

TABLE 1. Physical characteristics of the Canary Islands and Madeira with diversity of host plant and psyllid species, and number of plants used as hosts.

island	distance to mainland km	altitude m	area km <sup>2</sup>	age Myr	host plants (Genisteae)		psyllids (Arytaininae)		% Genisteae utilized as hosts (n)
					native species	% endemic (n)	native species	% endemic (n)	
Gran Canaria	245	1950	1534	14.5-16	7	43 (3)	7	43 (3)	71 (5)
Tenerife	303	3717	2058	7.5-11.5	11	18 (2)	11	36 (4)	73 (8)
La Gomera	417	1487	378	10-12	6	17 (1)	7	29 (2)	83 (5)
La Palma	489	2426	728	2	9	22 (2)	7	14 (1)	67 (6)
El Hierro	489	1501	277	1.1	5	20 (1)	4	0	80 (4)
Madeira	630	1861	728	30	2	100 (2)	2	100 (2)	100 (2)

TABLE 2. Distribution of taxa and location of 84 samples representing 62 taxa (61 species and one subspecies) included in this study. The data set in which each sample was included are indicated: 12S – small subunit rRNA; CO – cytochrome oxidase and tRNA leucine; M – morphological (adult and nymph), M\* (adult only). Material supplied by Daniel Burckhardt (DB), David Hollis (DH) and Ian Hodkinson (IH) is indicated, all other material was collected by this author (see Chapter 2).

data sets	taxon	origin of sample	plant species from which sample was collected [and host plant if different]	DNA voucher number
12S CO	<i>Acizzia hollisi</i>	Morocco: High Atlas	<i>Genista florida</i> [ <i>Acacia</i> spp.]	DP325.1B
12S CO M	<i>Acizzia uncatoides</i>	Canary Islands: La Palma	<i>Acacia</i> spp. (cultivated)	DP194
12S CO M	<i>Arytaina adenocarpi</i>	Portugal: Coimbra	<i>Adenocarpus complicatus</i>	DP262.3A
12S CO M	<i>Arytaina adenocarpi</i>	Spain: Málaga	<i>Adenocarpus telonensis</i>	DP233
12S CO M	<i>Arytaina adenocarpi</i>	Morocco: Middle Atlas	<i>Adenocarpus boudyi</i>	DP243
CO M	<i>Arytaina devia</i>	Canary Islands: Tenerife	<i>Chamaecytisus proliferus</i>	DP188.1
CO M	<i>Arytaina devia</i>	Canary Islands: La Gomera	<i>Chamaecytisus proliferus</i>	DP68
12S CO M	<i>Arytaina devia</i> ssp. <i>insularis</i>	Canary Islands: Gran Canaria	<i>Chamaecytisus proliferus</i>	DP161
12S CO M	<i>Arytaina devia</i> ssp. <i>insularis</i>	Canary Islands: La Palma	<i>Chamaecytisus proliferus</i>	DP189
12S CO M	<i>Arytaina genistae</i>	Scotland: Edinburgh	<i>Cytisus scoparius</i>	none
12S CO M	<i>Arytaina genistae</i>	Portugal: Coimbra	<i>Cytisus striatus</i>	DP263
CO M	<i>Arytaina genistae</i>	Morocco: High Atlas	<i>Cytisus grandiflorus</i>	DP325.2
12S CO M	<i>Arytaina nubivaga</i>	Canary Islands: Tenerife	<i>Spartocytisus supranubius</i>	DP154
12S CO M	<i>Arytaina</i> sp.14 ( <i>vittata</i> )	Canary Islands: La Gomera	<i>Spartocytisus filipes</i>	DP69 + 220

