Supplementary Information

Wilsons Promontory Geology

From: Hill, S.M., 1994. crcleme.org.au. Some granite landforms of Wilsons Promontory, Victoria. The Victorian Naturalist, 111: 184-190.

Wilsons Promontory National Park is characterized by its granitic bedrock, which is the dominant geological feature. The park's granitic mountains and hills are formed from a composite batholith of Devonian granite, with Ordovician metasediments occurring immediately to the north. The park's topography is dominated by exposed and weathered granitic mountains and hills, with valleys and rounded tors formed by water and wind erosion along fault lines and joints. The highest point in the park is Mt Latrobe at 754 meters. The park also features a variety of marine, aeolian, colluvial, and alluvial sediments, reflecting a dynamic Cenozoic environmental history. The granitic bedrock is the northern limit of a formation that extends to north-eastern and eastern Tasmania. The park's climate is mild, with moderate temperatures typical of a maritime environment, and it experiences strong winds mainly from westerlies. The vegetation of the region is similar to that of the nearby Gippsland Highlands, with forests of Eucalyptus and other species.

Beach and marine deposits are well developed along coastal embayments and the margins of Corner Inlet and Yanakie Isthmus. Series of beach ridges, sub-parallel to the contemporary coastline, extend inland from many beaches. Diffraction mineralogical determinations of weathering profiles on two of the granite lithologies exposed in the Mt Oberon Quarry have been made (Hill, 1992; Hill and Joyce, 1995b). Kaolin-group clays with minor smectite, vermiculite, hematite and goethite are the main secondary minerals in the granitic saprolite, with quartz and minor tourmaline the main resistant primary minerals. Throughout the promontory there is marked differential weathering of the various granite lithologies, largely attributed to the extent of jointing, micro-fractures, crystal size and modal mineralogical variations (Hill, 1996). The abundance of biotite and to a lesser degree plagioclase feldspar are major controls on the extent and style of granite weathering. Soils developed within areas of weathered granite are mostly dermosols and chromosols.

