**ONLINE SUPPLEMENT**

1. **Data summary**

Table S1. Summary characteristics for sampled points with conservation status post-land reform, all leases (n=1254)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 4.95 | 0.04 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 6.93 | 0.03 | 3.00 | 8.00 |
| Distance to town (km) | 71.68 | 1.28 | 0.55 | 209.21 |
| Slope (degrees) | 21.83 | 0.37 | 0.00 | 52.75 |
| Ecological SIV (% of area) | 0.18 | 0.01 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.16 | 0.01 | 0.00 | 1.00 |
| Tenure review (% of leases) | 0.64 | 0.01 | 0.00 | 1.00 |

Table S2. Summary characteristics for sampled points with covenant status post-land reform, all leases (n=250)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 4.06 | 0.10 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 6.33 | 0.06 | 3.00 | 8.00 |
| Distance to town (km) | 42.16 | 2.17 | 0.83 | 208.07 |
| Slope (degrees) | 17.60 | 0.73 | 0.00 | 52.51 |
| Ecological SIV (% of area) | 0.20 | 0.03 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.30 | 0.03 | 0.00 | 1.00 |
| Tenure review (% of leases) | 0.98 | 0.01 | 0.00 | 1.00 |

Table S3. Summary characteristics for sampled points with freehold status post-land reform, all leases (n=767)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 3.61 | 0.06 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 5.82 | 0.04 | 2.00 | 8.00 |
| Distance to town (km) | 44.47 | 1.24 | 1.21 | 208.77 |
| Slope (degrees) | 14.43 | 0.40 | 0.00 | 47.90 |
| Ecological SIV (% of area) | 0.08 | 0.01 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.12 | 0.01 | 0.00 | 1.00 |
| Tenure review (% of leases) | 0.98 | 0.01 | 0.00 | 1.00 |

Table S4. Summary characteristics for sampled points with conservation status post-land reform, subset of tenure review leases with SIV (n=479)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 4.75 | 0.07 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 6.72 | 0.05 | 3.00 | 8.00 |
| Distance to town (km) | 57.40 | 1.70 | 4.69 | 209.21 |
| Slope (degrees) | 20.52 | 0.61 | 0.00 | 52.51 |
| Ecological SIV (% of area) | 0.37 | 0.02 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.41 | 0.02 | 0.00 | 1.00 |

Table S5. Summary characteristics for sampled points with covenant status post-land reform, subset of tenure review leases with SIV (n=167)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 4.04 | 0.12 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 6.31 | 0.07 | 3.00 | 8.00 |
| Distance to town (km) | 46.18 | 2.43 | 5.31 | 208.07 |
| Slope (degrees) | 17.31 | 0.92 | 0.00 | 52.51 |
| Ecological SIV (% of area) | 0.29 | 0.04 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.45 | 0.04 | 0.00 | 1.00 |

Table S6. Summary characteristics for sampled points with freehold status post-land reform, subset of tenure review leases with SIV (n=431)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | St. Error | Min. | Max. |
| Threat class (1=highest, 6=lowest threat) | 3.69 | 0.08 | 1.00 | 6.00 |
| Land use capability (1=highest, 8= lowest) | 5.75 | 0.06 | 3.00 | 8.00 |
| Distance to town (km) | 50.48 | 1.74 | 3.10 | 208.77 |
| Slope (degrees) | 13.97 | 0.54 | 0.00 | 47.90 |
| Ecological SIV (% of area) | 0.13 | 0.02 | 0.00 | 1.00 |
| Recreational SIV (% of area) | 0.21 | 0.02 | 0.00 | 1.00 |

Table S7. Threatened Environment Classification definitions and summary by lease and sample points.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | % of indigenous vegetation left | Lease area (ha) | # of leases with any area | # sample points allocated | % of sample points |
| TEC1 | Acutely threatened | <10% | 43,283 | 114 | 181 | 8.0 |
| TEC2 | Chronically threatened | 10-20% | 40,295 | 112 | 187 | 8.2 |
| TEC3 | At risk | 20-30% | 85,900 | 126 | 297 | 13.1 |
| TEC4 | Critically underprotected | >30% and <10% protected | 204,969 | 141 | 451 | 19.9 |
| TEC5 | Underprotected | >30% and 10-20% protected | 57,570 | 86 | 189 | 8.3 |
| TEC6 | Less reduced and better protected | >30% and >20% protected | 741,350 | 148 | 966 | 42.5 |

**2. Correlation matrices**



Figure S1. Correlation matrix of variable relationships for points from all leases (n=2271).



Figure S2. Correlation matrix of variable relationships for points from leases with tenure review and SIV survey (n=1077 points).

**3. Additional regression results**

In addition to the regression results reported in the manuscript, we ran three binomial regressions of leases with tenure review and SIV survey (n=1077 points) that did *not* include ecological SIV and recreational SIV as independent variables in the model (Tables S8-S10).

