

Appendix 1. List of species included in the study. Genbank accession numbers are given for each gene; multiple accessions per gene per taxa indicate clone sequences for nuclear genes, or intraspecific variation for the chloroplast (*rbcL*) gene. Sequences generated in this study are in italic font. Voucher for individuals sequenced are given.

Taxa	Tribe	Locality	Voucher	GenBank accession numbers					
				<i>CAD5</i>	<i>CHS</i>	<i>MS</i>	<i>MtN31</i>	<i>PRK</i>	<i>rbcL</i>
<i>Aethionema cordifolium</i>	Aethionemeae								AP009366
<i>Aethionema grandiflora</i>	Aethionemeae				AF112082				AY167983
<i>Aethionema saxatile</i>	Aethionemeae								AY483262
<i>Arabidopsis arenosa</i>	Camelineae				AY612781				
<i>Arabidopsis halleri</i>	Camelineae				AJ619906				
<i>Arabidopsis lyrata</i> ssp. <i>Lyrata</i>	Camelineae			<i>FJ645063</i>	AJ619890	<i>FJ645118 - FJ645122</i>	<i>FJ645194 - FJ645194</i>	<i>FJ645209 - FJ645213</i>	AY174640, AY174651, AY174652
<i>Arabidopsis thaliana</i>	Camelineae			NM_119587.3	NC_003076	NM_120467	NM_129653.4	NM_102940.5	ATU91966, AP000423, AY174632
<i>Arabis glabra</i>	Arabideae								DQ310542
<i>Arabis hirsuta</i>	Arabideae								AP009369
<i>Arabis stelleri</i>	Arabideae								D88903
<i>Armoracia rusticana</i>									AF020323
<i>Barbarea verna</i>	Cardamineae								AP009370
<i>Barbarea vulgaris</i>	Cardamineae				AF112108				
<i>Boechera holboellii</i>	Boechereae			<i>FJ645074</i>	<i>FJ645079 - FJ645083</i>	<i>FJ645133 - FJ645137</i>	<i>FJ645187 - FJ645190</i>	<i>FJ645235 - FJ645238</i>	
<i>Boechera fendleri</i>	Boechereae				AF112090				
<i>Boechera lyallii</i>	Boechereae				AF112099				
<i>Boechera parishii</i>	Boechereae				AF112101				
<i>Boechera stricta</i>	Boechereae				AY612784				
<i>Brassica juncea</i>	Brassicaceae								AY167979
<i>Brassica napus</i>	Brassicaceae								AF267640
<i>Brassica oleracea</i>	Brassicaceae				AY228486				M88342
<i>Brassica oleracea</i> var <i>botrytis</i>	Brassicaceae								EU128739
<i>Brassica rapa</i>	Brassicaceae			AC189325					AY167977
<i>Cakile maritima</i>	Brassicaceae								AY167981
<i>Capsella bursa-pastoris</i>	Camelineae			<i>FJ645064- FJ645066</i>	AY612785	<i>FJ645128 - FJ645132</i>		<i>FJ645218 - FJ645222</i>	AP009371, D88904
<i>Capsella rubella</i>	Camelineae				AF112106				
<i>Cardamine amara</i>	Cardamineae				DQ209008				

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				CAD5	CHS	MS	MtN31	PRK	rbcL
<i>Cardamine flexuosa</i>	Cardamineae								D88905
<i>Cardamine pensylvanica</i>	Cardamineae								AF020324
<i>Chamira circaeoides</i>	Heliophileae								AM234932
<i>Crucihimalaya mollissima</i>	Camelineae			FJ645072	FJ645084 - FJ645086	FJ645138 - FJ645142	FJ645182 - FJ645186	FJ645227 - FJ645231	
<i>Crucihimalaya himalaica</i>	Camelineae				AY612786				D88902
<i>Crucihimalaya wallichii</i>	Camelineae								AP009372
<i>Draba nemorosa</i>	Arabideae								AP009373
<i>Erysimum capitatum</i>	Camelineae								AY167980
<i>Heliophila pubescens</i>	Heliophileae								AM234933
<i>Hornungia alpina</i>	Descurainieae								DQ310538
<i>Lepidium apetalum</i>	Lepidieae			FJ645075 - FJ645078	FJ645109 - FJ645112	FJ645153 - FJ645157	FJ645208	FJ645242 - FJ645246	
<i>Lepidium africanum</i>	Lepidieae								AM234934
<i>Lepidium campestre</i>	Lepidieae				AF144534				
<i>Lepidium virginicum</i>	Lepidieae								AP009374
<i>Lepidium virginicum</i>	Lepidieae								D88906
<i>Lobularia maritima</i>	Lepidieae								AP009375
<i>Nasturtium officinale</i>									AP009376
<i>Neobeckia aquatica</i>									AF020326
<i>Neslia paniculata</i>	Camelineae								DQ310541
<i>Olimarabidopsis cabulica</i>	Camelineae			FJ645071	AF144533	FJ645148 - FJ645152	FJ645191 - FJ645193	FJ645214 - FJ645217	
<i>Olimarabidopsis pumila</i>	Camelineae				AF112092, AF112093				AP009368
<i>Pachycladon cheesemanii</i>	Camelineae	Wye Creek, Otago, New Zealand	CHR559139		FJ645095 - FJ645096			FJ645241	
<i>Pachycladon cheesemanii</i> 6/1	Camelineae	Diamond Lake, Otago, New Zealand	CHR537558			FJ645160		FJ645234	
<i>Pachycladon ensyii</i>	Camelineae	Craigieburn Range, Canterbury, New Zealand	CHR573465		FJ645105 - FJ645106				
<i>Pachycladon ensyii</i>	Camelineae	Craigieburn Range, Canterbury, New Zealand	CHR508422						EF015668

