

Additional file 4 – Insertion/deletion (indel) matrix

Insertion/deletion events (indels) scored across the 49 aligned protein-coding genes used in this study. Characters were scored as 1 for presence or 0 for absence of a sequence stretch. Character state labels (CHARSTATELABELS) indicate which gene the indel was identified and the position within that gene using the DNA alignment in Additional file 5.

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#NEXUS
BEGIN DATA;
  DIMENSIONS  NTAX=43 NCHAR=152;
  FORMAT MISSING=? GAP=- ;
  CHARSTATELABELS

1  'psaA-25',      52  'ycf4-517',      103  'rps19-319',
2  'psaA-46',      53  'ycf4-523',      104  'rps19-334',
3  'psaA-133',     54  'ycf4-538',      105  'rps19-355',
4  'psaA-586',     55  'ycf4-544',      106  'rps19-424',
5  'psaA-1546',    56  'rps3-58',       107  'rpl2-127',
6  'psaA-1555',    57  'rps3-79',       108  'rpl2-232',
7  'psaA-1891',    58  'rps3-82',       109  'rpl2-838',
8  'psbA-1030',    59  'rps3-313',      110  'rpl14-79',
9  'psbA-1036',    60  'rps3-469',      111  'rpl14-277',
10 'psbA-1057',    61  'rps3-484',      112  'rpl14-331',
11 'psbE-244',     62  'rps3-487',      113  'rpl16-70',
12 'psbF-5',       63  'rps3-490',      114  'rpl20-121',
13 'psbF-22',      64  'rps3-493',      115  'rpl20-139',
14 'psbH-235',     65  'rps3-637',      116  'rpl20-148',
15 'psbJ-10',      66  'rps3-646',      117  'rpl20-172',
16 'psbJ-22',      67  'rps4-49',       118  'rpl20-217',
17 'psbL-31',      68  'rps4-565',      119  'rpl20-229',
18 'psbM-4',       69  'rps4-577',      120  'rpl20-322',
19 'psbN-4',       70  'rps4-580',      121  'rpl36-82',
20 'psbN-97',      71  'rps4-787',      122  'rpl36-91',
21 'psbZ-184',     72  'rps4-790',      123  'rpoB-196',
22 'psbZ-187',     73  'rps7-244',     124  'rpoB-262',
23 'rbcl-1405',    74  'rps7-346',     125  'rpoB-269',
24 'petA-421',     75  'rps7-475',     126  'rpoB-310',
25 'petA-673',     76  'rps8-4',        127  'rpoB-328',
26 'petA-682',     77  'rps8-55',     128  'rpoB-349',
27 'petA-688',     78  'rps8-73',     129  'rpoB-460',
28 'petA-715',     79  'rps8-97',     130  'rpoB-523',
29 'petA-730',     80  'rps8-148',     131  'rpoB-1006',
30 'petA-979',     81  'rps8-202',     132  'rpoB-1033',
31 'petA-982',     82  'rps8-214',     133  'rpoB-1492',
32 'petG-103',     83  'rps8-226',     134  'rpoB-1498',
33 'petG-112',     84  'rps8-244',     135  'rpoB-1621',
34 'petL-16',      85  'rps8-253',     136  'rpoB-1981',
35 'atpA-1492',    86  'rps8-262',     137  'rpoB-2137',
36 'atpB-169',    87  'rps8-265',     138  'rpoB-2137',
37 'atpB-172',    88  'rps11-112',    139  'rpoB-2347',
38 'atpB-1452',   89  'rps11-292',    140  'rpoB-2356',
39 'atpE-4',      90  'rps11-295',    141  'rpoB-2359',
40 'atpE-7',      91  'rps11-301',    142  'rpoB-2491',
41 'atpE-58',     92  'rps14-82',     143  'rpoB-2551',
42 'atpE-166',    93  'rps14-94',     144  'rpoB-2587',
43 'atpE-344',    94  'rps14-139',    145  'rpoB-2995',
44 'atpI-67',     95  'rps14-166',    146  'rpoB-3550',
45 'atpI-190',    96  'rps14-295',    147  'rpoC1-1300',
46 'atpI-283',    97  'rps14-304',    148  'rpoC1-1489',
47 'atpI-289',    98  'rps14-319',    149  'rpoC1-1501',
48 'ycf4-433',    99  'rps19-9',       150  'rpoC1-1510',
49 'ycf4-448',    100 'rps19-13',       151  'rpoC1-1525',
50 'ycf4-463',    101 'rps19-16',       152  'ycf3-10'
51 'ycf4-493',    102 'rps19-133',
;

