

## Supplementary Materials

**Table S1.** Content of the questionnaire survey

---

### Questionnaire for socio-cultural valuation of large old trees

Hello! This survey activity is to understand your experience and feelings about the local large old trees. This is an anonymous scientific research survey, and the results of its findings are only used as a scientific research reference. Please feel free to fill in the blanks, and draw a "√" under the option that suits you.

---

#### Part 1:

1. Gender:
  - (a) Male
  - (b) Female
2. Age:
  - (a) Under 18 years old
  - (b) 18-40 years old
  - (c) 41-60 years old
  - (d) Over 60 years old
3. The highest level of education you have achieved:
  - (a) Primary School
  - (b) Middle and High School
  - (c) College or bachelor's degree
  - (d) Graduate student and above
4. Your occupation:
  - (a) Students
  - (b) Corporate Staff
  - (c) Government/Institutions
  - (d) Self-employed
  - (e) Retirement
  - (f) laid off or unemployed
  - (g) Farmers
  - (h) Other
5. Your monthly fixed income:
  - (a) 0-200
  - (b) 200-500
  - (c) 500-1000
  - (d) 1000-1500
  - (e) 1500-2000
  - (f) 2000-3000
  - (g) 3000-5000
  - (h) >5000

#### Part 2:

6. Which of the following socio-cultural values do you think this large old tree can provide?
    - (a) The large old trees can facilitate social bonds by providing a place or landmark to get together, enjoy shade, and communicate. ☐ \_\_\_\_\_
-

- 
- (b) The large old trees can witness the growth of generations and protect them like divinities, bringing spiritual attachment and nostalgia to people who leave their hometown. ☐ \_\_\_\_\_
- (c) The large old trees bear the “*fengshui*” belief, which has a symbolic meaning of health, longevity, blessings, and good fortune. ☐ \_\_\_\_\_
- (d) The large old trees are “living relic” that has witnessed the local history, and there are some historical stories associated with them. ☐ \_\_\_\_\_
- (e) The large old trees can bring cultural creativity or inspiration that can appeal to our aesthetic sentiments, for example drawing, photographing, and short video creation posted on social media, etc. ☐ \_\_\_\_\_
- (f) The large old trees can be used as a good subject for conducting scientific research, popular science activities, or liberal education. ☐ \_\_\_\_\_
- (g) Others. ☐ \_\_\_\_\_
7. Would you like to pay for the above-mentioned values in order to keep or improve the socio-cultural connection with this large old tree? \_\_\_\_\_ If yes in Q7, how much are you willing to pay (WTP)? \_\_\_\_\_

**Part 3:**

8. Please allocate your total WTP to the above socio-cultural values you ticked in Q6, which represents the degree of your recognition and appreciation for the of socio-cultural value connotations. You can write down the number directly on the line of Q6.

---

**Thank you for your kind support!**

---

**Table S2.** Description and coding of independent variables

Variable	Description	Mean value	Standard deviation
<b>Demographic characteristics</b>			
Gender	Categorical variable, respondent's gender: 1= Male, 2=Female.	1.43	0.49
Age	Ordinal variable, with 1 = “Under 18 years old”, 2= “18-40 years old”, 3= “41-60 years old”, 4= “Above 60 years old”.	3.31	0.79
Education level	Categorical variable, with 1=Primary School, 2=Middle and High School, 3=College or bachelor's degree, 4=Graduate student and above.	1.65	0.63
Occupation	Categorical variable, with 1=Students, 2=Corporate Staff, 3= Civil servant/institutional officer, 4=Self-employed, 5=Retiree, 6= Unemployed, 7=Farmers, 8=Other.	6.24	1.67
Personal monthly fixed income	Ordinal variable, with 1= “0-200 CNY”, 2= “200-500 CNY”, 3= “500-1000 CNY”, 4= “1000-1500 CNY”, 5= “1500-2000 CNY”, 6= “2000-3000 CNY”, 7= “3000-4000 CNY”, 8= “>5000 CNY”.	3.39	2.28