Table S8. Spatial probit model regression coefficients for conservation points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Coefficient Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | -0.1476151 | 0.03880870 | -3.803659 | 1.425743e-04 |
| Distance to town | 0.1227340 | 0.04009366 | 3.061181 | 2.204657e-03 |
| Slope | 0.1481226 | 0.04554797 | 3.252014 | 1.145904e-03 |
| Threat class | 0.2980663 | 0.04678453 | 6.371044 | 1.877463e-10 |
|  |  |  |  |  |

AIC: 1377.5

|  |
| --- |
| Conditional on rho |
| rho = 0.9899191 |

Table S9. Spatial probit model regression coefficients for covenant points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Coefficient Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | -1.04734965 | 0.04783335 | -21.8958040 | 0.00000000 |
| Distance to town | -0.12604280 | 0.05339695 | -2.3604869 | 0.01825096 |
| Slope | 0.02277562 | 0.05470315 | 0.4163493 | 0.67715445 |
| Threat class | -0.06868881 | 0.05423157 | -1.2665834 | 0.20530429 |
|  |  |  |  |  |
|  |  |  |  |  |
| AIC: 928.0 |  |  |  |  |
| Conditional on rho |  |  |  |  |
| rho = -0.9899191 |  |  |  |  |

Table S10. Spatial probit model regression coefficients for freehold points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Coefficient Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | -0.27584412 | 0.04053658 | -6.804821 | 1.011746e-11 |
| Distance to town | -0.05761209 | 0.04139866 | -1.391641 | 1.640310e-01 |
| Slope | -0.17666925 | 0.04679425 | -3.775448 | 1.597206e-04 |
| Threat class | -0.24425908 | 0.04605927 | -5.303147 | 1.138231e-07 |
|  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| AIC: 1307.1 |  |  |
|  |  |  |
| Conditional on rho | |  |
| rho = -0.9899191 | |  |

We also developed models that include land use capability but not threat class. Here we present three models on the subset of leases that went through tenure review and had an SIV survey (n=1077 points) for conservation, covenant, and freehold outcomes post land reform (Tables S11-S13).

Table S11. Coefficients for land use capability and other variables in a spatial probit model comparing **conservation** with all other points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Coefficient Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | -0.62936728 | 0.06878958 | -9.1491664 | 0.000000e+00 |
| Distance to town | 0.18979851 | 0.04248068 | 4.4678779 | 7.899939e-06 |
| Slope | 0.08922911 | 0.04659520 | 1.9149849 | 5.549442e-02 |
| Land use capability | 0.40713694 | 0.08106126 | 5.0225837 | 5.098098e-07 |
| Recreational SIV | 0.62905709 | 0.10078052 | 6.2418523 | 4.324192e-10 |
| Ecological SIV | 0.91320847 | 0.10557712 | 8.6496815 | 0.000000e+00 |
| Land use capability \* Recreation SIV | 0.06439428 | 0.11634917 | 0.5534572 | 5.799504e-01 |
| Land use capability \* Ecological SIV | -0.10400081 | 0.12214834 | -0.8514304 | 3.945303e-01 |

AIC = 1247.6

rho = 0.9899191

Table S12. Coefficients for land use capability and other variables in a spatial probit model comparing **covenant** with all other points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | -1.29072215 | 0.08605443 | -14.998904 | 0.000000e+00 |
| Distance to town | -0.13984189 | 0.05549104 | -2.520080 | 1.173280e-02 |
| Slope | -0.03229743 | 0.05432320 | -0.594542 | 5.521496e-01 |
| Land use capability | 0.11369135 | 0.08572765 | 1.326192 | 1.847760e-01 |
| Recreational SIV | 0.46102955 | 0.11475639 | 4.017463 | 5.882806e-05 |
| Ecological SIV | 0.33881599 | 0.12412268 | 2.729686 | 6.339460e-03 |
| Land use capability \* Recreation SIV | -0.19077475 | 0.11497048 | -1.659337 | 9.704795e-02 |
| Land use capability \* Ecological SIV | -0.23282298 | 0.13134594 | -1.772594 | 7.629606e-02 |

AIC = 914.44

rho = -0.9899191

Table S13. Coefficients for land use capability and other variables in a spatial probit model comparing **freehold** with all other points from leases with tenure review and SIV survey (n=1077 points).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | Std. Error | z-value | Pr(>|z|) |
| Intercept | 0.30122691 | 0.06597509 | 4.5657674 | 4.976703e-06 |
| Distance to town | -0.11767402 | 0.04453207 | -2.6424556 | 8.230726e-03 |
| Slope | -0.08747361 | 0.04896378 | -1.7864962 | 7.401895e-02 |
| Land use capability | -0.37344133 | 0.07185801 | -5.1969339 | 2.026024e-07 |
| Recreational SIV | -0.93234853 | 0.10048909 | -9.2781072 | 0.000000e+00 |
| Ecological SIV | -1.12396265 | 0.10949779 | -10.2647060 | 0.000000e+00 |
| Land use capability \* Recreation SIV | -0.07368867 | 0.10788291 | -0.6830430 | 4.945797e-01 |
| Land use capability \* Ecological SIV | 0.08925517 | 0.11992602 | 0.7442519 | 4.567241e-01 |

AIC = 1163.1

rho = -0.9899191