SUPPLEMENTARY DATA

FIG. S1. Fossil pollen record of *Atherosperma moschatum* (Atherospermataceae) since 150 thousand years ago (kya), with the current distribution of the species shown in grey. Circles indicate the presence of one or more pollen grains of *A. moschatum*.

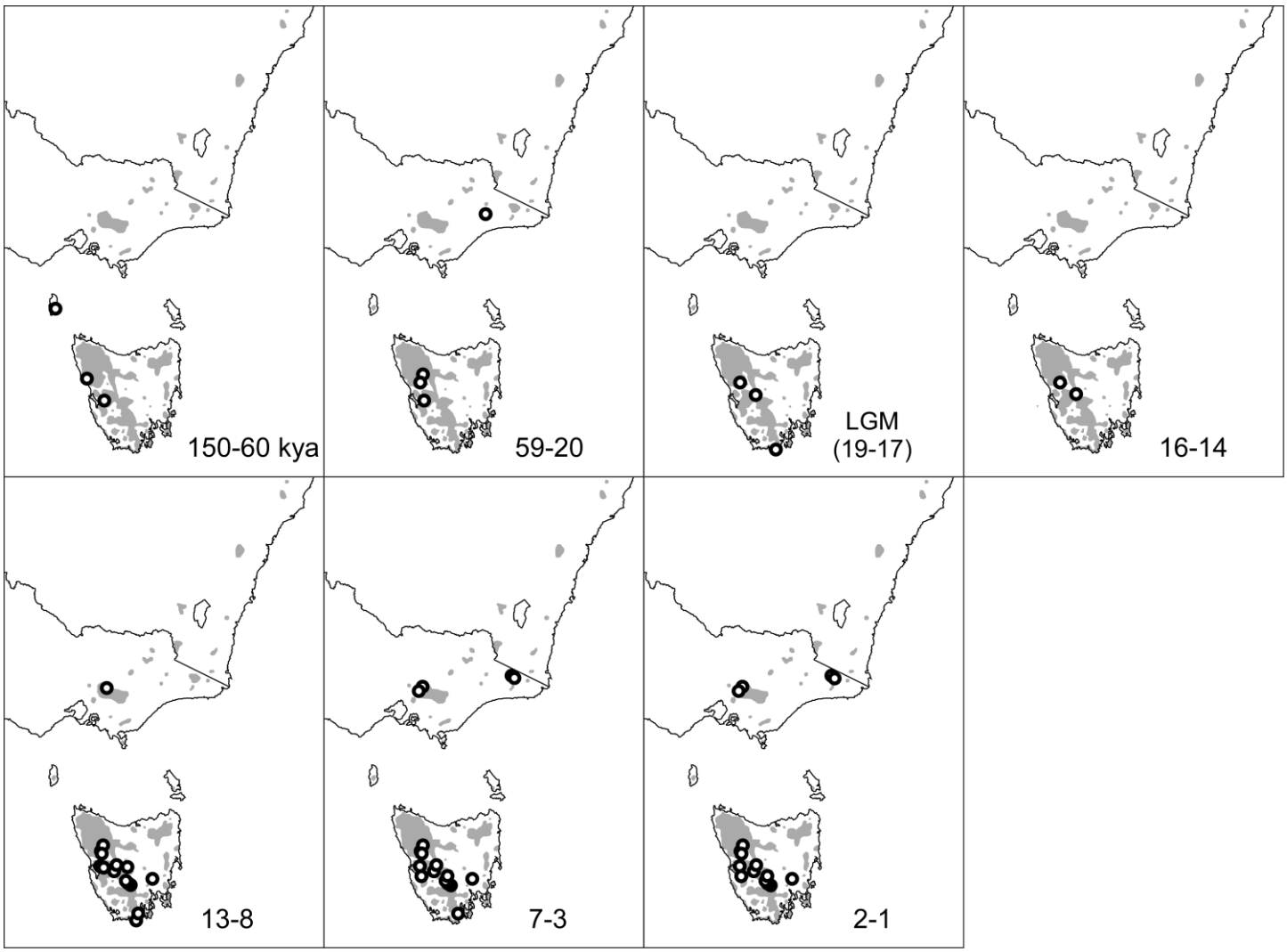

Figure compiled from: Ladd (1979*a*,*b*), Macphail (1979), Colhoun (1980), Macphail & Colhoun (1985), Colhoun & Van De Geer (1986, 1998), Van De Geer *et al.* (1989), Colhoun *et al.* (1991, 1999), Harle *et al.* (1993, 1999), Mckenzie (1997), Hopf *et al.* (2000), Anker *et al.* (2001), Mckenzie (2002), Kershaw *et al.* (2007), and Porch *et al.* (2009).

