



Figure S1. Maximum likelihood phylograms (left) and cladograms (right) from individual analysis of mitochondrial A) *atp1*, B) *cox1*, and C) *rrn18*. Asterid outgroups (*Daucus*, *Helianthus*, *Panax*) not shown.

Table S1. Source of plant materials and sequencing information

Species	Source	Sequence information
<i>Antirrhinum majus</i>	read data from NCBI SRA (ERR2124222)	Illumina HiSeq 2x90 (14.5 Gb)
<i>Aragoa abietina</i>	dried tissue from Colombia [voucher N Pabón-Mora & F González 288 (COL, HUA)]	Illumina HiSeq 2x125 (6.3 Gb)
<i>Aragoa cleefii</i>	dried tissue from Colombia [voucher F González 4614 (COL, HUA)]	Illumina HiSeq 2x125 (7.0 Gb)
<i>Aragoa cundinamarcensis</i>	DNA from Kew DNA Bank (ID 11177)	Sanger sequenced PCR amplicons
<i>Callitriche palustris</i>	read data from NCBI SRA (SRR14844933)	Illumina HiSeq 2x150 (3.5 Gb)
<i>Hippuris vulgaris</i>	read data from NCBI SRA (SRR12879273)	Illumina BGISEq 2x150 (3.1 Gb)
<i>Linaria vulgaris</i>	read data from NCBI SRA (SRR2156275)	Ion Torrent avg 268 bp (1.0 Gb)
<i>Littorella uniflora</i>	live plant from Štěpán Husák (Czech Acad. Sciences)	Illumina HiSeq 2x100 (9.4 Gb)
<i>Mecardonia procumbens</i>	read data from NCBI SRA (SRR7121950)	Illumina BGISEq 2x100 (74 Gb)
<i>Plantago afra</i>	seeds from Dijon Botanical Garden	Illumina HiSeq 2x150 (2.2 Gb)
<i>Plantago nubicola</i>	dried tissue from Stephan Beck (Herbario Nac. Bolivia) [SG Beck 34557 (LPB)]	Illumina HiSeq 2x125 (6.4 Gb)
<i>Scoparia dulcis</i>	read data from NCBI SRA (SRR7121581)	Illumina BGISEq 2x100 (60 Gb)
<i>Veronicastrum axillare</i>	read data from NCBI SRA (SRR13607868)	Illumina NovaSeq 2x149 (3.5 Gb)

Table S2. Accession numbers for mitochondrial genes

Species	<i>atp1</i>	<i>cox1</i>	<i>rrn18</i>
Plantaginaceae			
<i>Antirrhinum majus</i>	OK523427	OK559378	OK559387
<i>Aragoa abietina</i>	OK514181	OK514181	OK514181
<i>Aragoa cleefii</i>	OK514182	OK514182	OK514182
<i>Aragoa cundinamarcensis</i>	OK523428	EU069509	–
<i>Callitriche palustris</i>	OK523429	OK559379	OK559388
<i>Digitalis purpurea</i>	AY741841	AJ223415	AF193999
<i>Globularia punctata</i>	AY741842	EU156494	–
<i>Hippuris vulgaris</i>	OK523430	OK559380	OK559389
<i>Linaria vulgaris</i>	OK523431	OK559381	OK559390
<i>Littorella uniflora</i>	OK523432	OK559382	OK559391
<i>Mecardonia procumbens</i>	OK523433	OK559383	OK559392
<i>Plantago afra</i>	OK959863	OK959864	OK959865
<i>Plantago atrata</i>	AY818936	EU069536	AJ389618
<i>Plantago australis</i>	AY741847	AJ389608	AY818949
<i>Plantago coronopus</i>	AY741843	AJ389609	AJ389617
<i>Plantago crassifolia</i>	AY741844	EU069516	OK959866
<i>Plantago lanceolata</i>	AY818937	AJ389611	AJ389619
<i>Plantago maritima</i>	HQ593805	EU069522	OK959867
<i>Plantago media</i>	AY818938	AJ389605	AJ389614
<i>Plantago nubicola</i>	OK523434	OK559384	OK559393
<i>Plantago rigida</i>	AY741848	AJ389607	AJ389616
<i>Plantago rugelii</i>	AY818939	AJ389606	AJ389615
<i>Plantago sempervirens</i>	AY818940	AJ389612	AJ389620
<i>Plantago sericea</i>	AY818941	AJ389613	AJ389621
<i>Scoparia dulcis</i>	OK523435	OK559385	OK559394
<i>Veronica</i> spp.	AY818943	AJ223427	AY818950
<i>Veronicastrum axillare</i>	OK523436	OK559386	OK559395
Other Lamiales			
<i>Ajuga reptans</i>	KF709392	KF709392	KF709392
<i>Avicennia marina</i>	CM032784	CM032784	CM032784
<i>Boea hygrometrica</i>	JN107812	JN107812	JN107812
<i>Castilleja paramensis</i>	KT959112	KT959112	KT959112
<i>Dolichandrone cauda-felina</i>	MW432178	MW432178	MW432178
<i>Haberlea rhodopensis</i>	MH757117	MH757117	MH757117
<i>Ligustrum quihoui</i>	MN723864	MN723864	MN723864
<i>Mimulus guttatus</i>	JN098455	JN098455	JN098455
<i>Neobartsia pedicularioides</i>	KP940487	KP940490	KP940492
<i>Olea europaea</i>	MG372117	MG372117	MG372117
<i>Salvia miltiorrhiza</i>	KF177345	KF177345	KF177345
<i>Utricularia reniformis</i>	KY774314	KY774314	KY774314

