

## Supplementary Materials

**Table S1.** The numbers of POIs in the training and validation datasets for different periods.

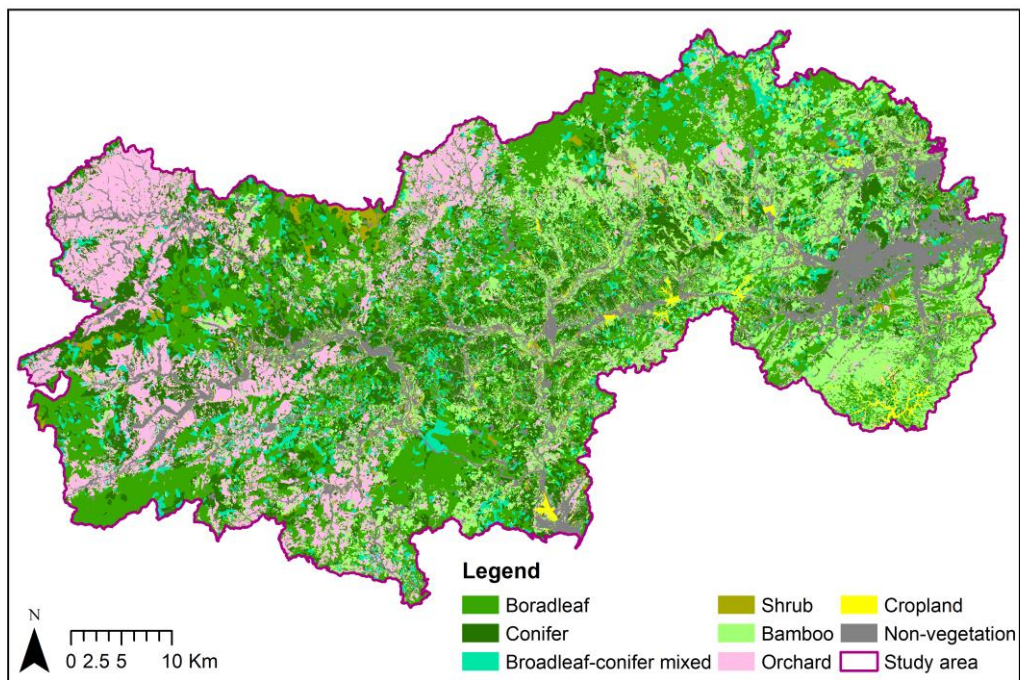
Initial class	POIs (Training/Validation)			
	2000–2004	2005–2009	2010–2014	2015–2019
Broadleaved forest	457/415	457/375	410/411	410/428
Coniferous forest	468/377	468/377	423/343	420/359
Mixed forest	436/256	436/246	350/237	350/237
Shrub	359/210	359/210	359/210	359/210
<b>Moso bamboo</b>	394/163	394/211	459/251	506/224
<b>Other bamboo</b>	284/215	284/267	429/282	396/288
Orchard	135/105	152/89	162/243	253/253
Cropland	197/198	197/198	322/127	342/179
Water body	316/357	316/248	316/247	316/267
Others	337/163	337/231	364/272	292/280
<b>Total</b>	3383/2470	3400/2452	3594/2623	3644/2725

