

Supplementary Material for: Grassland carbon change in northern China under historical and future land use and land cover change

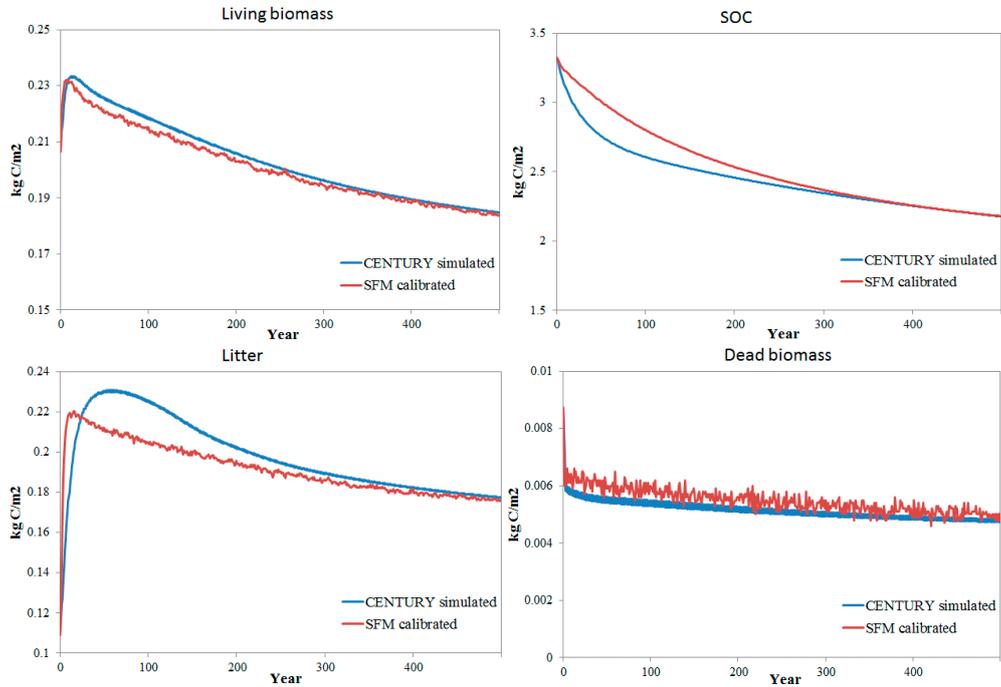


Figure s1. Comparison of carbon stock estimated from LUCAS SFM and CENTURY model.

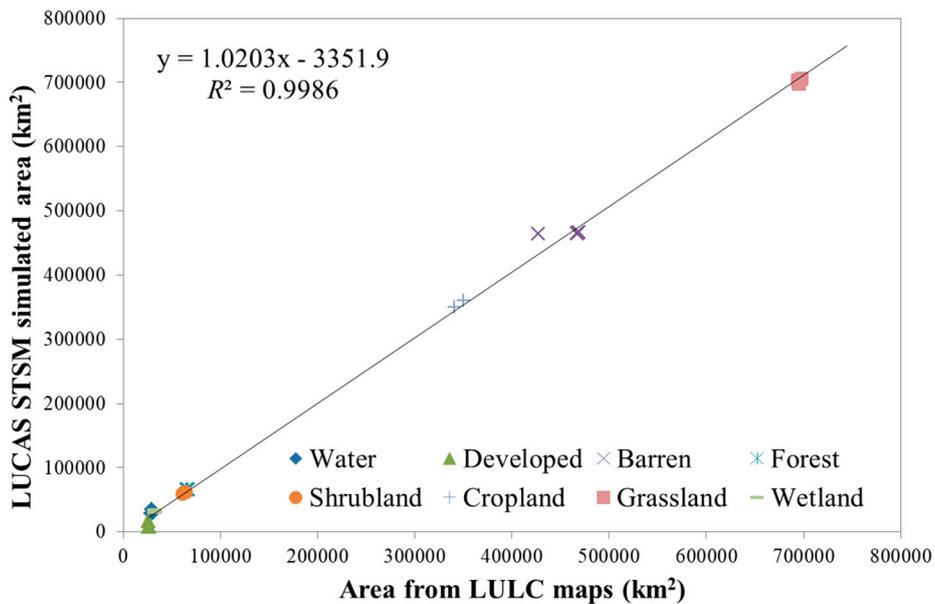


Figure s2. Comparison of LULC class area between LUCAS STSM simulations and RESDC LULC maps

