

Supplementary Materials: Dust capturing capacity of urban green spaces in Taiwan

Atmosphere 2021

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Supplementary table 1 Surveyed Clean Air Zones (CAZs) in north of Taiwan

Sample plot number	County	Location	GPS coordinates	Establishment year	Area	Species number	Tree number
					(ha)		
1	Taipei City	Beishihu Environmental Protection Park, Gong 107	336621, 2775205	1997	0.547	10	114
2	Taipei City	Zhouzi No. 2 Environmental Protection Park, Gong 105	307330, 2774695	1997	0.57	7	170
3	New Taipei City	Waste Landfill Greening Plan, Jianguo Section 880 No 880	284562, 2760956	2004	0.1666	6	49
4	New Taipei City	Zhonghe Park Greening Project	301885, 2766233	2001	0.3145	12	93
5	New Taipei City	Tuchengding New Park	291835, 2760714	2008	1.8	12	202
6	New Taipei City	Putouqiao Waste Landfill Greening Project	300507, 2793692	2005	0.236	8	59
7	New Taipei City	Dakan Waste Dump	293308, 2783580	1998	1.989	12	146
8	Taoyuan County	Zhogyuan Road Environmental Park, Zhongli City	272994, 2763510	1997	1.164	21	161
9	Taoyuan County	Tianjin Environmental Protection Park	269934, 2755934	1999	0.21	19	67
10	Taoyuan County	Caoluo No. 8 Park, Gong 8	263491, 2770934	1995	0.321	11	189
11	Taoyuan County	Jingguo Environmental Park, Gong 12	279637, 2768912	1997	0.2	6	136
12	Taoyuan County	Tongde Environmental Park, Gong 7	278966, 2767676	1997	0.834	18	238
13	Taoyuan County	Zhongxing Environmental Park	257418, 2767792	2000	0.2	7	57

14	Taoyuan County	Gonglin 6 Dinghu Environmental Park	285226, 2771327	1997	0.19	9	76
15	Nantou County	Parami Boulevard and Ecological Pond Greening, Mingjian Xinmin Village	218336, 2635574	2003	0.18	49	571
16	Nantou County	Jiji No. 1 Road	228039, 2635889	1998	0.57	3	721
17	Nantou County	Jiji No. 3 Cemetery Bare Land Greening Project	228455, 2637032	2008	1.1	3	164
18	Nantou County	Yuchi Elementery School (Yuchi Township Environmental Quality Improvement Greening Project	242739, 2644088	2006	0.5	5	94
19	Nantou County	Gong 30 Environmental Park	246277, 2650473	1996	0.02	11	51
20	Taichung City	Tuchengli Bare Land Greening	220894, 2664837	2008	0.8	14	461
21	Taichung City	Dali Gongqi Park	246554, 2666835	1997	1.501	16	267
22	Taichung City	daping City Liyuan Park	222109, 2672841	2004	0.94	31	392
23	Taichung City	Qingshui Haifengli Park	210153, 2688010	2008	0.59	21	160
24	Hsinchu County	Fuxing Clean Air Zone	251338, 2746045	2004	4.8	38	1181
25	Keelung City	Zhangtanduan Sijie Taidi 195 and other sites's Waste Landfill Greening Plan	329652, 2782162	2007	1.4086	15	224
26	Keelung City	Tianwaitian Waste and sanitary Landfill closed Rehabilitation and Park Greening and Beautification Project	327491 , 2779773	1996	1.061	7	208
27	Keelung City	Shenao Jingyin Menghu Environmental Park	327206, 2781594	1999	0.3	42	305
28	Miaoli County	Pantao Section Huozhuang Subsectiion Waste Landfill Greening	237866, 2732030	2005	0.15	2	103
29	Miaoli County	Tongluoquan Section Bare Land Greening	245795, 2729632	2007	0.21	4	37
30	Miaoli County	Xu Niang Memorial Park	240237, 2730953	2003	0.22	8	149
31	Yilan County	Suao Public Office Rear	334293, 2721412	2002	0.005	2	35
32	Yilan County	Erjie Village Waste Dump	321810, 2741825	2002	0.0275	2	128

