

Figure S1. 128-accession maximum likelihood tree inferred from concatenated amino acid sequences of 42 mitochondrial genes with Iqtree. SH-aLRT support / Ultrafast bootstrap support were indicated above the branches.

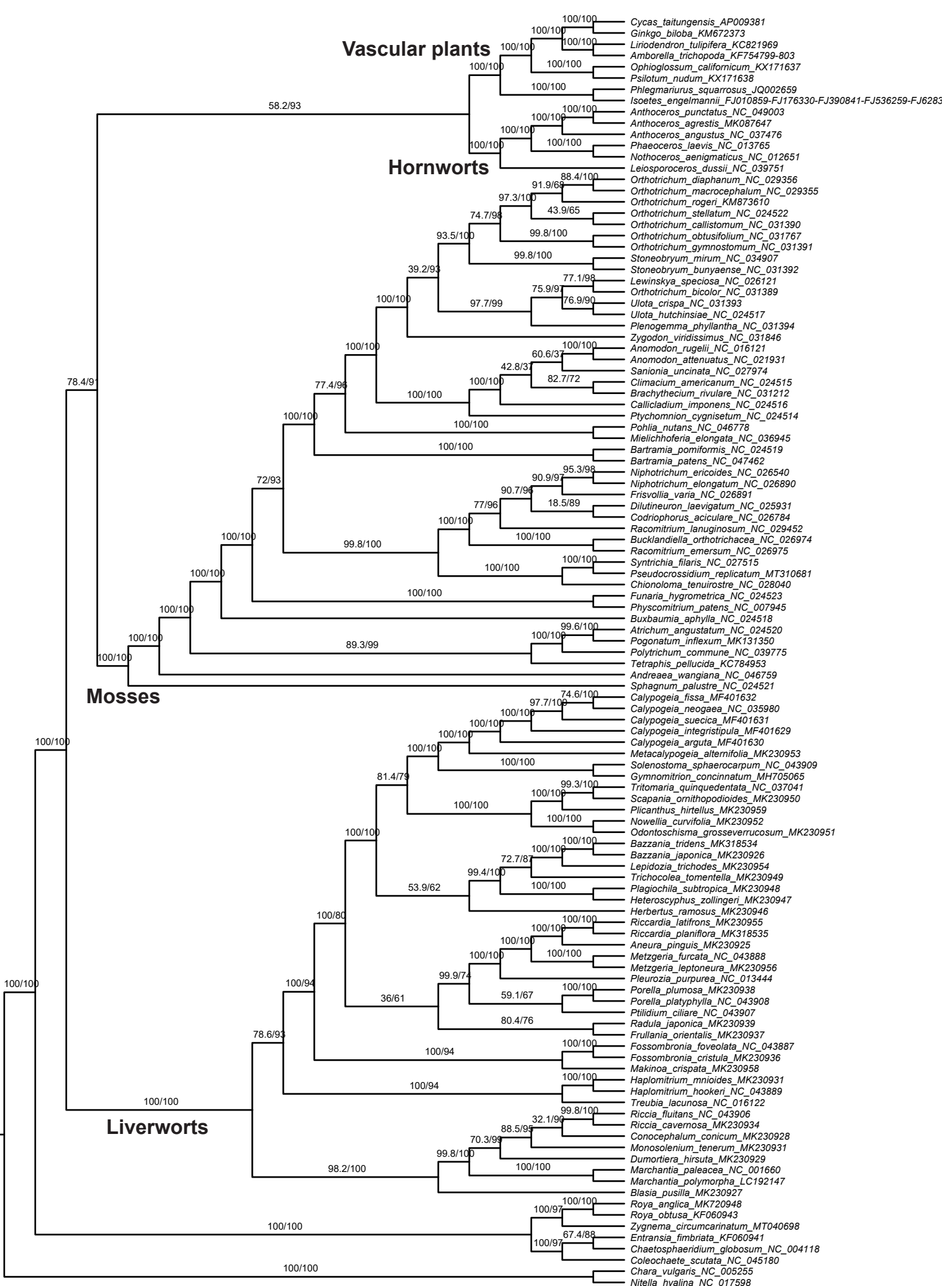


Figure S2. 113-specie maximum likelihood tree inferred from concatenated amino acid sequences of 42 mitochondrial genes with Iqtree. SH-aLRT support / Ultrafast bootstrap support were indicated above the branches.