Place of residence	Categorical variable, with 1= "Laiyuan County", 2= "Urban core area of Baoding", 3= "Xiongan New Area".	1.51	0.85
<b>Characteristics of scattered large old trees</b>			
Species	Categorical variable, with 1= " <i>Ulmus pumila</i> Linn.", 2= " <i>Platycladus orientalis</i> (Linn.) Franco", 3= " <i>Ailanthus altissima</i> ", 4= " <i>Salix babylonica</i> Linn.", 5= " <i>Robinia pseudoacacia</i> Linn.", 6= " <i>Sophora japonica</i> Linn.", 7= " <i>Salix matsudana</i> Koidz.", 8= " <i>Juglans regia</i> Linn.", 9= " <i>Quercus mongolica</i> Fischer ex Ledebour", 10= " <i>Picea wilsonii</i> Mast.", 11= " <i>Celtis bungeana</i> Bl.", 12= " <i>Celtis bungeana</i> Bl.", 13= " <i>Populus simonii</i> Carr.", 14= " <i>Pinus tabulaeformis</i> Carr.", 15= " <i>Ziziphus jujuba</i> Mill."	7.35	4.49
Grade of tree age	Ordinal variable, with 1= Number of trees: Tier 1, 2= Number of trees: Tier 2, 3= Number of trees: Tier 3.	2.61	0.70
Tree height	Numeric variable, unit: m.	13.99	4.60
DBH	Numeric variable, unit: cm.	89.75	36.98
Crown size	Numeric variable, unit: m.	14.11	4.53
Habitat	Categorical variable, with 1= "GC, Government/community/institutional ground", 2= "RD, Residential district", 3= "TE, Temple", 4= "VF, Village fringe", 5= "SRHS, Scenic resort/historic site", 6= "HI, Hillside", 7= "CE, Cemetery in folk".	2.27	1.66

**Table S3.** Genera ranking of scattered large old trees in Baoding City and Xiongan New Area.

Rank	Genera	Number of trees	Percentage of trees (%)
1	<i>Pinus</i>	449	21.77
2	<i>Sophora</i>	293	14.21
3	<i>Platycladus</i>	291	14.11
4	<i>Diospyros</i>	256	12.42
5	<i>Ziziphus</i>	231	11.20
6	<i>Pyrus</i>	209	10.14
7	<i>Castanea</i>	65	3.15
8	<i>Quercus</i>	34	1.65
9	<i>Salix</i>	30	1.45
10	<i>Pistacia</i>	29	1.41
11	<i>Juglans</i>	24	1.16
12	<i>Ulmus</i>	19	0.92
13	<i>Catalpa</i>	16	0.78
14	<i>Morus</i>	12	0.58
15	<i>Populus</i>	12	0.58

Rank	Genera	Number of trees	Percentage of trees (%)
16	<i>Picea</i>	12	0.58
17	<i>Gleditsia</i>	11	0.53
18	<i>Acer</i>	10	0.48
19	<i>Celtis</i>	9	0.44
20	<i>Robinia</i>	8	0.39
21	<i>Syringa</i>	8	0.39
22	<i>Ailanthus</i>	5	0.24
23	<i>Sabina</i>	5	0.24
24	<i>Armeniaca</i>	4	0.19
25	<i>Ginkgo</i>	4	0.19
26	<i>Melia</i>	3	0.15
27	<i>Chionanthus</i>	3	0.15
28	<i>Juniperus</i>	2	0.10
29	<i>Malus</i>	2	0.10
30	<i>Fraxinus</i>	1	0.05
31	<i>Lycium</i>	1	0.05
32	<i>Elaeagnus</i>	1	0.05
33	<i>Koelreuteria</i>	1	0.05
34	<i>Pteroceltis</i>	1	0.05
35	<i>Wisteria</i>	1	0.05
36	Total	2062	100