12S	CO	M	<i>Arytainilla cognata</i>	Morocco: High Atlas	<i>Genista florida</i>	DP238
12S	CO	M	<i>Arytainilla cytisi</i>	Morocco: Rif mountains	<i>Calicotome villosa</i>	DP319
12S	CO	M*	<i>Arytainilla delarbrei</i>	Portugal: Coimbra	<i>Cytisus purgans</i>	DP265.2
12S	CO	M	<i>Arytainilla diluta</i>	Canary Islands: Gran Canaria	<i>Teline microphylla</i>	DP172
	CO	M	<i>Arytainilla diluta</i>	Canary Islands: Tenerife	<i>Teline canariensis</i>	DP152
12S	CO	M	<i>Arytainilla dividens</i>	Canary Islands: Gran Canaria	<i>Chamaecytisus proliferus</i>	DP168
	CO	M	<i>Arytainilla dividens</i>	Canary Islands: Tenerife	<i>Chamaecytisus proliferus</i>	DP188.2
12S	CO	M	<i>Arytainilla dividens</i>	Canary Islands: La Gomera	<i>Chamaecytisus proliferus</i>	DP244
12S	CO	M	<i>Arytainilla equitans</i>	Canary Islands: Gran Canaria	<i>Teline microphylla</i>	DP163
12S		M	<i>Arytainilla gredi</i> DH	Spain: Picos de Europa	<i>Genista hispanica</i>	DH336
12S	CO	M	<i>Arytainilla hakani</i>	Morocco: Rif mountains	<i>Teline monspessulana</i>	DP256
12S	CO	M	<i>Arytainilla ima</i>	Morocco: High Atlas	<i>Adenocarpus anagyriifolius</i>	DP239
12S	CO	M	<i>Arytainilla incuba</i>	Madeira: Encumeada	<i>Teline maderensis</i>	DP271 + 274
12S	CO	M	<i>Arytainilla modica</i>	Canary Islands: La Palma	<i>Teline stenopetala</i>	DP192
12S	CO	M	<i>Arytainilla modica</i>	Canary Islands: La Palma	<i>Chamaecytisus proliferus</i>	DP201
	CO	M	<i>Arytainilla modica</i>	Canary Islands: El Hierro	<i>Teline stenopetala</i>	DP212
	CO	M	<i>Arytainilla modica</i>	Canary Islands: El Hierro	<i>Chamaecytisus proliferus</i>	DP211
12S	CO	M	<i>Arytainilla nigrilineata</i>	Canary Islands: Gran Canaria	<i>Adenocarpus foliolosus</i>	DP173
	CO	M	<i>Arytainilla nigrilineata</i>	Canary Islands: Tenerife	<i>Adenocarpus foliolosus</i>	DP156
	CO	M	<i>Arytainilla nigrilineata</i>	Canary Islands: La Gomera	<i>Adenocarpus foliolosus</i>	DP67
12S	CO	M	<i>Arytainilla pileolata</i>	Canary Islands: Tenerife	<i>Teline canariensis</i>	DP178
	CO	M	<i>Arytainilla pileolata</i>	Canary Islands: Tenerife	<i>Teline osyroides</i>	DP184