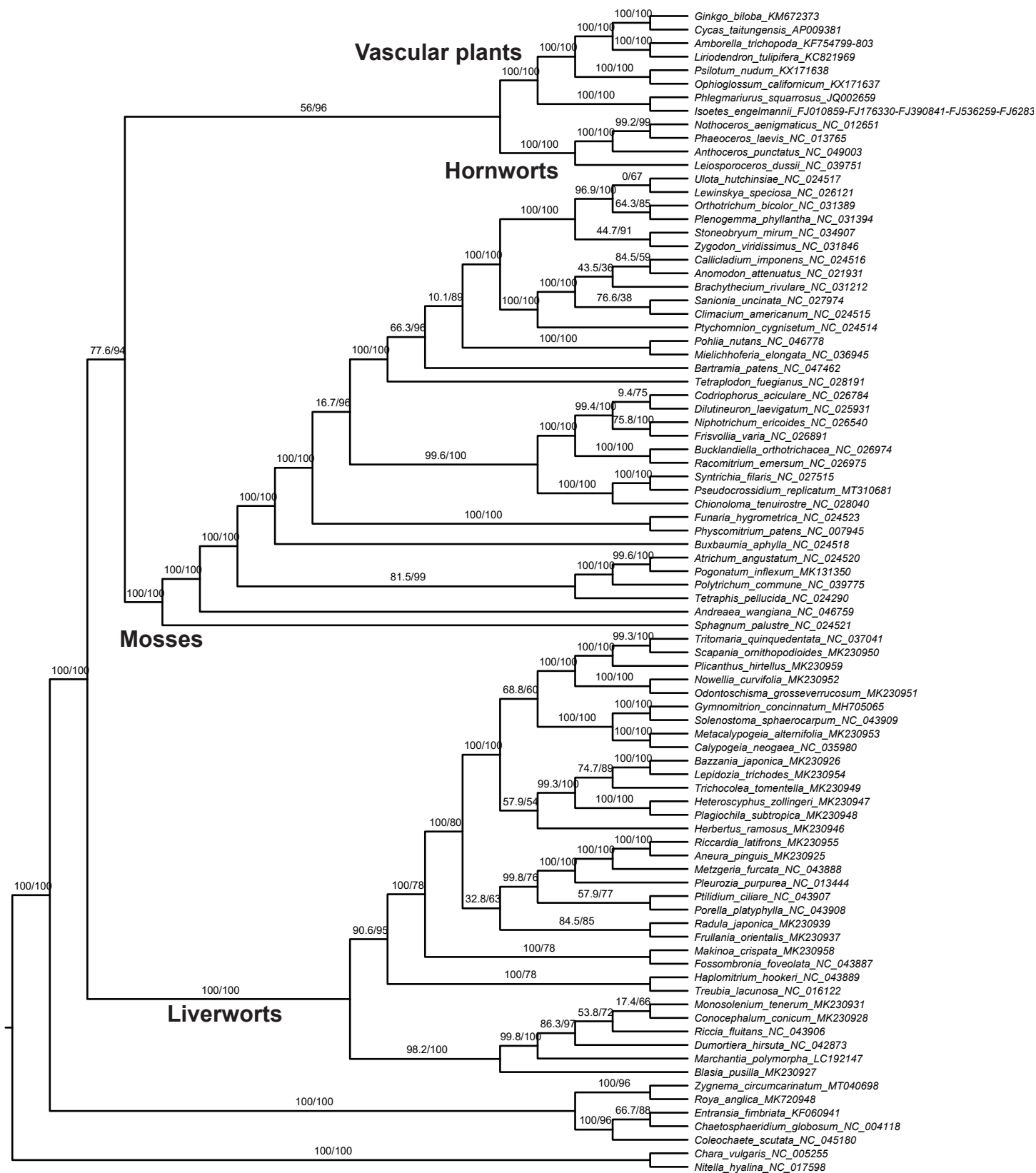


Figure S3. 86-genus maximum likelihood tree inferred from concatenated amino acid sequences of 42 mitochondrial genes with Iqtree. SH-aLRT support / Ultrafast bootstrap support were indicated above the branches.

Table S1. Genus level sampling information.

Taxid	Class	Order	Family	Genus	Species	GenBank Acc.
