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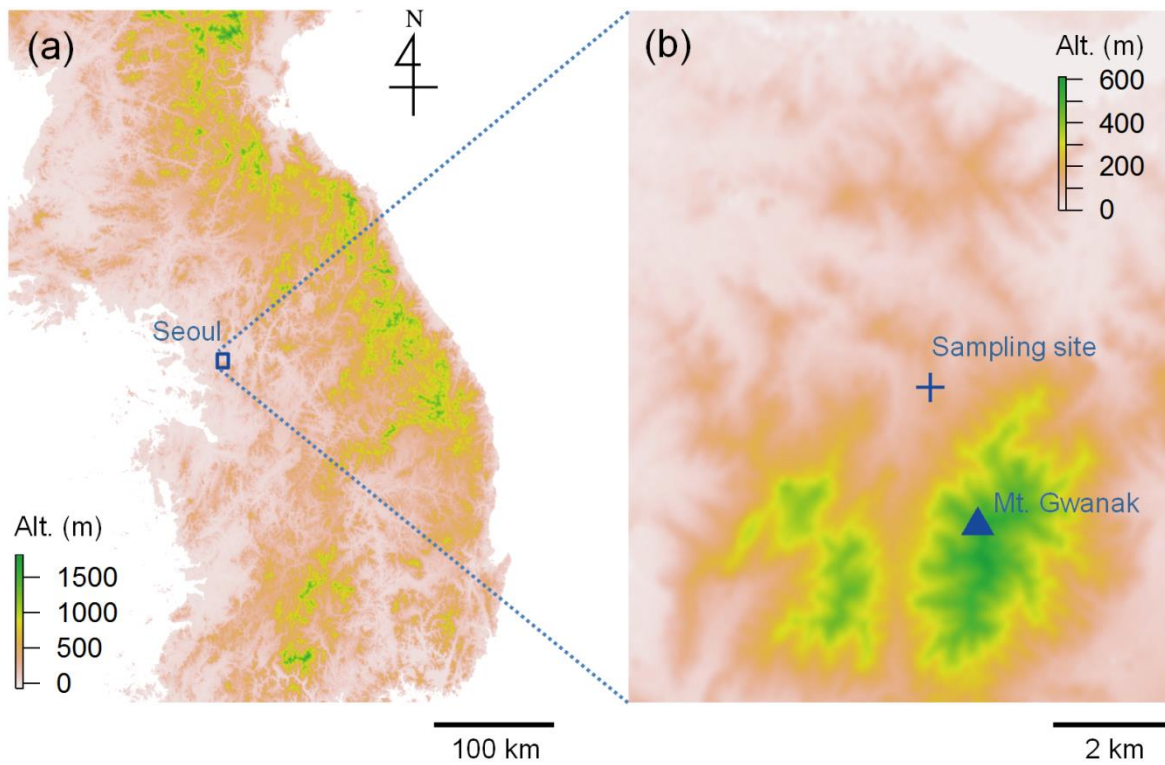
*Supplement of*