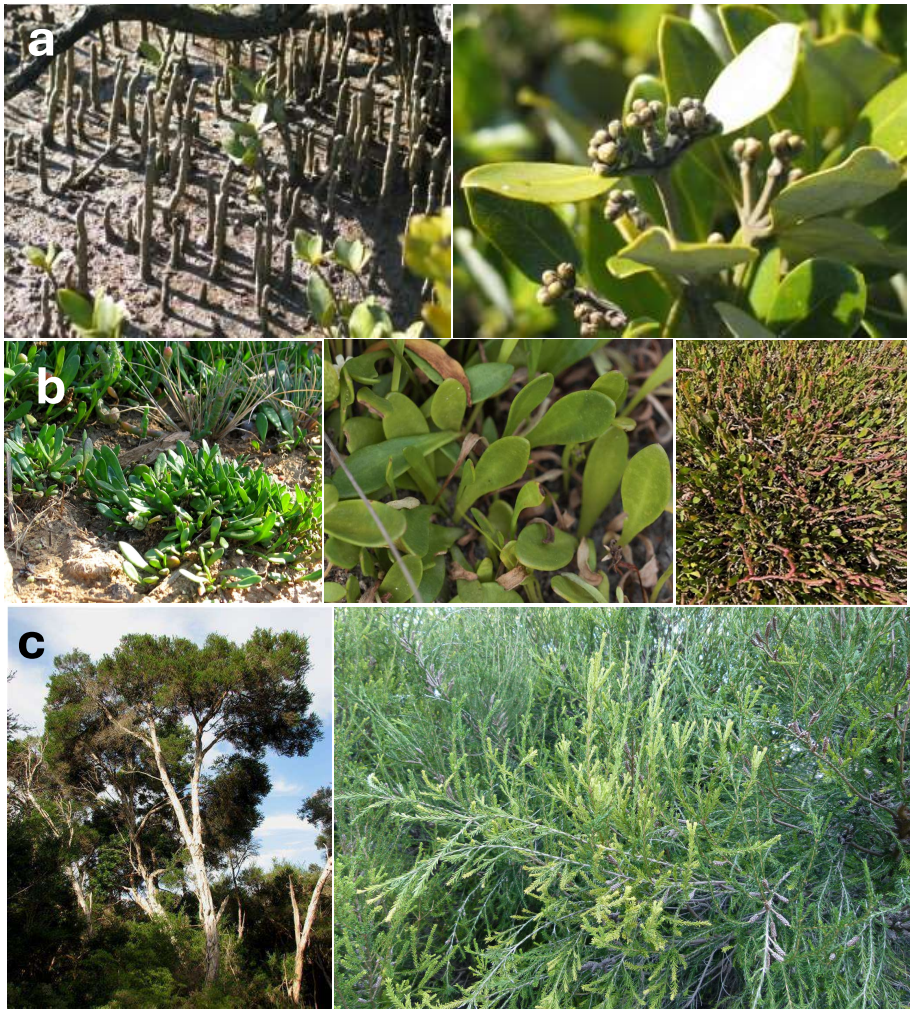

Fig. S1 Vegetation at the three sites. Dominant plant species: (a) MG dominated by White Mangrove (Avicennia marina ssp. australasica); (b) SM dominated by Shiny Swamp-mat (Selliera radicans) and Beaded Glasswort (Sarcocornia quinqueflora), and (c) PB dominated by Swamp Paperbark (Melaleuca eric folia)

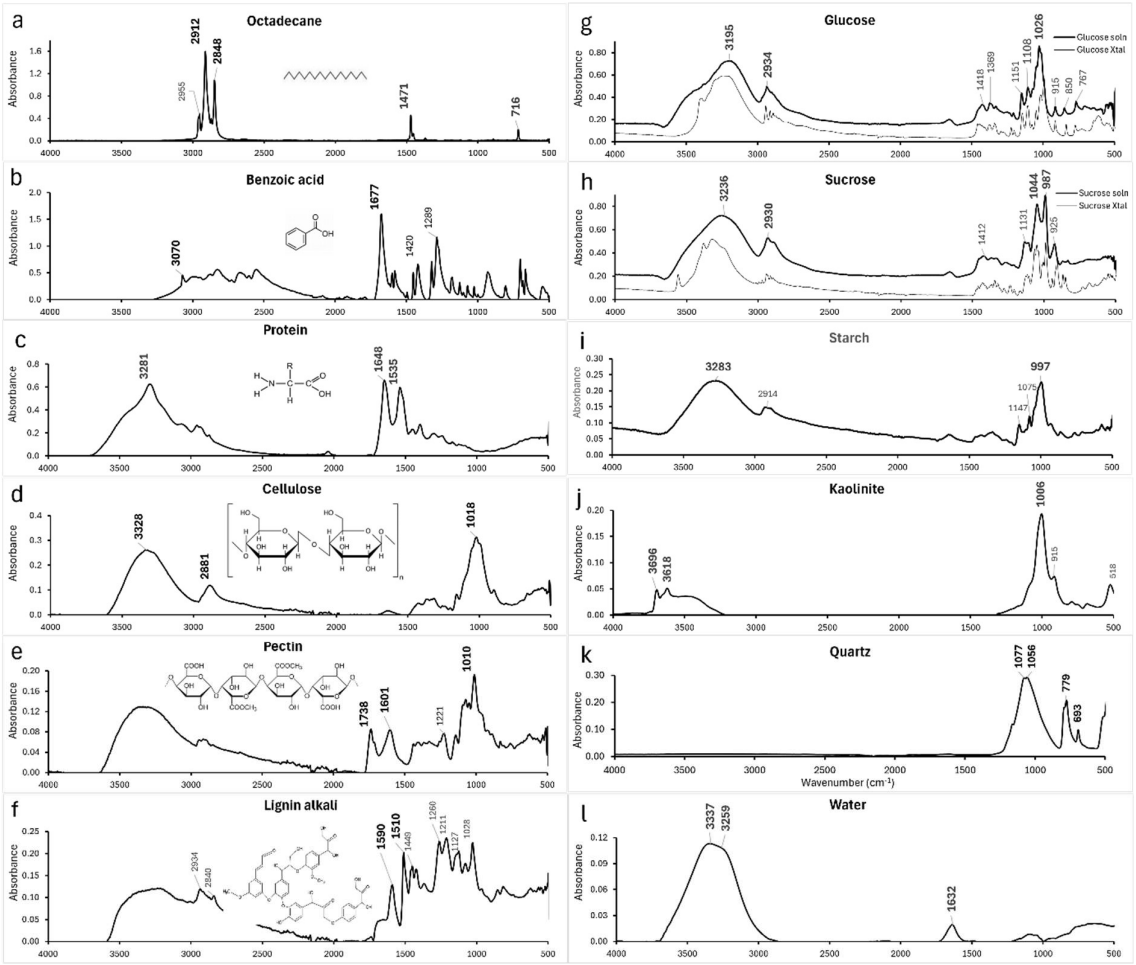

Fig. S2 FTIR ATR spectra of reference materials including (a) octadecane (b) benzoic acid (c) protein (Sigma P5619), (d) α-cellulose (Sigma C6429), (e) pectin (Sigma P7536), (f) lignin-alkali (Sigma 370959), (g) D-(+)-glucose (Sigma G7021), (h) sucrose (Sigma S9378), (i) starch, (j) kaolinite (KGA-1), (k) quartz and (l) water (Milli-Q) used for assignment validation. Major characteristic peaks are indicated in bold

