

Supplementary Materials

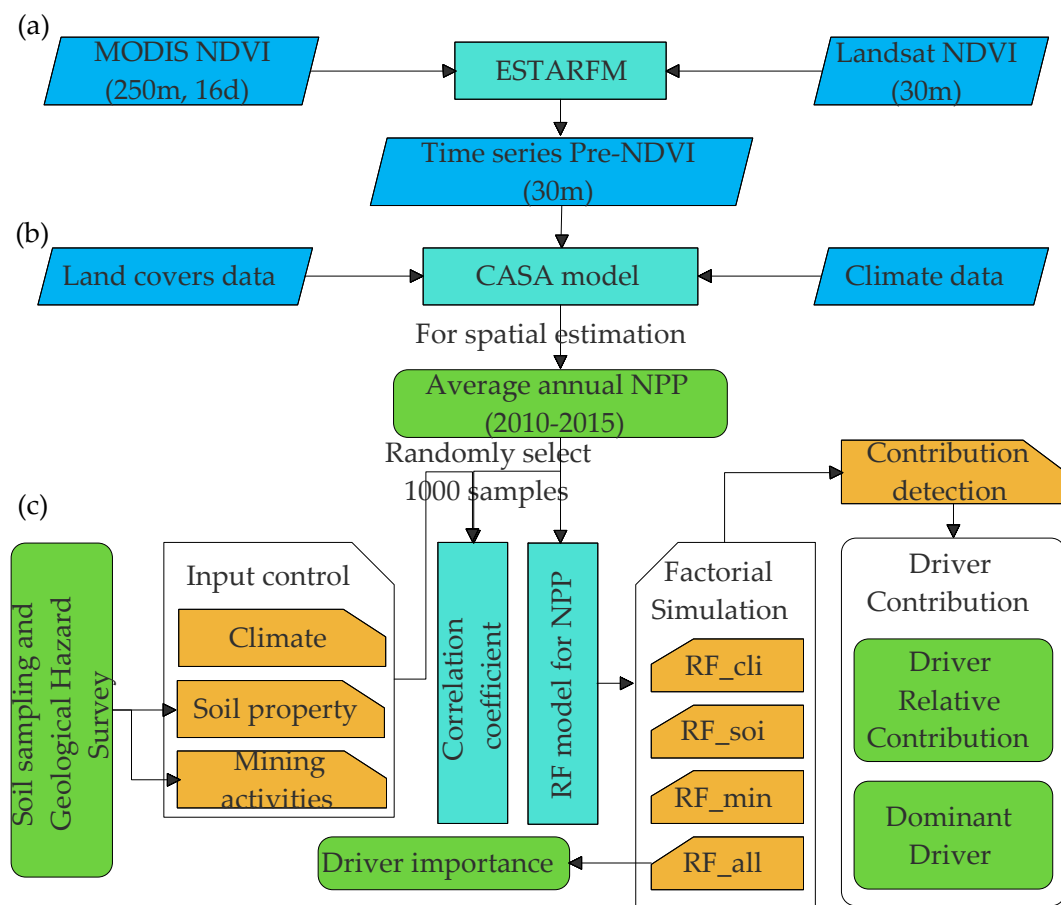


Figure S1. Flowcharts for the simulation of NPP in mining areas (a, b) and experimental design for driving factors analysis (c).