33	Yilan County	Zhongshan Park	326889, 2730378	2003	0.5	24	187
34	Yilan County	Xuejin National Elementray School Front	327050, 2733652	2006	0.005	3	29
35	Yilan County	Jiaoxi National Elementrary School Front	327835, 2746221	2006	0.005	6	25
36	Yilan County	Sudong Middle Road Port Authority Side	335946, 2721480	2002	0.023	7	53
37	Yilan County	Qinhe Road 1 Section Lize Tennis Court	332426, 2729504	2006	0.002	3	8
38	Hualien County	Environmental Protection Technology Park Entrance	290881, 2620925	2008	0.1366	3	133
39	Hualien County	Environmental Protection Forest Park Boulevard	293880, 2625078	1998	1.448	14	608
40	Hualien County	Jian Township Chuying Cycling Lane	304374, 2650317	2007	0.58	9	183
41	Miaoli County	Shanliao Sub-section No. 885	234754, 2732613	2007	0.66	7	96
42	Miaoli County	Lida Section No.07.08, Zhunan Township	236865, 2731805	2006	0.46183	10	101
43	Miaoli County	Lida Section No. 19.20, Zhunan Township	236810, 2731474	2006	0.39193	14	51
44	Miaoli County	Zhunan Dapu Section, Zhongdapu Sub-section No. 52.4	238108, 2733347	2007	2.7262	13	109
45	Miaoli County	(Shinnanli, Zhunan Township), Pedestrian Square behind the railway station	237897, 2731059	1998	0.828	10	110
46	Taichung City	Taiping Liyuan Section, No. 1005	221786, 2672650	2009	0.68	23	255
47	Taichung City	Wuri Township, Ershan Environmental Protection Park	211358, 2667788	1998	0.257	14	125
48	Taichung City	Lingongqi	211412, 2667736	1998	0.232	5	49

Supplementary table 2 Surveyed Clean Air Zones (CAZs) in south of Taiwan

Sample plot number	County	Location	GPS coordinates	Establishment year	Area	Species number	Tree number
1	Changhua County	Hemei Township Waste (Slag) Landfill Greening Project	202089, 2669081	29-May-05	0.1484	4	51
2	Changhua County	Yongnan Cemetery Bare land Greening Project	203324, 2645799	2-Feb-09	0.3	8	77
3	Changhua County	Bare Land Greening Project Surrounding Dongheli Resource Recycling Field	185228, 2644236	12-Jan-07	0.2629	2	31
4	Changhua County	Ershui Station (Minzu Road and Huimin Road Section Greening Land)	211253, 2634236	29-Jun-01	0.0282	2	10
5	Changhua County	Gong 4-1(Tianzhong Township 1st Environmental Park)	208507, 2639652	14-Jul-97	0.29	17	47
6	Changhua County	Gong 4-2(Tianzhong Environmental Park)	208472, 2639449	14-Jul-97	0.13	9	27
7	Changhua County	Township Office Rongguang Community Greening Project and other 4 sites (Square in the front of Rongguang Community Center)	206867, 2635135	22-Dec-00	0.04	2	5
8	Yunlin County	Bare Land Greening Project Surrounding Linnei Station	211029, 2628683	13-May-06	0.1611	8	44
9	Yunlin County	Dounan Township NanchangLi Wufu Yuanhuan Bare Land Greening Project	196667, 2618745	1-Aug-08	0.2838	9	33
10	Yunlin County	Dounan Township Xiqili Park 3 Bare Land Greening Project	196170, 2620099	28-Oct-08	0.3595	4	37
11	Yunlin County	Lunbei Township Luocuo Community Southside Lunqiu Greening Project	185448, 2627672	9-Feb-09	0.44	9	74
12	Yunlin County	Erlun Township Dazhuang and Tianwei Section Bare Land Greening Project-2(Tianwei Section 252)	190023, 2627653	13-Jan-08	0.264	6	153
13	Yunlin County	Erlun Township Dazhuang and Tian Wei Section Bare Land Greening Project-3 (Tianwei Section No. 195 and 198)	191120, 2628225	13-Jan-08	0.3658	5	43
14	Yunlin County	Lunbei Township Dayou Environmental Planning Project	179962, 2628863	7-Jul-06	0.7711	3	163

