**Table S1.** Threats and their maximum distance of influence and weights.

| Threats | MAX_DIST | WEIGHT | DECAY |
|---|---|---|---|
| Farmland | 5.0 | 0.7 | linear |
| Construction land | 8.0 | 1.0 | exponential |
| Unused land | 3.0 | 0.2 | exponential |

MAX_DIST: the maximum distance over which each threat affects habitat quality (measured in km).
WEIGHT: the impact of each threat on habitat quality, relative to other threats.
DECAY: the type of decay for the threat.

**Table S2.** The sensitivity of habitat types to each threat.

| NAME | HABITAT | Farmland | Construction land | Unused land |
|---|---|---|---|---|
| Farmland | 0.30 | 0.00 | 0.70 | 0.25 |
| Forest | 1.00 | 0.50 | 0.80 | 0.80 |
| Grassland | 0.70 | 0.40 | 0.70 | 0.50 |
| Shrubland | 0.90 | 0.40 | 0.70 | 0.60 |
| Water body | 0.80 | 0.60 | 0.80 | 0.50 |
| Construction land | 0.00 | 0.00 | 0.00 | 0.00 |
| Unused land | 0.00 | 0.00 | 0.00 | 0.00 |

HABITAT: assign each habitat type a relative habitat suitability score from 0 to 1 where 1 indicates the highest habitat suitability.

**Table S3.** Table of biophysical coefficients for InVEST.

| Lucode | Land use type | LULC_veg | Root_depth | Kc | USLE_C | USLE_P | C_above (Mg/ha) | C_below (Mg/ha) | C_soil (Mg/ha) | C_dead (Mg/ha) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Farmland | 1 | 2100 | 0.68 | 0.500 | 0.400 | 15.80 | 40.30 | 54.20 | 1.00 |
| 2 | Forest | 1 | 7000 | 1.00 | 0.003 | 0.200 | 58.73 | 166.35 | 239.85 | 3.94 |
| 3 | Grassland | 1 | 2600 | 0.65 | 0.010 | 0.200 | 35.30 | 86.50 | 99.90 | 1.90 |
| 4 | Shrubland | 1 | 5000 | 0.50 | 0.010 | 0.200 | 26.60 | 67.50 | 94.00 | 6.04 |
| 5 | Water body | 0 | 1 | 1.00 | 0.001 | 0.001 | 8.20 | 39.50 | 40.60 | 1.23 |
| 6 | Construction land | 0 | 1 | 0.30 | 0.001 | 0.001 | 0.00 | 0.00 | 95.76 | 0.00 |
| 7 | Unused land | 0 | 1 | 0.20 | 0.250 | 0.010 | 11.30 | 32.40 | 53.80 | 0.00 |

**Table S4.** Description of variables selected in this study.

| Impact factor | Indicator | Description | Reference |
|---|---|---|---|
| Land use | LUD | Dynamic degree of comprehensive land use change from 2000 to 2018. | Refer to Li et al. [61] method for calculation. |
| Climatic | TEM | Average temperature from 2000 to 2018. | http://www.geodata.cn/ (accessed on 16 March 2021) |
| | PRE | Average precipitation from 2000 to 2018. | http://www.geodata.cn/ (accessed on 16 March 2021) |
| | PET | Average potential evapotranspiration from 2000 to 2018. | http://www.geodata.cn/ (accessed on 16 March 2021) |
| Vegetation | NDVI | The Normalized Difference Vegetation Index in 2018, representing the effectiveness of afforestation, obtained from the MOD13Q1 database. | http://modis.gsfc.nasa.gov/ (accessed on 16 March 2021) |
| Geomorphological | DEM | Elevation. | http://www.gscloud.cn (accessed on 16 March 2021) |
| | SLO | Slope. | Calculated based on DEM data. |

| Urbanization | CON | Changes in the percentage of construction land from 2000 to 2018. | Calculated based on Land use maps. |

**Table S5.** Multicollinearity test among influencing factors.

| Influencing factors | Tolerance | VIF |
| --- | --- | --- |
| Dynamic degree of comprehensive land use change (LUD) | 0.813 | 1.231 |
| Normalized Difference Vegetation Index (NDVI) | 0.381 | 2.628 |
| Annual average precipitation (PRE) | 0.610 | 1.638 |
| Elevation (DEM) | 0.280 | 3.573 |
| Percentage of construction land (CON) | 0.859 | 1.164 |