55564	Charophyceae	Charales	Characeae	<i>Chara</i>	<i>Chara vulgaris</i>	NC_005255
181804	Charophyceae	Charales	Characeae	<i>Nitella</i>	<i>Nitella hyalina</i>	NC_17598
96477	Coleochaetophyceae	Coleochaetales	Chaetosphaeridiaceae	<i>Chaetosphaeridium</i>	<i>Chaetosphaeridium globosum</i>	NC_004118
3125	Coleochaetophyceae	Coleochaetales	Coleochaetaceae	<i>Coleochaete</i>	<i>Coleochaete scutata</i>	NC_45180
43943	Zygnemophyceae	Zygnematales	Mesotaeniaceae	<i>Roya</i>	<i>Roya anglica</i>	MK720948
130991	Zygnemophyceae	Zygnematales	Zygnemataceae	<i>Entransia</i>	<i>Entransia fimbriata</i>	KF060941
35869	Zygnemophyceae	Zygnematales	Zygnemataceae	<i>Zygnema</i>	<i>Zygnema circumcarinatum</i>	MT040698
37406	Haplomitriopsida	Calobryales	Haplomitriaceae	<i>Haplomitrium</i>	<i>Haplomitrium hookeri</i>	NC_43889
93845	Haplomitriopsida	Treubiales	Treubiaceae	<i>Treubia</i>	<i>Treubia lacunosa</i>	MK230943
56918	Jungermanniopsida	Fossombroniales	Fossombroniaceae	<i>Fossombronia</i>	<i>Fossombronia foveolata</i>	NC_43887
56933	Jungermanniopsida	Fossombroniales	Makinoaceae	<i>Makinoa</i>	<i>Makinoa crispata</i>	MK230958
264783	Jungermanniopsida	Jungermanniales	Anastrophyllaceae	<i>Plicanthus</i>	<i>Plicanthus hirtellus</i>	MK230959
1263430	Jungermanniopsida	Jungermanniales	Calypogeiaceae	<i>Calypogeia</i>	<i>Calypogeia neogaea</i>	NC_35980
588654	Jungermanniopsida	Jungermanniales	Calypogeiaceae	<i>Metacalypogeia</i>	<i>Metacalypogeia alternifolia</i>	MK230953
280839	Jungermanniopsida	Jungermanniales	Cephaloziaceae	<i>Nowellia</i>	<i>Nowellia curvifolia</i>	MK230952
1230441	Jungermanniopsida	Jungermanniales	Cephaloziaceae	<i>Odontoschisma</i>	<i>Odontoschisma grosseverrucosum</i>	MK230951
209793	Jungermanniopsida	Jungermanniales	Gymnomitriaceae	<i>Gymnomitrium</i>	<i>Gymnomitrium concinatum</i>	MH705065
360178	Jungermanniopsida	Jungermanniales	Herbertaceae	<i>Herbertus</i>	<i>Herbertus ramosus</i>	MK230946
2488990	Jungermanniopsida	Jungermanniales	Lepidoziaceae	<i>Bazzania</i>	<i>Bazzania japonica</i>	MK230926
989932	Jungermanniopsida	Jungermanniales	Lepidoziaceae	<i>Lepidozia</i>	<i>Lepidozia trichodes</i>	MK230954
215268	Jungermanniopsida	Jungermanniales	Lophocoleaceae	<i>Heteroscyphus</i>	<i>Heteroscyphus zollingeri</i>	MK230947
248352	Jungermanniopsida	Jungermanniales	Lophoziaceae	<i>Tritomaria</i>	<i>Tritomaria quinquedentata</i>	NC_37041
280550	Jungermanniopsida	Jungermanniales	Plagiochilaceae	<i>Plagiochila</i>	<i>Plagiochila subtropica</i>	MK230948
264777	Jungermanniopsida	Jungermanniales	Scapaniaceae	<i>Scapania</i>	<i>Scapania ornithopodioides</i>	MK230950

463580	Jungermanniopsida	Jungermanniales	Solenostomataceae	<i>Solenostoma</i>	<i>Solenostoma sphaerocarpum</i>	NC_43909
53022	Jungermanniopsida	Jungermanniales	Trichocoleaceae	<i>Trichocolea</i>	<i>Trichocolea tomentella</i>	MK230949
39026	Jungermanniopsida	Metzgeriales	Aneuraceae	<i>Aneura</i>	<i>Aneura pinguis</i>	KP728938
373806	Jungermanniopsida	Metzgeriales	Aneuraceae	<i>Riccardia</i>	<i>Riccardia latifrons</i>	MK230955