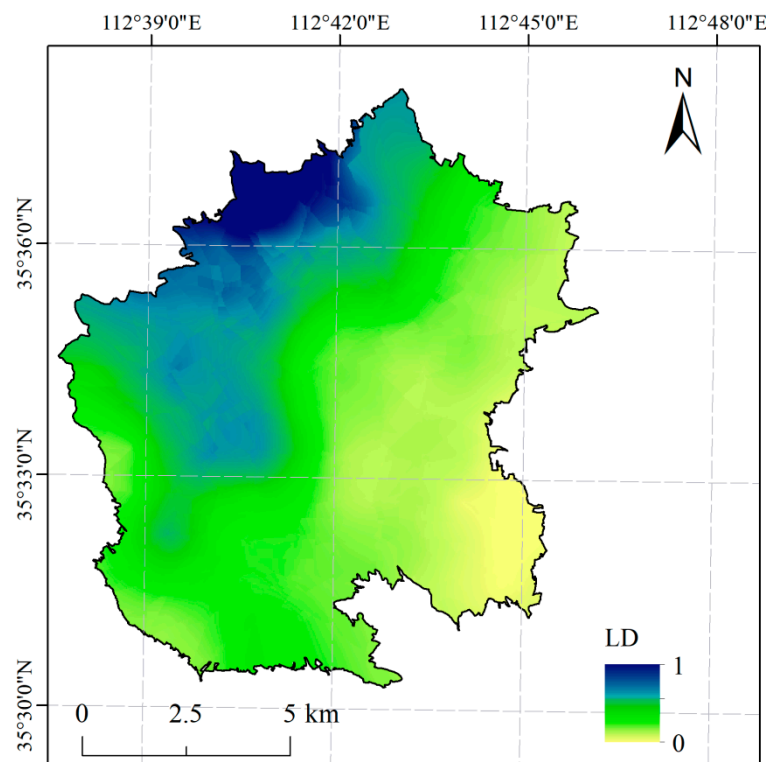


Figure S2. Spatial distribution of land degradation in Changhe Basin.

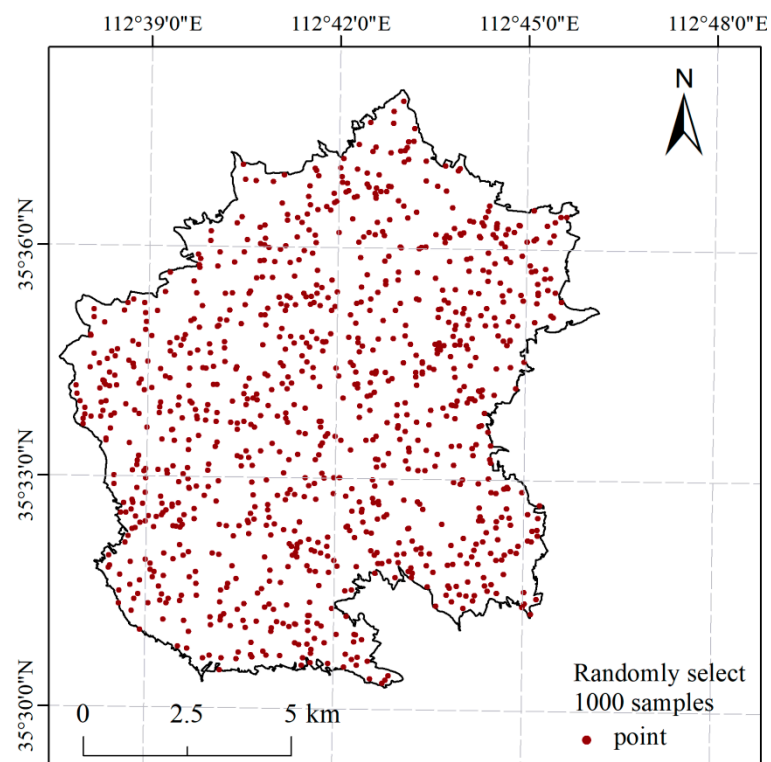


Figure S3. Spatial distribution of 1000 randomly sampled points.

Table S1. Quantitative indicator system of land degradation.

Indicators	Weight	Quantitative method	Remarks
Subsidence depth	+0.233	$H = mqw \cos \alpha$	Combined with the coal seam excavation engineering plans, the uphole and downhole comparison map, the coal mining disturbance map and the mine-field development map, H is the depth of subsidence; m is the thickness of the coal seam; q is the coefficient of surface subsidence; w is the coefficient of full mining; H_0 is the average mining depth; α is the inclination angle of the coal seam; r is the radius of influence.
Stability	-0.125	$T = 2.5H_0$	
Additional slope	+0.131	$C = \frac{H}{18r} e^{-\pi \frac{x^2}{r^2}}$	
Destroyed land	+0.212	Land collapse, subsidence, goaf, etc.	Field survey
Crack density	+0.137	Number of cracks / area	Field survey
Seeper	+0.162	Subsidence not water area=0、 seasonal water area=0.5、 perennial water area=1	Field survey

Note: “-” and “+” respectively represent the action trend of each indicator factor.