References

Anker, S.A., Colhoun, E.A., Barton, C.E., Peterson, M. & Barbetti, M. (2001) Holocene vegetation and paleoclimatic and paleomagnetic history from lake Johnston, Tasmania. *Quaternary Research*, **56**, 264–274

Colhoun, E.A. (1980) Quaternary fluviatile deposits from the Pieman Dam site, western Tasmania. *Proceedings of the Royal Society of London – Biological Sciences*, **207**, 355–384

Colhoun, E.A., Pola, J.S., Barton, C.E. & Heijnis, H. (1999) Late Pleistocene vegetation and climate history of Lake Selina, western Tasmania. *Quaternary International*, **57–58**, 5–23

Colhoun, E.A. & Van De Geer, G. (1986) Holocene to middle last glaciation vegetation history at Tullabardine dam, western Tasmania. *Proceedings – Royal Society of London, Series B*, **229**, 177–207

Colhoun, E.A., Van De Geer, G. & Fitzsimons, S.J. (1991) Late glacial and Holocene vegetation history at Governor Bog, King Valley, western Tasmania, Australia. *Journal of Quaternary Science*, **6**, 55–66

Colhoun, E.A. & Van Der Geer, G. (1998) Pollen analysis of 0.20 m at Darwin Crater, western Tasmania, Australia. *Int. Project Palaeolimnol. Late Cenozoic Climate*, **11**, 68–89

Harle, K., Hodgson, D. & Tyler, P. (1999) Palynological evidence for Holocene palaeoenvironments from the lower Gordon River valley, in the World Heritage Area of southwest Tasmania. *The Holocene*, **9**, 149–162

Harle, K., Kershaw, A., Macphail, M. & Neyland, M. (1993) Palaeoecological analysis of an isolated stand of *Nothofagus cunninghamii* (Hook.) Oerst. in eastern Tasmania. *Australian Journal of Ecology*, **18**, 161–170

Hopf, F.V.L., Colhoun, E.A. & Barton, C.E. (2000) Late-glacial and Holocene record of vegetation and climate from Cynthia Bay, Lake St Clair, Tasmania. *Journal of Quaternary Science*, **15**, 725–732

Kershaw, A.P., Mckenzie, G.M., Porch, N., Roberts, R.G., Brown, J., Heijnis, H., Orr, M.L., Jacobsen, G. & Newall, P.R. (2007) A high-resolution record of vegetation and climate through the last glacial cycle from Caledonia Fen, southeastern highlands of Australia. *Journal of Quaternary Science*, **22**, 481–500

Ladd, P. (1979*a*) Past and present vegetation on the Delegate River in the highlands of eastern Victoria. II Vegetation and climatic history from 12,000 B.P to present. *Australian Journal of Botany*, **27**, 185–202

Ladd, P. (1979*b*) A short pollen diagram from rainforest in highland eastern Victoria. *Australian Journal of Ecology*, **4**, 229–237

Macphail, M.K. (1979) Vegetation and climates in southern Tasmania since the last glaciation. *Quaternary Research*, **11**, 306–341

Macphail, M.K. & Colhoun, E.A. (1985) Late last glacial vegetation, climates and fire activity in southwest Tasmania. *Search*, **16**, 43–45

Mckenzie, G. (2002) The late Quaternary vegetation history of the south-central highlands of Victoria, Australia. II. Sites below 900 m. *Austral Ecology*, **27**, 32–54

Mckenzie, G.M. (1997) The late quaternary vegetation history of the south-central highlands of Victoria, Australia. I. Sites above 900 m. *Australian Journal of Ecology*, **22**, 19–36

Porch, N., Jordan, G.J., Price, D.M., Barnes, R.W., Macphail, M.K. & Pemberton, M. (2009) Last interglacial climates of south-eastern Australia: plant and beetle-based reconstructions from Yarra Creek, King Island, Tasmania. *Quaternary Science Reviews*, **28**, 3197–3210

Van De Geer, G., Fitzsimons, S.J. & Colhoun, E.A. (1989) Holocene to Middle Last Glaciation vegetation history at Newall Creek, western Tasmania. *New Phytologist*, **111**, 549–558

TABLE S1. Sample collection information and haplotype for all 155 samples of *A. moschatum*

