	Portugal	Distrito de Leiria		Between Foitos and Mata	40	N	8.46	W	D MS	G AZ		lusitanica_PJ
Fagúndez, J.	3144	SANT		Erica mackayana Bab.	Spain	Lugo	Viveiro		43.6	N	7.5	W	D D			mackayana_a_ANA

Fagúndez, J.	3164	SANT		Erica mackayana Bab.	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	D D			mackayana_b_ANA
Fagúndez, J.	3178	SANT		Erica mackayana Bab.	Irelan d	Galway	Connemar a		53	N	9	W	D M			mackayana_c_ANA
Fagúndez, J.	3180	SANT		Erica mackayana Bab.	Irelan d	Galway	Connemar a		53	N	9	W	D M			mackayana_e_ANA
Fagúndez, J.	3181	SANT		Erica mackayana Bab.	Irelan d	Galway	Connemar a		53	N	9	W	D M			mackayana_d_ANA
Kay, A.	KKN 5	WSY		Erica mackayana Bab.	Irelan d	Galway	Connemar a	Craiggamore	53.2 7	N	9.58	W	D M S	G AZ		mackayana_KKN5
Sahuquillo Balbuena, E.	K 62856	SANT		Erica mackayana Bab.	Spain	Lugo	Trabada		43	N	7.3	W	D M S	G AZ		mackaiana_PPK
Kay, A.	KKN 7	WSY		Erica mackayana Bab. cult. 'errigal dusk'	Irelan d	Ulster	Donegal	Lough Nacung (cult. in Lettergesh)	0		0					mackayana_KKN7
Fagúndez, J.	s.n.	SANT	52134	Erica maderensis (Benth.) Bornmüller	Portu gal	Madeira	Pico Areeiro		32.7	N	16.9	W	D D			maderensis_a_ANA
Fagúndez, J.	s.n.	SANT	53766	Erica maderensis (Benth.) Bornmüller	Portu gal	Madeira	Pico Ruivo		32.7	N	16.9	W	D D			maderensis_b_ANA
Hall, A.	s.n.			Erica maderensis (Benth.) Bornmüller	Portu gal	Madeira			0		0					maderensis_AH
	119			Erica manipuliflora Salisb.				Cultivated: BGV	0		0					manipuliflora_d_ANA

Edge, D.	(Oliver 12697)			Erica manipuliflora Salisb.	Greece	Spetsai Island		Spetsai Island	37.15	N	23.07	E	DMS	GAZ	manipuliflora_EO12697
Fagúndez, J.	3215	SANT	61851	Erica manipuliflora Salisb.	Croatia	Dalmacia	Peljesac		42.9	N	17.1	E	DD		manipuliflora_a_ANA
Fagúndez, J.	3242	SANT		Erica manipuliflora Salisb.	Lebanon	Beiruth	Mar Roukos		33.8	N	35.5	E	DD		manipuliflora_c_ANA
Jones, A.H.	s.n.	WSY		Erica manipuliflora Salisb.	Croatia			ex cult. (C. Nelson, U.K.)	0		0				manipuliflora_AJH
Nelson, C.	s.n.			Erica manipuliflora Salisb.	Greece	Corfu			39.36	N	19.5	E	DMS	GAZ	manipuliflora_CN
Fagúndez, J.	s.n.	SANT	43898	Erica multiflora L.	Spain	Valencia	Buñol		39.4	N	0.7	W	DD		multiflora_c_ANA
Fagúndez, J.	3137	SANT		Erica multiflora L.	Italy	Sicily	Trapani		38.1	N	12.6	E	DD		multiflora_b_ANA
Fagúndez, J.	3139	SANT		Erica multiflora L.	Italy	Sicily	Trapani		38.1	N	12.6	E	DD		multiflora_a_ANA
Hitchcock, A.	564/06			Erica nabea Guthrie & Bolus	South Africa			Cultivated: KBG	0		0				nabea_ANA
SANBI	823/89			Erica oatesii Rolfe	South Africa			Cultivated: KBG	0		0				oatesii_ANA
Edge, D.	(Oliver 12695)			Erica platycodon (Webb & Berthel.) Rivas Mart.et al. ssp. maderincola (D.C.McClint.) Rivas Mart.et	Portugal	Madeira			0		0				platycodon_mad_EO12695

