

Living Planet Database – metadata

Data collection process

Data are collected primarily from publicly available sources. The three main categories of the publicly available data are primary literature, secondary literature and data holding organisations (e.g. USGS North American breeding Bird Survey, RAM legacy database). Data are infrequently collected from non-public sources, for example from student research projects or unpublished survey reports.





Criteria for including data

Time-series data are included if they meet the following criteria:

1. The metric represents abundance or proxy of abundance
2. The time-series contains an abundance estimate for at least two years post-1970, which can be non-consecutive
3. The abundance estimates are for a single species or subspecies
4. The data source is referenced and traceable with a description of the geographic area surveyed so that it can be georeferenced; information on the method used and the units of measurement also need to be provided
5. The method used is consistent throughout the time-series or, if different, a correction factor has been applied accordingly. This applies to the type of survey method, the area and the time-period of the survey

Data types included

The data used in constructing the LPI are time-series of either population size, density (population size per unit area), abundance (number of individuals per sample) or a proxy of abundance (for example, the number of nests recorded may be used instead of a direct population count). The table below gives you an idea of what can and can't be used. If you have data you would like to contribute to the Living Planet Database, please get in touch with us at LivingPlanetIndex@ioz.ac.uk.

Species level	2+ years of data
Known location	Standardised method
Data we can use  Vertebrate species: <ul style="list-style-type: none"> • Full population counts • Estimates (e.g. population size estimated from measured parameters) • Densities (including converted camera trap data) • Indices • Proxies (e.g. breeding pairs, nests, tracks) • Measures per unit effort (e.g. fish caught per net per hour) • Biomass (e.g. spawning stock biomass) • Samples (e.g. where a proportion of the population is regularly monitored) 	Data we may use in future  <ul style="list-style-type: none"> • Occupancy data Data we can't use  <ul style="list-style-type: none"> • Data from experimental observations • Survival rates • Recruitment data e.g. number of eggs or young • Catch or hunting data with no measure of effort • Data where method has changed (unless corrected for) • Opportunistic sighting data
We can keep data confidential!  Sensitive/unpublished data are not publicly available, but used to estimate trends	

Data Descriptor

Base Information

ID	Unique record number autogenerated
Citation	Full citation. Multiple citations separated with Efforts have been made to include letters and characters from all alphabets but please let us know of any mistakes
Replicate	Indicates whether the record is a replicate: time-series where the data partially overlap with other time-series both temporally and spatially. Replicates are excluded from the global LPI but are considered useful as they allow for analysis at different scales; for example a user may select a species population time-series for North America, or the whole of Canada, or each of the 13 Canadian Provinces and Territories, or a patch of forest, depending on the scale of interest.

Taxonomy

Class Order Family Genus Species Authority	<p>All taxonomic information is entered according to the latest authority from the following sources:</p> <ul style="list-style-type: none"> • <i>Mammals</i> – Wilson, D. E. and Reeder, D. M. (2005) <i>Mammal species of the world: a taxonomic and geographic reference</i> (Third Edition). Johns Hopkins University Press, 2,142 pp. www.departments.bucknell.edu/biology/resources/msw3/ • <i>Birds</i> – BirdLife International or IUCN Red List. This is largely consistent with the standard taxonomy for birds (Sibley, C.G. and Monroe, B.L. (1993) <i>Distribution and taxonomy of the birds of the world</i>. Yale University Press: New Haven, USA). www.birdlife.org or www.iucnredlist.org • <i>Amphibians</i> – Frost, D. R. (2005) <i>Amphibian Species of the World: an Online Reference</i> (Version 3.0). American Museum of Natural History: New York, USA. research.amnh.org/herpetology/amphibia/index.html • <i>Fishes</i> – Catalog of Fishes researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp • <i>Reptiles</i> – Turtles and tortoises (excluding marine turtles) (emys.geo.orst.edu/main_pages/database.html), Crocodilians (crocodilian.com/cnhc/csl.html), for all other reptiles www.reptile-database.org
Common Name	The English common name for the species (not subspecies) according to the taxonomic authority.
Subspecies	This is an optional field for subspecies information.

Geography

Location of population	A brief description of the location of the population in this field.
Latitude and Longitude	Data in decimal degrees. For a large area, a midpoint of the range is used.
Is lat/long for a specific location?	Indicates if the lat/long is for a specific point location (e.g. a lake or National Park) as opposed to a midpoint of a large area (e.g. a region or country).
Country list	The country (or countries) that the population occurs in from the list. Marine data are allocated a country if it is within its Exclusive Economic Zone, or as International Waters. Multiple countries are selected in order of proportion of the population it represents starting with the greatest.
Region	<p>This describes the political region a country is assigned to and follows the internationally accepted ISO standard.</p> <ul style="list-style-type: none"> • <i>Africa</i> – The African continent up to and including Egypt, including offshore islands • <i>Antarctic</i> – The Antarctic continent, including offshore islands such as Bouvet, Heard Island and McDonald Islands, South Georgia and South Sandwich Islands, and French Southern Territories • <i>Asia</i> – From Belarus, Ukraine and Moldova up to and including South-East Asia, including Cyprus, the Caucasus, the Middle East and Indonesia • <i>Europe</i> – Northern, Southern, Western and Central Europe up to and including the Baltic States, Poland and Romania, plus Iceland, Greenland and Svalbard • <i>International Waters</i> – Any marine population that lies outside a country EEZ and has been assigned International Waters in the country field • <i>Latin America and Caribbean</i> – Mexico southwards and all Caribbean island groups • <i>North America</i> – Canada, USA, and Saint Pierre and Miquelon • <i>Oceania</i> – Papua New Guinea, Australia, New Zealand, and all Pacific island groups

Ecology

System	<p>While the system to which a population is assigned should ideally be consistent within each species, this is not always the most biologically accurate representation for many generalists, particularly birds. The following guidelines are used to assign a one main system to each population:</p> <ol style="list-style-type: none"> 1. Where was the population monitored? 2. In which system does the species spend the majority of its time? 3. Which system does the species primarily rely on to sustain itself? 4. In which system does the species breed?
---------------	---

	5. In which system is the species most threatened?
Terrestrial/Freshwater/Marine realm	These fields indicate the realm that a terrestrial population occurs in. https://doi.org/10.1371/journal.pone.0169156.s003
Marine ocean	These fields indicate the ocean that a marine population occurs in. https://doi.org/10.1371/journal.pone.0169156.s003
Terrestrial/Freshwater/Marine biome	These fields indicate the biome that a population occurs in. Biomes are taken from the upper level WWF Ecoregion categories, and they differ for terrestrial (www.worldwildlife.org/science/ecoregions.cfm) and freshwater (www.feow.org) populations. Marine biomes have not yet been mapped so these are largely tagged as 'Unknown'

Population Data

Units	A brief description of the units the population data were reported in taken from the data source
Sampling method	A brief description of the main method used to collect the data taken from the data source
Population Data	The annual population value as it appears in the data source.