## **Plant assemblages in atmospheric deposition**

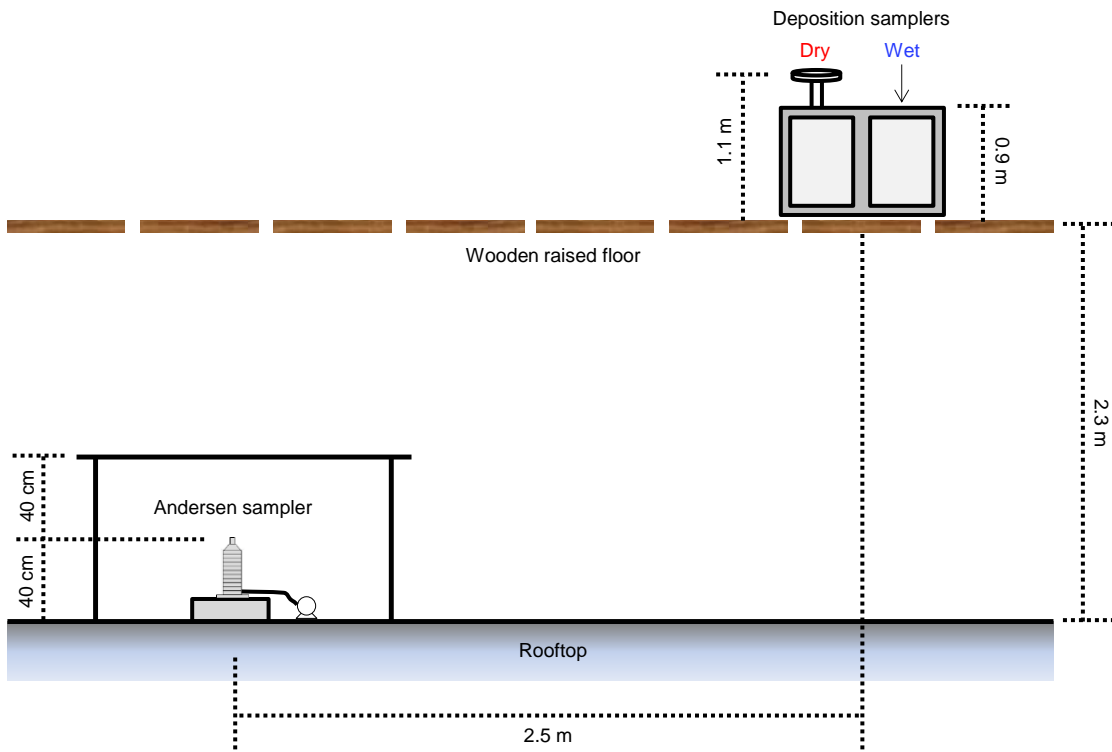
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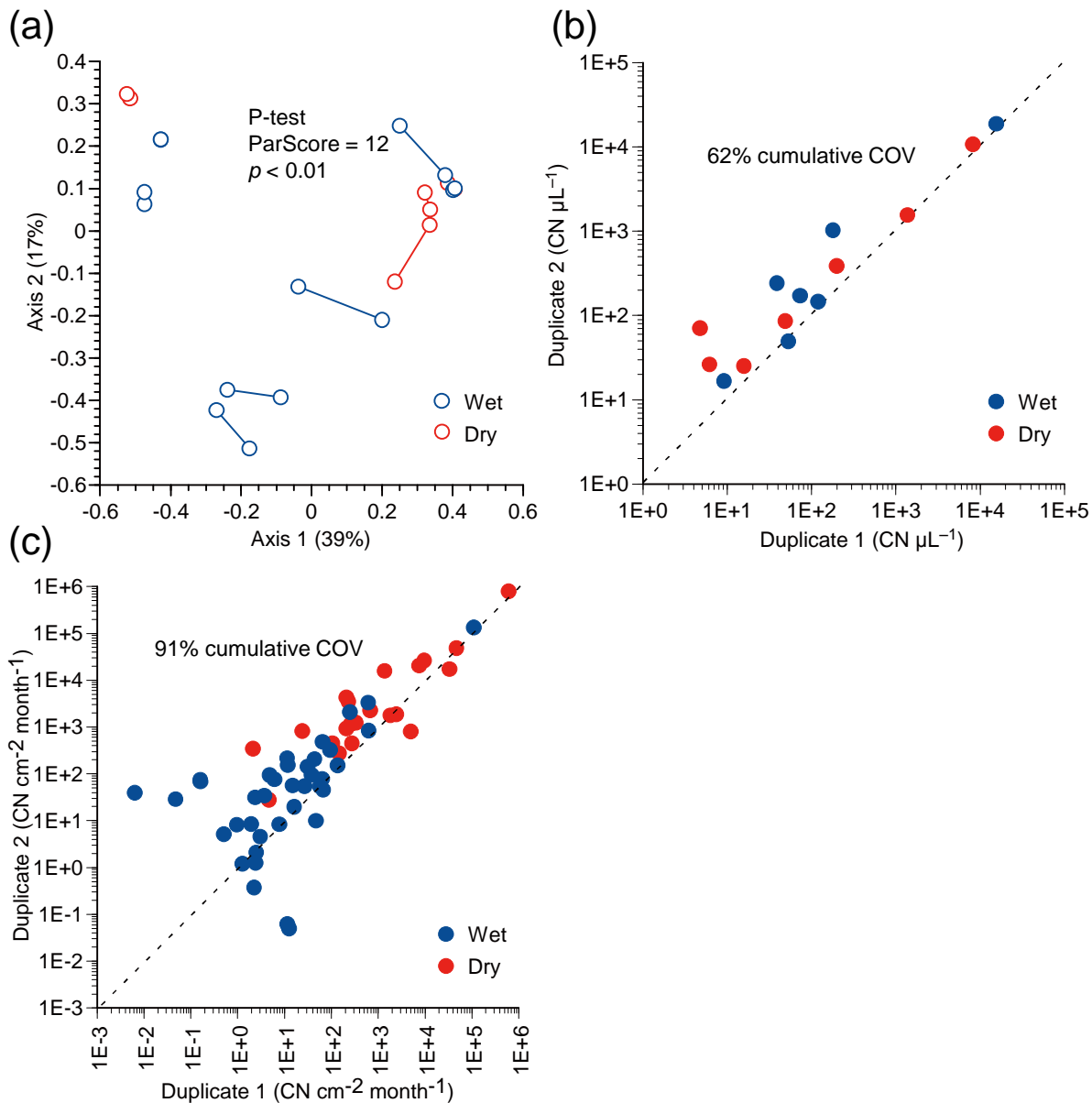
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