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<i>Pachycladon enysii</i> 1/1	Camelineae	Mt. Starveall, Nelson, New Zealand	CHR504687			FJ645163 - FJ645164			
<i>Pachycladon exilis</i>	Camelineae	Awahokomo, Otago, New Zealand	CHR569959	FJ645069 - FJ645070	FJ645093 - FJ645094	FJ645161 - FJ645162	FJ645177	FJ645233, FJ645240	EF015667
<i>Pachycladon fastigiata</i>	Camelineae	Serpentine Creek, Canterbury, New Zealand	CHR569960	FJ645067 - FJ645068	FJ645091 - FJ645092		FJ645171 - FJ645176	FJ645232, FJ645239	
<i>Pachycladon fastigiata</i>	Camelineae	Serpentine Creek, Canterbury, New Zealand	CHR225809						EF015666
<i>Pachycladon fastigiata</i> 4/1	Camelineae	Ohau Ski Field, Canterbury, New Zealand	CHR504679			FJ645158 - FJ645159			
<i>Pachycladon latisiliqua</i>	Camelineae	Mt. Peel, Nelson, New Zealand	CHR536760						EF015665
<i>Pachycladon latisiliqua</i> 1/5	Camelineae	Spinx Stream, Mt. Arthur's tablelands, Nelson, New Zealand				FJ645167 - FJ645168			
<i>Pachycladon latisiliqua</i> 8/1	Camelineae	Mt. Owen, Tasman, New Zealand	CHR504668		FJ645097 - FJ645098				
<i>Pachycladon novae- zelandiae</i>	Camelineae	Old Man Range, Otago, New Zealand	CHR571397						DQ310545
<i>Pachycladon novae- zelandiae</i> 2/1	Camelineae	Ohau Ski Field, Canterbury, New Zealand	CHR504693		FJ645099 - FJ645100	FJ645170			
<i>Pachycladon stellata</i>	Camelineae	Yeo Stream, Marlborough, New Zealand	CHR533014		FJ645101 - FJ645102				
<i>Pachycladon stellata</i>	Camelineae	Yeo Stream, Marlborough, New Zealand	CHR514184						EF015664
<i>Pachycladon stellata</i> 2/4	Camelineae	Yeo Stream, Marlborough, New Zealand	CHR514183			FJ645169			

Appendix 2. Primers specific to either genome copies present in *Pachycladon*.

Gene	Genome copy	Primer	Annealing T°	Direction	Sequence (5' -> 3')
CAD5	A	CAD5-2R	62 °C	Reverse	CCT GAA CAC AAA AGA ATT GAC
CHS	A & B	CHS2R		Reverse	ACT CCA ACC CTT CTC CTG TCG TGG
	A	CHS2-1F	66 °C	Forward	CGC AGT CTC ATC TCT TTT TTC CC
	B	CHS1-1F	60 °C	Forward	ACA CTC TCA TCT CCT TTC TCT TGG
MS	A & B	ms1f		Forward	CCG TTG CTG ACC GGA GAG TTG
	A	ms2-3r	60 °C	Reverse	CCT GTC AAG AAA CCA AAA GC
	B	ms1-3r	60 °C	Reverse	CTG TCA AGA AAC CAA GTA AC
PRK	A & B	PRK3F		Forward	ACC GAT ATA YAA CCA TGT CAC TGG
	A	PRK1-5R	53 °C	Reverse	GCA ATG AGT CTA ATT GGT AAC
	B	PRK2-5R	60 °C	Reverse	CCG ATA CCT GAG AGA AAG AAG C
	B	PRK2-5Rb	Sequencing only	Reverse	GAA TCT GTA TCA TTC AGC TGT TAC