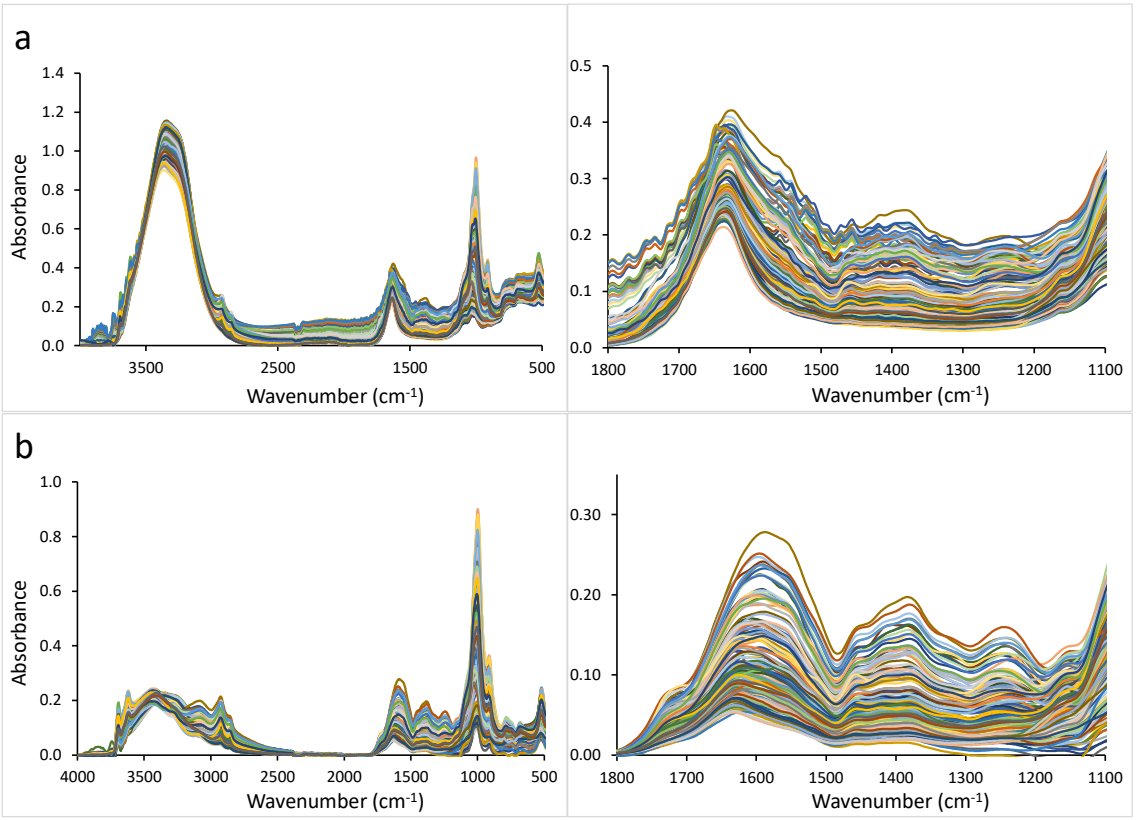

Fig. S3 ATR spectra of all samples (a) before and (b) after subtraction of liquid water and atmospheric water vapour bands