**Table S2.** Error matrices of F1-score values (%) for the initial classes in the four periods.

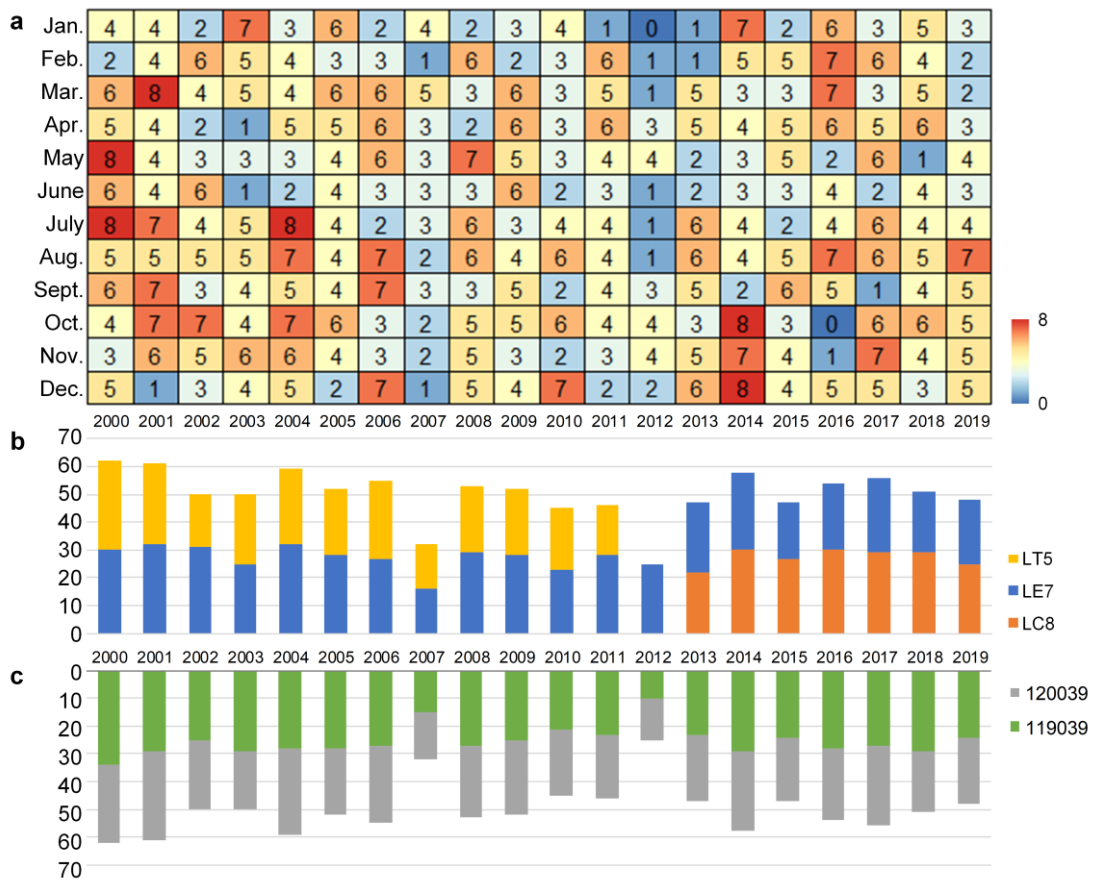
Period	Map	Reference									
		BF	CF	MF	S	MB	OB	Or	C	WB	O
2015– 2019	BF	<b>52.19</b>	2.82	45.66	0.71	0	0.31	0	0	0	0
	CF	1.86	<b>82.46</b>	12.46	0.37	0	0	0	0	0	0
	MF	35.97	4.47	<b>26.51</b>	1.03	0	0	0	0	0	0
	S	24.56	15.09	2.31	<b>70.34</b>	0	0	1.93	0	0	0
	<b>MB</b>	0	0	1.34	0	<b>90.32</b>	4.42	0	0	0	0
	<b>OB</b>	0	0	1.11	0.39	10.65	<b>91.53</b>	0	0	0	0
	Or	3.18	0	0	0	0	1.81	<b>95.74</b>	0	0	0
	C	0	0	0	0	0	0.43	0	<b>99.72</b>	0	0
	WB	0	0	0	0	0	0	0	0	<b>100</b>	0
	O	0	0	0	0	0	0	0	0	0	<b>100</b>
2010– 2014	BF	<b>53.40</b>	9.85	38.02	3.11	0	0	0.33	0	0	0
	CF	3.32	<b>70.03</b>	12.70	0.43	0	0	0	0	0	0
	MF	25.48	7.13	<b>33.58</b>	1.08	0	0	0.99	0	0	0
	S	28.88	21.69	4.92	<b>62.92</b>	0	0	0	0	0	0
	<b>MB</b>	0	0	0.89	0	<b>90.75</b>	0.40	0	0	0	0
	<b>OB</b>	0	0	2.11	0.74	13.70	<b>91.38</b>	1.04	0.43	0	0
	Or	0	0	0	0	0	0	<b>98.75</b>	0	0	0
	C	0	0	0	0	0	0	0	<b>99.60</b>	0	0
	WB	0	0	0	0	0	0	0	0	<b>100</b>	0
	O	0	0	0	0	0	0	0	0	0	<b>100</b>
2005– 2009	BF	<b>22.01</b>	17.40	71.43	1.03	0	0	0	0	0	0
	CF	18.23	<b>78.26</b>	5.10	0	0	0	0	0	0	0
	MF	65.87	1.02	<b>4.35</b>	2.83	0	0	0.66	0	0	0
	S	9.60	3.51	0	<b>85.65</b>	0	0	7.08	0	0	0
	<b>MB</b>	0	0	0	0	<b>98.14</b>	3.29	0	0	0	0

	<b>OB</b>	0	0	0	0	0	<b>98.29</b>	0	0.44	0	0
	Or	0	0	0	2.76	0	0	<b>89.94</b>	0	0	0
	C	0	0	0	0	0	0	0	<b>95.51</b>	0	0
	WB	0	0	0	0	0	0	0	0	<b>100</b>	0
	O	0	0.32	0	0	0	0	0	7.17	0	<b>96.45</b>
2000– 2004	<b>BF</b>	<b>12.30</b>	12.48	76.34	3.83	0	0	0	0	0	0
	CF	19.45	<b>76.74</b>	5.91	0	0	0	0	0	0	0
	MF	68.59	6.57	<b>5.19</b>	0	0	0	3.02	0.41	0	0
	S	17.23	4.79	0	<b>71.90</b>	0	0	5.65	0	0	0
	<b>MB</b>	0	0	0	0.54	<b>94.38</b>	2.69	0	0	0	0
	<b>OB</b>	0	0	0	0.46	6.22	<b>95.89</b>	0	0	0	0
	Or	0	0	0	19.88	0	0	<b>78.41</b>	0	0	0
	C	0	0	0	0	0	0	0	<b>99.75</b>	0	0
	WB	0	0	0	0	0	0	0	0	<b>100</b>	0
	O	0	0	0	0	0	0	0	0	0	<b>100</b>

