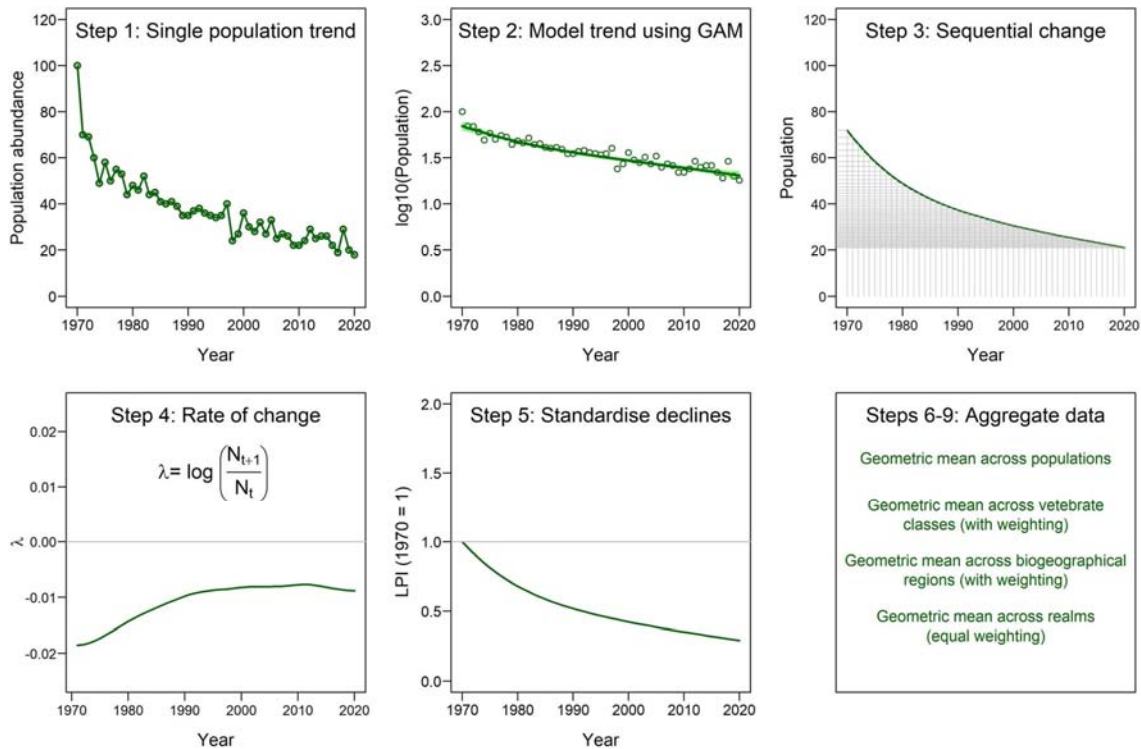


**Extended Data Fig. 1: The nine steps to calculating the Living Planet Index (LPI).**

From: Random population fluctuations bias the Living Planet Index



Calculating the LPI begins with individual population time series (step 1), which are smoothed and interpolated using a Generalized Additive Model (GAM) on  $\log_{10}$ -transformed population measures (step 2). Annual changes are quantified from the GAM prediction (step 3) and summarized as  $\lambda$ , the  $\log_{10}$ -transformed ratio of population sizes in subsequent years (step 4). The population trends are standardized, by setting the population size in 1970 as 1 (step 5), and these standardized trends are averaged across populations of the same species using the geometric mean (step 6). Averaged species trends are aggregated across vertebrate classes (step 7) and biogeographical regions (step 8), using weightings that account for taxonomic and geographical differences in species richness<sup>7</sup>. Finally, the global LPI is the equal-weighted average of the LPIs from terrestrial, freshwater and marine systems (step 9).