37399	Jungermanniopsida	Metzgeriales	Metzgeriaceae	<i>Metzgeria</i>	<i>Metzgeria furcata</i>	NC_43888
280637	Jungermanniopsida	Pleuroziales	Pleuroziaceae	<i>Pleurozia</i>	<i>Pleurozia purpurea</i>	MK230956
642342	Jungermanniopsida	Porellales	Frullaniaceae	<i>Frullania</i>	<i>Frullania orientalis</i>	MK230937
139833	Jungermanniopsida	Porellales	Porellaceae	<i>Porella</i>	<i>Porella platyphylla</i>	NC_43908
1068553	Jungermanniopsida	Porellales	Radulaceae	<i>Radula</i>	<i>Radula japonica</i>	MK230939
139839	Jungermanniopsida	Ptilidiales	Ptilidiaceae	<i>Ptilidium</i>	<i>Ptilidium ciliare</i>	NC_43907
122625	Marchantiopsida	Blasiales	Blasiaceae	<i>Blasia</i>	<i>Blasia pusilla</i>	MK230927
41839	Marchantiopsida	Marchantiales	Conocephalaceae	<i>Conocephalum</i>	<i>Conocephalum conicum</i>	MK230928
56917	Marchantiopsida	Marchantiales	Dumortieraceae	<i>Dumortiera</i>	<i>Dumortiera hirsuta</i>	MK230929
3197	Marchantiopsida	Marchantiales	Marchantiaceae	<i>Marchantia</i>	<i>Marchantia polymorpha</i>	LC192147
179056	Marchantiopsida	Marchantiales	Monosoleniaceae	<i>Monosolenium</i>	<i>Monosolenium tenerum</i>	MK230931
41844	Marchantiopsida	Marchantiales	Ricciaceae	<i>Riccia</i>	<i>Riccia fluitans</i>	NC_43906
2714766	Andreaeopsida	Andreaeales	Andreaeaceae	<i>Andreaea</i>	<i>Andreaea wangiana</i>	NC_46759
2684902	Bryopsida	Bartramiales	Bartramiaceae	<i>Bartramia</i>	<i>Bartramia patens</i>	NC_47462
67235	Bryopsida	Bryales	Mniaceae	<i>Mielichhoferia</i>	<i>Mielichhoferia elongata</i>	NC_36945
140635	Bryopsida	Bryales	Mniaceae	<i>Pohlia</i>	<i>Pohlia nutans</i>	NC_46778
70128	Bryopsida	Buxbaumiales	Buxbaumiaceae	<i>Buxbaumia</i>	<i>Buxbaumia aphylla</i>	NC_24518
29583	Bryopsida	Funariales	Funariaceae	<i>Funaria</i>	<i>Funaria hygrometrica</i>	NC_24523
3218	Bryopsida	Funariales	Funariaceae	<i>Physcomitrium</i>	<i>Physcomitrium patens</i>	NC_7945
1079090	Bryopsida	Grimmiales	Grimmiaceae	<i>Bucklandiella</i>	<i>Bucklandiella orthotrichacea</i>	NC_26974
296905	Bryopsida	Grimmiales	Grimmiaceae	<i>Codriophorus</i>	<i>Codriophorus aciculare</i>	NC_26784
1079087	Bryopsida	Grimmiales	Grimmiaceae	<i>Dilutineuron</i>	<i>Dilutineuron laevigatum</i>	NC_25931

1286318	Bryopsida	Grimmiales	Grimmiaceae	<i>Frisvollia</i>	<i>Frisvollia varia</i>	NC_26891
657341	Bryopsida	Grimmiales	Grimmiaceae	<i>Niphotrichum</i>	<i>Niphotrichum ericoides</i>	NC_26540
1079084	Bryopsida	Grimmiales	Grimmiaceae	<i>Racomitrium</i>	<i>Racomitrium emersum</i>	NC_26975
140003	Bryopsida	Hypnales	Amblystegiaceae	<i>Sanionia</i>	<i>Sanionia uncinata</i>	NC_27974
119543	Bryopsida	Hypnales	Anomodontaceae	<i>Anomodon</i>	<i>Anomodon attenuatus</i>	NC_21931
90277	Bryopsida	Hypnales	Brachytheciaceae	<i>Brachythecium</i>	<i>Brachythecium rivulare</i>	NC_31212
49762	Bryopsida	Hypnales	Callicladiaceae	<i>Callicladium</i>	<i>Callicladium imponens</i>	NC_24516
94443	Bryopsida	Hypnales	Climaciaceae	<i>Climacium</i>	<i>Climacium americanum</i>	NC_24515