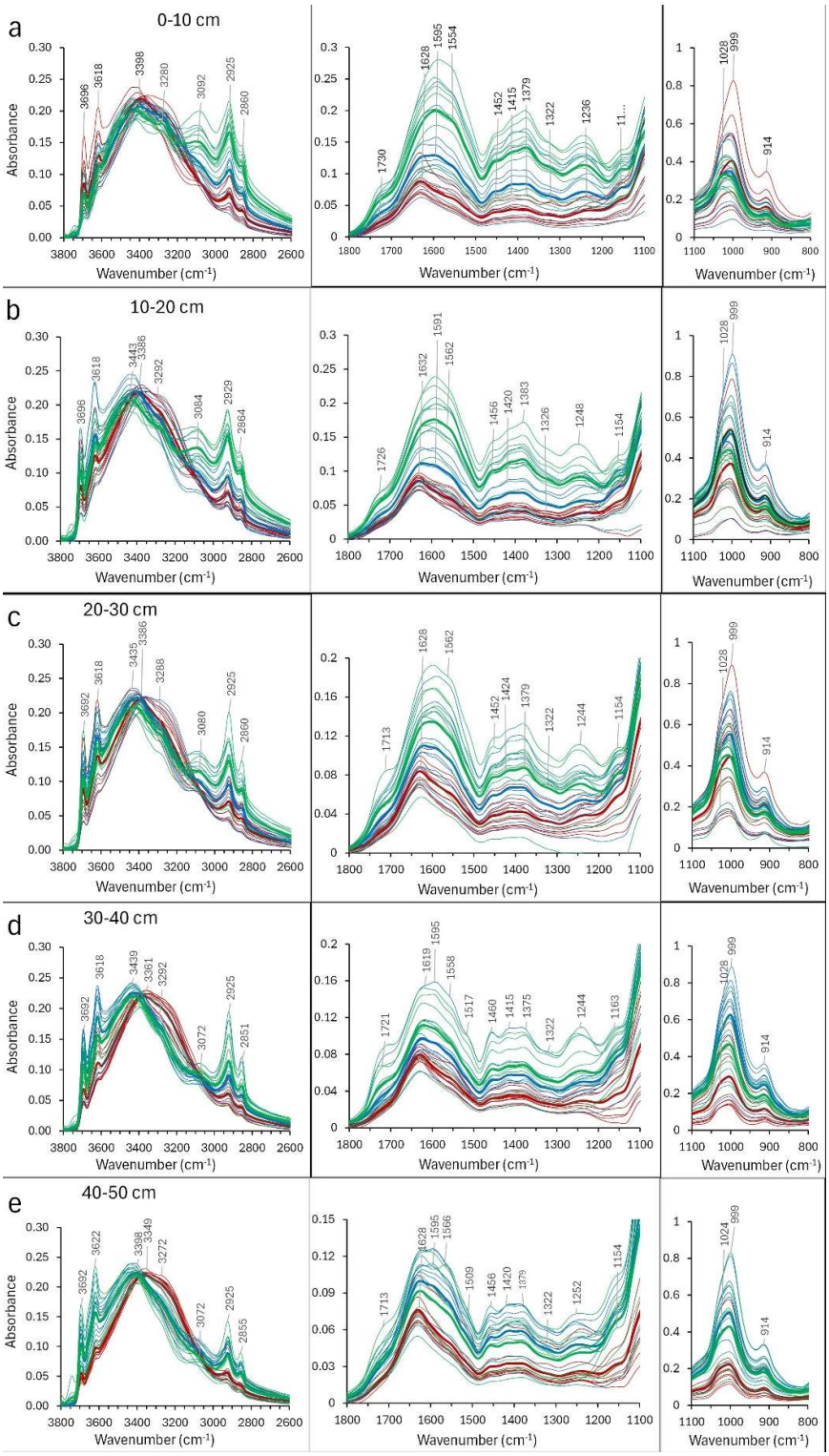

Fig. S4

ATR spectra of all soil layers for site MG (—), SM (—), and PB (—) for depths (a) 0-10 cm, (b) 10-20 cm, (c) 20-30 cm, (d) 30-40 cm and (e) 40-50 cm after subtraction of liquid water and atmospheric water vapour bands. Spectra are shown for the 3800-2700 cm^{-1}, 1800-1100 cm^{-1} and 1100-850 cm^{-1} spectral ranges. The mean spectra are shown in heavy lines, the cores in fine lines