15	Yunlin County	Baozhong Township Waste Disposal Site Bare Land Greening Project	179941, 2626773	19-Dec-08	0.4	1	6
16	Chiayi County	Dalin Township Minghuali Xiapitou Sub-section 486 and Others Bare Land Greening Project	193397, 2610598	9-Nov-09	0.685	3	143
17	Chiayi County	Chiayi City Fuguo Rezoning Zone Bare Land Vegetation Planting and Dust Prevention Project	195603, 2596691	1-Nov-05	0.1883	11	43
18	Chiayi County	Taibao City Xianghe Section 0636 Waste Disposal Site Greening Project	181840, 2595495	30-Dec-05	0.17086	7	122
19	Chiayi County	Waste Site Recovery Project Area (Puzi City Environmental Park)	173355, 2595423	22-Sep-96	0.556	31	224
20	Chiayi County	Chiayi City Qiming Road Greening Project (Qiming Park)	195078, 2597324	8-Jul-96	0.407	22	145
21	Chiayi County	Lucao Township Zhuzijiao Section 530-5 Waste Disposal Site Greening Project	177458, 2587950	14-Nov-07	0.6602	20	143
22	Tainan City	Xinying City Gonger 48 (Xindong Environmental Park)	180962, 2579381	23-Apr-97	0.62	16	203
23	Tainan City	Xinyinggong 50 Lu 62 Environmental Park Air Quality Improvement Greening Project	181138, 2579590	24-Apr-97	0.085	19	118
24	Tainan City	Tainan City West Section Gonger 12 Greening Project (Guangxianli)	166964, 2545035	20-Dec-00	0.3	15	126
25	Tainan City	Gonger 14 (Anshun Rezoning Zone)-Anqing Park	169413, 2548802	30-Dec-96	0.46	17	75
26	Tainan City	Gonger 6 (Benuanliao Rezoning Zone)-Huaian Park	165769, 2550314	15-Nov-96	0.52	12	80
27	Tainan City	Taina City Cycling Land Planning and Construction Project	170499, 2544698	4-Mar-02	1.2(km)	3	184
28	Tainan City	Metropolitan Area (Datong Road-Dongmen Road) Cycling Lane Construction Project	169638, 2542539	7-Sep-06	1.2(km)	5	147
29	Kaohsiung City	Cycling Land Between Agongdian River Left Bank and Tongxiao Road (Hehua Road Bridge to Julun Road)	175829, 2521929	21-Dec-06	1.0(km)	3	191
30	Kaohsiung City	Huishhe Village Park Bare Land Greening Project	188203, 2500028	7-Sep-06	0.1754	7	80
31	Kaohsiung City	Fuxing Elementary School Waste Disposal Site Greening Project	179203, 2501057	7-Apr-07	0.2	8	50
32	Kaohsiung City	Aozidi 05-Er-05 (Bowen Children's Playground)	178771, 2508537	6-Sep-97	0.11	5	51
33	Kaohsiung City	Zhongli Environmental Park (Gong 3)	183685, 2513757	31-Jan-98	0.3918	14	124

34	Kaohsiung City	Gonger 19 (Fengdong Children's Park)	1,862,962,503,103	30-Jun-97	0.256	8	90
35	Kaohsiung City	Fengshan City Bare Land Dust Improving Greening Project (Gonger 10: Wenfu Children's Park)	182882, 2504188	10-Mar-99	0.25	12	61
36	Pingtung County	Baoli Metropolitan Area Bare Land Greening Project	222651, 2440292	16-Dec-05	0.2	2	5
37	Pingtung County	Chaozhou Theme Park Greening Project	203779, 2494233	4-Feb-03	3	75	470
38	Pingtung County	Dongmenxi Cycling Lane	223999, 2433030	17-Nov-08	1.7	7	60
39	Pingtung County	Gong 24 (Chonglan Environmental Park)	196495, 2509730	15-Aug-98	0.986	12	129
40	Pingtung County	Township Office Road Greening Project (Zhongshan Road)	208100, 2474798	15-Sep-00	1.122(km)	1	71
41	Pingtung County	Public land (1016 Shouyuan Section 0857) Bare Land Greening Project	202694, 2487441	12-Dec-08	0.581642	10	48
42	Pingtung County	Wuluo Community Center Greening Project	200234, 2519046	28-Nov-01	0.035	16	63
43	Taitung County	Museum Park Construction Greening Project	265343, 2518349	29-Nov-07	2.3	12	236
44	Taitung County	Chulu Section 597-18	259494, 2528832	5-Dec-99	0.0944	4	21
45	Taitung County	Fuwen Community Greening, Fuwen Village (Fuyuan Village)	271696, 2557808	3-Jul-00	0.05	6	18
46	Taitung County	Gaotai Section Bare Land Greening Project	290713, 2559053	25-Mar-07	0.4	1	68
47	Taitung County	Fuwen Community Greening, Fuwen Village (Wanan Village)	272415, 2555058	3-Jul-00	0.04	6	63
48	Taitung County	Deqi Section 890、892、893 Bare land Greening Project	250273, 2500753	10-Oct-06	0.5401	8	60
49	Taitung County	Cycling Land establishment Project (Gaotai Tea Plantation Overlooking View Route)	262786, 2535824	10-Jun-01	2.9(km)	12	227
50	Chiayi City	Jiushujia Hospital Square Bare Land Greening Project	177460, 2587978	2-Feb-07	1.0229	5	97

