**Supporting Information**

**Table A - Land use land cover (LULC) class names and descriptions found in the Iron Quadrangle region.**

|  |  |
| --- | --- |
| LULC class name | Description |
| Agricultural fields | Mosaic cropland (50-100%); vegetation (grassland/shrubland/forest) (0-50%) |
| Cerrado | Brazilian savanna vegetation/natural grasslands/shrubland |
| Eucalyptus plantations | Mosaic eucalyptus plantations (50-100%); vegetation (grassland/shrubland/forest) (0-50%) |
| Forest | Open-Closed (>40%) semi-deciduous Atlantic Forest |
| Mining areas | Areas with opencast mines. Includes buildings, associate industrial infrastructure, and small water bodies created by mining. |
| Pasture | Mosaic pasture (50-100%); vegetation (grassland/shrubland/forest) (0-50%) |
| Roads network | Highways and roads. Minimum width of 30 meters. |
| Rupestrian grasslands | Shrub and grasslands, typical from altitudes ranging from 900 to 2000 meters. |
| Urban areas | Mosaic of Buildings, roads and artificial surface areas (50-100%)/vegetation within urban areas (<50%) |
| Water bodies | Natural and anthropogenic water bodies |

Data used for mapping and as input in the three models – habitat quality, carbon stock and sediment retention.

**Table B - Confusion matrix for the land use land cover map.**

Using only the LULC class that had more than 2% of the total study area . The columns represent the number of ground truth points and the lines represent the pixels classification in this study. The commission and omission errrors are the proportion of the errors in the lines and columns respectively.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cerrado | Rupestrian grasslands | Eucalyptus | Forest | Mining areas | Pasture | Urban areas | *Total* | Commission Errors |
| Cerrado | 36 | 1 | 2 | 3 |  | 5 | 2 | *49* | 0.27 |
| Rupestrian grasslands | 6 | 47 | 2 | 2 | 1 | 1 |  | *59* | 0.20 |
| Eucalyptus | 1 |  | 38 | 2 | 1 | 2 |  | *44* | 0.14 |
| Forest | 6 | 6 | 9 | 118 |  | 10 | 2 | *151* | 0.22 |
| Mining areas | 3 | 1 |  |  | 17 |  |  | *21* | 0.19 |
| Pasture | 3 |  | 6 | 1 | 1 | 90 | 2 | *103* | 0.13 |
| Urban areas | 2 |  |  |  |  | 2 | 40 | *44* | 0.09 |
| *Total* | *57* | *55* | *57* | *126* | *20* | *110* | *46* | *471* |  |
| Omission Errors | 0.37 | 0.15 | 0.33 | 0.06 | 0.15 | 0.18 | 0.13 |  | 0.82 |

**Table C – Habitat quality model input parameters.**

|  |  |  |
| --- | --- | --- |
| LULC Name a | Intensity | Maximum Distance (Km) |
| Agricultural fields | 7.5 | 1 |
| Eucalyptus | 6.5 | 1 |
| Mining areas | 10 | 3 |
| Pastures | 7 | 1 |
| Roads network | 7 | 1 |
| Urban areas | 7.5 | 3 |

The intensity and maximum distance for each land use land cover class considered as threat; values obtained from specialist consultants (n=16).

a Refer to S1 Table for LULC classes descriptions

**Table D – Inputs values used in the carbon stock model.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LULC Namea | Aboveground Biomass | Belowground Biomass | Soil Organic Carbon (40 cm) | Dead Organic Carbon |
| Mg ha-1 | | | |
| Agriculture fields | 7.2 | 1.9 | 62.44 | 1.1 |
| Cerrado | 2.7 | 15.088 | 90.684 | 0.96 |
| Eucalyptus | 56.7 | 9.9 | 74.3 | 7.4 |
| Forest | 134.0 | 27.6 | 90.6 | 3.6 |
| Forest edges | 69.0 | 13.2 | 90.6 | 3.6 |
| Mining areas | 0.0 | 0.0 | 0.0 | 0.0 |
| Pasture | 2.9 | 7.7 | 94.6 | 1.1 |
| Roads network | 0.0 | 0.0 | 0.0 | 0.0 |
| Rupestrian grasslands | 2.8 | 15.088 | 90.684 | 0.96 |
| Urban areas | 15.0 | 3.8 | 41.0 | 0.0 |
| Water bodies | 0.0 | 0.0 | 0.0 | 0.0 |

Data for soil organic carbon, dead organic carbon, aboveground biomass and belowground biomass carbon by land use land cover (LULC) class, obtained from literatureb

a Refer to S1 Table for LULC classes descriptions

b References: [1-10].

**Table E – Mean values for K factor (erodibility) used in the universal soil loss equation (USLE) for each soil type, obtained from literature**a

|  |  |
| --- | --- |
| Soil type | K |
| Argisol | 0.04450 |
| Cambisol | 0.02314 |
| Gleysol | 0.03585 |
| Red Latosol | 0.00962 |
| Yellow-red Latosol | 0.01717 |
| Fluvic Neosol | 0.042 |
| Litholic Neosol | 0.045 |
| Quartzipsamment Neosol | 0.1448 |

a References: [11-16]

**Table F - Sediment retention model input table**.

|  |  |  |  |
| --- | --- | --- | --- |
| LULC Namea | C | P | Sediment Filtration (%) |
| Agricultural fields | 0.18 | 0.4 | 40 |
| Cerrado | 0.042 | 1 | 70 |
| Eucalyptus | 0.016 | 1 | 70 |
| Forest | 0.012 | 1 | 95 |
| Mining areas | 1 | 1 | 0 |
| Pasture | 0.052 | 1 | 50 |
| Roads network | 1 | 1 | 0 |
| Rupestrian grasslands | 0.042 | 1 | 60 |
| Urban areas | 0.1 | 1 | 3 |
| Water bodies | 0.01 | 1 | 10 |

For universal soil loss equation (USLE): cover and management factor (C), support practice factor (P) and sediment filtration factor by land use land cover (LULC) class, obtained from literatureb

aRefer to Supp. Mat. S1 Table for LULC classes descriptions

bReferences: [17-19]

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