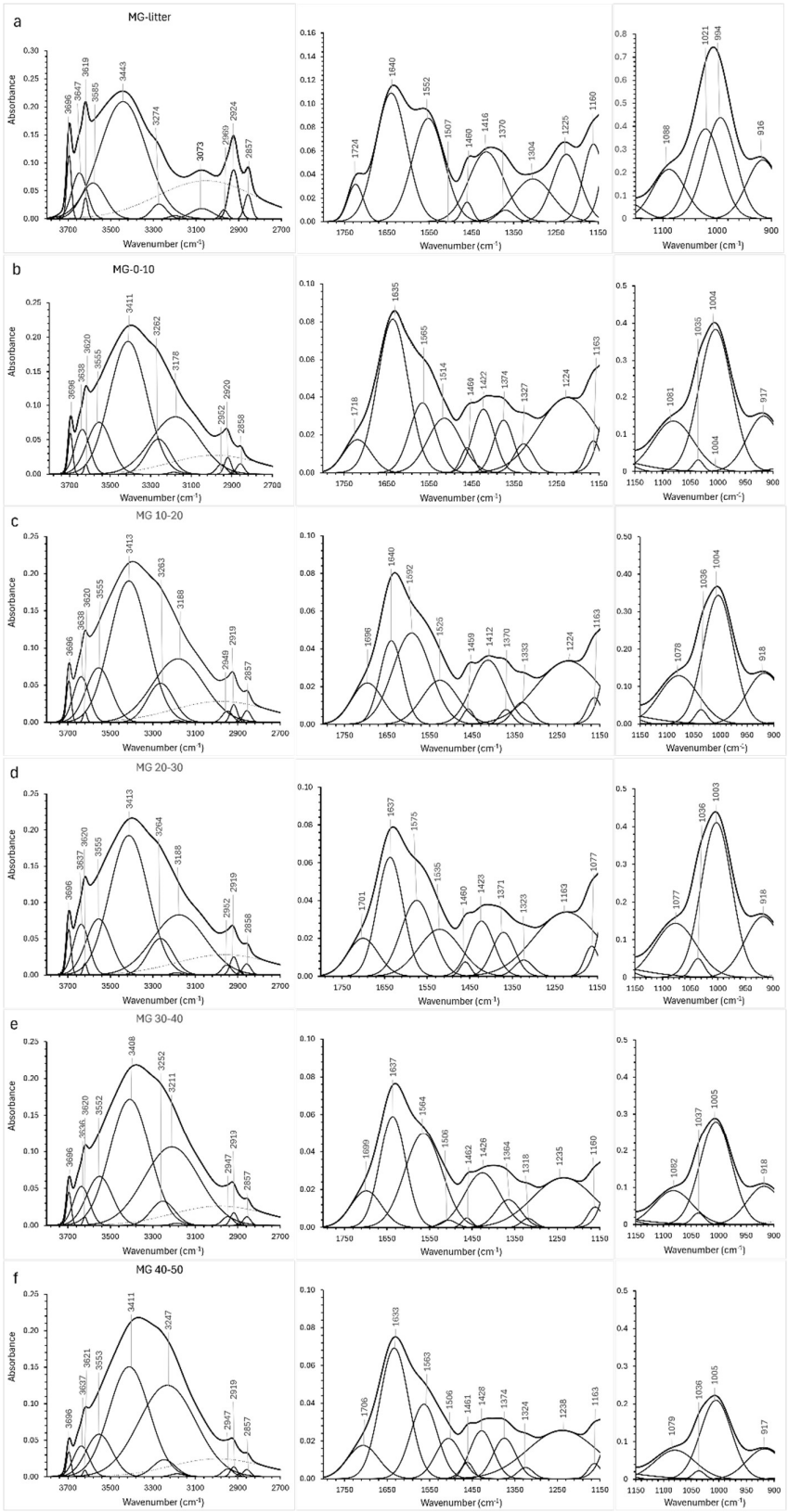

Fig. S5 Peak fit plots for core-averaged of (a) Mangrove (MG) litter and soil spectra from (b) 0-10 cm; (c) 10-20 cm; (d) 20-30 cm; (e) 30-40 cm; and (f) 40-50 cm