70136	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Lewinskya</i>	<i>Lewinskya speciosa</i>	NC_26121
1903710	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Orthotrichum</i>	<i>Orthotrichum bicolor</i>	NC_31389
67002	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Plenogemma</i>	<i>Plenogemma phyllantha</i>	NC_31394
262980	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Stoneobryum</i>	<i>Stoneobryum mirum</i>	NC_34907
279761	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Ulota</i>	<i>Ulota hutchinsiae</i>	NC_24517
146584	Bryopsida	Orthotrichales	Orthotrichaceae	<i>Zygodon</i>	<i>Zygodon viridissimus</i>	NC_31846
301336	Bryopsida	Pottiales	Pottiaceae	<i>Chionoloma</i>	<i>Chionoloma tenuirostre</i>	NC_28040
885028	Bryopsida	Pottiales	Pottiaceae	<i>Pseudocrossidium</i>	<i>Pseudocrossidium replicatum</i>	MT310681
1678074	Bryopsida	Pottiales	Pottiaceae	<i>Syntrichia</i>	<i>Syntrichia filaris</i>	NC_27515
245469	Bryopsida	Ptychomniales	Ptychomniaceae	<i>Ptychomnion</i>	<i>Ptychomnion cygnisetum</i>	NC_24514
260168	Bryopsida	Splachnales	Splachnaceae	<i>Tetraplodon</i>	<i>Tetraplodon fuegianus</i>	NC_28191
37310	Polytrichopsida	Polytrichales	Polytrichaceae	<i>Atrichum</i>	<i>Atrichum angustatum</i>	NC_24520
185755	Polytrichopsida	Polytrichales	Polytrichaceae	<i>Pogonatum</i>	<i>Pogonatum inflexum</i>	MK131350
3213	Polytrichopsida	Polytrichales	Polytrichaceae	<i>Polytrichum</i>	<i>Polytrichum commune</i>	NC_39775
13805	Sphagnopsida	Sphagnales	Sphagnaceae	<i>Sphagnum</i>	<i>Sphagnum palustre</i>	NC_24521
37420	Tetraphidopsida	Tetraphidales	Tetraphidaceae	<i>Tetraphis</i>	<i>Tetraphis pellucida</i>	KC784953
3234	Anthocerotopsida	Anthocerotales	Anthocerotaceae	<i>Anthoceros</i>	<i>Anthoceros punctatus</i>	NC_49003
13813	Anthocerotopsida	Dendrocerotales	Dendrocerotaceae	<i>Nothoceros</i>	<i>Nothoceros aenigmaticus</i>	NC_12651

37308	Anthocerotopsida	Notothyladales	Notothyladaceae	<i>Phaeoceros</i>	<i>Phaeoceros laevis</i>	NC_13765
263836	Leiosporocerotopsida	Leiosporocerotales	Leiosporocerotaceae	<i>Leiosporoceros</i>	<i>Leiosporoceros dussii</i>	NC_39751
						FJ010859
						FJ176330
						FJ390841
						FJ536259
37427	Lycopodiopsida	Isoetales	Isoetaceae	<i>Isoetes</i>	<i>Isoetes engelmannii</i>	FJ628360
73615	Lycopodiopsida	Lycopodiales	Lycopodiaceae	<i>Phlegmariurus</i>	<i>Phlegmariurus squarrosus</i>	JQ002659
1267209	Polypodiopsida	Ophioglossales	Ophioglossaceae	<i>Ophioglossum</i>	<i>Ophioglossum californicum</i>	KX171637
3240	Polypodiopsida	Psilotales	Psilotaceae	<i>Psilotum</i>	<i>Psilotum nudum</i>	KX171638
54799	Cycadopsida	Cycadales	Cycadaceae	<i>Cycas</i>	<i>Cycas taitungensis</i>	AP009381
3311	Ginkgoopsida	Ginkgoales	Ginkgoaceae	<i>Ginkgo</i>	<i>Ginkgo biloba</i>	KM672373
13333	Magnoliopsida	Amborellales	Amborellaceae	<i>Amborella</i>	<i>Amborella trichopoda</i>	KF754799-803
3415	Magnoliopsida	Magnoliales	Magnoliaceae	<i>Liriodendron</i>	<i>Liriodendron tulipifera</i>	KC821969

Table S2. Statistics of the 86 selected mitochondrial genomes with an emphasis on bryophytes.

