Spatial differentiation of the leaf area index in forests in ecological transition zones and its environmental response

Geyang Li[1], Chengzhang Zhao[1*], Dingyue Liu[1], Lei Lin[2], Chenglu Huang[1], Peixian Zhang[1], Suhong Wang[1], Xianshi Wu[1]
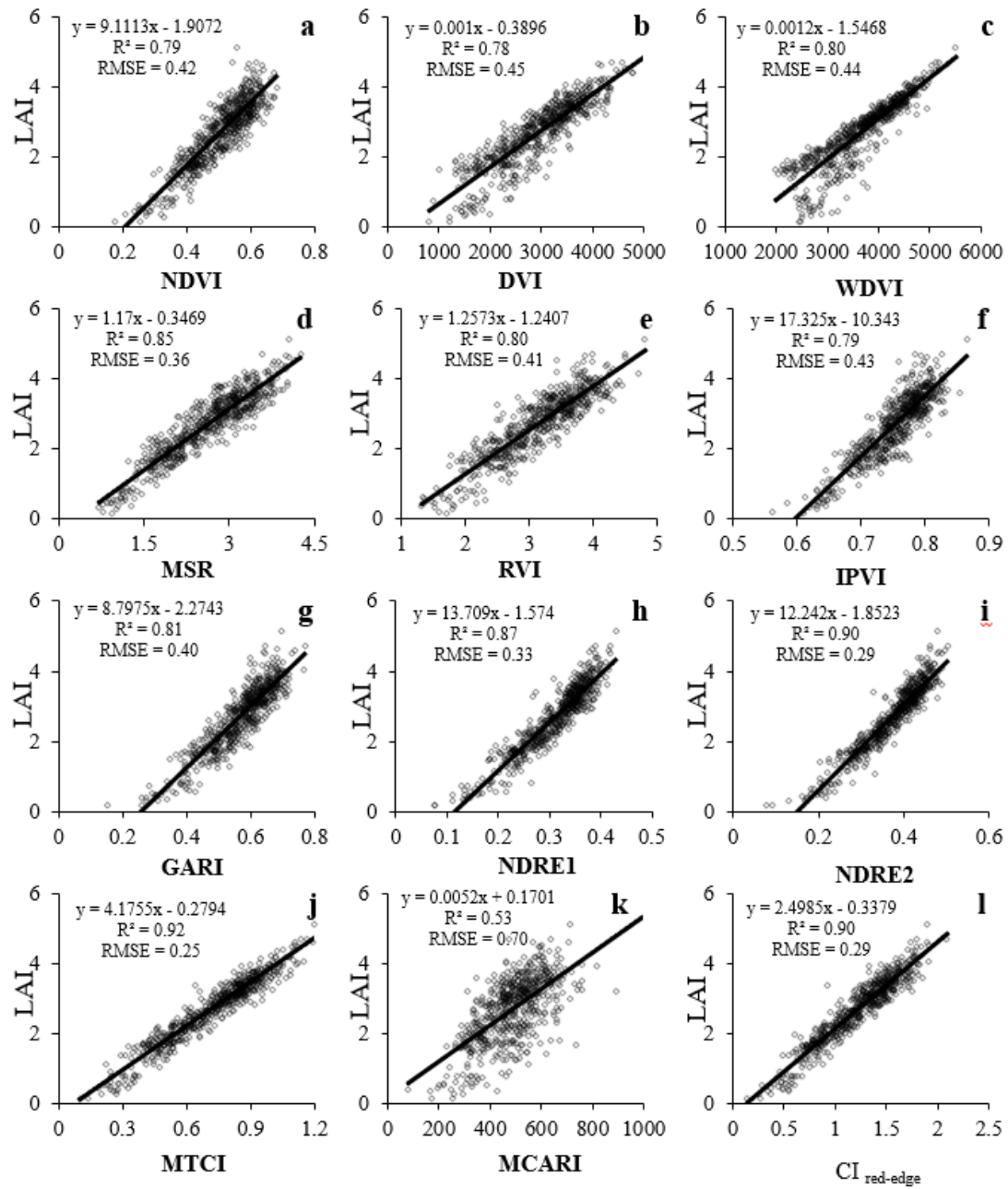
1. Gansu Province Wetland Resources Protection and Industrial Development Engineering Research Center, College of Geography and Environmental Sciences, Northwest Normal University, Lanzhou Gansu 730100, China

