**Appendix 3.** Indicators of the covariates balance produced of the matching analysis.

Table S9: Summary of sampling balance between control (unprotected zones) and treatment(reserves) sampling units for forest loss data. To achieve these results, we used a 1:1 nearest neighbor matching with replacement.

|  |  |  |
| --- | --- | --- |
|  | Control | Treated |
| All | 387888 | 36012 |
| Matched (ESS) | 17470.42 | 36012 |
| Matched | 28176 | 36012 |
| Unmatched | 359712 | 0 |
| Discarded | 0 | 0 |

\* Matched (ESS): Effective Sampling Size

Table S10: Summary of sampling balance between control (unprotected zones) and treatment(reserves) sampling units for forest regrowth data. To achieve these results, we used a 1:1 nearest neighbor matching without replacement.

|  |  |  |
| --- | --- | --- |
|  | Control | Treated |
| All | 325065 | 6558 |
| Matched | 6558 | 6558 |
| Unmatched | 318507 | 0 |
| Discarded | 0 | 0 |

Table S11: Summary of sampling balance between control (unprotected zones) and treatment(reserves) sampling units for forest fragmentation data. To achieve these results, we used a 1:1 genetic matching with replacement.

|  |  |  |
| --- | --- | --- |
|  | Control | Treated |
| All | 1258 | 214 |
| Matched (ESS) | 73.39 | 214 |
| Matched | 154 | 214 |
| Unmatched | 1104 | 0 |
| Discarded | 0 | 0 |

\* Matched (ESS): Effective Sampling Size



Figure S10: Covariate balance for the forest loss data using the nearest neighbor algorithm. The panel shows the standardized mean difference for each covariate previous (unadjusted) and after (adjusted) the matching analysis. Mean differences less than 0.1 (dashed line) indicate a good covariate balance. rod\_dst: mean road distance, cts\_dst: mean distance to cities, suitability: agriculture suitability.



Figure S11: Covariate balance for the forest regrowth data using the nearest neighbor algorithm. The panel shows the standardized mean difference for each covariate previous (unadjusted) and after (adjusted) the matching analysis. Mean differences less than 0.1 (dashed line) indicate a good covariate balance. rod\_dst: mean road distance, cts\_dst: mean distance to cities, suitability: agriculture suitability.



Figure S12: Covariate balance for the forest fragmentation data using the nearest neighbor algorithm. The panel shows the standardized mean difference for each covariate previous (unadjusted) and after (adjusted) the matching analysis. Mean differences less than 0.1 (dashed line) indicate a good covariate balance. rod\_dst: mean road distance, cts\_dst: mean distance to cities, suitablty: agriculture suitability.

Table S12: Summary of balance for matched data for the forest loss data. All standard mean differences were below 0.1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Covariate | Mean Treated | Mean Control | Std. Mean Diff. | Var. Ratio | eCDF Mean | eCDF Max | Std. Pair Dist. |
| Distance | 0.0325 | 0.0325 | 0 | 1 | 0 | 0.0003 | 0 |
| road.dist | 6.4336 | 6.5826 | -0.0246 | 1.1095 | 0.0188 | 0.0977 | 0.7097 |
| road.dist^2 | 78.2068 | 76.5115 | 0.012 | 0.818 | 0.0188 | 0.0977 | 0.6088 |
| cities.dist | 34.8597 | 35.646 | -0.0376 | 1.0425 | 0.0241 | 0.0698 | 1.0294 |
| cities.dist ^2 | 1653.0833 | 1690.6608 | -0.0186 | 1.0266 | 0.0241 | 0.0698 | 0.8765 |
| suitability | 0.4821 | 0.4932 | -0.0455 | 1.0789 | 0.0324 | 0.0668 | 0.9549 |
| suitability ^2 | 0.2921 | 0.2986 | -0.0267 | 1.0653 | 0.0324 | 0.0668 | 0.9887 |

Table S13: Summary of balance for matched data for the forest regrowth data. All standard mean differences were below 0.15

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Covariate | Means Treated | Means Control | Std. Mean Diff. | Var. Ratio | eCDF Mean | eCDF Max | Std. Pair Dist. |
| Distance | 0.2307 | 0.2307 | 0 | 1 | 0 | 0.0007 | 0.0001 |
| road.dist | 7.9584 | 8.5226 | -0.0884 | 0.7829 | 0.0139 | 0.0408 | 1.0126 |
| road.dist^2 | 104.0745 | 124.6694 | -0.1326 | 0.5079 | 0.0139 | 0.0408 | 0.9495 |
| cities.dist | 70.0068 | 70.4093 | -0.011 | 0.9242 | 0.0098 | 0.0318 | 0.3506 |
| cities.dist ^2 | 6248.7251 | 6415.77 | -0.0302 | 0.8317 | 0.0098 | 0.0318 | 0.3088 |
| suitability | 0.5008 | 0.4987 | 0.0101 | 0.8952 | 0.0189 | 0.0443 | 1.0883 |
| suitability ^2 | 0.2937 | 0.2967 | -0.0144 | 0.8168 | 0.0189 | 0.0443 | 1.0719 |

Table S14: Summary of balance for matched data for the forest fragmentation data. All standard mean differences were below 0.1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Covariate | Means Treated | Means Control | Std. Mean Diff. | Var. Ratio | eCDF Mean | eCDF Max | Std. Pair Dist. |
| distance | 0.2804 | 0.2609 | 0.0852 | 1.1189 | 0.018 | 0.0701 | 0.161 |
| road.dist | 8.0225 | 7.8248 | 0.0318 | 0.8281 | 0.03 | 0.0841 | 0.6797 |
| road.dist^2 | 102.7291 | 107.1441 | -0.0289 | 0.7053 | 0.03 | 0.0841 | 0.7008 |
| cities.dist | 57.5375 | 57.1893 | 0.0095 | 1.0006 | 0.0088 | 0.0561 | 0.1157 |
| cities.dist ^2 | 4657.1201 | 4604.216 | 0.0101 | 0.9943 | 0.0088 | 0.0561 | 0.1452 |
| suitability | 0.5059 | 0.5049 | 0.0046 | 0.957 | 0.0189 | 0.0841 | 0.1071 |
| suitability ^2 | 0.2957 | 0.2962 | -0.0023 | 0.8913 | 0.0189 | 0.0841 | 0.1198 |