Edge, D.	(Oliver 12696)			Erica platycodon (Webb & Berthel.) Rivas Mart.et al. ssp. maderincola (D.C.McClint.) Rivas Mart.et	Portugal	Madeira	Porto Santo		33.03	N	16.2	W	DMS	GAZ	platycodon_mad_EO12696
Fagúndez, J.	s.n.	SANT	41565	Erica platycodon (Webb & Berthel.) Rivas Mart.et al. ssp. platycodon	Spain	Tenerife	Anaga		28.5	N	16.2	W	DD		platycodon_pla_c_ANA
Fagúndez, J.	s.n.	SANT	53762	Erica platycodon (Webb & Berthel.) Rivas Mart.et al. ssp. maderincola (D.C.McClint.) Rivas Mart.et	Portugal	Madeira	Pico Ruivo		32.7	N	16.9	W	DD		platycodon_mad_a_ANA
Fagúndez, J.	s.n.	SANT	53765	Erica platycodon (Webb & Berthel.) Rivas Mart.et al. ssp. maderincola (D.C.McClint.) Rivas Mart.et	Portugal	Madeira	Encumeada		32.7	N	16.9	W	DD		platycodon_mad_b_ANA
Oliver, E.G.H.	s.n.	NBG		Erica plukenetii L. ssp. plukenetii	South Africa	Western Cape		NW of Springbok	0		0				plukenetii_plu_EO
Fagúndez, J.	s.n.	SANT	47646	Erica scoparia L.	Spain	Cádiz	Los Alcornocales		36.3	N	5.6	W	DD		scoparia_d_ANA
Fagúndez, J.	3232	SANT		Erica scoparia L.	Spain	Ciudad Real	Cabañeros		39	N	4	W	DMS		scoparia_c_ANA
Hall, A.	s.n.			Erica scoparia L.	France	Bordeaux		Cap Ferret	44.42	N	1.11	W	DMS	GAZ	scoparia_AH
Ojeda, F.	(Oliver 12618)	NBG		Erica scoparia L.	Spain	Cádiz		Sierra de la Palma	0		0				scoparia_EO12618
	s.n.	SANT		Erica sicula Gussone ssp. bocquetii (Pesmen) E.C.Nelson				Cultivated: RBGK	0		0				sicula_boc_ANA
McClintock, D.	s.n.			Erica sicula Gussone ssp. bocquetii (Pesmen) E.C.Nelson	Turkey			Dokuzgol area, western Turkey	36.28	N	29.11	E	DMS	GAZ	sicula_boc_DM

Fagúndez, J.	s.n.	SANT	Erica sicula Gussone ssp. sicula	Turkey				0		0				sicula_sic_k_ANA
Fagúndez, J.	3131	SANT	Erica sicula Gussone ssp. sicula	Italy	Sicily	Trapani		38.1	N	12.6	E	DD		sicula_sic_a_ANA
Fagúndez, J.	3132	SANT	Erica sicula Gussone ssp. sicula	Italy	Sicily	Trapani		38.1	N	12.6	E	DD		sicula_sic_b_ANA
Fagúndez, J.	3135	SANT	Erica sicula Gussone ssp. sicula	Italy	Sicily	Trapani		38.1	N	12.6	E	DD		sicula_sic_c_ANA
Fagúndez, J.	3199	SANT	Erica sicula Gussone ssp. sicula	Cyprus	Kyrenia	Yaila		35.3	N	33.5	E	DD		sicula_sic_d_ANA
Fagúndez, J.	3204	SANT	Erica sicula Gussone ssp. sicula	Cyprus	Kyrenia	Karaman		35.3	N	33.2	E	DD		sicula_sic_e_ANA
Fagúndez, J.	3206	SANT	Erica sicula Gussone ssp. sicula	Cyprus	Kyrenia	Karaman		35.3	N	33.2	E	DD		sicula_sic_f_ANA
Fagúndez, J.	3247	SANT	Erica sicula Gussone ssp. sicula	Lebanon			Nahr Ibrahim	0		0				sicula_sic_g_ANA
Fagúndez, J.	3255	SANT	Erica sicula Gussone ssp. sicula	Lebanon			Aaqoura	34.1	N	35.9	E	DD		sicula_sic_h_ANA
Guichard	s.n.	SANT	Erica sicula Gussone ssp. sicula	Libya	Libya	Ras Al-Hilal		32.8	N	22.1	E	DD		sicula_sic_i_ANA
Moehl, A.	s.n.		Erica sicula Gussone ssp. sicula	Italy	Sicily			38.11239	N	12.66540	E	DD		sicula_sic_AM
	84		Erica spiculifolia Salisb.				Cultivated: BGV	0		0				spiculifolia_c_ANA

