

Table S1. The main districts in Changchun: Land area, green cover, population and development year

District	Abbreviation	Land area (km ²) a	Green cover (%) b	Population (‘1000) c	Development years
Chaoyang District	CYD	72.13	44.9	690.8	1931
Changchun New Area	CNA	73.16	40.0	388.2	1991
Nanguan District	NGD	80.74	47.0	666.4	1948
Kuancheng District	KCD	91.79	38.6	426.3	1910
Lvyuan District	LYD	88.74	44.4	618.7	1995
Automobile Economic and Technological Development Zone	ADZ	23.04	35.0	223.0	1953
Jingyue High-tech Industrial Development Zone	JDZ	22.46	45.0	338.6	1995
Erdao District	EDD	60.14	42.0	428.0	1910
Lianhuashan Eco-tourism Resort	LER	6.52	33.2	5.1	2008

Note: ^a Source of data: Changchun Municipal Planning and Natural Resources Bureau (2021), ^b Source of data: Changchun Garden Administration Bureau (2021), ^c Source of data: Changchun Municipal Statistics Bureau (2021).

Table S2. The six tree-habitats which accommodate ONTs in Changchun

Type of green space	Abbreviation	Tree-habitats
Park Green Spaces	PGS	Comprehensive park, neighborhood park, theme park and petty street garden
Road Green Spaces	RGS	Green spaces attached to various kinds of urban roads and streets
Square Green Spaces	SGS	All kinds of city square green spaces
Attach Green Spaces	AGS	Refers to the green space attached to government agencies, institutions, hospitals, hotels and public service facilities, schools, colleges, universities and factories
Regional Green Spaces	EGS	Refers to landscape recreation green space, ecological conservation green space, regional facility protection green space, and production green space
Other Green Spaces	OGS	Others (including temples, cemeteries, rural areas and other places that cannot be classified)

Table S3. Classification for growth potential of Old and Notable Trees (State Forestry Administration,2016)

Growth level	Tree leaves	Tree twig	Tree trunk
Normal	Normal leaves are more than95%.	The number of new twigs is large, without dead twigs	The trunk is intact without necrosis
Weak	Normal leaf accounts for 70%-95%.	A few of the twigs are dead	There are minor injuries or a little necrosis in the trunk
Heavy weak	Normal leaf accounts for20%-69%.	There are few new twigs and many	There are some necrosis or hollows in the trunk

Endangered	Normal leaves are less than 20%.	dead twigs There are many dead branches	The trunk is necrotic, with dry rot and hollows
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Table S4. Old and Notable Tree species list of Changchun city

Species name	Tree count (no)	IV (%)	Mean DBH (cm)	Mean basal area (m ²)	Mean crown cover (m ²)	Mean height (m)	Mean age (Years)
<i>Pinus tabulaeformis</i> var. <i>mukdensis</i>	11	1.19	66.8	0.35	107.5	15.7	108
<i>Abies nephrolepis</i>	1	0.09	53.5	0.23	47.8	19.0	100
<i>Fraxinus mandshurica</i>	1	0.12	46.0	0.45	176.6	19.0	108
<i>Phellodendron amurense</i>	2	0.23	71.5	0.41	160.5	18.2	101
<i>Ulmus pumila</i>	32	4.68	91.5	0.66	153.9	17.9	154
<i>Picea koraiensis</i>	3	0.29	60.5	0.27	63.6	18.8	101
<i>Salix matsudana</i>	61	9.58	97.3	0.74	116.8	17.6	136
<i>Pinus koraiensis</i>	2	0.18	51.2	0.20	58.1	14.2	170
<i>Maackia amurensis</i>	3	0.34	71.0	0.40	33.2	17.7	119
<i>Prunus sibirica</i>	11	1.18	66.4	0.35	72.4	11.8	111
<i>Malus baccata</i>	6	0.58	56.9	0.26	724	12.3	106
<i>Tilia amurensis</i>	1	0.12	78.0	0.48	103.8	19.6	140
<i>Salix babylonica</i>	1	0.18	110.0	0.95	78.5	16.5	100
<i>Prunus padus</i>	2	0.25	80.0	0.51	50.2	11.0	102
<i>Quercus mongolica</i>	9	1.04	72.0	0.41	107.5	14.3	156
<i>Taxus cuspidata</i>	6	0.41	20.8	0.19	43.0	10.7	195
<i>Juglans mandshurica</i>	3	0.34	70.0	0.38	237.7	21.9	117
<i>Pyrus ussuriensis</i>	609	77.95	80.6	0.51	126.6	9.1	204
<i>Juniperus rigida</i>	1	0.10	54.3	0.30	22.9	17.0	196
<i>Acer pictum</i>	2	0.24	71.5	0.40	208.6	12.5	116
<i>Prunus mandshurica</i>	1	0.15	58.0	0.10	70.9	17.0	101
<i>Crataegus pinnatifida</i>	4	0.46	72.8	0.42	50.2	11.0	180
<i>Gleditsia japonica</i>	1	0.11	70.0	0.39	28.3	9.0	117
<i>Morus alba</i>	1	0.09	50.6	0.20	120.7	10.8	130
<i>Salix matsudana</i> var. <i>matsudana</i> f. <i>umbraculifera</i>	1	0.24	132.5	1.38	208.6	21.5	120