Sequences newly generated for this study are shown in bold

Table S3. Accession numbers for the nuclear rRNA gene cluster

Species	Accession
Plantaginaceae	
<i>Antirrhinum majus</i>	OK523398
<i>Aragoa abietina</i>	OK523399
<i>Aragoa cleefii</i>	OK523400
<i>Callitriche palustris</i>	OK523401
<i>Digitalis purpurea</i>	AF193940+KM887394
<i>Hippuris vulgaris</i>	OK523402
<i>Linaria vulgaris</i>	OK523403
<i>Littorella uniflora</i>	OK523404
<i>Littorella uniflora</i>	MT796524
<i>Mecardonia procumbens</i>	OK523405
<i>Plantago afra</i>	OK523406
<i>Plantago alpina</i>	OK523407
<i>Plantago arenaria</i>	OK523408
<i>Plantago atrata</i>	OK523409
<i>Plantago australis</i>	OK523410
<i>Plantago brasiliensis</i>	OK523411
<i>Plantago coronopus</i>	OK523412
<i>Plantago crassifolia</i>	OK523413
<i>Plantago depressa</i>	OK523414
<i>Plantago lagopus</i>	OK523415
<i>Plantago major</i>	MT937126
<i>Plantago maritima</i>	OK523416
<i>Plantago media</i>	OK523417
<i>Plantago nubicola</i>	OK523418
<i>Plantago ovata</i>	OK523419
<i>Plantago rigida</i>	OK523420
<i>Plantago rugelii</i>	OK523421
<i>Plantago sericea</i>	OK523422
<i>Plantago tenuiflora</i>	OK523423
<i>Scoparia dulcis</i>	OK523424
<i>Veronica chamaedrys</i>	MT796584
<i>Veronica undulata</i>	OK523425
<i>Veronicastrum axillare</i>	OK523426
Other Lamiales	
<i>Dolichandra cynanchoides</i>	MK678751
<i>Eremophila glabra</i>	MN411332
<i>Fraxinus excelsior</i>	MT796551
<i>Melampyrum pratense</i>	MT937124
<i>Myoporum parvifolium</i>	MN411417
<i>Olea europaea</i>	MW646765
<i>Paulownia tomentosa</i>	KP718625
<i>Pogostemon yatabeanus</i>	KP718619
<i>Salvia carduacea</i>	MK257800
<i>Schropularia buergeriana</i>	KP718627
<i>Utricularia minor</i>	MT796583
<i>Verbena stricta</i>	MT610971

Sequences newly generated for this study are shown in bold