**Table S4.** Species ranking of scattered large old trees in Baoding City and Xiongan New Area.

Rank	Species	Number of trees	Percentage of trees (%)
1	<i>Pinus tabulaeformis</i> Carr.	439	21.29
2	<i>Sophora japonica</i> Linn.	293	14.21
3	<i>Platycladus orientalis</i> (Linn.) Franco	291	14.11
4	<i>Diospyros kaki</i> Thunb.	251	12.17
5	<i>Ziziphus jujuba</i> Mill.	227	11.01
6	<i>Pyrus</i> spp.	173	8.39
7	<i>Castanea mollissima</i> BL.	65	3.15
8	<i>Pyrus bretschneideri</i> Rehd.	34	1.65
9	<i>Pistacia chinensis</i> Bunge	29	1.41
10	<i>Salix matsudana</i> Koidz.	25	1.21
11	<i>Juglans regia</i> Linn.	22	1.07
12	<i>Ulmus pumila</i> Linn.	19	0.92
13	<i>Catalpa bungei</i> C.A.Mey.	16	0.78
14	<i>Morus alba</i> Linn.	12	0.58
15	<i>Quercus aliena</i> Blume	11	0.53
16	<i>Quercus dentata</i> Thunb.	11	0.53
17	<i>Gleditsia sinensis</i> Lam.	11	0.53
18	<i>Pinus bungeana</i> Zucc. et Endi	10	0.48
19	<i>Quercus variabilis</i> Blume	10	0.48
20	<i>Picea meyeri</i> Rehd. et Wils.	9	0.44
21	<i>Celtis bungeana</i> Bl.	9	0.44
22	<i>Acer mono</i> Maxim.	9	0.44
23	<i>Robinia pseudoacacia</i> Linn.	8	0.39