Bita-Nicolae, Claudia D	s.n.	SANT	58563	Erica spiculifolia Salisb.	Romania		Bucegi Mts.		45.4	N	25.4	E	DD		spiculifolia_b_ANA
Lazarevic, P.	s.n.	SANT	58536	Erica spiculifolia Salisb.	Serbia		Mt. Sar Planina		42.4	N	21.3	E	DD		spiculifolia_a_ANA
Strid, A.	57234	ATNBG		Erica spiculifolia Salisb.	Greece	Kajmakcalan		Mt. Voras	40.54	N	21.49	E	DMS		spiculifolia_AS57234
Fagúndez, J.	s.n.	SANT	41594	Erica terminalis Salisb.	Spain	Valencia	Buñol		39.4	N	0.7	W	DD		terminalis_b_ANA
Fagúndez, J.	s.n.	SANT	47667	Erica terminalis Salisb.	Spain	Málaga	Ronda		36.7	N	5.1	W	DD		terminalis_a_ANA
Fagúndez, J.	3158	SANT		Erica tetralix L.	Spain	A Coruña	Brandomil		43	N	8.9	W	DD		tetralix_a_ANA
Fagúndez, J.	3172	SANT		Erica tetralix L.	Ireland	Galway	Connemara		53	N	9	W	DM		tetralix_e_ANA
Fagúndez, J.	3175	SANT		Erica tetralix L.	Ireland	Galway	Connemara		53	N	9	W	DM		tetralix_d_ANA
Fagúndez, J.	3182	SANT		Erica tetralix L.	Ireland	Galway	Connemara		53	N	9	W	DM		tetralix_c_ANA
Fagúndez, J.	3189	SANT		Erica tetralix L.	Ireland	Galway	Connemara		53	N	9	W	DM		tetralix_b_ANA
Kay, A.	KKN 3	WSY		Erica tetralix L.	Ireland	Galway	Connemara	Craiggamore	53.27	N	9.58	W	DMS	GAZ	tetralix_KKN3

Kay, A.	KKN 4	WSY		Erica tetralix L.	Ireland	Galway	Connemara	Craiggamore	53.27	N	9.58	W	DMS	GAZ	tetralix_KKN4
Pirie, M.D.	966	NBG		Erica tetralix L.	UK	England	Cornwall	The Lizard	50.023458	N	5.094862	W			tetralix_MP966
Popp, M.	2009/36	NBG		Erica tetralix L.	Norway	Vest Agder	Lyngdal		58.08	N	6.57	E			tetralix_Popp
Wüest, S.	s.n.			Erica tetralix L.	Ireland	County Wicklow		Glendalough, Wiklow Mountains	53.05	N	6.2	W	DMS	FG	tetralix_SW1
Miehe, G.	s.n.	NBG		Erica trimera (Engl.) Beentje ssp. abyssinica (Pic.Serm. & Heiniger) Dorr	Ethiopia			Bale Mts.	6.5226	N	39.4916	E	DMS		trimera_MsnA
Fagúndez, J.	s.n.	SANT	43905	Erica umbellata L.	Spain	Toledo	Quintos de Mora		39.4	N	4.2	W	DD		umbellata_b_ANA
Fagúndez, J.	3146	SANT		Erica umbellata L.	Spain	Lugo	Viveiro		43.6	N	7.5	W	DD		umbellata_a_ANA
Fagúndez, J.	s.n.	SANT		Erica vagans L.	Spain	León	Babia		0		0				vagans_b_ANA
Fagúndez, J.	3163	SANT		Erica vagans L.	Spain	A Coruña	Capelada mts.		43.6	N	7.9	W	DD		vagans_a_ANA
Pirie, M.D.	969	NBG		Erica vagans L.	UK	England	Cornwall	The Lizard	50.023458	N	5.094862	W			vagans_MP969
Pirie, M.D.	972	NBG		Erica vagans L.	UK	England	Cornwall	The Lizard	49.583141	N	5.134467	W			vagans_MP972

