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F   Statistical analysis of the GPDD

Population size entries in the GPDD on a logarithmic scale were transformed back into a linear scale for consistency. Similarly to Kendall et al. (1998), we only considered time series consisting of at least 25 data points (1712 cases). Four time series were omitted from the analysis either because of inconsistent values or numerical fit problems. We used the Lomb-Scargle periodogram (**?**) because of gaps in several time series. The zero-frequency mode was omitted from the analysis. For the WN test, time series were detrended using LOESS smoothing of degree 1 and a span of half the data, similarly to Kendall et al. (1998). For the OUSS test, time series were not preprocessed at all, and periodograms were either low-frequency trimmed at threshold $\nu = 1/20$ yr or not pre-processed at all (see the main article for the resulting differences). In the former case, all frequencies below ν were omitted both when determining the periodogram peak as well as when estimating the OUSS parameters. For the OUSS test, periodograms whose maximum was either at the lowest mode (in the case of no frequency trimming) or exceeded in power by the immediate lower mode (in the case of frequency trimming) were not considered cyclic, because such one-sided peaks should not be considered indicators of a true power peak. For the WN test this was irrelevant because detrending typically eliminated such one-sided peaks at the lowest mode. Apart from that, periodograms were analyzed as described in Band OUSS FAPs were corrected as described in C.

LITERATURE CITED

Kendall, B. E., J. Prendergast, and O. N. Bjørnstad. 1998. The macroecology of population dynamics: taxonomic and biogeographic patterns in population cycles. Ecology Letters 1:160–164.