

# LIVING PLANET INDEX : TECHNICAL NOTES<sup>1</sup>

## **Data collection**

The species population data used to calculate the index are gathered from a variety of sources published in scientific journals, NGO literature, or on the worldwide web. Any data used in constructing the index has to be a time series of either population size or a proxy of population size. Some data are total population estimates such as counts of an entire species; others are density measures, for example the number of birds per kilometre of transect; some are biomass or stock estimates, particularly for commercial fish species; and others are proxies of population size, such as the number of nests of marine turtle species on various nesting beaches.

All population time series have at least two data points, and most have more than two, collected by methods that are comparable across years, so that it is possible to determine a trend. A population estimate taken at one point in time would not be used with a second estimate from another survey of the same population at another point in time, unless it was clear that the second was meant to be comparable with the first. Plants and invertebrates were excluded, as few population time series data were available. It is assumed that trends in vertebrate populations are indicative of overall trends in global biodiversity.

## **Calculation of the indices**

Before calculating the Living Planet Index, species were first divided according to whether their principal habitat is terrestrial, marine, or freshwater and then, because many more population data are available from temperate regions of the world than tropical (whereas species richness is higher in the tropics), terrestrial and freshwater species populations were divided into temperate and tropical, and marine species populations were divided according to the ocean basin they inhabit: Atlantic/Arctic, Pacific, Indian, or Southern. If the Living Planet Index data were not grouped in this way, then the index would be dominated by temperate terrestrial species, and unrepresentative of global biodiversity.

An index was calculated for each of the sets, representing the average change of all species populations within that group. The Terrestrial Living Planet Index was then calculated as the geometric mean of the temperate and tropical terrestrial indices, likewise for the Freshwater Living Planet Index. The Marine Living Planet Index was calculated as the geometric mean of the four ocean indices. The terrestrial index includes 695 species of mammals, birds, and reptiles found in forest, grassland, savannah, desert, or tundra ecosystems worldwide. The freshwater index comprises 344 species of mammals, birds, reptiles, amphibians, and fish living in rivers, lakes, or wetland ecosystems. The marine index includes 274 species of mammals, birds, reptiles, and fish from the world's oceans, seas, and coastal ecosystems. The Living Planet Index is the geometric mean of the terrestrial, marine, and freshwater indices. The hierarchy of indices is shown in Figure 33.

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<sup>1</sup> Ontleend aan: Living Planet Report 2006 (Geneve, 2006 WWF) pag. 37

**Figure 33: Hierarchy of indices within the Living Planet Index.**

Each population carries equal weight within each species; each species carries equal weight within tropical and temperate realms or within each ocean basin; temperate and tropical realms or ocean basins, carry equal weight within each system; each system carries equal weight within the overall Living Planet Index.

**Fig. 33: HIERARCHY OF INDICES WITHIN THE LIVING PLANET INDEX**