12S	CO M	<i>Arytainilla proboscidea</i>	Canary Islands: Tenerife	<i>Adenocarpus viscosus</i>	DP5
	CO M	<i>Arytainilla proboscidea</i>	Canary Islands: La Palma	<i>Adenocarpus foliolosus</i>	DP204
12S	CO M	<i>Arytainilla prognata</i>	Canary Islands: Gran Canaria	<i>Teline microphylla</i>	DP160
12S	CO M	<i>Arytainilla spartiophila</i>	Portugal: Coimbra	<i>Cytisus striatus</i>	DP265
12S	CO M	<i>Arytainilla spartiophila</i>	Spain: Málaga	<i>Cytisus grandiflorus</i>	DP133
	CO M	<i>Arytainilla spartiophila</i>	Morocco: High Atlas	<i>Cytisus fontanesii</i>	DP327
12S	CO M	<i>Arytainilla sulci</i>	Morocco: SW coast	<i>Retama raetam</i>	DP297
12S	CO M	<i>Arytainilla umbonata</i>	Madeira: Encumeada	<i>Genista tenera</i>	DP273
12S	CO M	<i>Arytainilla</i> sp.1 (serpentina)	Canary Islands: La Palma	<i>Spartocytisus filipes</i>	DP198
12S	CO M	<i>Arytainilla</i> sp.2 (atlantica)	Morocco: SW coast	<i>Cytisus albidus</i>	DP296
12S	CO M	<i>Arytainilla</i> sp.3 (telonicola)	Spain: Málaga	<i>Adenocarpus telonensis</i>	DP134
12S	CO M	<i>Arytainilla</i> sp.4 (montivaga)	Spain: Granada	<i>Adenocarpus decorticans</i>	DP128
	CO M	<i>Arytainilla</i> sp.4 (montivaga)	Morocco: Rif mountains	<i>Adenocarpus decorticans</i>	DP249
12S	CO M	<i>Arytainilla</i> sp.5 (remeria)	Canary Islands: Gran Canaria	<i>Teline rosmarinifolia</i>	DP165
12S	CO M	<i>Arytainilla</i> sp.6 (fortunata)	Canary Islands: La Palma	<i>Teline splendens</i>	DP203
12S	CO M*	<i>Arytainilla</i> sp.7 (canariensis)	Canary Islands: Tenerife	<i>Teline canariensis</i>	DP179
12S	CO M	<i>Arytainilla</i> sp.8 (menceyata)	Canary Islands: Tenerife	<i>Teline canariensis</i>	DP182
12S	CO M	<i>Arytainilla</i> sp.9 (ochrita)	Canary Islands: Tenerife	<i>Teline osyroides</i>	DP153
12S	CO M	<i>Arytainilla</i> sp.10 (occidentalis)	Canary Islands: La Palma	<i>Teline stenopetala</i>	DP190
	CO M	<i>Arytainilla</i> sp.10 (occidentalis)	Canary Islands: El Hierro	<i>Teline stenopetala</i>	DP214
12S	CO M	<i>Arytainilla</i> sp.11 (gomeræ)	Canary Islands: La Gomera	<i>Teline stenopetala</i>	DP221
12S	CO M	<i>Arytainilla</i> sp.12 (hupalupa)	Canary Islands: La Gomera	<i>Teline stenopetala</i>	DP219

12S	CO M	<i>Arytainilla</i> sp.13 (berber)	Morocco: Anti-Atlas	<i>Genista segonnei</i>	DP332
12S	CO	<i>Cacopsylla alaterni</i>	Spain: Málaga	<i>Rhamnus alaternus</i>	DP112
12S	CO	<i>Cacopsylla mali</i>	Scotland: Edinburgh	<i>Malus</i> sp.	DP293
12S	CO	<i>Cyamophila prohaskai</i> DB	Switzerland: Aemsigén	Coniferae [ <i>Anthyllis vulneraria</i> ]	DB341
12S	CO M*	<i>Livilla adusta</i>	Spain: Málaga	<i>Genista cinerea</i>	DP132
12S	CO M	<i>Livilla blandula</i>	Morocco: SW coast	<i>Cytisus albidus</i>	DP296
12S		<i>Livilla horvathi</i> DB	Turkey: Kars	? [ <i>Chamaecytisus austriacus</i> ]	DB1
12S		<i>Livilla maculipennis</i> IH	Algeria: El Gor	? [ <i>Genista</i> sp.]	IH8
12S	CO	<i>Livilla maura</i>	Morocco: Rif mountains	<i>Chamaespartium tridentatum</i>	DP250
12S	CO M	<i>Livilla monospermae</i>	Canary Islands: Tenerife	<i>Retama monosperma</i>	DP28
	CO M	<i>Livilla monospermae</i>	Canary Islands: La Gomera	<i>Retama monosperma</i>	DP70
	CO M	<i>Livilla monospermae</i>	Canary Islands: La Palma	<i>Retama monosperma</i>	DP196
12S	M*	<i>Livilla nervosa</i>	Spain: Granada	<i>Genista umbellata</i>	DP124
12S		<i>Livilla pseudoretamae</i> IH	Algeria: Grand Kabylie	? [host plant unknown]	IH7
12S		<i>Livilla pyrenaea</i> DB	Spain: Zaragoza	' <i>Genista scoparius</i> ' [ <i>Genista</i> sp.]	DB4
12S		<i>Livilla radiata</i> DB	Greece: Peloponnese	' <i>Genistae</i> ?' [ <i>Chamaecytisus</i> spp.]	DB6
12S	CO M	<i>Livilla retamae</i>	Spain: Cádiz	<i>Retama monosperma</i>	DP94
12S		<i>Livilla spectabilis</i> IH	Italy: Liguria	<i>Spartium junceum</i>	IH6
12S		<i>Livilla syriaca</i> DB	Israel: Carmel	<i>Genista fasselata</i>	DB3
12S	CO	<i>Livilla variegata</i>	Scotland: Glasgow	<i>Laburnum anagyroides</i>	DP337
12S		<i>Livilla vicina</i> DB	Switzerland: Vermala	<i>Genista radiata</i>	DB5
12S		<i>Livilla vittipennella</i> IH	Italy: Trentino	<i>Genista radiata</i>	IH5