No.	Sample site	Region	State	Lat. (S)	Long.	Alt. (masl)	Haplotype	Subspecies
1	Dilgry River	Barrington Tops	NSW	31.9164	151.4810	1418	H6	subsp. *integrifolium*
2	Dilgry River	Barrington Tops	NSW	31.9164	151.4810	1418	H6	subsp. *integrifolium*
3	Dilgry River	Barrington Tops	NSW	31.9164	151.4810	1418	H6	subsp. *integrifolium*
4	Gloucester River	Barrington Tops	NSW	32.0892	151.5961	1180	H6	subsp. *integrifolium*
5	Gloucester River	Barrington Tops	NSW	32.0892	151.5961	1180	H6	subsp. *integrifolium*
6	Gloucester River	Barrington Tops	NSW	32.0892	151.5961	1180	H6	subsp. *integrifolium*
7	Bonnie Doon Falls, Nellies Glen	Blue Mountains	NSW	33.7105	150.2895	820	H6	subsp. *integrifolium*
8	Bonnie Doon Falls, Nellies Glen	Blue Mountains	NSW	33.7105	150.2895	820	H6	subsp. *integrifolium*
9	Leura Falls (lower)	Blue Mountains	NSW	33.7235	150.3199	750	H6	subsp. *integrifolium*
10	Wentworth Falls	Blue Mountains	NSW	33.7280	150.3748	786	H6	subsp. *integrifolium*
11	Penance Grove	Monga NP	NSW	35.6009	149.9133	707	H5	subsp. *integrifolium*
12	Penance Grove	Monga NP	NSW	35.6011	149.9135	705	H5	subsp. *integrifolium*
13	Penance Grove	Monga NP	NSW	35.6009	149.9129	717	H5	subsp. *integrifolium*
14	Mount Grundy	Riamukka State Forest	NSW	31.3455	151.6990	1185	H6	subsp. *integrifolium*
15	Tia River	Riamukka State Forest	NSW	31.3230	151.6771	1335	H6	subsp. *integrifolium*
16	Tia River	Riamukka State Forest	NSW	31.3230	151.6771	1335	H6	subsp. *integrifolium*
17	Tia River	Riamukka State Forest	NSW	31.3230	151.6771	1335	H6	subsp. *integrifolium*
18	unnamed tributory of Tia River	Riamukka State Forest	NSW	31.3302	151.6757	1350	H6	subsp. *integrifolium*
19	unnamed tributory of Tia River	Riamukka State Forest	NSW	31.3302	151.6757	1350	H6	subsp. *integrifolium*

20	unnamed tributory of Tia River	Riamukka State Forest	NSW	31.3302	151.6757	1350	H6	subsp. *integrifolium*
21	Rutherford Creek	Brown Mountain	NSW	36.5949	149.4420	843	H3	subsp. *moschatum*
22	Rutherford Creek	Brown Mountain	NSW	36.5950	149.4412	841	H3	subsp. *moschatum*
23	tributory of Leather Barrel Creek	Kosciusko NP	NSW	36.5318	148.1980	1150	H3	subsp. *moschatum*
24	tributory of Leather Barrel Creek	Kosciusko NP	NSW	36.5318	148.1980	1150	H3	subsp. *moschatum*
25	tributory of Leather Barrel Creek	Kosciusko NP	NSW	36.5318	148.1980	1150	H3	subsp. *moschatum*
26	Twins Creek tributory of Geehi River	Kosciusko NP	NSW	36.3230	148.2778	1040	H3	subsp. *moschatum*
27	Mount Mangana	Bruny Island	Tasmania	43.3610	147.2869	450	H4	subsp. *moschatum*
28	Howell Falls	Dazzler Ranges	Tasmania	41.2591	146.7730	205	H1	subsp. *moschatum*
29	Howell Gorge	Dazzler Ranges	Tasmania	41.2756	146.7670	290	H1	subsp. *moschatum*
30	Saxons Creek	Dazzler Ranges	Tasmania	41.2697	146.7018	143	H1	subsp. *moschatum*
31	Lookout Hill Rainforest Ledge	Douglas-Apsley NP	Tasmania	41.7393	148.2283	384	H1	subsp. *moschatum*
32	Lookout Hill Rainforest Ledge	Douglas-Apsley NP	Tasmania	41.7464	148.2223	401	H1	subsp. *moschatum*
33	Big Sassy Creek	Eastern Tiers	Tasmania	42.1518	147.8990	482	H1	subsp. *moschatum*
34	Cygnet River	Eastern Tiers	Tasmania	41.9440	147.8729	650	H1	subsp. *moschatum*
35	Cygnet River-upper reaches	Eastern Tiers	Tasmania	41.9291	147.8478	785	H1	subsp. *moschatum*
36	Ferrars Tier nr Lake Leake	Eastern Tiers	Tasmania	41.9992	147.8589	690	H1	subsp. *moschatum*
37	Meetus Falls, Cygnet River	Eastern Tiers	Tasmania	41.9515	147.8851	592	H1	subsp. *moschatum*
38	Meetus Falls, Cygnet River	Eastern Tiers	Tasmania	41.9526	147.8853	496	H1	subsp. *moschatum*