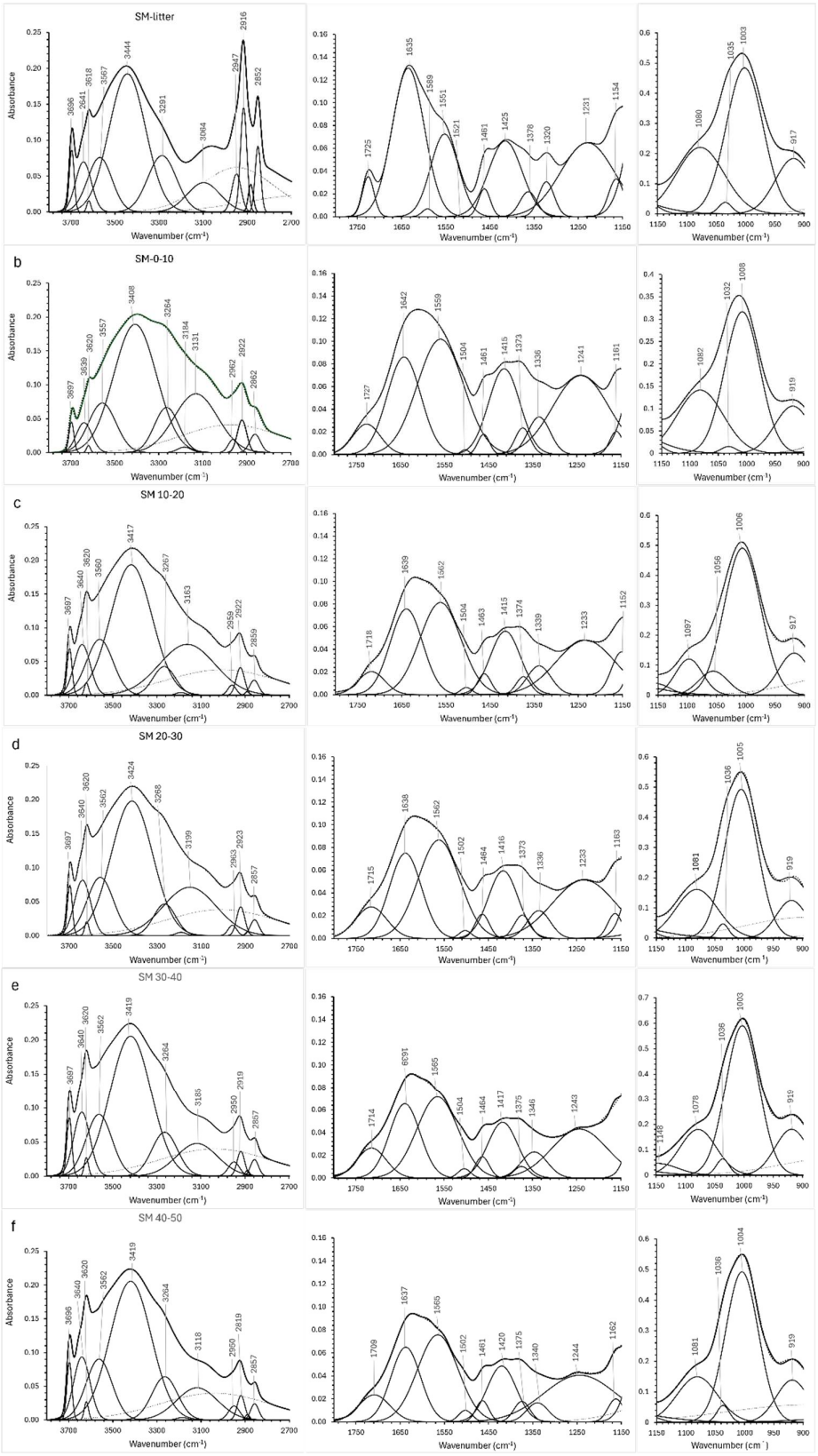

Fig. S6 Peak fit plots for core-averaged (a) Saltmarsh (SM) litter and soil spectra from (b) 0-10 cm; (c) 10-20 cm; (d) 20-30 cm; (e) 30-40 cm; and (f) 40-50 cm