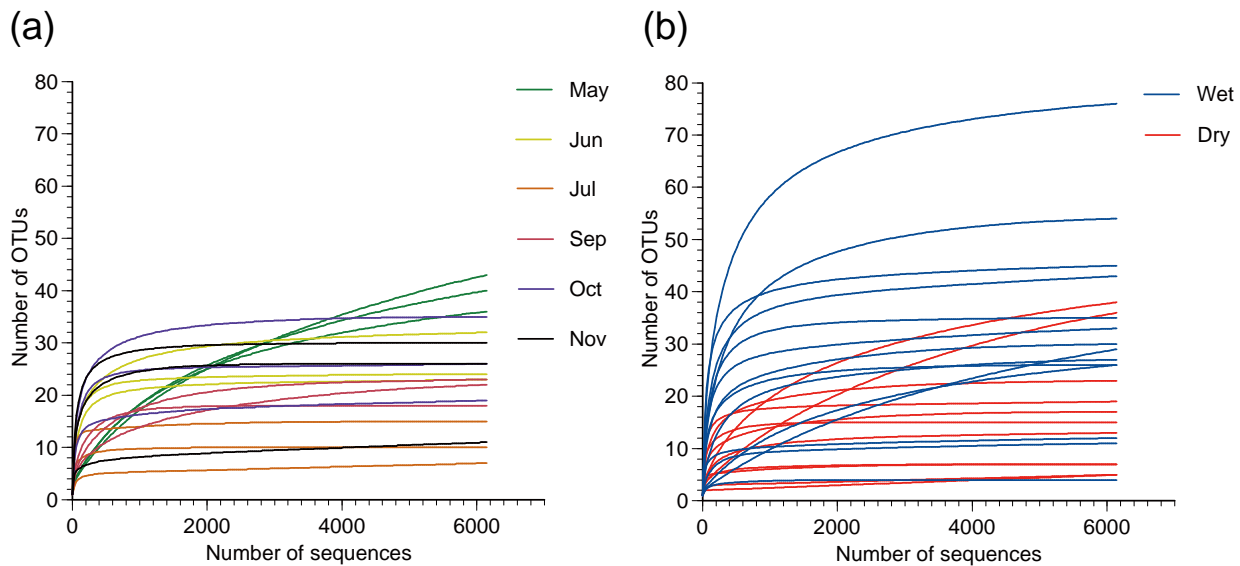
**Figure S1: Topographical information of our sampling site. (a) Topographical map of the Korean peninsula. (b) Topographical map of the local sampling area.**