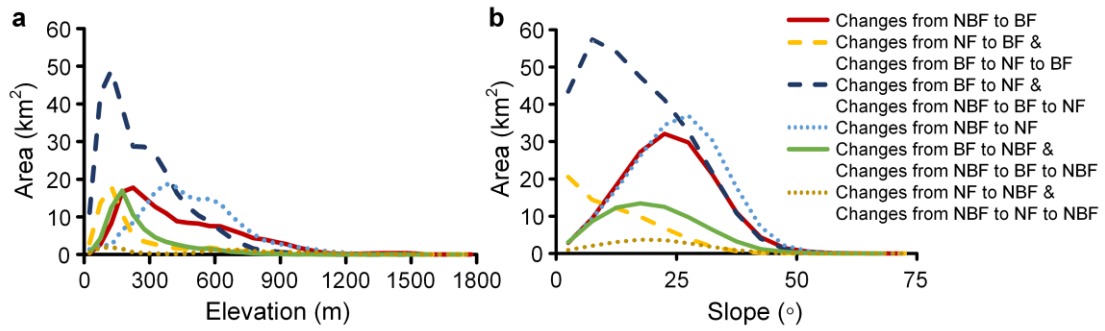
BF: Broadleaved forest; CF: Coniferous forest; MF: Mixed forest; S: Shrub; MB: Moso bamboo; OB: Other bamboo; Or: Orchard; C: Cropland; WB: Water body; O: Others.



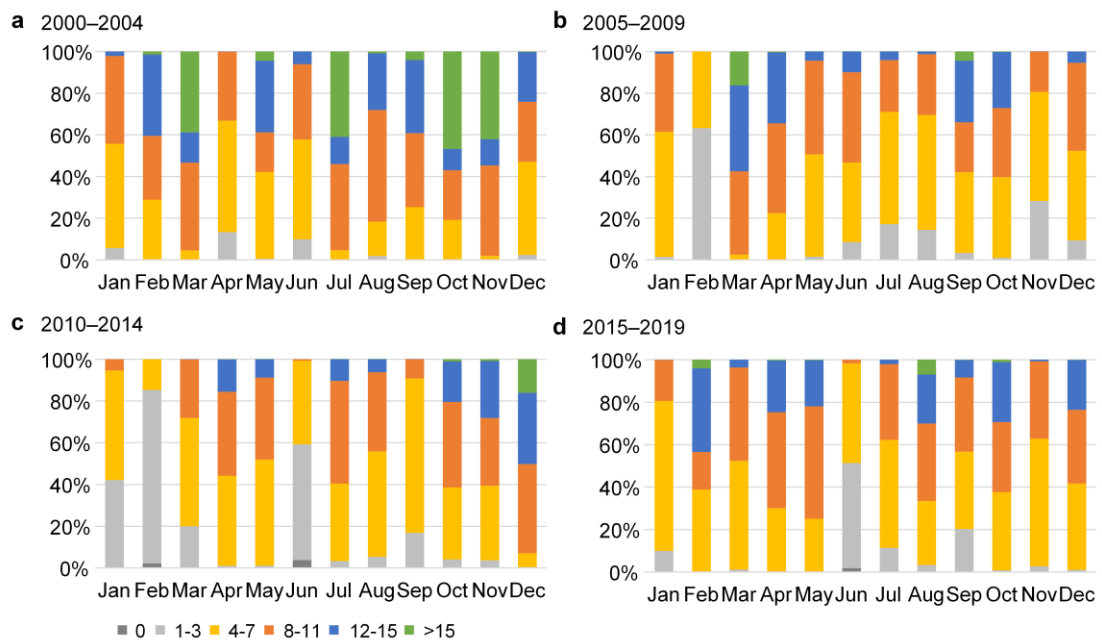
**Figure S1.** Spatial distribution of vegetation types in Lin'an, which was developed from the Forest Resources Inventory (FRI) product in 2017.



**Figure S2.** The annual numbers of Landsat surface reflectance images used in this study by (a) month, (b) sensor, and (c) path/row. LC8: Landsat 8 Combined (OLI/TIRS); LE7: Landsat 7 ETM+; LT5: Landsat 5 TM.



**Figure S3.** The area dynamics of the different types of changes along elevation (a) and slope (b) gradients throughout the whole period. NBF: non-bamboo forest; BF: bamboo forest; NF: non-forest.



**Figure S4.** Percentages of valid observations in the four periods.