Species	Genbank Acc.	Total length	GC (%)	Coding length (bp)	Coding length (%)	Intron length (bp)	Intron length (%)	Spacer length (bp)	Spacer length (%)	Repeat length (bp)	Repeat length (%)
<i>Amborella trichopoda</i>	KF754799-803	3,866,039	45.90	34,798	0.90	37,831	0.98	3,786,456	97.94	778,633	20.14
<i>Liriodendron tulipifera</i>	KC821969	553,721	47.70	35,324	6.38	33,925	6.13	476,994	86.14	72,128	13.03
<i>Ginkgo biloba</i>	KM672373	346,544	50.36	34,368	9.92	37,050	10.69	268,374	77.44	34,045	9.82
<i>Cycas taitungensis</i>	AP009381	414,903	46.92	34,786	8.38	46,383	11.18	373,189	89.95	106,462	25.66
<i>Psilotum nudum</i>	KX171638	364,070	51.36	21,729	5.97	85,646	23.52	239,268	65.72	164,722	45.24
<i>Ophioglossum californicum</i>	KX171637	372,339	52.22	29,052	7.80	56,627	15.21	279,799	75.15	126,957	34.10
<i>Phlegmariurus squarrosus</i>	JQ002659	413,530	44.16	27,114	6.56	27,869	6.74	302,426	73.13	90,550	21.90
	FJ010859										
	FJ176330										
<i>Isoetes engelmannii</i>	FJ390841	186,743	49.04	21,476	11.50	52,050	27.87	62,114	33.26	174,103	93.23
	FJ536259										
	FJ628360										
<i>Nothoceros aenigmaticus</i>	NC_12651	184,908	46.01	16,946	9.16	69,121	37.38	92,519	50.04	4,328	2.34
<i>Phaeoceros laevis</i>	NC_13765	209,482	44.60	16,553	7.90	83,183	39.71	103,272	49.30	9,785	4.67
<i>Anthoceros punctatus</i>	NC_49003	228,048	45.45	17,093	7.50	86,222	37.81	118,259	51.86	12,815	5.62
<i>Leiosporoceros dussii</i>	NC_39751	212,153	44.24	19,479	9.18	87,145	41.08	98,873	46.60	9,167	4.32
<i>Ulota hutchinsiae</i>	NC_24517	104,608	39.80	32,309	30.89	33,107	31.65	32,202	30.78	2,068	1.98
<i>Lewinskya speciosa</i>	NC_26121	104,747	39.77	32,334	30.87	33,106	31.61	32,267	30.80	2,060	1.97
<i>Orthotrichum bicolor</i>	NC_31389	104,736	39.78	32,177	30.72	33,099	31.6	32,470	31.00	2,060	1.97
<i>Plenogemma phyllantha</i>	NC_31394	104,671	39.77	32,174	30.74	33,100	31.62	32,359	30.91	2,067	1.97
<i>Stoneobryum mirum</i>	NC_34907	104,345	39.82	31,271	29.97	33,195	31.81	32,842	31.47	1,921	1.84
<i>Zygodon viridissimus</i>	NC_31846	103,098	39.38	32,308	31.34	32,516	31.54	31,239	30.30	2,050	1.99
<i>Callicladium imponens</i>	NC_24516	103,830	40.91	32,330	31.14	31,534	30.37	32,935	31.72	1,651	1.59
<i>Anomodon attenuatus</i>	NC_21931	104,252	41.20	32,342	31.02	32,475	31.15	32,388	31.07	1,765	1.69
<i>Brachythecium rivulare</i>	NC_31212	104,460	40.98	32,273	30.90	32,474	31.09	32,681	31.29	1,645	1.57
<i>Sanionia uncinata</i>	NC_27974	104,497	41.22	32,348	30.96	32,420	31.02	32,697	31.29	1,779	1.70
<i>Climacium americanum</i>	NC_24515	105,048	41.05	32,345	30.79	32,523	30.96	33,148	31.56	1,105	1.05
<i>Ptychomnion cygnisetum</i>	NC_24514	104,480	42.07	31,745	30.38	32,944	31.53	32,777	31.37	1,249	1.20

<i>Pohlia nutans</i>	NC_46778	99,864	39.60	30,735	30.78	30,792	30.83	31,151	31.19	1,156	1.16
<i>Mielichhoferia elongata</i>	NC_36945	100,342	39.77	31,049	30.94	33,041	32.93	29,220	29.12	1,135	1.13
<i>Bartramia patens</i>	NC_47462	106,827	38.31	32,306	30.24	33,443	31.31	34,045	31.87	1,096	1.03