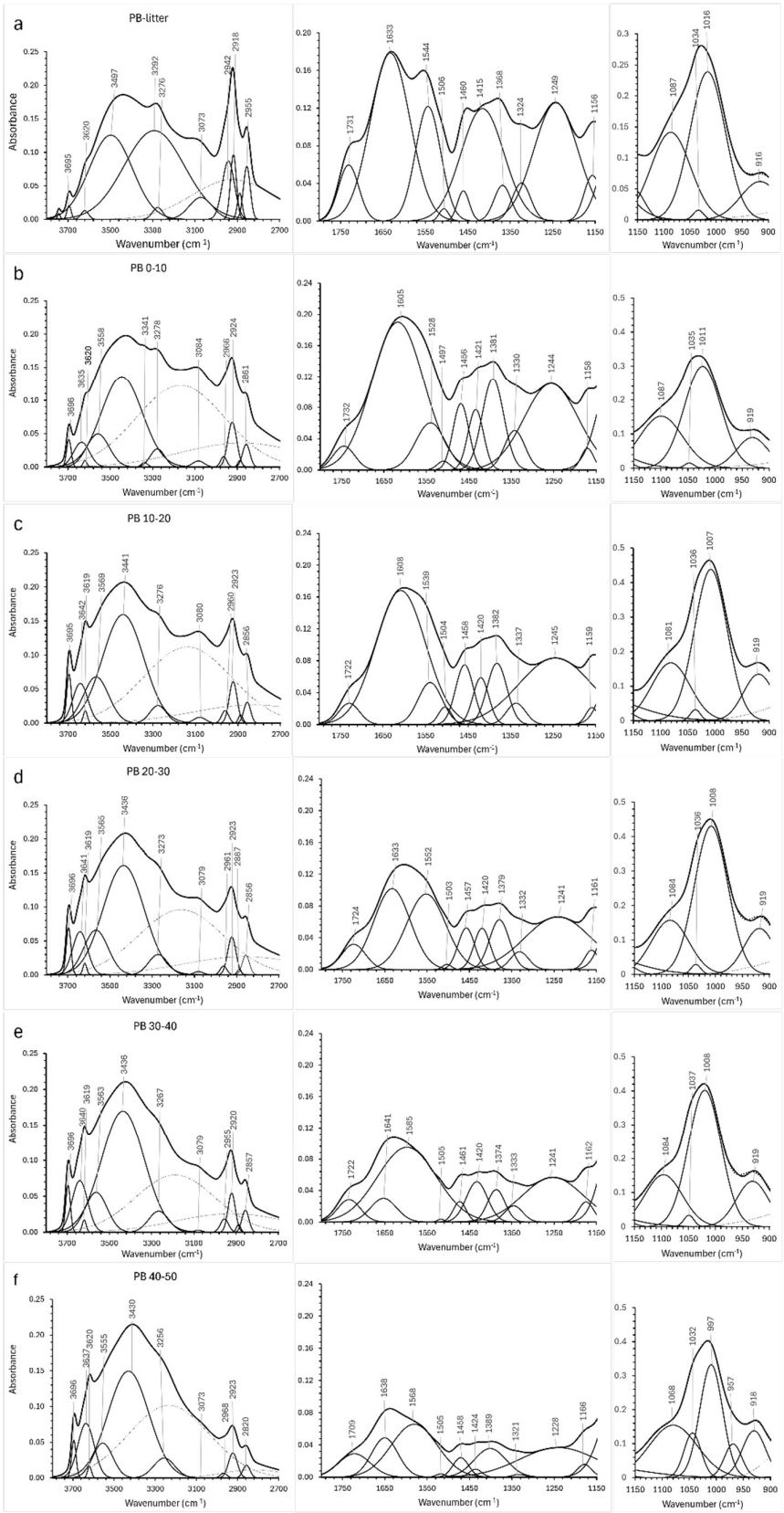

Fig. S7 Peak fit plots for core-averaged (a) Paperbark (PB) leaf, litter, and soil spectra from (b) 0-10 cm; (c) 10-20 cm; (d) 20-30 cm; (e) 30-40 cm; and (f) 40-50 cm

Table-S1 Samples collected from the PB (Paper-bark), SM (Swamp-mat) and MG (Glasswort) sites. Soil preparation either raw or as pastes