Supplementary table 3 Important Value Index tree species ranking in north of Taiwan

Taipei City		New Taipei City		Keelung City		Yilan County		Huanlien County	
Species	IVI	Species	IVI	Species	IVI	Species	IVI	Species	IVI
<i>Cinnamomum camphora</i>	16.36	<i>Ficus microcarpa</i>	15.69	<i>Ficus microcarpa</i>	20.43	<i>Ficus microcarpa</i>	24.63	<i>Swietenia macrophylla</i>	32.74
<i>Liquidambar formosana</i>	10.69	<i>Prunus sp</i>	10.31	<i>Pongamia pinnata</i>	9.2	<i>Cinnamomum burmanii</i>	8.75	<i>Cinnamomum burmanii</i>	10.85
<i>Palimara Alstonia</i>	9.71	<i>Ficus benjamina</i>	9.54	<i>Palaquium formosanum</i>	6.13	<i>Terminalia boivinii</i>	5.42	<i>Distylium gracile</i>	8.2
<i>Ficus microcarpa</i>	8.48	<i>Cinnamomum camphora</i>	7.85	<i>Koelreuteria henryi</i>	4.24	<i>Bischofia javanica</i>	5.07	<i>Tabebuia chrysanth</i>	7.72
<i>Terminalia boivinii</i>	8.42	<i>Koelreuteria henryi Dummer</i>	7.34	<i>Casuarina equisetifolia</i>	3.79	<i>Liquidambar formosana</i>	4.89	<i>Palaquium formosanum</i>	7.25
<i>Prunus sp</i>	7.42	<i>Terminalia boivinii</i>	4.5	<i>Mallotus paniculatus</i>	2.77	<i>Garcinia subelliptica</i>	4.37	<i>Michelia compressa</i>	3.58
<i>Melia azedarach</i>	3.55	<i>Melia azedarach</i>	3.58	<i>Fraxinus formosana</i>	2.44	<i>Ficus superba</i>	4.15	<i>Magnolia grandiflora</i>	3.18
<i>Lagerstroemia speciosa</i>	3.38	<i>Ficus elastica</i>	3.44	<i>Tamarix chinensis</i>	2.43	<i>Cinnamomum camphora</i>	3.8	<i>Bischofia javanica</i>	2.91
<i>Eucalyptus robusta</i>	2.73	<i>Hibiscus tiliaceus</i>	3.04	<i>Ficus bengalensis</i>	2.22	<i>Celtis sinensis</i>	3.01	<i>Melia azedarach</i>	2.6
<i>Mangifera indica</i>	2.57	<i>Delonix regia</i>	2.76	<i>Morus australis</i>	2.2	<i>Plumeria rubra</i>	2.91	<i>Mangifera indica</i>	2.08
Taoyuan City		Hsinchu City		Miaoli County		Taichung City		Nantou County	
Species	IVI	Species	IVI	Species	IVI	Species	IVI	Species	IVI
<i>Ficus microcarpa</i>	15.25	<i>Cinnamomum camphora</i>	23.4	<i>Ficus microcarpa</i>	5.8	<i>Palimara Alstonia</i>	8.91	<i>Cinnamomum burmanii</i>	25.48
<i>Ficus benjamina</i>	7.62	<i>Bischofia javanica</i>	7.86	<i>Koelreuteria henryi</i>	5.76	<i>Pongamia pinnata</i>	6.18	<i>Terminalia boivinii</i>	18.5
<i>Cinnamomum camphora</i>	6.53	<i>Terminalia boivinii</i>	7.8	<i>Bombax malabarica</i>	3	<i>Melia azedarach</i>	5.43	<i>Koelreuteria henryi</i>	12.83