39	Tom Legges Tier	Eastern Tiers	Tasmania	42.1661	147.8820	605	H1	subsp. *moschatum*
40	Mt Strzelecki	Flinders Island	Tasmania	40.2008	148.0723	720	H1	subsp. *moschatum*
41	Forestier Peninsula	Forestier Peninsula	Tasmania	42.9419	147.9148	231	H2	subsp. *moschatum*
42	Bessels Rd	Great Western Tiers	Tasmania	41.7397	146.6073	804	H1	subsp. *moschatum*
43	Meander River	Great Western Tiers	Tasmania	41.7239	146.5449	645	H1	subsp. *moschatum*
44	Quamby Bluff	Great Western Tiers	Tasmania	41.6583	146.7002	925	H1	subsp. *moschatum*
45	Fraser River	King Island	Tasmania	39.9304	144.0194	82	H1	subsp. *moschatum*
46	Fraser River	King Island	Tasmania	39.9151	144.0190	80	H1	subsp. *moschatum*
47	Bishop and Clerk	Maria Island	Tasmania	42.5923	148.1143	550	H1	subsp. *moschatum*
48	Beckett Creek	North East Tasmania	Tasmania	41.4004	147.5186	371	H1	subsp. *moschatum*
49	Bennies Creek	North East Tasmania	Tasmania	41.3487	147.3893	530	H1	subsp. *moschatum*
50	Blue Tier	North East Tasmania	Tasmania	41.1835	148.0097	748	H1	subsp. *moschatum*
51	Blue Tier	North East Tasmania	Tasmania	41.1741	148.0110	756	H1	subsp. *moschatum*
52	Mt Albert Rd	North East Tasmania	Tasmania	41.3493	147.9673	729	H1	subsp. *moschatum*
53	Nile River	North East Tasmania	Tasmania	41.5975	147.5598	584	H1	subsp. *moschatum*
54	Nile River	North East Tasmania	Tasmania	41.5974	147.5594	585	H1	subsp. *moschatum*
55	St Patricks River	North East Tasmania	Tasmania	41.2933	147.4134	437	H1	subsp. *moschatum*
56	Sunset Ridge	North East Tasmania	Tasmania	41.3671	147.5385	924	H1	subsp. *moschatum*
57	Weavers Creek	North East Tasmania	Tasmania	41.4315	147.3649	656	H1	subsp. *moschatum*
58	NW tributory of	North East	Tasmania	41.2913	147.3194	448	H2	subsp.

	Patersonia Rivulet	Tasmania						*moschatum*
59	tributory of Black Rivulet	North East Tasmania	Tasmania	41.1919	147.7921	420	H2	subsp. *moschatum*
60	Tatnells Hill	Tasman Peninsula	Tasmania	43.0873	147.9543	330	H1	subsp. *moschatum*
61	Tatnells Hill	Tasman Peninsula	Tasmania	43.0840	147.9254	455	H4	subsp. *moschatum*
62	Pine Creek	Weilangta	Tasmania	42.7260	147.8773	288	H1	subsp. *moschatum*
63	Sandspit Forest Reserve	Weilangta	Tasmania	42.7072	147.8420	128	H1	subsp. *moschatum*
64	Angel Rain, Franklin River	Western Tasmania	Tasmania	42.2181	145.9065	316	H1	subsp. *moschatum*
65	Arthur River	Western Tasmania	Tasmania	41.1149	144.9840	61	H1	subsp. *moschatum*
66	Blackmans Bend, Franklin River	Western Tasmania	Tasmania	42.5173	145.7679	26	H1	subsp. *moschatum*
67	Camp Cascade, Franklin River	Western Tasmania	Tasmania	42.2854	145.7474	231	H1	subsp. *moschatum*
68	Cathedral Rock	Western Tasmania	Tasmania	42.9401	147.1918	740	H1	subsp. *moschatum*
69	Chestermans Road	Western Tasmania	Tasmania	43.3910	146.8580	145	H1	subsp. *moschatum*
70	Chestermans Road	Western Tasmania	Tasmania	43.3889	146.8651	238	H1	subsp. *moschatum*
71	Coruscades, Franklin River	Western Tasmania	Tasmania	42.3293	145.7934	181	H1	subsp. *moschatum*
72	Creekton Rivulet	Western Tasmania	Tasmania	43.3752	146.8933	107	H1	subsp. *moschatum*
73	Dennistoun Road	Western Tasmania	Tasmania	42.2573	147.1022	660	H1	subsp. *moschatum*
74	Donaldson River	Western Tasmania	Tasmania	41.4794	145.1026	259	H1	subsp. *moschatum*
75	Double Barrel Creek, Lyell Hwy	Western Tasmania	Tasmania	42.1927	145.9476	435	H1	subsp. *moschatum*
76	Endeavor Bay	Western Tasmania	Tasmania	42.6507	145.3474	18	H1	subsp. *moschatum*
77	Fergusson Falls	Western Tasmania	Tasmania	41.9031	146.1224	810	H1	subsp. *moschatum*
78	Finchams Crossing, Franklin	Western Tasmania	Tasmania	42.2419	145.7673	219	H1	subsp. *moschatum*