Table S5. Old and Notable Tree species list of Shenyang city

Species name	Tree count (no)	RA (%)	RD (%)	IV (%)	Mean basal area (m ²)	Mean crown cover (m ²)	Mean height (m)	Mean age (Years)
<i>Ginkgo biloba</i>	21	0.70	0.41	0.56	5.09	78.5	18.6	109
<i>Abies holophylla</i>	2	0.07	0.01	0.04	0.1	41.8	20.5	50
<i>Pinus tabulaeformis</i>	2807	94.23	94.78	94.5	1171.8	84.9	13.0	267
<i>Pinus banksiana</i>	1	0.03	0.01	0.02	0.08	38.5	6.0	110
<i>Juniperus chinensis</i>	1	0.03	0.01	0.02	0.09	6.2	10.0	210
<i>Platycladus orientalis</i>	1	0.03	0.01	0.02	0.08	28.3	9.0	115
<i>Taxus cuspidata</i> var. <i>nana</i>	2	0.07	0.01	0.04	0.15	9.6	6.0	120
<i>Quercus liaotungensis</i>	4	0.13	0.24	0.18	2.91	132.7	12.2	220
<i>Quercus acutissima</i>	1	0.03	0.01	0.02	0.07	153.9	13.0	120
<i>Salix matsudana</i>	9	0.30	0.09	0.2	1.09	120.7	12.0	148
<i>Salix matsudana</i> f. <i>pendula</i>	3	0.10	0.08	0.09	1.04	132.7	13.5	122
<i>Ulmus pumila</i>	60	2.01	3.16	2.59	39.12	132.7	14.2	215
<i>Celtis koraiensis</i>	3	0.10	0.06	0.08	0.71	33.2	13.2	120
<i>Celtis bungeana</i>	8	0.27	0.23	0.25	2.9	113.0	13.6	135
<i>Pyrus ussuriensis</i>	1	0.03	0.02	0.03	0.3	70.8	11.0	120
<i>Prunus sargentii</i>	20	0.67	0.09	0.38	1.15	28.3	7.5	53
<i>Cerasus yedoensis</i>	1	0.03	0.00	0.02	0.05	19.6	7.0	44
<i>Sophora japonica</i>	4	0.13	0.13	0.13	1.64	116.8	19.8	110
<i>Morus alba</i>	4	0.13	0.15	0.14	1.87	126.6	13.2	134
<i>Euonymus bungeanus</i>	5	0.17	0.15	0.16	1.82	132.7	11.9	121
<i>Phellodendron</i> <i>amurense</i>	2	0.07	0.16	0.11	1.99	91.6	12.7	140
<i>Fraxinus americana</i>	1	0.03	0.05	0.04	0.62	201.0	19.0	110
<i>Acer truncatum</i>	1	0.03	0.01	0.02	0.15	113.0	16.5	120
<i>Syringa</i> <i>reticulata</i> subsp. <i>amurensis</i>	13	0.44	0.10	0.27	1.23	67.9	14.5	120
<i>Ailanthus altissima</i>	1	0.03	0.03	0.03	0.31	113.0	20.5	110
<i>Magnolia sieboldii</i>	1	0.03	0.00	0.02	0.03	9.6	5.5	44
<i>Paeonia suffruticosa</i>	1	0.03	-	0.02	-	4.9	1.7	132
<i>Rosa rugosa</i>	1	0.03	-	0.02	-	9.6	2.3	42

