Table S1. Basic information of Plots.

Stand types	Plots	Latitude	Longitude	Altitude/m	Slop/º	Main species
Pinus tabulaeformis forest	plot1	33º26′11″N	108º26′50″E	1570.9	16	*Pinus tabuliformis, Larix gmelinii, Quercus aliena, Rubus corchorifolius, Lespedeza formosa*
	plot2	33º26′5″N	108º26′51″E	1565.6	34	*Pinus tabuliformis, Larix gmelinii, Quercus aliena, Litsea pungens, Rubia cordifolia*
	plot3	33º26'20"N	108º26'48"E	1578.4	22	*Pinus tabuliformis, Larix gmelinii, Quercus aliena, Ligustrum quihoui, Smilax stans*
Quercus aliena forest	plot1	33º26'15"N	108º26'6"E	1488.1	20	*Quercus aliena, Larix gmelinii, Lindera obtusiloba, Lonicera japonica, Carex, Euphorbia pekinensis*
	plot2	33º26'16"N	108º26'53"E	1507.2	22	*Quercus aliena, Acer mono, Toxicodendron vernicifluum, Lindera obtusiloba, Carex, Glechoma longituba*
	plot3	33º26'6"N	108º26'6"E	1592.2	43	*Quercus aliena, Acer mono, Toxicodendron vernicifluum, Euonymus phellomanus, Litsea pungens, Carex, Clinopodium chinense*
mixed forest	plot1	33º26'5"N	108º26'54"E	1534.7	33	*Pinus tabuliformis, Quercus aliena, Lonicera japonica, Rubia cordifolia*
	plot2	33º26'7"N	108º26'53"E	1595.1	35	*Pinus tabuliformis, Quercus aliena, Lonicera japonica, Carex*
	plot3	33º26'12"N	108º26'49"E	1586.6	29	*Pinus tabuliformis, Quercus aliena, Thalictrum aquilegiifolium, Carex*

Table S2. Soil physicochemical properties under different stand types. Different capital letters indicate the significant differences of soil physical and chemical properties in different stand types at the same soil layer, and different lower case letters indicate the significant differences of soil physical and chemical properties at different soil layers in the same stand types.

Stand types	Soil layers/ cm	Total nitrogen /g·kg-1	Total phosphorus/g·kg-1	pH	Water relative content/%	Bulk density/g	Soil texture		
							Clay/%	Silt/%	Sand/%
Pinus tabuliformis forest	0~10	1.8±0.0Aa	0.4±0.1Aa	5.6±0.5Aa	16.8±4.8Aa	0.9±0.1Aa	8.5±4.5Ba	16.8±7.6Ba	74.7±12.1Aa
	10~20	1.2±0.0Ab	0.4±0.1Aa	5.6±0.3Aa	14.4±4.2Aa	0.8±0.0Ba	8.0±2.7Ba	15.5±4.5Ba	76.5 ±7.3Aa
	20~40	0.9±0.1Ac	0.3±0.1Aa	5.8±0.4Aa	13.4±5.0Aa	0.9±0.1Aa	9.6±0.2Ba	18.0±0.2Aa	72.4 ±0.3Aa
Quercus aliena forest	0~10	3.3±1.5Aa	0.5±0.1Aa	6.0±1.0Aa	29.8±20.4Aa	0.9±0.2Aa	28.1±2.3Aa	38.7±4.4Aa	33.2 ±6.6Ba
	10~20	1.8±0.5Aa	0.4±0.1Aa	6.1±0.9Aa	20.6±11.6Aa	1.2±0.2Aa	25.6±5.5Aa	35.1±7.1Aa	39.2±12.6Ba
	20~40	1.4±0.7Aa	0.4±0.1Aa	6.3±1.0Aa	15.2±10.8Aa	1.1±0.1Aa	25.4±8.4Aa	32.7±9.2Aa	41.9±17.3Ba
Mixed forest	0~10	2.4±1.1Aa	0.3±0.2Aa	5.0±0.5Aa	15.1±4.8Aa	0.8±0.1Aa	25.5±6.8Aa	35.9±11.3Aa	38.6 ±18.1Ba
	10~20	1.6±0.5Aa	0.3±0.1Aa	5.0±0.4Aa	16.0±6.9Aa	0.8±0.1Ba	28.4±1.8Aa	38.4±4.4Aa	33.3 ±5.9Ba
	20~40	1.0±0.1Aa	0.3±0.2Aa	5.2±0.5Aa	13.2±4.7Aa	0.9±0.2Aa	25.9±7.8Aa	33.5±11.4Aa	40.6±19.2Ba