Figure S1. Land cover and the highways and railways distribution of study area.

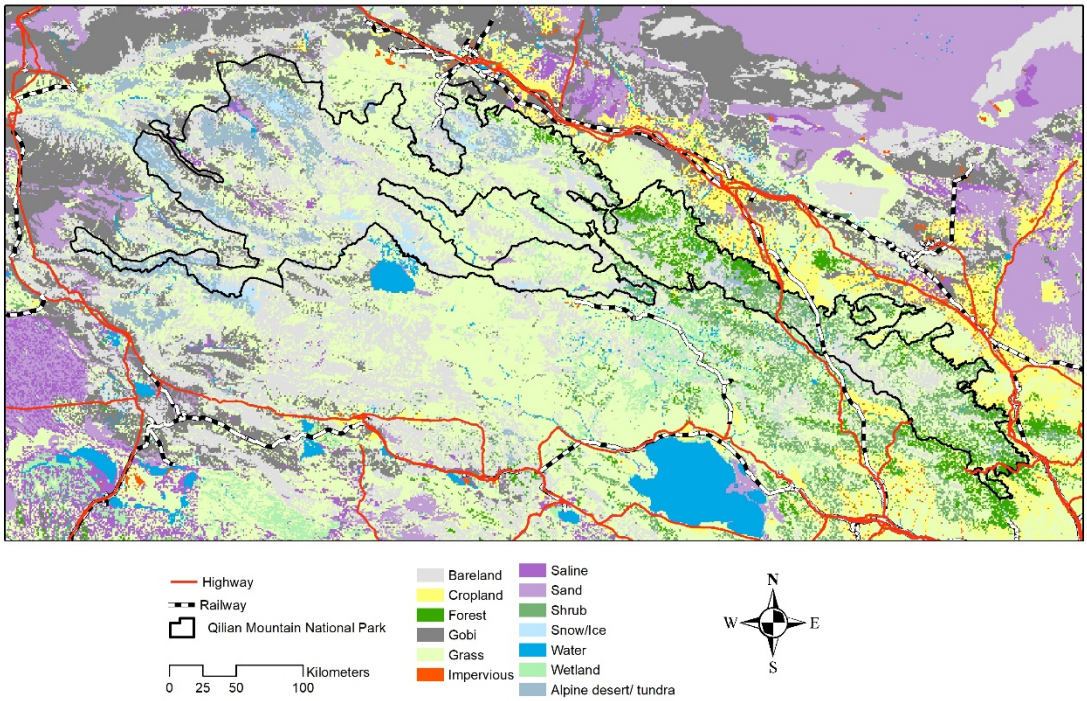

Figure S2. Response curve of selected variables for snow leopard habitat suitability modelling.