Table S6. Old and Notable Tree species list of Harbin city

Species name	Tree count (no)	RA (%)	RD (%)	IV (%)	Mean basal area (m ²)	Mean crown cover (m ²)	Mean height (m)	Mean age (Years)
<i>Ulmus pumila</i>	960	690.65	637.92	664.28	511.68	232.23	20.6	135
<i>Populus nigra</i> var. <i>italica</i>	16	11.51	54.41	32.96	43.64	254.34	24.2	110
<i>Malus baccata</i>	2	1.44	0.79	1.11	0.63	171.95	12.5	105
<i>Syringa reticulata</i> subsp. <i>amurensis</i>	3	2.16	0.27	1.21	0.21	86.55	7.6	100
<i>Fraxinus mandshurica</i>	7	10.45	7.40	8.92	3.12	167.33	18.6	112
<i>Phellodendron amurense</i>	15	22.39	13.20	17.80	5.57	191.04	15.2	108
<i>Pyrus ussuriensis</i>	1	1.49	12.09	6.79	5.10	200.96	12.0	135
<i>Prunus padus</i>	2	2.99	3.43	3.21	1.45	240.41	15.4	104
<i>Prunus sibirica</i>	2	0.50	0.05	0.28	0.15	30.18	6.4	75
<i>Morus alba</i>	2	0.50	0.13	0.32	0.36	216.31	10.5	105
<i>Juglans mandshurica</i>	43	10.80	4.91	7.86	14.00	191.04	18.0	130
<i>Tilia amurensis</i>	2	0.50	0.29	0.40	0.82	122.66	18.6	142
<i>Pinus tabulaeformis</i>	6	3.57	1.17	2.37	1.62	86.55	16.0	120
<i>Prunus maackii</i>	1	0.60	0.35	0.47	0.48	301.57	20.4	110
<i>Larix gmelinii</i>	1	0.60	0.23	0.41	0.32	120.70	24.5	120
<i>Quercus mongolica</i>	3	2.33	1.13	1.73	1.01	120.70	16.8	180
<i>Picea koraiensis</i>	3	8.82	4.35	6.59	0.93	52.78	17.5	110
<i>Populus simonii</i>	3	17.65	5.74	11.70	1.01	81.67	17.0	120

Table S7. LSD analysis of diversity index and evenness index of Old and Notable Trees in Changchun, Shenyang and Harbin

Dependent variable				Mean difference(I-J)	Standard error	Significance	95%Confidence interval	
							Lower limit	Upper limit
Species diversity	LSD	Shenyang	Harbin	0.18625	0.32235	0.569	-0.4823	0.8548
			Changchun	-0.12125	0.31326	0.702	-0.7709	0.5284
		Harbin	Shenyang	-0.18625	0.32235	0.569	-0.8548	0.4823
			Changchun	-0.30750	0.31326	0.337	-0.9572	0.3422
		Changchun	Shenyang	0.12125	0.31326	0.702	-0.5284	0.7709
			Harbin	0.30750	0.31326	0.337	-0.3422	0.9572
Species evenness	LSD	Shenyang	Harbin	0.15500	0.17159	0.376	-0.2009	0.5109
			Changchun	-0.13208	0.16676	0.437	-0.4779	0.2138
		Harbin	Shenyang	-0.15500	0.17159	0.376	-0.5109	0.2009
			Changchun	-0.28708	0.16676	0.099	-0.6329	0.0588

Changchun	Shenyang	0.13208	0.16676	0.437	-0.2138	0.4779
	Harbin	0.28708	0.16676	0.099	-0.0588	0.6329