**Figure S2: Schematic diagram showing the sampling setup.**



**Figure S3: Reproducibility of biologically duplicated measurements of plant DNA.** (a) Principal coordinate analysis plot for plant assemblage structures characterized by DNA sequencing. The plot is based on the Bray-Curtis distance based on 97% OTUs. Each sample's duplicates are connected by a line. (b) Concentrations of plant ITS2 copies in 1  $\mu\text{L}$  of DNA extracts quantitated by the universal plant-specific qPCR. For each sample's duplicates, a duplicate with a lower concentration is shown on x-axis as a Duplicate 1, whereas the other duplicate with a higher concentration is shown on y-axis as a Duplicate 2. The dashed line represents 1:1. (c) Genus-level deposition flux densities calculated by multiplying the DNA sequencing-derived relative abundance of each genus by the total plant quantity by the universal plant-specific qPCR. Each data point represents the flux densities for each genus measured on each month. The dashed line represents 1:1.



**Figure S4: Rarefaction curves for (a) air and (b) deposition samples based on ITS2 OTUs at a 97% sequence similarity. From each library, 6,142 sequence reads were sub-sampled.**

**Table S1: Numbers of high-quality sequence reads by Illumina MiSeq.**

Sampler	Start day (yyymmdd)	End day (yyymmdd)	Sample type	Duplicate	Sample ID	Number of sequences	
Air	150501	150531	$d_a > 11 \mu\text{m}$	-	5A0	28639	
			$d_a = 7-11 \mu\text{m}$	-	5A1	27778	
			$d_a = 4.7-7 \mu\text{m}$	-	5A2	24016	
	150601	150630	$d_a > 11 \mu\text{m}$	-	6A0	43454	
			$d_a = 7-11 \mu\text{m}$	-	6A1	30864	
			$d_a = 4.7-7 \mu\text{m}$	-	6A2	29057	
	150701	150731	$d_a > 11 \mu\text{m}$	-	7A0	25374	
			$d_a = 7-11 \mu\text{m}$	-	7A1	32956	
			$d_a = 4.7-7 \mu\text{m}$	-	7A2	18488	
	150901	150930	$d_a > 11 \mu\text{m}$	-	9A0	35501	
			$d_a = 7-11 \mu\text{m}$	-	9A1	22661	
			$d_a = 4.7-7 \mu\text{m}$	-	9A2	39328	
	151001	151031	$d_a > 11 \mu\text{m}$	-	10A0	29804	
			$d_a = 7-11 \mu\text{m}$	-	10A1	28968	
			$d_a = 4.7-7 \mu\text{m}$	-	10A2	25516	
	151101	151130	$d_a > 11 \mu\text{m}$	-	11A0	43077	
			$d_a = 7-11 \mu\text{m}$	-	11A1	37625	
			$d_a = 4.7-7 \mu\text{m}$	-	11A2	28968	
	Deposition	150501	150531	dry	1	5D1	29432
				dry	2	5D2	32471
				wet	1	5W1	35669
		150601	150630	wet	2	5W2	31101
				dry	1	6D1	n.a.
				dry	2	6D2	7257
		150701	150731	wet	1	6W1	32175
				wet	2	6W2	26727
				dry	1	7D1	n.a.
		150801	150831	dry	2	7D2	7705
				wet	1	7W1	60128
				wet	2	7W2	20287
		150901	150930	dry	1	8D1	7259
				dry	2	8D2	32662
				wet	1	8W1	42041
		151001	151031	wet	2	8W2	33913
				dry	1	9D1	32896
				dry	2	9D2	38884
151101		151130	wet	1	9W1	6825	
			wet	2	9W2	27449	
			dry	1	10D1	18549	
150901		150930	dry	2	10D2	32208	
			wet	1	10W1	26494	
			wet	2	10W2	24686	
151001		151031	dry	1	11D1	n.a.	
			dry	2	11D2	45380	
			wet	1	11W1	29514	
151101		151130	wet	2	11W2	27786	

Symbol: -, duplicate not available.

Abbreviation: n.a., not PCR-amplifiable for sequencing.

**Table S2: Alpha diversity measures of plant assemblages in air and deposition samples collected in Seoul in South Korea <sup>a</sup>.**

Sample ID	Observed richness	Chao1 estimator	Shannon index	Simpson index
5A0	40	47.8	0.9	0.4
5A1	43	56.9	0.9	0.5
5A2	36	41.1	1.0	0.6
6A0	23	23.0	1.6	0.6
6A1	32	32.5	2.4	0.9
6A2	24	24.0	2.2	0.8
7A0	15	15.0	2.2	0.9
7A1	7	8.0	0.4	0.2
7A2	10	10.0	1.7	0.8
9A0	22	22.6	1.2	0.6
9A1	23	23.0	1.0	0.4
9A2	18	18.0	1.1	0.5
10A0	19	20.0	1.7	0.7
10A1	35	35.0	2.2	0.8
10A2	26	26.0	2.2	0.8
11A0	26	26.0	2.3	0.9
11A1	30	30.0	2.5	0.9
11A2	11	14.0	1.2	0.6
5D1	41	62.4	0.8	0.4
5D2	37	42.1	0.9	0.4
5W1	32	39.8	0.6	0.4
5W2	30	34.0	0.7	0.4
6D1	n.a.	n.a.	n.a.	n.a.
6D2	4	4.0	0.3	0.1
6W1	60	62.0	2.3	0.8
6W2	38	38.0	2.3	0.8
7D1	n.a.	n.a.	n.a.	n.a.
7D2	6	12.0	0.7	0.5
7W1	33	34.0	2.3	0.8
7W2	46	46.3	3.1	0.9
8D1	7	7.0	0.9	0.5
8D2	10	10.0	0.5	0.2
8W1	30	30.6	1.0	0.4
8W2	13	13.0	0.7	0.3
9D1	19	22.0	1.4	0.7
9D2	25	26.0	1.7	0.7
9W1	4	4.0	0.2	0.1
9W2	10	10.0	1.2	0.5
10D1	7	7.0	1.0	0.5
10D2	16	16.0	1.8	0.8
10W1	32	32.2	1.7	0.7
10W2	24	24.0	2.0	0.8
11D1	n.a.	n.a.	n.a.	n.a.
11D2	19	19.0	2.2	0.8
11W1	76	77.3	3.0	0.9
11W2	43	43.0	2.6	0.9