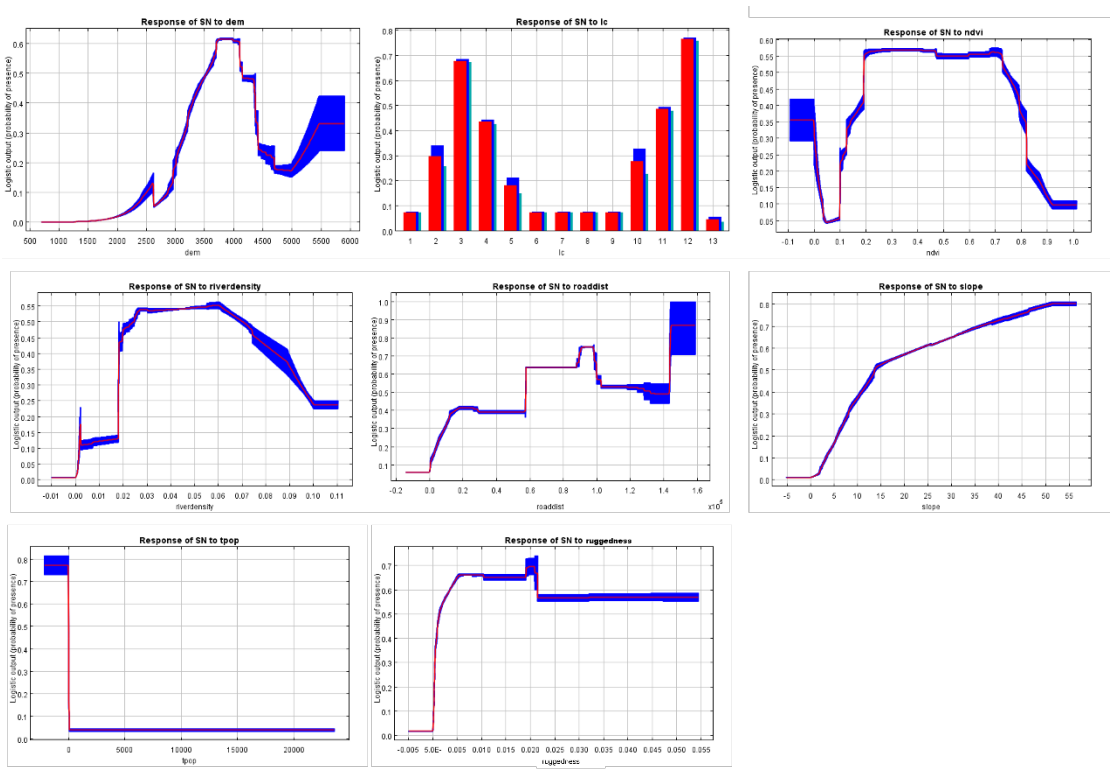

Figure S3. Habitat suitability modeled from Maxent for snow leopard.

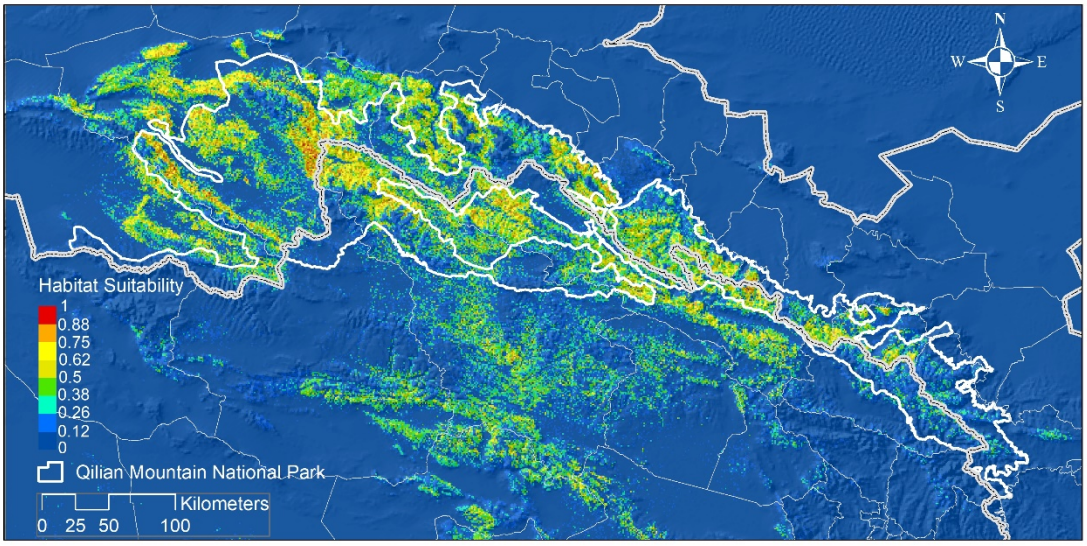

Figure S4. The resistance surface for the connectivity scenarios (a) the S_0 scenario of connectivity in the study area which landscape resistance layer was derived from the habitat suitability index (b) the current scenario of connectivity as determined by superimposing the resistance of the highways and railways on the S_0 (c) corridors construction scenario for (d) the G227 National Road and (e) the Lanzhou-Wulumuqi High-speed Railway to facilitate snow leopard dispersal between suitable habitats, and the corridor location were selected from areas with high habitat suitability index (Cost=1).