Number	Site	Core	Depth	Comment
1	PB	Green leaves		
2	PB	Green stem		
3	PB	Litter		
4	PB	C2	0-10	Raw
5	PB	C2	0-10	Paste
6	PB	C2	0-10	Rep
7	PB	C2	10-20	Paste
8	PB	C2	10-20	Rep
9	PB	C2	10-20	Raw
10	PB	C2	20-30	Raw
11	PB	C2	20-30	Paste
12	PB	C2	20-30	Rep
13	PB	C2	30-40	Raw
14	PB	C2	30-40	Paste
15	PB	C2	30-40	Rep
16	PB	C2	40-50	Raw
17	PB	C2	40-50	Paste
18	PB	C2	40-50	Paste
20	PB	C4	0-10	Paste
22	PB	C4	10-20	Paste
23	PB	C4	10-20	Paste
25	PB	C4	20-30	Paste
27	PB	C4	30-40	Paste
29	PB	C4	40-50	Paste
31	PB	C5	0-10	Paste
33	PB	C5	0-20	Paste
35	PB	C5	20-30	Paste
37	PB	C5	30-40	Paste
39	PB	C5	40-50	Paste
40	PB	C9	0-10	Paste
41	PB	C9	10-20	Paste
42	PB	C9	20-30	Paste
43	PB	C9	30-40	Paste
43r	PB	C9	40-50	Paste
44	PB	C6	0-10	Paste
45	PB	C6	10-20	Paste
46	PB	C6	20-30	Paste
47	PB	C6	30-40	Paste
48r	PB	C6	40-50	Paste
49	PB	C7	0-10	Paste
50	PB	C7	10-20	Paste
51	PB	C7	20-30	Paste
52	PB	C7	30-40	Paste
53	PB	C7	40-50	Paste
54	PB	C3	0-10	Paste
55	PB	C3	10-20	Paste
56	PB	C3	20-30	Paste
57r	PB	C3	30-40	Paste
58	PB	C3	40-50	Paste
59	PB	C8	0-10	Paste
60	PB	C8	10-20	Paste
61	PB	C8	20-30	Paste
62	PB	C8	30-40	Paste
63	PB	C8	40-50	Paste
64	PB	C1	0-10	Paste
65	PB	C1	10-20	Paste
66	PB	C1	20-30	Paste
67	PB	C1	30-40	Paste
68	PB	C1	40-50	Paste
69	PB	C10	0-10	Paste
70	PB	C10	10-20	Paste
71	PB	C10	20-30	Paste
72	PB	C10	30-40	Paste
73	PB	C10	40-50	Paste
74	SM	Green leaves		
75	SM	Red leaves		
76	SM	Stem outer		
77	SM	Stem inner		
	SM	Litter		No number
78	SM	C1	0-10	Paste
79	SM	C1	10-20	Paste
80	SM	C1	20-30	Paste
81	SM	C1	30-40	Paste
82	SM	C1	40-50	Paste
83	SM	C2	0-10	Paste
84	SM	C2	10-20	Paste
85	SM	C2	20-30	Paste
86	SM	C2	30-40	Paste
87	SM	C2	40-50	Paste
88	SM	C3	0-10	Paste
89	SM	C3	10-20	Paste
90	SM	C3	20-30	Paste
91	SM	C3	30-40	Paste
92	SM	C3	40-50	Paste
93	SM	C4	0-10	Paste
94	SM	C4	10-20	Paste
95	SM	C4	20-30	Paste
96	SM	C4	30-40	Paste
97	SM	C4	40-50	Paste
98	SM	C5	0-10	Paste
99	SM	C5	10-20	Paste
100	SM	C5	20-30	Paste
101	SM	C5	30-40	Paste
102	SM	C5	40-50	Paste
103	SM	C6	0-10	Paste
104	SM	C6	10-20	Paste
105	SM	C6	20-30	Paste
106	SM	C6	30-40	Paste
107	SM	C6	40-50	Paste
108	SM	C7	0-10	Paste
109	SM	C7	10-20	Paste
110	SM	C7	20-30	Paste
111	SM	C7	30-40	Paste
112	SM	C7	40-50	Paste
113	SM	C8	0-10	Paste
114	SM	C8	10-20	Paste
115	SM	C8	20-30	Paste
116	SM	C8	30-40	Paste
117	SM	C8	40-50	Paste
118	SM	C9	0-10	Paste
119	SM	C9	10-20	Paste
120	SM	C9	20-30	Paste
121	SM	C9	30-40	Paste
122	SM	C9	40-50	Paste
123	SM	C10	0-10	Paste
124	SM	C10	10-20	Paste
125	SM	C10	20-30	Paste
126	SM	C10	30-40	Paste
127	SM	C10	40-50	Paste
128	MG	Leaves		
129	MG	Leaves		
131	MG	Back of leaves		
132	MG	Litter		
134	MG	Green root		
135	MG	C1	0-10	Paste
136	MG	C1	10-20	Paste
137	MG	C1	20-30	Paste
138	MG	C1	30-40	Paste
139	MG	C1	40-50	Paste
140	MG	C2	0-10	Paste
141	MG	C2	10-20	Paste
142	MG	C2	20-30	Paste
143	MG	C2	30-40	Paste
144	MG	C2	40-50	Paste
145	MG	C3	0-10	Paste
146	MG	C3	10-20	Paste
147	MG	C3	20-30	Paste
148	MG	C3	30-40	Paste
149	MG	C3	40-50	Paste
150	MG	C4	0-10	Paste
151	MG	C4	10-20	Paste
152	MG	C4	20-30	Paste
153	MG	C4	30-40	Paste
154	MG	C4	40-50	Paste
155	MG	C5	0-10	Paste
156	MG	C5	10-20	Paste
157	MG	C5	20-30	Paste
158	MG	C5	30-40	Paste
159	MG	C5	40-50	Paste
160	MG	C6	0-10	Paste
161	MG	C6	10-20	Paste
162	MG	C6	20-30	Paste
163	MG	C6	30-40	Paste
164	MG	C6	40-50	Paste
165	MG	C7	0-10	Paste
166	MG	C7	10-20	Paste
167	MG	C7	20-30	Paste
168	MG	C7	30-40	Paste
169	MG	C7	40-50	Paste
170	MG	C8	0-10	Paste
171	MG	C8	10-20	Paste
172	MG	C8	20-30	Paste
173	MG	C8	30-40	Paste
174	MG	C8	40-50	Paste
175	MG	C9	0-10	Paste
176	MG	C9	10-20	Paste
177	MG	C9	20-30	Paste
178	MG	C9	30-40	Paste
179	MG	C9	40-50	Paste
180	MG	C10	0-10	Paste
181	MG	C10	10-20	Paste
182	MG	C10	20-30	Paste
183	MG	C10	30-40	Paste
184	MG	C10	40-50	Paste