

**Table S1 Index system for assessing the supply of four ecosystem services in InVest.**

Ecosystem service demand	Module	Method	Parameter
Carbon sequestration	Carbon Storage and Sequestration	$C_{tot} = C_{above} + C_{below} + C_{soil} + C_{dead}$	<p>where <math>C_{tot}</math> refers to total carbon reserves; <math>C_{above}</math> refers to the aboveground biocarbon reserves; <math>C_{below}</math> represents the belowground biocarbon reserves; <math>C_{soil}</math> represents the soil carbon reserves; <math>C_{dead}</math> denotes dead organic carbon reserves.</p>
Habitat quality	Habitat Quality	$Q_{xj} = H_j \left( 1 - \left( \frac{D_{xj}^2}{D_{xj}^2 + k^2} \right) \right),$ $D_{xj} = \sum_{r=1}^R \sum_{y=1}^{Y_r} \left( \frac{W_r}{\sum_{r=1}^R W_r} \right) r_y i_{rxy} \beta_x S_{jr}$	<p>where <math>Q_{xj}</math> represents the habitat quality of grid cell <math>x</math> in land use type <math>j</math>; <math>H_j</math> represents the habitat suitability of land use type <math>j</math>; <math>k</math> represents the half-saturated parameter (default value of 0.5); <math>Y_r</math> is a collection of grid cells on a grid map; <math>W_r</math> is the weight of the threat source; <math>r_y</math> represents a threat; <math>i_{rxy}</math> represents the influence of threat <math>r</math> on the habitat of grid cells of <math>x</math>; <math>\beta_x</math> represents the accessibility level in grid unit <math>x</math>; <math>S_{jr}</math> represents the relative sensitivity of type <math>j</math> habitat to threat <math>r</math>.</p>
Water conservation	Water Yield	$Y(x) = (1 - \frac{AET(x)}{P(x)}) \times P(x)$	<p>where <math>Y(x)</math> represents the water yield of the grid cell <math>x</math>; <math>AET(x)</math> represents the annual actual evapotranspiration of the grid cell <math>x</math>; <math>P(x)</math> indicates the annual precipitation of the grid unit <math>x</math>.</p>
Soil retention	Sediment Delivery Ratio	$A = R \times K \times L \times S \times (1 - C \times P)$	<p><math>A</math> represents the level of soil conservation; <math>R</math> represents the factor of rainfall erosion force, indicating the potential capacity for soil erosion caused by rainfall; <math>K</math> represents the soil erosion force factor, indicating the relationship between soil characteristics and erosion. The greater the <math>K</math> value, the lower the resistance of the soil to water erosion. The factors <math>L</math>, <math>S</math>, <math>C</math>, and <math>P</math> are dimensionless; <math>L</math> is the slope length factor; <math>S</math> is the slope factor; <math>C</math> is the vegetation coverage factor; <math>P</math> is the soil conservation factor, which refers to the ratio of soil loss after special measures and soil loss during smooth slope cultivation.</p>