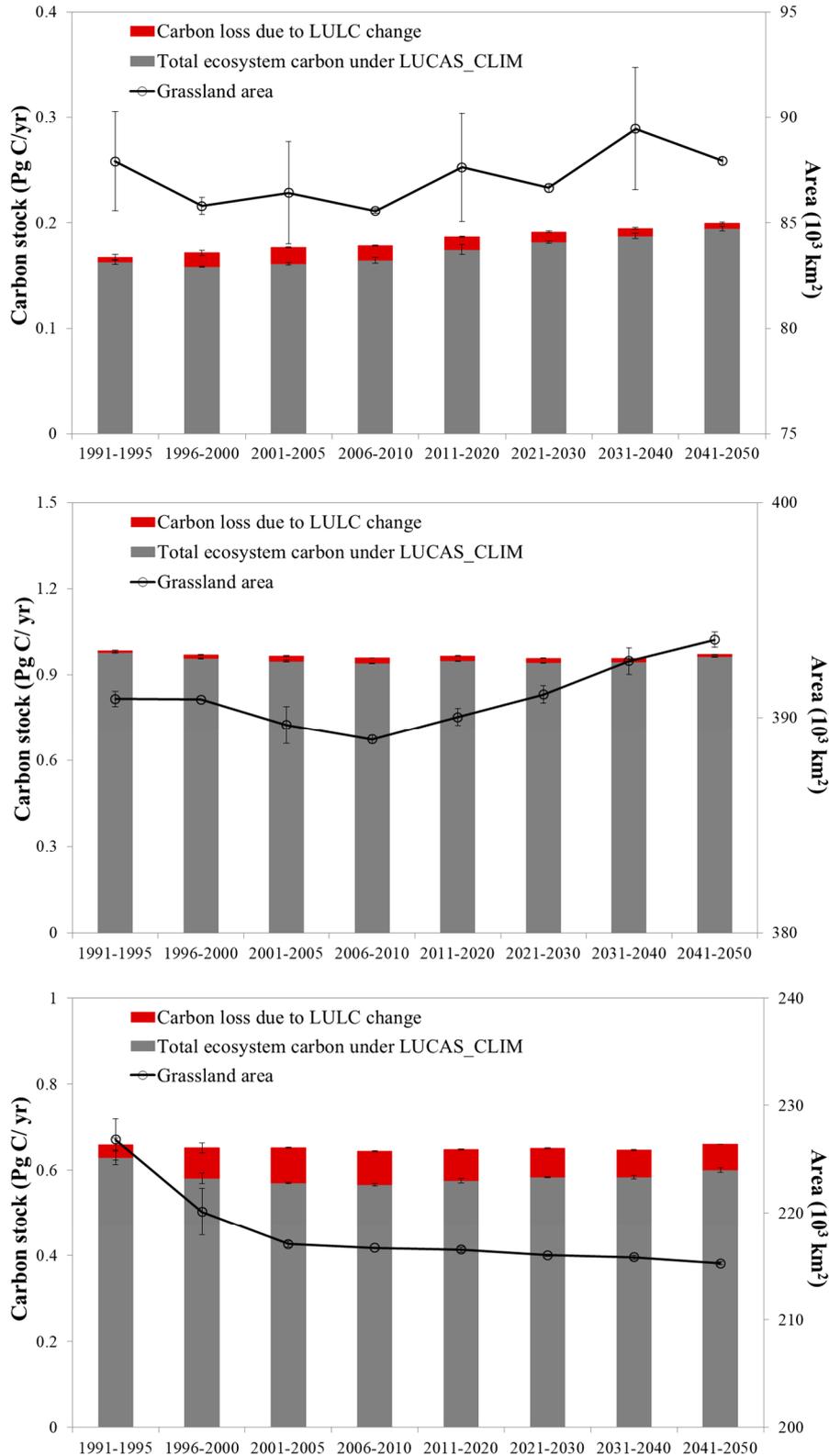


Figure s3. Averaged annual grassland carbon loss and grassland area for the three eco-regions from 1991 to 2050 (up: arid area; middle: steppe area; down: ageo-pasture area). Error bar is the standard deviations calculated from the interannual variability of the eco-regions.

Table s1. The five transition types and 42 transition pathways used for the LUCAS model.

Transition type	Transition pathway
Grassland gain	Agriculture to Grassland
	Barren to Grassland
	Developed to Grassland
	Forest to Grassland
	Shrubland to Grassland
	Water to Grassland
	Wetland to Grassland
Grassland loss	Grassland to Agriculture
	Grassland to Barren
	Grassland to Forest
	Grassland to Shrubland
	Grassland to Water
	Grassland to Wetland
Land use change	Barren to Water
	Barren to Wetland
	Developed to Barren
	Water to Barren
	Water to Wetland
	Wetland to Barren
	Wetland to Water
Urbanization	Agriculture to Developed
	Barren to Developed
	Grassland to Developed
	Water to Developed
Vegetation change	Agriculture to Barren
	Agriculture to Forest
	Agriculture to Shrubland
	Agriculture to Water
	Agriculture to Wetland
	Barren to Agriculture
	Barren to Shrubland
	Developed to Agriculture
	Forest to Agriculture
	Forest to Shrubland
	Forest to Wetland
	Shrubland to Agriculture
Shrubland to Barren	

	Shrubland to Forest
	Water to Agriculture
	Water to Shrubland
	Wetland to Agriculture
	Wetland to Forest