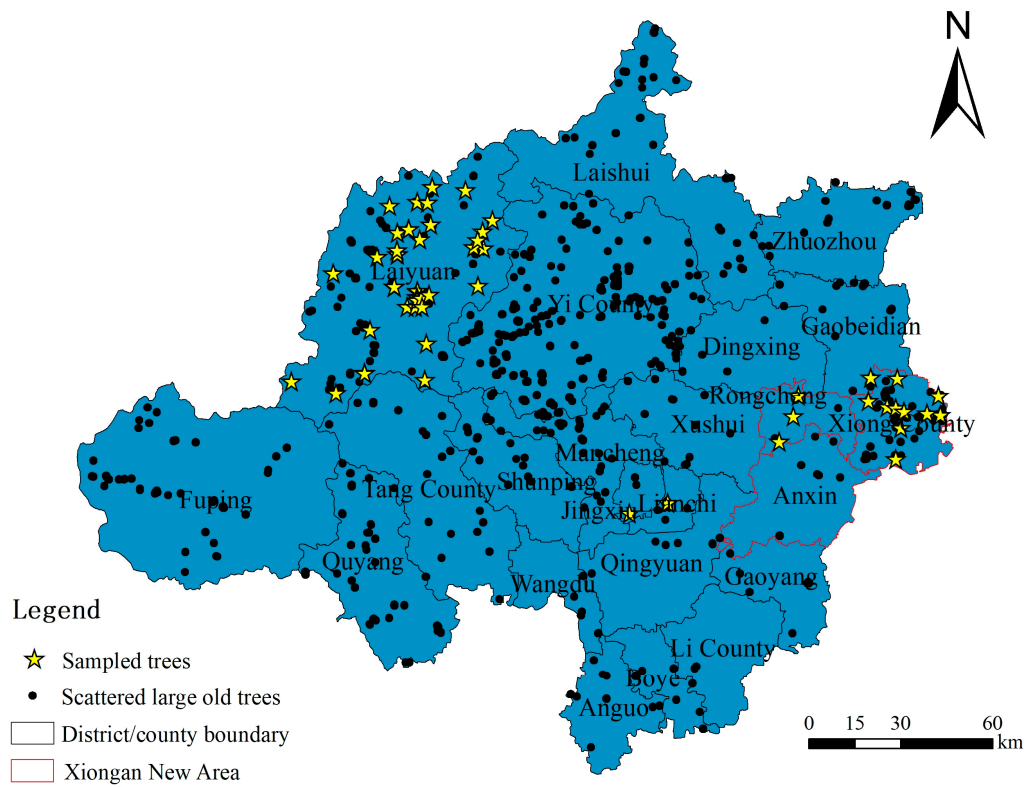
Rank	Species	Number of trees	Percentage of trees (%)
24	<i>Syringa oblata</i> Lindl. var. <i>alba</i> Hort.ex Rehd.	7	0.34
25	<i>Populus tomentosa</i> Carr.	6	0.29
26	<i>Diospyros lotus</i> Linn.	5	0.24
27	<i>Salix babylonica</i> Linn.	5	0.24
28	<i>Ailanthus altissima</i> (Mill.) Swingle	5	0.24
29	<i>Sabina chinensis</i> (Linn.) Ant.	4	0.19
30	<i>Ziziphus jujuba</i> Mill. var. <i>spinosa</i> (Bunge) Hu ex H.F.Chow.	4	0.19
31	<i>Armeniaca sibirica</i> (Linn.) Lam.	4	0.19
32	<i>Ginkgo biloba</i> Linn.	4	0.19
33	<i>Picea wilsonii</i> Mast.	3	0.15
34	<i>Populus cathayana</i> Rehd.	3	0.15
35	<i>Populus simonii</i> Carr.	3	0.15
36	<i>Chionanthus retusus</i> Lindl. et Paxt.	3	0.15
37	<i>Melia azedarach</i> Linn.	3	0.15
38	<i>Juniperus rigida</i> S. et Z.	2	0.10
39	<i>Pyrus betulifolia</i> Bge.	2	0.10
40	<i>Malus asiatica</i> Nakai	2	0.10
41	<i>Quercus mongolica</i> Fischer ex Ledebour	2	0.10
42	<i>Sabina chinensis</i> (Linn.) Ant. var. <i>chinensis</i> cv. <i>Kaizuca</i> Hort.	1	0.05
43	<i>Pteroceltis tatarinowii</i> Maxim.	1	0.05
44	<i>Juglans mandshurica</i> Maxim	1	0.05
45	<i>Juglans hopeiensis</i> Hu	1	0.05
46	<i>Wisteria sinensis</i> (Sims) Sweet	1	0.05
47	<i>Syringa reticulata</i> (Blume) H. Hara var. <i>amurensis</i> (Ruprecht) P.S.Green & M.C.Chang	1	0.05
48	<i>Fraxinus chinensis</i> Roxb.	1	0.05
49	<i>Acer truncatum</i> Bunge	1	0.05
50	<i>Elaeagnus angustifolia</i> Linn.	1	0.05
51	<i>Lycium chinense</i> Mill.	1	0.05
52	<i>Koelreuteria paniculata</i> Laxm.	1	0.05
53	Total	2062	100

**Table S5.** Abbreviated species names of scattered large old trees in Baoding City and Xiongan New Area

Abbreviated species name	Species	Number of trees
<i>Ace mon</i>	<i>Acer mono</i> Maxim.	9
<i>Ace tru</i>	<i>Acer trumcalum</i>	1
<i>Ail alt</i>	<i>Ailanthus altissima</i>	5
<i>Arm sib</i>	<i>Armeniaca sibirica</i> (Linn.) Lam.	4
<i>Cas mol</i>	<i>Castanea mollissima</i>	65
<i>Cat bun</i>	<i>Catalpa bungei</i> C.A.Mey.	16
<i>Cel bun</i>	<i>Celtis bungeana</i> Bl.	9
<i>Chi ret</i>	<i>Chionanthus retusus</i> Lindl. et Paxt.	3