<i>Tetraplodon fuegianus</i>	NC_028191	104,741	39.98	32,126	30.67	28,582	27.29	37,000	35.33	1,173	1.12
<i>Codriophorus aciculare</i>	NC_26784	106,818	39.73	31,835	29.80	33,121	31.01	34,830	32.61	1,801	1.69
<i>Dilutineuron laevigatum</i>	NC_25931	106,809	39.74	31,868	29.84	33,122	31.01	34,783	32.57	1,594	1.49
<i>Niphotrichum ericoides</i>	NC_26540	106,727	39.71	31,862	29.85	33,127	31.04	34,705	32.52	1,628	1.53
<i>Frisvollia varia</i>	NC_26891	106,358	39.74	31,868	29.96	32,982	31.01	34,473	32.41	1,639	1.54
<i>Bucklandiella orthotrichacea</i>	NC_26974	107,215	39.93	31,895	29.75	33,093	30.87	35,185	32.82	2,386	2.23
<i>Racomitrium emersum</i>	NC_26975	107,186	39.87	31,895	29.76	33,079	30.86	35,177	32.82	2,288	2.13
<i>Syntrichia filaris</i>	NC_27515	106,343	39.58	32,189	30.27	31,272	29.41	35,860	33.72	1,183	1.11
<i>Pseudocrossidium replicatum</i>	MT310681	105,495	39.54	32,153	30.48	31,293	29.66	35,022	33.20	1,262	1.20
<i>Chionoloma tenuirostre</i>	NC_28040	105,001	39.15	31,625	30.12	32,248	30.71	34,099	32.47	2,097	2.00
<i>Funaria hygrometrica</i>	NC_24523	109,586	40.39	32,321	29.49	31,967	29.17	38,477	35.11	1,973	1.80
<i>Physcomitrium patens</i>	NC_7945	105,340	40.57	31,652	30.05	29,859	28.35	37,348	35.45	1,764	1.67
<i>Buxbaumia aphylla</i>	NC_24518	100,725	40.08	32,801	32.56	30,732	30.51	31,895	31.67	1,208	1.20
<i>Atrichum angustatum</i>	NC_24520	115,146	40.51	34,097	29.61	38,975	33.85	36,712	31.88	823	0.71
<i>Pogonatum inflexum</i>	MK131350	113,866	40.81	32,375	28.43	38,296	33.63	37,099	32.58	1,015	0.89
<i>Polytrichum commune</i>	NC_39775	114,831	40.47	34,119	29.71	37,870	32.98	37,474	32.63	1,632	1.42
<i>Tetraphis pellucida</i>	NC_024290	107,730	42.53	31,223	28.98	35,100	32.58	37,449	34.76	1,415	1.31
<i>Andreaea wangiana</i>	NC_46759	117,857	41.95	34,084	28.92	36,309	30.81	42,103	35.72	709	0.60
<i>Sphagnum palustre</i>	NC_24521	141,276	38.99	34,189	24.20	48,147	34.08	53,960	38.19	1,118	0.79
<i>Tritomaria quinquedentata</i>	NC_37041	142,510	45.05	33,480	23.49	32,709	22.95	69,393	48.69	7,426	5.21
<i>Scapania ornithopodioides.</i>	MK230950	142,992	45.05	33,429	23.38	32,423	22.67	69,460	48.58	8,313	5.81
<i>Plicanthus hirtellus.</i>	MK230959	146,606	45.05	34,221	23.34	33,229	22.67	72,309	49.32	9,061	6.18
<i>Nowellia curvifolia.</i>	MK230952	148,154	45.39	34,189	23.08	45,139	30.47	61,971	41.83	7,480	5.05
<i>Odontoschisma grosseverrucosum.</i>	MK230951	155,682	45.67	34,385	22.09	43,946	28.23	70,494	45.28	7,279	4.68
<i>Gymnomitrium concinnatum</i>	MH705065	162,572	44.73	36,406	22.39	41,247	25.37	80,799	49.70	11,005	6.77
<i>Solenostoma sphaerocarpum</i>	NC_43909	156,050	44.85	36,454	23.36	36,438	23.35	79,114	50.70	9,207	5.90
<i>Metacalypogeia alternifolia.</i>	MK230953	166,788	45.17	37,516	22.49	38,426	23.04	86,713	51.99	10,948	6.56
<i>Calypogeia neogaea</i>	NC_35980	162,175	45.34	36,389	22.44	38,762	23.9	82,896	51.12	11,253	6.94
<i>Bazzania japonica.</i>	MK230926	162,605	45.71	33,489	20.59	35,188	21.64	86,783	53.37	11,322	6.96