<i>Koelreuteria henryi</i>	6.53	<i>Koelreuteria henryi</i>	7.04	<i>Pongamia pinnata</i>	3.91	<i>Terminalia boivinii</i>	5.2	<i>Artocarpus heterophyllus</i>	9.4
<i>Bischofia javanica</i>	6.4	<i>Fraxinus formosana</i>	6	<i>Bauhinia blakeana</i>	3.82	<i>Cinnamomum camphora</i>	5.06	<i>Hibiscus tiliaceus</i>	4.72
<i>Palimara Alstonia</i>	6.23	<i>Ulmus parvifolia</i>	5.24	<i>Delonix regia</i>	3.15	<i>Cassia fistula</i>	4.67	<i>Calocedrus formosana</i>	4.41
<i>Araucaria excelsa</i>	6	<i>Pourthiaea beauverdiana</i>	4.71	<i>Casuarina equisetifolia</i>	1.99	<i>Koelreuteria henryi</i>	4	<i>Tabebuia chrysantha</i>	2.6
<i>Pongamia pinnata</i>	5.4	<i>Pterocarpus indicus</i>	4.21	<i>Bischofia javanica</i>	2.84	<i>Ficus microcarpa</i>	3.92	<i>Fraxinus formosana</i>	2.52
<i>Palaquium formosanum</i>	3.79	<i>Garcinia subelliptica</i>	3.64	<i>Palimara Alstonia</i>	1.8	<i>Prunus sp</i>	3.59	<i>Ficus microcarpa</i>	2.23
<i>Melia azedarach</i>	3.53	<i>Melia azedarach</i>	3.04	<i>Cinnamomum camphora</i>	2.05	<i>Tabebuia chrysantha</i>	3.51	<i>Prunus sp</i>	1.95

Supplementary table 4 Important Value Index tree species ranking in south of Taiwan

Changhua County		Yunlin County		Tainan City		Chiayi County	
Species	IVI	Species	IVI	Species	IVI	Species	IVI
<i>Cassia fistula</i>	40.42	<i>Terminalia boivinii</i>	21.59	<i>Ficus microcarpa</i>	29.77	<i>Alstonia scholaris</i>	12.5
<i>Terminalia boivinii</i>	10.68	<i>Pongamia pinnata</i>	12.16	<i>Cassia fistula</i>	27.37	<i>Sterculia foetida</i>	8.34
<i>Chorisia speciosa</i>	6.68	<i>Cassia fistula</i> L.	11.71	<i>Tabebuia chrysantha</i>	6.79	<i>Cassia fistula</i>	8.26
<i>Bischofia javanica</i>	6.32	<i>Koelreuteria henryi</i>	11.36	<i>Terminalia boivinii</i>	5.36	<i>Koelreuteria henryi</i>	8.19
<i>Delonix regia</i>	6.1	<i>Chorisia speciosa</i>	9.37	<i>Pongamia pinnata</i>	3.88	<i>Spathodea campanulata</i>	6.95
<i>Swietenia macrophylla</i>	4.83	<i>Fraxinus formosana</i>	7.87	<i>Koelreuteria henryi</i>	3.81	<i>Mangifera indica</i>	6.71
<i>Pterocarpus indicus</i>	4.61	<i>Diospyros ferrea</i>	6	<i>Ficus elastica</i>	3.4	<i>Fraxinus formosana</i>	6.06
<i>Cinnamomum camphora</i>	3.46	<i>Swietenia macrophylla</i>	5.65	<i>Couroupita guianensis</i>	3.31	<i>Swietenia macrophylla</i>	4.07
<i>Ficus religiosa</i>	3.15	<i>Terminalia catappa</i>	3.21	<i>Alstonia scholaris</i> (L.)	2.87	<i>Terminalia boivinii</i>	3.57
<i>Koelreuteria henryi</i>	2.52	<i>Cinnamomum burmanii</i>	2.19	<i>Terminalia catappa</i>	2.32	<i>Cinnamomum camphora</i>	3.52
Kaohsiung City		Pingtung County		Taitung County			
Species	IVI	Species	IVI	Species	IVI		