	River							
79	Griffiths Creek, Lyell Hwy	Western Tasmania	Tasmania	42.2113	146.0923	756	H1	subsp. *moschatum*
80	Harry Ryan Creek	Western Tasmania	Tasmania	41.0427	145.1245	182	H1	subsp. *moschatum*
81	Hastings Cave	Western Tasmania	Tasmania	43.3855	146.8405	136	H1	subsp. *moschatum*
82	Hot Springs Creek, nr Hastings Cave	Western Tasmania	Tasmania	43.3908	146.8504	94	H1	subsp. *moschatum*
83	Ironbound Range East	Western Tasmania	Tasmania	43.5127	146.4672	715	H1	subsp. *moschatum*
84	Ironbound Range East	Western Tasmania	Tasmania	43.5127	146.4672	715	H1	subsp. *moschatum*
85	King William Creek, Lyell Hwy	Western Tasmania	Tasmania	42.2123	146.1222	791	H1	subsp. *moschatum*
86	Lake Skinner track	Western Tasmania	Tasmania	42.9454	146.6994	705	H1	subsp. *moschatum*
87	Lake Skinner track	Western Tasmania	Tasmania	42.9447	146.6912	830	H1	subsp. *moschatum*
88	Lefroy Ridge, nr Pieman River	Western Tasmania	Tasmania	41.6777	145.0797	199	H1	subsp. *moschatum*
89	Liffey Falls State Reserve	Western Tasmania	Tasmania	41.6918	146.7578	650	H1	subsp. *moschatum*
90	Liffey Falls State Reserve	Western Tasmania	Tasmania	41.7011	146.7643	580	H1	subsp. *moschatum*
91	Liffey Falls State Reserve-Liffey River	Western Tasmania	Tasmania	41.7007	146.7577	520	H1	subsp. *moschatum*
92	Lousia Beach	Western Tasmania	Tasmania	43.5143	146.3603	43	H1	subsp. *moschatum*
93	Lousia Beach	Western Tasmania	Tasmania	43.5143	146.3603	43	H1	subsp. *moschatum*
94	McDougalls Hill	Western Tasmania	Tasmania	43.5774	146.8881	12	H1	subsp. *moschatum*
95	Mt Field NP	Western Tasmania	Tasmania	42.6828	146.6508	830	H1	subsp. *moschatum*
96	Mt Murchison	Western Tasmania	Tasmania	41.8405	145.6142	596	H1	subsp. *moschatum*
97	Mt Wedge track	Western Tasmania	Tasmania	42.8440	146.2835	655	H1	subsp. *moschatum*

98	Mt Wedge track	Western Tasmania	Tasmania	42.8368	146.2794	378	H1	subsp. *moschatum*
99	near Boyd Lookout	Western Tasmania	Tasmania	42.8154	146.3591	610	H1	subsp. *moschatum*
100	Nelson Falls track	Western Tasmania	Tasmania	42.1038	145.7364	380	H1	subsp. *moschatum*
101	Newall Creek	Western Tasmania	Tasmania	42.1618	145.5392	128	H1	subsp. *moschatum*
102	Newlands Cascade, Franklin River	Western Tasmania	Tasmania	42.4216	145.7558	124	H1	subsp. *moschatum*
103	nr Edith Creek	Western Tasmania	Tasmania	41.1356	144.9514	81	H1	subsp. *moschatum*
104	nr Leigh River	Western Tasmania	Tasmania	41.3626	145.0305	269	H1	subsp. *moschatum*
105	Peegra Rd	Western Tasmania	Tasmania	41.0523	145.3117	293	H1	subsp. *moschatum*
106	Rafters Basin, Franklin River	Western Tasmania	Tasmania	42.3647	145.7717	113	H1	subsp. *moschatum*
107	road to Corrina, nr Pieman River	Western Tasmania	Tasmania	41.7137	145.0766	179	H1	subsp. *moschatum*
108	Serpentine River	Western Tasmania	Tasmania	42.7768	145.9811	199	H1	subsp. *moschatum*
109	Sir John Falls	Western Tasmania	Tasmania	42.5699	145.6898	21	H1	subsp. *moschatum*
110	Snake Creek, Lyell Hwy	Western Tasmania	Tasmania	42.1148	145.7861	509	H1	subsp. *moschatum*
111	Snug River	Western Tasmania	Tasmania	43.0850	147.2008	205	H1	subsp. *moschatum*
112	South Lune Road	Western Tasmania	Tasmania	43.4636	146.8580	82	H1	subsp. *moschatum*
113	The Longback, nr Donaldson River	Western Tasmania	Tasmania	41.5639	145.0882	295	H1	subsp. *moschatum*
114	Trial Harbour Rd	Western Tasmania	Tasmania	41.8989	145.2670	294	H1	subsp. *moschatum*
115	trib. of Huskisson River	Western Tasmania	Tasmania	41.7298	145.4911	225	H1	subsp. *moschatum*
116	West Coast Range	Western Tasmania	Tasmania	41.9439	145.5551	560	H1	subsp. *moschatum*
117	Whalers Cove	Western Tasmania	Tasmania	43.2695	145.9255	7	H1	subsp. *moschatum*

