

**Supplementary Table S1.** Calibrated parameters in the SWAT model for the Luoyugou watershed

| Parameters | Description                                                | Parameters | Meaning                                                       |
|------------|------------------------------------------------------------|------------|---------------------------------------------------------------|
| ESCO       | Soil evaporation compensation factor                       | ALPHA_BF   | Base alpha factor[days]                                       |
| EPCO       | Plant uptake compensation facto                            | GW_DELAY   | Groundwater delay [days]                                      |
| SPCON      | Lin. re-entrainment parameter for channel sediment routing | GW_REVAP   | Groundwater "revap" coefficient                               |
| SPEXP      | Exp. re-entrainment parameter for channel sediment routing | RCHRG_DP   | Deep aquifer percolation fraction                             |
| SURLAG     | Surface runoff lag time [days]                             | REVAPMN    | Threshold water depth in the shallow aquifer for "revap" [mm] |
| SMFMX      | Melt factor for snow on June 21 [mm H2O/°C-day]            | QWQMN      | Threshold water depth in the shallow aquifer for flow [mm]    |
| SMFMN      | Melt factor for snow on December 21 [mm H2O/°C-day]        | CANMX      | Maximum canopy storage [mm]                                   |
| CN2        | Initial SCS CN II value                                    | TIMP       | Snow pack temperature lag factor                              |
| SFTMP      | Snowfall temperature [°C]                                  | GWNO3      | Concentration of nitrate in groundwater contribution [mg N/l] |
| SOL_AWC    | Available water capacity [mm H2O/mm soil]                  | NPERCO     | Nitrogen percolation coefficient                              |
| SMTMP      | Snow melt base temperature [°C]                            | SOL_K      | Saturated hydraulic conductivity [mm/hr]                      |
| CH_EROD    | Channel erodibility factor                                 | SOL_ORGN   | Initial organic N concentration [mg/kg]                       |
| PPERCO     | Phosphorus percolation coefficient                         | SOL_Z      | Soil depth [mm]                                               |
| PHOSKD     | Phosphorus soil partitioning coefficient                   | SOL_ORGP   | Initial organic P concentration [mg/kg]                       |
| TLAPS      | Temperature lapse rate [°C/km]                             | SOL_NO3    | Initial N03 concentration [mg/kg]                             |
| CH_N       | Manning's nvalue for main channel                          | SOL_LABP   | Initial labile P concentration [mg/kg]                        |
| CH_COV     | Channel cover factor                                       | BIOMIX     | Biological mixing efficiency                                  |
| USLE_C     | Minimum USLE cover factor                                  | SLOPE      | Average slope steepness [m/m]                                 |
| CH_K2      | Channel effective hydraulic conductivity [mm/hr]           | SLSUBBSN   | Average slope length [m]                                      |
| BLAI       | Maximum potential leaf area index                          | SOL_ALB    | Moist soil albedo                                             |
| USLE_P     | USLE support practice factor                               |            |                                                               |

*Supplementary table to the article “Optimization of land use pattern reduces surface runoff and sediment loss in a Hilly-Gully watershed at the Loess Plateau, China”, by Yini Han, Jianzhi Niu, Zhongbao Xin, Wei Zhang, Xilin Wang and Yousong Zhang. Forest Systems Vol. 25 No. 1, April 2016 (<http://dx.doi.org/10.5424/fs/2016251-08016>)*