2. Xinglongshan Forest Ecosystem National Positioning Observation and Research Station, Lanzhou 730100, China
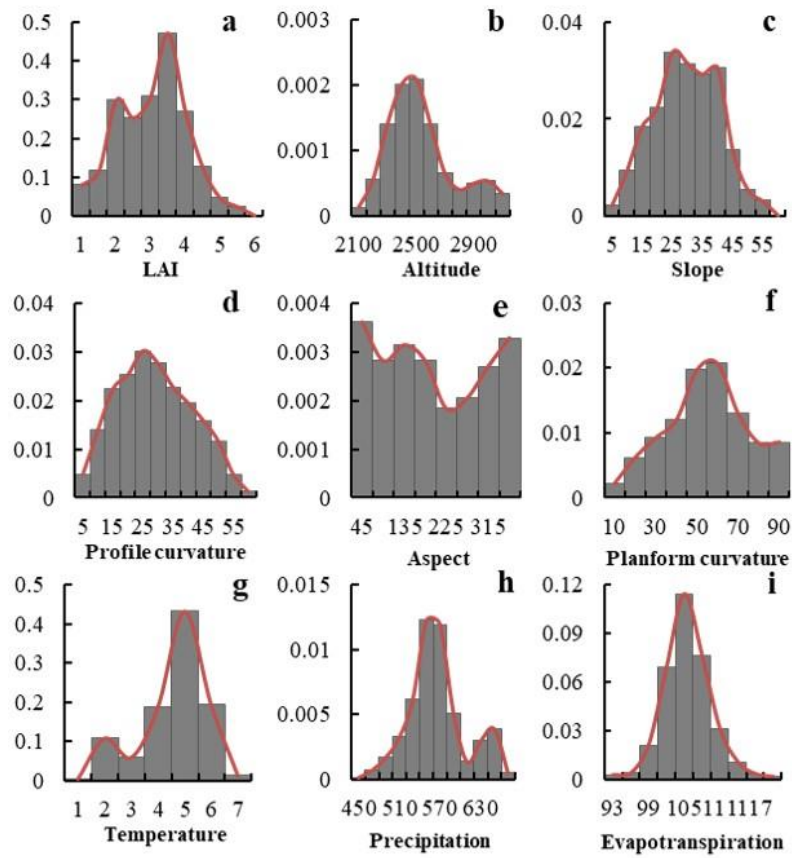
* Corresponding author. ORCID: 0000-0002-8610-6599

E-mail address: zhaocz1710@163.com

Online Resource 1: The predicted results of the model fit of the measured and predicted values of LAI: (a) NDVI; (b) DVI; (c) WDVI; (d) MSR; (e) RVI; (f) IPVI; (g) GARI; (h) NDRE1; (i) NDRE2; (j) MTCI; (k) MCARI; (l) $CI_{red\text{-}edge}$.

Online Resource 2: Frequency distribution histogram and density distribution curve of influencing factors: (a) LAI; (b) Altitude; (c) Slope; (d) PFC; (e) Aspect; (f) PLC; (g) T; (h) P; (i) ET.

Online Resource 3: GAM model hypothesis test results between LAI and single

influencing factors

Influencing factors	edf	Ref.df	F	P	R^2	Deviance explained
Altitude	10.00	11.25	43.72	<2e-16***	0.43	45.12%
Slope	4.17	5.14	50.12	<2e-16***	0.17	18.64%
PFC	2.68	3.37	19.93	0.002**	0.26	27.63%
Aspect	3.73	4.63	59.29	<2e-16***	0.31	32.16%
PLC	5.60	6.81	36.07	0.004**	0.19	20.43%
T	2.12	2.68	199.20	<2e-16***	0.28	30.14%
P	11.32	11.82	39.05	<2e-16***	0.36	38.78%
ET	7.07	8.31	157.90	<2e-16***	0.23	25.74%

Note:edf: Estimated degree of freedom, Ref.df: Reference degree of freedom. "***"

significant at the 0.001 level , "**" significant at the 0.01 level, "*" significant at the

0.05 level, "·" significant at the 0.1 level.