<i>Dio lot</i>	<i>Diospyros lotus</i> Linn.	5
<i>Dio kak</i>	<i>Diospyros kaki</i>	251
<i>Ela ang</i>	<i>Elaeagnus angustifolia</i> Linn.	1
<i>Fra chi</i>	<i>Fraxinus chinensis</i> Roxb.	1
<i>Gin bil</i>	<i>Ginkgo biloba</i> Linn.	4
<i>Gle sin</i>	<i>Gleditsia sinensis</i> Lam.	11
<i>Jug reg</i>	<i>Juglans regia</i> Linn.	22
<i>Jug hop</i>	<i>Juglans hopeiensis</i> Hu	1
<i>Jug man</i>	<i>Juglans mandshurica</i> Maxim	1
<i>Jun rig</i>	<i>Juniperus rigida</i> S. et Z.	2
<i>Koe pan</i>	<i>Koelreuteria paniculata</i> Laxm.	1
<i>Lyc chi</i>	<i>Lycium chinense</i> Mill.	1
<i>Mal asi</i>	<i>Malus asiatica</i> Nakai	2
<i>Mel aze</i>	<i>Melia azedarach</i> Linn.	3
<i>Mor alb</i>	<i>Morus alba</i> Linn.	12
<i>Pic mey</i>	<i>Picea meyeri</i> Rehd. et Wils.	9
<i>Pic wil</i>	<i>Picea wilsonii</i> Mast.	3
<i>Pin bun</i>	<i>Pinus bungeana</i> Zucc. et Endi	10
<i>Pin tab</i>	<i>Pinus tabulaeformis</i> Carr.	439
<i>Pist chi</i>	<i>Pistacia chinensis</i> Bunge	29
<i>Pla ori</i>	<i>Platycladus orientalis</i> (Linn.) Franco	291
<i>Pop cat</i>	<i>Populus cathayana</i> Rehd.	3
<i>Pop sim</i>	<i>Populus simonii</i> Carr.	3
<i>Pop tom</i>	<i>Populus tomentosa</i> Carr.	6
<i>Pte tat</i>	<i>Pteroceltis tatarinowii</i> Maxim.	1
<i>Pyr spp</i>	<i>Pyrus</i> spp.	173
<i>Pyr bet</i>	<i>Pyrus betulifolia</i> Bge.	2
<i>Pyr bre</i>	<i>Pyrus bretschneideri</i> Rehd.	34
<i>Que ali</i>	<i>Quercus aliena</i> Blume	11
<i>Que den</i>	<i>Quercus dentata</i> Thunb.	11
<i>Que mon</i>	<i>Quercus mongolica</i> Fischer ex Ledebour	2
<i>Que var</i>	<i>Quercus variabilis</i> Blume	10
<i>Rob pse</i>	<i>Robinia pseudoacacia</i> Linn.	8
<i>Sab chi1</i>	<i>Sabina chinensis</i> (Linn.) Ant.	4
<i>Sab chi2</i>	<i>Sabina chinensis</i> (Linn.) Ant. var. <i>chinensis</i> cv. Kaizuca Hort.	1
<i>Sal bab</i>	<i>Salix babylonica</i> Linn.	5
<i>Sal mat</i>	<i>Salix matsudana</i> Koidz.	25
<i>Sop jap</i>	<i>Sophora japonica</i> Linn.	293
<i>Syr obl</i>	<i>Syringa oblata</i> Lindl. var. <i>alba</i> Hort.ex Rehd.	7
<i>Syr ret</i>	<i>Syringa reticulata</i> (Blume) H. Hara var. <i>amurensis</i> (Ruprecht)P.S.Green & M.C.Chang	1
<i>Ulm pum</i>	<i>Ulmus pumila</i> Linn.	19
<i>Wis sin</i>	<i>Wisteria sinensis</i> (Sims) Sweet	1

Ziz juj1	<i>Ziziphus jujuba</i> Mill.	227
Ziz juj2	<i>Ziziphus jujuba</i> Mill. var. <i>spinosa</i> (Bunge) Hu ex H.F.Chow.	4



**Figure S1.** Distribution of the sampled scattered large old trees for socio-cultural value investigation.