<i>Lepidozia trichodes.</i>	MK230954	163,402	45.97	38,082	23.31	36,237	22.18	87,006	53.25	9,987	6.11

<i>Trichocolea tomentella.</i>	MK230949	173,777	44.81	37,561	21.61	42,260	24.32	89,913	51.74	9,908	5.70
<i>Heteroscyphus zollingeri.</i>	MK230947	157,816	45.26	37,266	23.61	37,456	23.73	79,048	50.09	9,985	6.33
<i>Plagiochila subtropica.</i>	MK230948	161,395	45.10	37,260	23.09	37,796	23.42	82,736	51.26	9,981	6.18
<i>Herbertus ramosus.</i>	MK230946	158,333	44.51	35,946	22.70	39,457	24.92	78,882	49.82	10,669	6.74
<i>Riccardia latifrons.</i>	MK230955	148,722	46.36	36,965	24.86	45,820	30.81	61,901	41.62	7,845	5.27
<i>Aneura pinguis.</i>	MK230925	166,929	47.39	37,056	22.20	48,739	29.2	77,098	46.19	9,541	5.72
<i>Metzgeria furcata</i>	NC_43888	171,891	46.70	36,263	21.10	50,283	29.25	81,219	47.25	12,546	7.30
<i>Pleurozia purpurea</i>	NC_13444	168,526	45.37	37,897	22.49	49,157	29.17	77,347	45.90	13,008	7.72
<i>Ptilidium ciliare</i>	NC_43907	179,562	44.82	36,284	20.21	51,159	28.49	87,994	49.00	15,190	8.46
<i>Porella platyphylla</i>	NC_43908	179,081	44.73	36,267	20.25	49,717	27.76	88,973	49.68	13,086	7.31
<i>Radula japonica.</i>	MK230939	149,599	43.15	36,961	24.71	35,448	23.7	73,160	48.90	10,049	6.72
<i>Frullania orientalis.</i>	MK230937	149,360	44.45	37,203	24.91	32,554	21.8	75,479	50.53	7,763	5.20
<i>Makinoa crispata.</i>	MK230958	167,159	45.30	38,483	23.02	45,070	26.96	81,459	48.73	13,785	8.25
<i>Fossombronia foveolata</i>	NC_43887	175,222	45.17	36,392	20.77	41,795	23.85	92,979	53.06	14,161	8.08
<i>Haplomitrium hookeri</i>	NC_43889	174,448	47.63	40,797	23.39	46,265	26.52	85,310	48.90	10,580	6.06
<i>Treubia lacunosa</i>	NC_16122	151,983	43.38	33,335	21.93	42,255	27.8	72,567	47.75	10,657	7.01
<i>Monosolenium tenerum.</i>	MK230931	187,628	42.67	39,517	21.06	53,485	28.51	92,476	49.29	18,835	10.04
<i>Conocephalum conicum.</i>	MK230928	186,148	42.34	39,518	21.23	53,114	28.53	91,366	49.08	17,097	9.18
<i>Riccia fluitans</i>	NC_43906	185,621	42.36	38,383	20.68	53,362	28.75	91,726	49.42	18,195	9.80
<i>Dumortiera hirsuta</i>	NC_042873	178,019	42.23	38,658	21.72	48,804	27.42	88,413	49.66	16,795	9.43
<i>Marchantia polymorpha subsp. ruderalis</i>	LC192147	186,196	42.63	39,522	21.23	53,269	28.61	91,255	49.01	20,071	10.78
<i>Blasia pusilla.</i>	MK230927	184,923	42.66	39,374	21.29	53,309	28.83	90,173	48.76	20,891	11.30
<i>Zygnema circumcarinatum</i>	MT040698	215,954	48.72	39,782	18.42	41,513	19.22	131,540	60.91	70,410	32.60
<i>Roya anglica</i>	MK720948	69,371	26.85	33,936	48.92	1,286	1.85	32,308	46.57	1,309	1.89
<i>Entransia fimbriata</i>	KF060941	61,645	42.70	29,368	47.64	8,081	13.11	20,135	32.66	2,829	4.59
<i>Chaetosphaeridium globosum</i>	NC_4118	56,574	34.41	27,812	49.16	8,997	15.9	16,205	28.64	156	0.28
<i>Coleochaete scutata</i>	NC_45180	242,024	42.89	33,675	13.91	83,090	34.33	122,726	50.71	21,889	9.04
<i>Chara vulgaris</i>	NC_5255	67,737	40.90	33,300	49.16	26,108	38.54	6,265	9.25	2,153	3.18
<i>Nitella hyalina</i>	NC_17598	80,193	40.83	36,010	44.90	30,812	38.42	11,222	13.99	1,855	2.31