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MATRIX	10	20	30	40	50	60	70
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Arabidopsis	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Morus	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Vitis	0001111011101001000010001001101100111101000001010100000001001101000111110011						
Nicotiana	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Helianthus	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Spinacia	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Ranunculus	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Agrostis	000111101110100100001000100110110011110101000101000001000100110100011111011						
Lemna	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Phalaenopsis	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Dioscorea	000111101110100100001000100110110010010000010100000000001001101000111110011						
Acorus	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Drimys	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Liriodendron	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Illicium	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Chloranthus	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Nymphaea	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Amborella	0001111011101001000010001001101100111101000001010000000001001101000111110011						
Pinus	01011101110101000010001001101101011101000001010000000001001101000111110011						
Ephedra	0010111011101010000000010011011001010010000011110000000001001101000111110000						
Gnetum	00111110111010100000100010011011001010010000011110000000001001101000111110010						
Welwitschia	001111101110100000010001001101100101001000001111000000000100100100011000010						
Cycas	000111101110101000001000100110110011110100000101000000000100110100011111011						
Ginkgo	000111101110101000010001001101101101101000001010000000001001101000111110011						
Angiopteris	000111101110101000010001001101101100111101000001010000000001001101000111110011						
Adiantum	000111101110101000100001010110111011010000010100000000001001101000101110011						
Alsophila	0001111011101000001000101011011011011010000010100000000001001101000111110011						
Psilotum	0001111011101010000010011001101100111100000001010000000001001101000111110011						
Equisetum	0001111011001101000010001001101100111101000001010000001001001101000111110011						
Isoetes	000111101110101000010001001101100111101000001010000000001010101000111110011						
Selaginella.uncin	00011011111010101010001001111000111010000101000110000010111010001111110011						
Selaginella.moell	000110101110101010001000100111000011101100100110001100001011101000001010011						
Huperzia	0001111011101010000010001001101101110100000101000000000101101000111110011						
Physcomitrella	0001111011101010000010001000101001111100000101000000000010011010111110011						
Tortula	000111101110101000001000100010100111101000001010000000001001101000111110011						
Anthoceros	0001111011101010000010001001101100111101000001010000000001001101000111110011						
Marchantia	0001111011101000001000100110110011110000100111000000000001010000111110011						
Chara	0001010011101110000010001000101100111101000001010000000001001101000111110011						
Chaetosphaeridium	00010100111011110000010001000101001111010000010100000000010101010111110011						
Staurostrum	0001110001011110000010001000101001111010000010100000000010011101111110011						
Zygnema	00011100101011110000010001000101001111010000010100000000010011010111110011						
Chlorokybus	1001010011010111000001000100010100111101010001110000000001001100000111110011						
Mesostigma	1001010011010111000001000000000100111101010001110000000001001100000111110011						

	80	90	100	110	120	130	140	150
[	.	.	.	.	.	.	.	.
[	.	.	.	.	.	.	.	.
Arabidopsis	010000010101101010001111100000011100100111011001100011000100101011111000101							
Morus	010100110101101010001111100000011100100111011001100011000100101011111000101							
Vitis	010100010101101010001111100000011100100111011001100011000100101011111000101							
Nicotiana	010100010101101010001111100000011101100111011001100011000100101011111000101							
Helianthus	0101000101011010100011111000000111001001110110011001110001001001011111000101							
Spinacia	010100010101101010001111100000011100000111011001100011000100101011111000100							
Ranunculus	01010001010011010001111100000011100100111011001100011000100101011111000101							
Agrostis	01010101110000011000111100010001101010011101100110001100111010111111000101							
Lemna	01010001010011010001111100000011000100111011001100011000100101011111000101							
Phalaenopsis	01010001000010100011111000000110001001110110011000110001001010111111000101							
Dioscorea	01010001010011010001111100000011000100111011001100011000100101011111000101							
Acorus	01010001010011010001111100000011000100111011001100011000100101011111000101							
Drimys	01010001010011010001111100000011000100111011001100011000100101011111000101							
Liriodendron	01010001010011010001111100000011000100111011001100011000100101011111000101							
Illicium	01010001010011010001111100000011000100111011001100011000100101011111000101							
Chloranthus	01110001010011010001111100000011000100111011001100011000100101011111000101							
Nymphaea	01010001010011010001111100000011000100111001001100011000100101011111000101							
Amborella	01010001010011010001111100000011000100111001001100011000101010101111000101							
Pinus	01010001010011000001111100000011000100111001001100011000100101011111100101							
Ephedra	0101000001001001000111110010011100100111001000101001000100100100100100101							
Gnetum	0101000001001001000111011001001100010011100100010100100000010100010001000111							
Welwitschia	010100000100100100011011101101100010011100100010100100010010001001000101							
Cycas	0101000101001101000111110000001100010111001001100011000100101011111000101							
Ginkgo	01010001010011010001111100000011000100111001001100011000100101011111000101							
Angiopteris	0101000101001101000111110000001000100111001001100011000100101011111000101							
Adiantum	1001000101001101000111110000001000100111001001100011000100101011111000101							
Alsophila	0101000101001101000111110000001000100111001001100011000100101011111000101							
Psilotum	01000001010011010001111100000010001001110010011000110001001010101111000101							
Equisetum	0101000101001101000111110000001000100111001001100011000100101011111000101							
Isoetes	010100010101110100011111000000100010011100100110001100010010101111110000101							
Selaginella.uncin	01010001010111010100111000000100010000010101000110001000111111110000101							
Selaginella.moell	0101000101011101000111110000001000101111100101000110001000111111110000101							
Huperzia	01010001010011110001111100000010001001110010011100110001001010111110000101							
Physcomitrella	010100010100110100011111000000100010011100100100101000100101011111000101							
Tortula	0101000101001101000111110000001000100111001001100011000100101011111000101							
Anthoceros	0101000101001101000111110000001000100111001001100011000100101011111000101							
Marchantia	01010001010011010001111100000010001001110010011000110001001010101111000101							
Chara	01011001010011010001111100000010001001110010011000110001001010101111000101							
Chaetosphaeridium	0101000101001101000111110000001000100111001001100011000100101011111000101							
Staurostrum	010100010100110100011111000000100010011100100110001010100101011111000101							
Zygnema	01010001010011010001111100000010001001110010011000100000100101011111000101							
Chlorokybus	01010001010011010001111100000010001001110010011000110001001010101111000101							
Mesostigma	01010001010011010001111100000100000100111001011100001000100101010111000101							

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END;