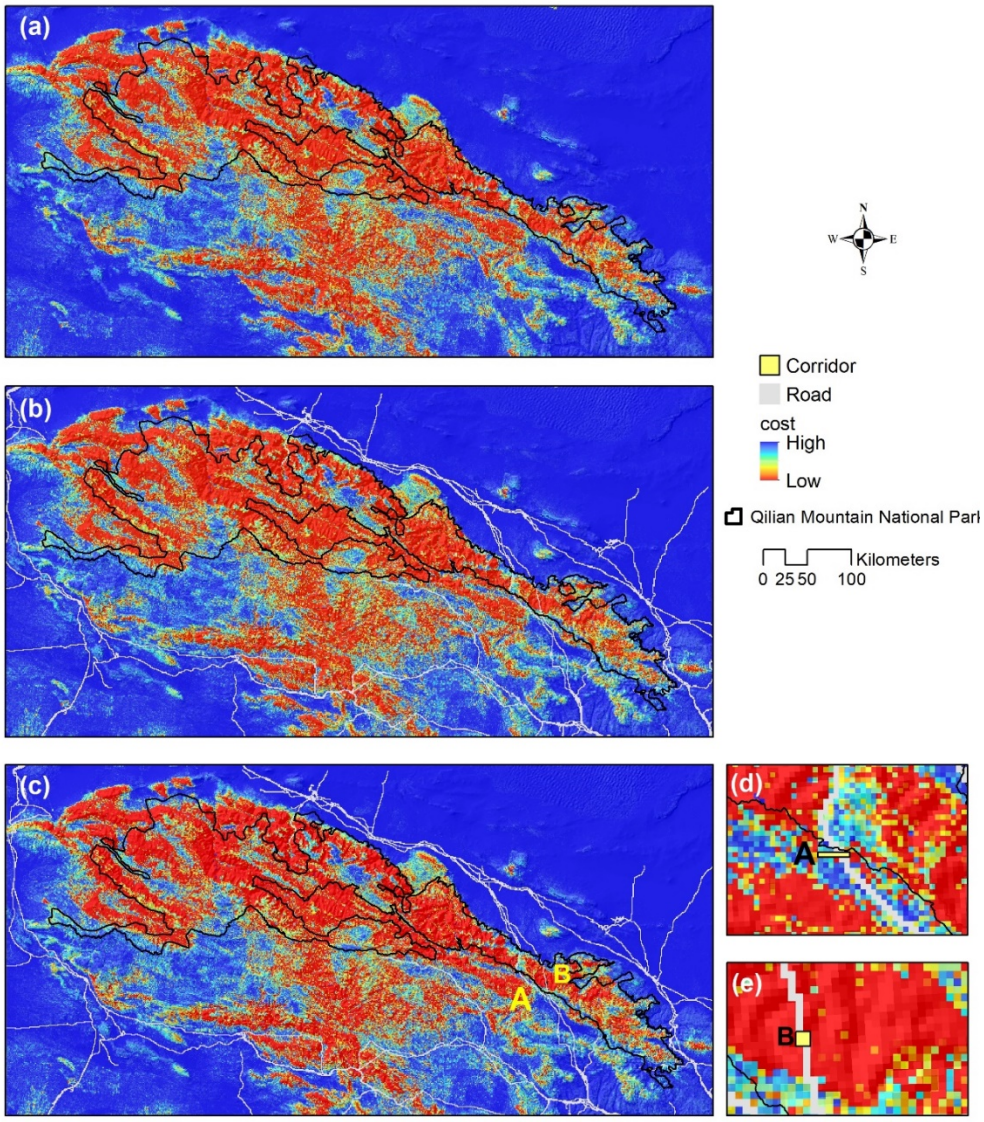

Table S1. The source of environmental variables.

Environmental variables	Source of data	Year
Normalized Difference Vegetation Index (NDVI)	Resource and Environment Science and Data Center(*http://www.resdc.cn/*)	2018
China Population Spatial Distribution Kilometer Grid Data Set (POP)	Resource and Environment Science and Data Center(http://www.resdc.cn/)	2015
Land Cover	Resource and Environment Science and Data Center(http://www.resdc.cn/)	2018
DEM	WorldClim database(http://www.worldclim.org)	
Road	OpenStreetMap database(https://www.openstreetmap.org/)	2020
River	OpenStreetMap database(https://www.openstreetmap.org/)	2020

Table S2. Pearson's correlation of environmental variables

	Ruggedness	**POP**	**Slope**	**Distance from Road**	**River Density**	**NDVI**	**LC**	**DEM**	**Curvature**	**Aspect**
Ruggedness	1.00	0.00	0.39	-0.03	0.15	0.12	-0.03	0.20	0.05	0.01
POP		1.00	-0.01	-0.09	0.13	0.10	-0.10	-0.09	0.00	-0.01
Slope			1.00	-0.04	0.30	0.24	-0.07	0.41	0.01	0.02
Distance from Road				1.00	-0.35	-0.35	0.19	0.02	0.00	0.03
River Density					1.00	0.59	-0.36	0.29	0.00	-0.02
NDVI						1.00	-0.55	0.28	0.00	-0.02
LC							1.00	-0.08	0.00	0.00
DEM								1.00	0.02	0.02
Curvature									1.00	0.00
Aspect										1.00