118	Liffey Falls State Reserve	Western Tasmania	Tasmania	41.6902	146.7597	668	H2	subsp. *moschatum*
119	Catamaran River	Western Tasmania	Tasmania	43.5583	146.8886	14	H4	subsp. *moschatum*
120	Christmas Cove	Western Tasmania	Tasmania	42.7240	145.3915	20	H4	subsp. *moschatum*
121	Cockle Creek	Western Tasmania	Tasmania	43.5797	146.8993	2	H4	subsp. *moschatum*
122	Cowrie Beach	Western Tasmania	Tasmania	42.9725	145.5580	22	H4	subsp. *moschatum*
123	Creepy Crawly	Western Tasmania	Tasmania	42.8325	146.3848	589	H4	subsp. *moschatum*
124	Florentine Road	Western Tasmania	Tasmania	42.7179	146.5081	482	H4	subsp. *moschatum*
125	Gorilla Ridge	Western Tasmania	Tasmania	43.2892	146.4506	620	H4	subsp. *moschatum*
126	Griffiths Creek, Lyell Hwy	Western Tasmania	Tasmania	42.2126	146.0919	779	H4	subsp. *moschatum*
127	Lake Dobson	Western Tasmania	Tasmania	42.6826	146.5905	1034	H4	subsp. *moschatum*
128	Mulcahy River	Western Tasmania	Tasmania	43.1070	145.7157	22	H4	subsp. *moschatum*
129	near Lake Gordon	Western Tasmania	Tasmania	42.8112	146.2722	338	H4	subsp. *moschatum*
130	Russel Falls. Mt Field NP	Western Tasmania	Tasmania	42.6803	146.7121	180	H4	subsp. *moschatum*
131	Wylds Craig eastern slope	Western Tasmania	Tasmania	42.4704	146.4084	910	H4	subsp. *moschatum*
132	Wylds Craig track	Western Tasmania	Tasmania	42.4915	146.4342	605	H4	subsp. *moschatum*
133	Archeron River, nr Archeron Gap	Central Highlands	Victoria	37.6694	145.7407	796	H3	subsp. *moschatum*
134	Archeron Way, nr Somers Park	Central Highlands	Victoria	37.6360	145.7132	575	H3	subsp. *moschatum*
135	Boobyalla Saddle	Central Highlands	Victoria	37.6868	145.7164	819	H3	subsp. *moschatum*
136	Cameron Cascade	Central Highlands	Victoria	37.5269	145.8503	1085	H3	subsp. *moschatum*
137	headwaters of Hope Creek, East Tanjil Rd	Central Highlands	Victoria	37.8487	146.2526	1218	H3	subsp. *moschatum*

138	headwaters of Hope Creek, East Tanjil Rd	Central Highlands	Victoria	37.8460	146.2467	1141	H3	subsp. *moschatum*
139	Myrrhee	Central Highlands	Victoria	37.7816	146.1377	1104	H3	subsp. *moschatum*
140	Myrrhee	Central Highlands	Victoria	37.7749	146.1412	1086	H3	subsp. *moschatum*
141	Snowy Junction, Cumberland Road	Central Highlands	Victoria	37.5336	145.8351	1008	H3	subsp. *moschatum*
142	trib of Cement Creek East Branch, nr Mt Boobyalla	Central Highlands	Victoria	37.7001	145.7178	811	H3	subsp. *moschatum*
143	Ythan Creek	Central Highlands	Victoria	37.7219	145.6831	1051	H3	subsp. *moschatum*
144	Sherbrooke	Dandenong Ranges	Victoria	37.8861	145.3685	352	H3	subsp. *moschatum*
145	Sherbrooke	Dandenong Ranges	Victoria	37.8871	145.3682	348	H3	subsp. *moschatum*
146	Bonang River	Errinundra Plateau, east Gippsland	Victoria	37.2093	148.7381	706	H3	subsp. *moschatum*
147	Bonang River	Errinundra Plateau, east Gippsland	Victoria	37.2132	148.7422	705	H3	subsp. *moschatum*
148	Clarksville Rd	Errinundra Plateau, east Gippsland	Victoria	37.2353	148.8886	1027	H3	subsp. *moschatum*
149	Goonmirk Rocks	Errinundra Plateau, east Gippsland	Victoria	37.2763	148.8892	1199	H3	subsp. *moschatum*
150	Result Creek	Errinundra Plateau, east Gippsland	Victoria	37.2480	148.7865	883	H3	subsp. *moschatum*
151	Result Creek	Errinundra Plateau, east Gippsland	Victoria	37.2434	148.7918	905	H3	subsp. *moschatum*
152	Tarra Bulga NP, Macks Creek	Strzelecki Ranges	Victoria	38.4274	146.5694	589	H3	subsp. *moschatum*

153	Tarra Bulga NP, Macks Creek	Strzelecki Ranges	Victoria	38.4268	146.5685	594	H3	subsp. *moschatum*
154	western side of Mt Latrobe	Wilsons Promontory	Victoria	39.0009	146.3719	640	H3	subsp. *moschatum*
155	western side of Mt Latrobe	Wilsons Promontory	Victoria	39.0010	146.3722	649	H3	subsp. *moschatum*

TABLE S2. Primer pairs tested in *Atherosperma moschatum* for screening for chloroplast variation

Fragment	Forward primer (5'–3')	Reverse primer (3'–5')	Reference
*atp*B-*rbc*L	atpB-1	rbcL-1	[1]
K1-*mat*K1	K1	matK1	[2]
*mat*K6-K2	matK6	K2	[2]
*pet*N1-*psb*M	petN1	psbM2R	[3]
*psb*M-*trn*D	psbM2	trnD	[3]
*trn*T-*trn*L	a	b	[4]
*trn*L intron	c	d	[4]
*trn*L-*trn*F	e	f	[4]

[1] **Chiang, T., Schaal, B. & Peng, C. (1998)** Universal primers for amplification and sequencing a noncoding spacer between the *atp*B and *rbc*L genes of chloroplast DNA. *Botanical Bulletin of Academia Sinica*, **39**, 245–250.

