Supplemental figure captions

Figure S1. Unavailable area as fraction of land area per GCAM land unit. Unavailable area includes suitable, protected land and all unsuitable land. The four land protection cases are a) current, b) uniform 30% by country, c) biodiversity conservation away from current land use, d) minimum area to safeguard biodiversity.

Figure S2. Initial convertible land value in 1975 USD per ha, by GCAM land unit. These land values are area-weighted averages across unmanaged forest, grassland, and shrubland, and represent both available convertible land and suitable, protected convertible land.

Figure S3. Protected land conversion pressure relative to unmanaged land for (b-d) reference and (f-h) low carbon transition scenarios across the four protection cases, normalized by the respective CURRENT case. These values are derived from those in Figure 4 by dividing each future protection case by the respective CURRENT case. Values represent individual land types within individual land units. The horizontal line is the median, the box represents the interquartile range, and the whiskers represent 1.5 times the interquartile range. The outliers are not shown.

Figure S4. Relationship between protected land conversion pressure and suitable, protected area relative to managed area at the global level, for the low carbon transition BIODIV scenario (2015-2100).

Figure S5. Relationships between protected land conversion pressure and suitable, protected area relative to managed area at the regional level, for the low carbon transition BIODIV scenario (2015-2100).

Figure S6. Relationship between protected land conversion pressure and suitable, protected area relative to managed area for all individual land units, for the low carbon transition BIODIV scenario (2015-2100).

Figure S7. GCAM global land allocation for the low carbon transition scenarios with different land protections.

Figure S8. Distributions of regional difference from CURRENT as the percent of CURRENT allocation change from initial, for select years, under low carbon transition. The horizontal line is the median, the box represents the interquartile range, the whiskers represent 1.5 times the interquartile range, and the dots are the remaining outliers.

Figure S9. Bioenergy crop production by region and globally for the low carbon transition scenarios with different land protections.

Figure S10. Bioenergy electricity generation by region and globally for the low carbon transition scenarios with different land protections.

Figure S11. Bioenergy consumption by region and globally for the low carbon transition scenarios with different land protections.

Figure S12. Total energy consumption by region and globally for the low carbon transition scenarios with different land protections.