Sahuquillo Balbuena, E.	J 62855	SANT	Erica vagans L.	Spain	Lugo	Trabada		43	N	7.3	W	DMS	GAZ	vagans_PPJ
Fagúndez, J.	3179	SANT	Erica x stuartii (Macfarl.) Mast.	Ireland	Galway	Connemara		53	N	9	W	DM		x_stuartii_ANA
Kay, A.	KKN 2	WSY	Erica x stuartii (Macfarl.) Mast.	Ireland	Galway	Connemara	Craiggamore	53.27	N	9.58	W	DMS	GAZ	x_stuarti_KKN2_CP

Genbank accession numbers

Terminal	ITS	trnL-F-ndhJ	trnT-L	psbM-trnD	atpI-atpH	rpl32-trnL	rpl16 intron	trnK-matK	rbcL
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Calluna_vulgaris_Popp37	HQ858883								
Calluna_vulgaris_SW2	HQ858884								
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andevalensis_ANA	KP737518	KP737383						KP737747	
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arborea_j_ANA	KP737527	KP737392						KP737754	
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lusitanica_f_ANA	KP737567	KP737433						KP737780	
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vagans_MP972	HQ859319	KP737490	KP737682						
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vagans_b_ANA	KP737629	KP737493						KP737831	
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Appendix B. Lab protocols

Somewhat different lab protocols were used in Bonn (AK) and in Stellenbosch (MP). Both are reported here:

PCR amplification

AK: each 50 µl of amplification solution contained: 1x Go Taq® reaction buffer green (Promega GmbH, Mannheim, Germany), 200 µM of each dATP, dCTP, dGTP and dTTP (Promega GmbH, Mannheim, Germany), 0.40 µM of each oligonucleotide primer forward and reverse and 1.5 U/µl Go Taq® DNA polymerase (Promega GmbH, Mannheim, Germany). PCR amplification was performed in a thermal cycler Tgradient thermoblock (Biometra, Göttingen, Germany). The conditions used were a first step at 94°C for 2 min for denaturation followed by 35 cycles consisting of 1 min denaturation at 94°C, annealing at 52°C (trnLF), 53°C (matK) or 68°C (ITS) for 30sec and 2 min at 72°C with a final extension at 72°C for 5 min.

MP: Per 25 µl reaction we included 2.5 µl 10x buffer, 2.0 µl 25 mM $MgCl_2$, 1.0 µl 5 mM dNTPs, 0.25 µl 4 µg/µl BSA, 1 µl DMSO, 0.1 µl Taq polymerase, 0.25 µl each of 20 µM solutions of the two primers and 1 µl DNA template. The PCR programs were of an initial 1 min.: 94°C followed by 35 cycles of 1 min.: 94°C; 1 min.: 55°C; 2 min.: 72°C; and a final extension of 4 min.: 72°C (ITS); and 80°C for 5 min followed by 30 or 35 cycles of denaturation at 95°C for 1 min, primer annealing at 50°C for 1 min, followed by a ramp of 0.38°C/s to 65°C, and primer extension at 65°C for 4 min; followed by a final extension step of 5 min at 65°C (all chloroplast markers; Shaw et al., 2005).

Purification of PCR products and cycle sequencing

AK: All PCR amplified products were cleaned up with ExoSAP-IT® (USB/Affymetrix Inc., High Wycombe, United Kingdom) previously diluted in distilled water until reaching a concentration of 1:1. Afterwards the clean-up protocol was completed as described by the manufacturer. The already cleaned up PCR products were then sent for sequencing to Macrogen Inc. (Seoul, Korea), Eurofins MWG GmbH (Ebersberg, Germany), and Sequiserve GmbH (Vaterstetten, Germany).