[2] **Grivet, D. & Petit, R.J. (2002)** Phylogeography of the common ivy (*Hedera* sp.) in Europe: Genetic differentiation through space and time. *Molecular Ecology*, **11**, 1351–1362.

[3] **Lee, C. & Wen, J. (2004)** Phylogeny of *Panax* using chloroplast *trn*C-*trn*D intergenic region and the utility of *trn*C-*trn*D in interspecific studies of plants. *Molecular Phylogenetics and Evolution*, **31**, 894–903.

[4] **Taberlet, P., Geilly, L., Pautou, G. & Bouvet, J. (1991)** Universal primers for amplification of three non-coding regions of chloroplast DNA. *Plant Molecular Biology*, **17**, 1105–1109.

TABLE S3. Single nucleotide polymorphisms (SNPs; characters 2, 4, 5, 6 and 8) and simple sequence repeat (SSR) polymorphisms (characters 1, 3 and 7) defining the six chloroplast DNA haplotypes observed in *A. moschatum*, shown in comparison to the most frequent haplotype, H1. Dots indicate congruence with the state in haplotype H1. The states at variable sites in *A. moschatum* are also shown for outgroups, *Laurelia sempervirens*, *Nemuaron vieillardii* and *Daphnandra tenuipes*, with missing data indicated by – in *D. tenuipes*. These outgroup species varied at 137 other sites including 123 SNPs and 14 length variations

	1	2	3	4	5	6	7	8
Haplotype	*trn*T-*trn*L	*trn*L intron	K1-*matK1*	K1-*matK1*	K1-*matK1*	*mat*K6-K2	*pet*N-*psb*MF	*pet*N-*psb*MR
H1 (86)	A(11)	T	T(10)	G	C	G	A(12)	A
H2 (4)	.	.	.	.	T	.	.	.
H3 (29)	.	.	.	.	.	.	A(11)	.
H4 (16)	.	.	.	.	.	A	.	.
H5 (3)	A(10)	A	T(11)	.	.	.	.	.
H6 (17)	.	.		T	.	.	.	C
L. sempervirens	A(13)	.	T(11)	.	T	.	A(13)	.
N. vieillardii	.	.	T(11)	.	.	.	A(10)	.
D. tenuipes	A(9)	.	–	–	–	–	–	–

TABLE S4A. The aligned length obtained for cpDNA fragments sequenced in *A. moschatum* and their GenBank accession numbers. Size differences for fragments are due to SSR length variations. The fragments in bold did not display chloroplast variation within the subset of 24 of *A. moschatum* samples

Fragment	Aligned sequence length (bp)	GenBank accession number
***atp*B–*rbc*L F**	**398**	**FJ861006**
***atp*B–*rbc*L R**	**297**	**FJ861007**
K1–*mat*K1	614-615	FJ860982–FJ860987
*mat*K6–K2	779	FJ860988–FJ860993
*pet*N–*psb*M F	188-189	FJ860994–FJ860999
*pet*N–*psb*M R	678	FJ861000–FJ861005
***psb*M–*trn*D**	**652**	**FJ861008**
*trn*T–*trn*L	562-563	FJ860970–FJ860975
*trn*L intron	470	FJ860976–FJ860981

TABLE S4B. Genbank accession numbers for outgroups. Sequences for the K1-*mat*K1, *pet*N-*psb*M F and *pet*N-*psb*M R sequences were of poor quality for *D. tenuipes*

Fragment	*L. sempervirens*	*N . viellardii*	*D. tenuipes*
K1–*mat*K1	GQ302625	GQ302626	–
*mat*K6–K2	GQ302627	GQ302628	GQ302629
*pet*N–*psb*M F	GQ302632	GQ302633	–
*pet*N–*psb*M R	GQ302630	GQ302631	–
*trn*T–*trn*L	GQ302619	GQ302620	GQ302621
*trn*L intron	GQ302622	GQ302623	GQ302624

TABLE S5. Jukes–Cantor corrected sequence divergences (d_{xy}), divergence time (mya) and estimated mutation rates (substitution per site per million years) calibrated using alternative estimates of divergence ages (in millions of years) between *A. moschatum*, *Tasmannia lanceolata* and *Nothofagus cunninghamii*, and outgroup taxa. Calibration points have been chosen to represent high and low values

Node	d_{xy} (x10^3)	Divergence Time (mya)	Substitution rate (substitutions site^{-1} mya^{-1})	Source of calibration
Atherosperma vs *Laurelia*	29.8	83	1.79	Chronogram based on pooled cpDNA data [1]
		44.6	3.34	Chronogram based on *rbc*L data [1]
Atherosperma vs *Nemauron*	22.7	69.5	1.64	Chronogram based on pooled cpDNA data [1]
		20	5.68	Chronogram based on *rbc*L data [1]
Tasmannia vs *Drimys*	23.9	93	1.28	Chronogram based on ITS data [2]
		80	1.49	Chronogram based on ITS and cpDNA data [2]
Tasmannia vs *Pseudowintera*	24.2	93	1.3	Chronogram based on ITS data [2]
		80	1.51	Chronogram based on ITS and cpDNA data [2]
Nothofagus cunninghamii vs *N. glauca*	8.4	34	1.23	Bayesian relaxed molecular clock (BRMC) estimate of node [3]
		25	1.68	Penalised likelihood estimate of node [3]
N. cunninghamii vs *N. menziesii*	10.4	27	1.92	BRMC estimate of node [3]
		20	2.6	Penalised likelihood estimate of node [3]

