**S2 Table. Comparison of Random Forests variable importance values for the entire study area and the North and South bioclimatic zone models.**  Variables ranked according to their Random Forests variable importance values shown as the estimated mean decrease in accuracy (MDA).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study Area** |  | **North BZ** |  | **South BZ** |  |
| Variable | MDA | Variable | MDA | Variable | MDA |
| Population Density | 339 | Population Density | 237 | Grow Seas. Precip. | 302 |
| Slope | 304 | Grow Seas. Precip. | 200 | Slope | 269 |
| Grow Seas. Precip. | 244 | Slope | 168 | Population Density | 248 |
| Vegetation | 189 | Vegetation | 165 | Vegetation | 146 |
| Elevation | 160 | Elevation | 165 | Elevation | 130 |

**SI Table 3. Summary of GAM model comparison for Study Area and North and South bioclimatic zone model sets.**  Model AIC, delta AIC between top model and model shown, % deviance explained, model r-squared, degrees of freedom and predictor variables included in the model shown. All continuous variables were significant at the p < 0.0001 significance level.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study Area** |  |  |  |  |  |
| **AIC** | **ΔAICc** | **% Dev. Exp.** | **R-sq.** | **DF** | **Predictor Variables** |
| 35929 | 0.0 | 12.4 | 0.830 | 41 | elevation, vegetation type, population density, growing season precipitation, slope |
| 35973 | 44 | 12.3 | 0.082 | 33 | elevation, vegetation type, population density, growing season precipitation |
| 36874 | 945 | 10.1 | 0.060 | 25 | elevation, vegetation type, population density |
| 37020 | 1090 | 9.68 | 0.058 | 17 | elevation, vegetation type |
| 37020 | 1090 | 6.65 | 0.369 | 17 | elevation |
| 41133 | 5203 | <0.0001 | <0.0001 | 1 | null model |
|  |  |  |  |  |  |
| **North Bioclimatic Zone** | | |  |  |  |
| **AIC** | **ΔAICc** | **% Dev. Exp.** | **R-sq.** | **DF** | **Predictor Variables** |
| 14690 | 0.0 | 12.6 | 0.089 | 39 | vegetation type, slope, growing season precipitation, population density, elevation |
| 15036 | 346 | 10.5 | 0.070 | 30 | vegetation type, slope, growing season precipitation, population density |
| 15127 | 437 | 9.9 | 0.680 | 25 | vegetation type, slope, growing season precipitation |
| 15431 | 741 | 7.98 | 0.055 | 16 | vegetation type, slope |
| 15787 | 1097 | 5.75 | 0.035 | 8 | vegetation type |
| 16773 | 2083 | <0.0001 | <0.0001 | 1 | null model |
|  |  |  |  |  |  |
| **South Bioclimatic Zone** | | |  |  |  |
| **AIC** | **ΔAICc** | **% Dev. Exp.** | **R-sq.** | **DF** | **Predictor Variables** |
| 18837 | 0.0 | 14.9 | 0.13 | 37 | elevation, growing season precipitation, population density, vegetation type, slope |
| 18884 | 47 | 14.6 | 0.13 | 32 | elevation, growing season precipitation, population density, vegetation type |
| 18946 | 109 | 14.3 | 0.127 | 25 | elevation, growing season precipitation, population density |
| 19394 | 557 | 12.2 | 0.098 | 18 | elevation, growing season precipitation |
| 20559 | 1721 | 6.85 | 0.046 | 9 | elevation |
| 22078 | 3241 | <0.0001 | <0.0001 | 1 | null model |

**References cited**