

Supplementary Data S1: A CSV file for the list of target species.

Supplementary Data S2: A CSV file containing the estimations of the effect sizes ( $\lnRR$ ) to alleviate the loss of woody plant species  $[-\log(\Delta SR_{\text{mitigation}}/\Delta SR_{\text{baseline}})]$  for terrestrial biomes, based on five Shared Socioeconomic Pathways (SSPs). Results are provided for ensembled means across three General Circulation Models (GCMs) and each of them. The upper and lower 95% confidence intervals (UpperCI and LowerCI) are provided. The number of coarse grids analyzed for each biome (NoCoarseGrids) is also included. BiomeIDs are consistent with those used in the paper. Abbreviations for GCMs: Ensembled, ensembled result; MIROC, MIROC-ESM-CHEM; HadGEM2, HadGEM2-ES; GFDL, GFDL-CM3.

Supplementary Data S3: A CSV file containing the estimations of the effect sizes ( $\lnRR$ ) of tree diversity-dependent productivity conservation  $[-\log(\Delta P_{\text{mitigation}}/\Delta P_{\text{baseline}})]$  for terrestrial biomes, based on five SSPs. Results are provided for ensembled means across three GCMs and each of them. The upper and lower 95% confidence intervals (UpperCI and LowerCI) are provided. The number of fine grids analyzed for each biome (NoFineGrids) is also included. BiomeIDs are consistent with those used in the paper. Abbreviations for GCMs: Ensembled, ensembled result; MIROC, MIROC-ESM-CHEM; HadGEM2, HadGEM2-ES; GFDL, GFDL-CM3.

Supplementary Data S4: Raster files containing the estimations of tree diversity-dependent productivity conservation  $[-\log(\Delta P_{\text{mitigation}}/\Delta P_{\text{baseline}})]$  at a spatial resolution of 30 arcminutes (maps in geographic coordinates of WGS84; Extended Data Figure S7), which were calculated using five SSPs and three GCMs. Value of -999 is for infinite values (denominator or numerator is zero and thus log-ratio cannot be calculated in these grids). Abbreviations for GCMs: MIROC, MIROC-ESM-CHEM; HadGEM2, HadGEM2-ES; GFDL, GFDL-CM3.

Supplementary Data S5: A CSV file containing the estimations of the effect sizes ( $\lnRR$ ) of tree diversity-dependent productivity conservation  $[-\log(\Delta P_{\text{mitigation}}/\Delta P_{\text{baseline}})]$  of the IPBES subregions, based on five SSPs. Results are provided for ensembled means across three GCMs and each of them. The number of fine grids analyzed for each subregion (NoFineGrids) is also included. Abbreviations for GCMs: Ensembled, ensembled result; MIROC, MIROC-ESM-CHEM; HadGEM2, HadGEM2-ES; GFDL, GFDL-CM3.

Supplementary Data S6: A CSV file containing the estimations of the effect sizes ( $\lnRR$ ) of tree diversity-dependent productivity conservation  $[-\log(\Delta P_{\text{mitigation}}/\Delta P_{\text{baseline}})]$  of countries (ADM0\_A3\_IS), based on five SSPs. Results are provided for ensembled means across

three GCMs and each of them. The number of fine grids analyzed for each country (NoFineGrids) is also included. Abbreviations for GCMs: Ensembled, ensembled result; MIROC, MIROC-ESM-CHEM; HadGEM2, HadGEM2-ES; GFDL, GFDL-CM3.