[1] Renner (2004)
[2] Marquínez *et al.* (2009)
[3] Knapp *et al.* (2005)

TABLE S6. Chloroplast nucleotide diversity (π; Nei, 1987) for 29 plant species, including *A. moschatum*. Species that co-occur with *A. moschatum* in south-eastern Australia are shown in bold

Species	Life form		bp[a]	Region (n)[b]	$\pi \times 100$ (s.d. × 100)	Reference
Lithocarpus formosanus	tree	dicot	996	Taiwan (19)	8.074 (1.149)	Chiang *et al.* (2004)
Pinus luchuensis	tree	conifer	926	E Asia (174)	6.345 (0.383)	Chiang *et al.* (2006)
Lithocarpus dodonaeifolius	tree	dicot	996	Taiwan (78)	6.026 (0.702)	Chiang *et al.* (2004)
Cycas revoluta	cycad	cycad	913	Japan/ E China (307)	5.81 (0.316)	Chiang *et al.* (2009)
Kandelia candel	mangrove	dicot	415	East Asia (202)	2.652 (0.526)	Chiang *et al.* (2001)
Cycas taitungensis	cycad	cycad	913	Taiwan (102)	1.81 (0.279)	Chiang *et al.* (2009)
Nothofagus pumilio	tree	dicot	1673	Chile/ Argentina (194)	1.71 (0.83)	Mathiasen & Premoli (2009)
Alsophila spinulosa	tree	fern	739	SE China (75)	1.13 (0.197)	Su *et al.* (2005)
Encelia farinosa	shrub	dicot	456	USA and Mexico (310)	0.625 (0.365)	Fehlberg & Ranker (2009)
Platycrater arguta	shrub	dicot	776	China and Japan (129)	0.475 (–)	Qiu *et al.* (2009)
Hymenaea courbaril	tree	dicot	1600	SE Brazil (149)	0.3 (–)	Ramos *et al.* (2009)
Schiedea globosa	shrub	dicot	724	Hawaii (59)	0.27 (0.03)	Wallace *et al.* (2009)
Cunninghamia konishii	tree	conifer	1888	Taiwan (64)	0.19 (0.067)	Hwang *et al.* (2003)
Cunninghamia lanceolata	tree	conifer	1888	China (52)	0.176 (0.065)	Hwang *et al.* (2003)
Nothofagus cunninghamii	**tree**	**dicot**	**2164**	**SE Australia (213)**	0.101 (0.01)	Worth *et al.* (2009)
Castanopsis carlesii	tree	dicot	1663	Taiwan (201)	0.095 (–)	Cheng *et al.* (2005)
Lagarostrobos franklinii	**tree**	**conifer**	**892**	**W. Tasmania (96)**	**0.093 (0.006)**	Clark & Carbone (2008)
Microbiota decussata	shrub	conifer	4357	far east Russia (48)	0.09 (0.052)	Artyukova *et al.*

						(2009)
Trochodendron aralioides	tree	dicot	1102	S. Japan and Taiwan (95)	0.088 (0.012)	Huang *et al.* (2004)
Laurus nobilis	tree	dicot	2562	Mediterranean (74)	0.081 (–)	Rodriguez-Sanchez *et al.* (2009)
Pseudotsuga menziesii	tree	conifer	1537	W North America (219)	0.073 (0.053)	Gugger *et al.* (2010)
Tasmannia lanceolata	**shrub**	**dicot**	**3206**	**SE Australia (244)**	**0.073 (0.006)**	Worth *et al.* (2010)
Cyclobalanopsis glauca	tree	dicot	1980	E. Asia (140)	0.065 (–)	Huang *et al.* (2002)
Quercus mongolica	tree	dicot	4253	Japan (501)	0.055 (0.001)	Okaura *et al.* (2007)
Machilus kusanoi	tree	dicot	1041	Taiwan (106)	0.051 (0.022)	Wu *et al.* (2006)
Photinia glabra	tree	dicot	4111	S Japan (129)	0.046 (–)	Aoki *et al.* (2006)
Machilus thunbergii	tree	dicot	1031	Taiwan (110)	0.031 (0.011)	Wu *et al.* (2006)
Atherosperma moschatum	**tree**	**dicot**	**3294**	**SE Australia (155)**	**0.021 (0.003)**	This study
Laurus azorica	tree	dicot	2562	Mediterranean (14)	0.006 (–)	Rodriguez-Sanchez *et al.* (2009)

[a] Combined sequence length (bp), including gaps, obtained per species.

[b] The region from where samples of each species were obtained, with the number of samples investigated per species shown within the brackets.