<sup>a</sup> Based on ITS2 OTUs at a 97% sequence similarity. From each library, 6,142 sequence reads are sub-sampled.

Abbreviation: n.a., not PCR-amplifiable for sequence analysis.

**Table S3: Modes of pollination of selected plant genera <sup>a</sup>.**

Class or clade	Genus	Mode of pollination (ref.)
asterids	<i>Ambrosia</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Artemisia</i>	Anemophilous (Poska et al., 2011)
	<i>Erigeron</i>	Entomophilous (Choi and Jung, 2015)
	<i>Rhododendron</i>	Entomophilous (Stout et al., 2006)
Bryopsida	<i>Streblotrichum</i>	n.a.
Klebsormidiophyceae	<i>Interfilum</i>	n.a.
Liliopsida	<i>Dactylis</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Digitaria</i>	Anemophilous (Saunders, 2018)
	<i>Echinochloa</i>	Anemophilous (Saunders, 2018)
	<i>Elymus</i>	n.a.
	<i>Hordeum</i>	Anemophilous (Saunders, 2018)
	<i>Lolium</i>	Anemophilous (Roulston et al., 2000)
	<i>Panicum</i>	Anemophilous (Saunders, 2018)
	<i>Phalaris</i>	Anemophilous (Aboulaich et al., 2009)
	<i>Poa</i>	Anemophilous (Roulston et al., 2000)
	<i>Setaria</i>	Anemophilous (Douglas et al., 1985)
	<i>Triticum</i>	Anemophilous (Dong et al., 2016)
	Marchantiopsida	<i>Marchantia</i>
Pinidae	<i>Pinus</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Juniperus</i>	Anemophilous (Roulston et al., 2000)
	<i>Acalypha</i>	Anemophilous (Renner and Feil, 1993)
rosids	<i>Acer</i>	Anemophilous (Rodríguez et al., 1996)
	<i>Amorpha</i>	Entomophilous (Slagle and Hendrix, 2009)
	<i>Arabidopsis</i>	Self pollinated but rarely entomophilous (Hoffmann et al., 2003)
	<i>Betula</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Glycine</i>	Entomophilous (Fujita et al., 1997)
	<i>Humulus</i>	Anemophilous (Small, 1978)
	<i>Juglans</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Lupinus</i>	Entomophilous (Wainwright, 1978)
	<i>Maclura</i>	Anemophilous (Regal, 1982)
	<i>Medicago</i>	Entomophilous (Palmer-Jones and Forster, 1965)
	<i>Morus</i>	Anemophilous (Roulston et al., 2000)
	<i>Prunus</i>	Entomophilous (Roulston et al., 2000)
	<i>Pueraria</i>	Entomophilous (Roulston et al., 2000)
	<i>Quercus</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Robinia</i>	Entomophilous (Cierjacks et al., 2013)
	<i>Rosa</i>	Entomophilous (Žuraw et al., 2015)
	<i>Ulmus</i>	Anemophilous (Roulston et al., 2000)
Trebouxiophyceae	<i>Trebouxia</i>	n.a.
undefined	<i>Amaranthus</i>	Anemophilous (Paw U. and Hotton, 1989)
	<i>Chenopodium</i>	Anemophilous (Flacher et al., 2015)

<sup>a</sup> Genera shown in Figures 2 and/or 5 are selected.



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