MP: PCR products were treated in the original PCR reaction tube by addition of a 10 µl solution including 0.025 of 20 units/µl exonuclease I (Fermentas Life Sciences), 0.25 µl of 1 unit/µl shrimp alkaline phosphatase (Promega) and incubation (in a thermocycler) for 30 min.: 37°C and 5 min.: 95°C. One µl of the resulting product was cycle-sequenced with primers ITS4 and ITSL (Baum et al., 1998) using Applied Biosystems (Foster City, CA, USA) Big Dye terminator kits according to the manufacturer's instructions. Cycle-sequence products were analysed at the University of Stellenbosch sequencing facility by electrophoresis using an automatic sequencer 3130XL Genetic Analyzer (Applied Biosystems).

Primers:

Marker	**Primers (F/R)**
ITS (AK)	ITS17se/ ITS26se (Sun et al., 1994)
ITS (MP)	AB101 (Douzery et al., 1999)/8P (Möller and Cronk, 1997)
atpI-atpH	atpI/atpH (Shaw et al., 2007)
psbM-trnD	psbMF/trnDR (Shaw et al., 2005)
rbcL	1F/724R (Olmstead et al., 1992) and 636F/1460R (Fay et al., 1997; Fay et al., 1998)
rpl16 **intron**	rpl16F71/rpl16R1516 (Shaw et al., 2005)
rpl32-trnL	rpl32F/trnL (Shaw et al., 2007)
trnT-trnL	A/B (Taberlet et al., 1991)
trnL-trnF	C/F (Taberlet et al., 1991)
trnF-ndhJ	E (Taberlet et al., 1991)/ndhJ (Shaw et al., 2007)
5' *trnK-matK* intron	matK6 (Shaw et al., 2005)/ matK79R (this study, 5´- 3´: actcctgaaagataagcga)

***matK* gene**	matK1F/matK1600R (McGuire and Kron, 2005)

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Appendix C. Characters and character states included in the character optimisation analysis (from Fagúndez et al in prep.).

Group	Char. nº	Character states
Ecological characters		
	1	Acidophilous (0), neutral-basophilous (1)
	2	Dry sites (0), damp or humid soils (1)
	3	Seeder or lacking a lignotuber (0), resprouter from lignotuber (1)
Vegetative characters		
	4	Mean height < 1 m (0), > 1 m (1)
	5	Pluricellular hairs absent (0), present (1), branched (2)
	6	Leaves alternate (0), decussate (1), verticillate (2)
	7	Leaves in whorls of 3 (0), 4 or more (1)
	8	Mostly glabrous plants (0), dense indumentum of short unicellular hairs (1)
	9	Axillary fascicles of leaves absent (0), present (1)
	10	Leaf margins not completely rolled in (0), completely (1)
Inflorescence and flower characters		
	11	Flowering stems in main axis (0), on secondary, tertiary or nth axis (1)
	12	Flowers per inflorescence 1-3 (0), 4-8 (1), >10 (2)
	13	Group of prophylls at base of flowering branch absent (0), present (1)
	14	Bract absent (0), present (1)
	15	Bract and bracteoles in different position (0), equal position (1)
	16	Bract on base of the pedicel (0), half ways (1), adnate to calyx (2)
	17	Sepals 4 (0), 5 (1)
	18	Sepals with corolla colour (0), not (1)
	19	Sepals fused at base (0), free (1)
	20	Corolla greenish (0), white (1), pink or reddish (2)
	21	Corolla deciduous (0), persistent in fruit (1)
Stamens characters		
	22	Filament glabrous (0), hairy (1)
	23	Anthers included (0), exserted (1)
	24	Anthers appendages absent (0), present (1)
	25	Anther attachment basal (0), dorsal (1)
Ovary and fruit characters		
	26	Nectariferous disk absent (0), present (1)
	27	Ovary and fruit glabrous (0), hairy (1), glandular (2)
	28	Fruit loculicidal (0), septicidal (including septifragal) (1)

Seed morphology		
	29	Seed size < 0.5 mm (0), > 0.5 mm (1), > 0.9 mm (2)
Cytology		
	30	n=8 (0), n=12 (1), n=18 (2)
Palinology		
	31	Pollen in monads (0), tetrads (1)
Distribution		
	32	Northern' or 'southern'