12S CO M*	<i>Livilla</i> sp.15 (caprifuga)	Morocco: Middle Atlas	<i>Adenocarpus bacquei</i>	DP309
12S CO M*	<i>Livilla</i> sp.16 (baetica)	Spain: Granada	<i>Adenocarpus decorticans</i>	DP129
12S CO M*	<i>Livilla</i> sp.17 (complexa)	Portugal: Coimbra	<i>Adenocarpus complicatus</i>	DP262.3B
12S CO M	<i>Pseudacanthopsylla improvisa</i> <i>comb. nov.</i>	Morocco: SW coast	<i>Retama raetam</i>	DP301

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TABLE 3. Sequence characteristics of 12S, COI, tRNA leucine and COII regions of 62 taxa of Arytaininae (Psyllidae). Sequence divergence is estimated from uncorrected pairwise distances.

parameter	12S	COI	tRNA	COII	combined regions
length range (total) bp	285-327	209-262	64-71	257-298	815-958
length mean (total) bp	321	255	67.5	285.2	927.7
length range (ingroup) bp	285-327	211-264	64-70	257-298	815-927
length mean (ingroup) bp	321	257	64.5	285.2	927.7
length range (outgroup) bp	307-323	262-265	65-71	298	932-954
length mean (outgroup) bp	315	263.5	66.5	—	943
aligned length bp	342	262	79	298	981
A + T content range %	74-80	67-77	72-83	71-80	67-83
A + T content mean %	77	72	78	76	76
number of excluded sites (%)	20 (5.9)	—	—	—	20 (5.9)
sequence divergence (ingroup) %	0-20	0-28	0-28	0-26	0-28
sequence divergence (in/outgroup) %	15-26	18-28	5-19	19-32	5-32
number of indels (ingroup)	15	—	7	—	22
number of indels (total)	17	—	7	—	24
size of indels (ingroup)	1-6	—	1-5	—	1-6
size of indels (total)	1-10	—	1-5	—	1-10
number of sites after exclusion	322	—	—	—	961
number of variable sites (%)	168 (52)	150 (57)	24 (32)	178 (60)	520 (53)
number of constant sites (%)	154 (48)	115 (43)	52 (68)	120 (40)	441 (45)
number of informative sites (%)	134 (42)	131 (49)	20 (26)	146 (49)	431 (44)
number of autapomorphic sites (%)	34 (11)	19 (7)	4 (5)	32 (11)	89 (9)
transitions (minimum)	380	485	40	500	1375
transversions (minimum)	271	240	43	290	861
transitions/transversions	1.4	2	0.9	1.7	1.6