<i>Ficus religiosa</i> L.	28.54	<i>Alstonia scholaris</i>	12.49	<i>Terminalia catappa</i>	48.91
<i>Pterocarpus indicus</i>	22.16	<i>Terminalia boivinii</i>	8.65	<i>Cinnamomum camphora</i>	7.46
<i>Ficus microcarpa</i>	9.92	<i>Ficus microcarpa</i>	8.18	<i>Ficus superba</i>	6.89
<i>Terminalia boivinii</i>	6.03	<i>Senna siamea</i>	7.85	<i>Delonix regia</i>	6.17
<i>Swietenia macrophylla</i>	5.74	<i>Delonix regia</i>	6.77	<i>Bischofia javanica</i>	5.02
<i>Cinnamomum camphora</i>	3.18	<i>Cinnamomum camphora</i>	5.86	<i>Ficus microcarpa</i>	3.69
<i>Koelreuteria henryi</i>	3.14	<i>Swietenia macrophylla</i>	4.57	<i>Bauhinia variegata</i>	3.18
<i>Cassia fistula</i>	2.94	<i>Podocarpus macrophyllus</i>	4.55	<i>Pongamia pinnata</i>	2.58
<i>Bischofia javanica</i>	2.8	<i>Cassia fistula</i>	4.39	<i>Senna surattensis</i>	2.35
<i>Chorisia speciosa</i>	2.08	<i>Murraya euchrestifolia</i>	3.52	<i>Melia azedarach</i>	1.81

Supplementary table 5 Average dust load and foliar sizes on the seedlings in the north part of Taiwan

Species	Dust load (g)	Foliar size (cm ²)	Dust load(mg/cm ² /day)
<i>Ficus microcarpa</i>	0.03±0.02	139.2±30.2	0.11±0.2
<i>Prunus sp</i>	0.07±0.06	359.8±54.7	0.15±0.2
<i>Cinnamomum campora</i>	0.02±0.01	231.2±24.8	0.05±0.1
<i>Cinnamomum burmanii</i>	0.07±0.03	385.2±84.9	0.17±0.14
<i>Bischofia javanica</i>	0.11±0.10	1748.1±626.5	0.05±0.1
<i>Melia azedarach</i>	3.13±5.00	5484.3±880.5	0.64±1.1
<i>Pongamia pinnata</i>	0.11±0.05	5231.9±1124.0	0.02±0.02
<i>Alstonia scholaris</i>	0.06±0.04	999.1±70.2	0.05±0.1
<i>Terminalia boivinii</i>	0.03±0.01	70.3±16.2	0.36±0.4

<i>Koelreuteria henryi</i>	4.49±2.94	10219.7±2929.6	0.36±0.4
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Supplementary table 6

Average dust load and foliar sizes of the seedlings in the south part of Taiwan

Species	Dust load (g)	Foliar size (cm ²)	Dust load(mg/cm ²)
<i>Swietenia macrophylla</i>	0.026±0.007	157.3±82.4	0.039±0.028
<i>Delonix regia</i>	0.014±0.005	76.5±48.2	0.043±0.019
<i>Cassia fistula</i>	0.016±0.003	105.9±61.0	0.035±0.020
<i>Tabebuia chrysantha</i>	0.022±0.007	120.3±65.6	0.031±0.009
<i>Fraxinus formosana</i>	0.005±0.004	58.9±34.2	0.018±0.017
<i>Pterocarpus indicus</i>	0.011±0.005	60.4±40.4	0.043±0.033
<i>Ficus religiosa</i>	0.002±0.002	19.9±10.3	0.020±0.020
<i>Spathodea campanulata</i>	0.023±0.005	71.5±43.0	0.054±0.016
<i>Senna siamea</i>	0.012±0.003	82.8±43.0	0.037±0.019
