captrends.csv metadata

|  |  |  |
| --- | --- | --- |
| **Field** | **Description** | **Data type** |
| DataTableID | Unique numerical code for each population trend record. Matches with tables: ts\_abundance.csv, ts\_change.csv, direction.csv. | Character |
| Species\_corrected | Binomial species name following IUCN taxonomy, but with adjustment so populations that have been reclassified according to recent IUCN (as of 2022) range maps now represent the most recent species name e.g. when Canis aureus were recorded across Africa, these were changed to represent newly recognised Canis lupaster. | Character [populated from file: metadata\_taxonomy] |
| Species\_reported | Binomial species name following IUCN taxonomy | Character [populated from file: metadata\_taxonomy] |
| Sub\_species | Subspecies as listed within the source | Character |
| IUCN\_id | Unique species identifier used by the IUCN | Numeric |
| Citation\_key | Unique alphanumerical code for each source to match with table sources.csv | Character |
| Spatial\_locality | If papers have trends split into different sites, each site is given its own spatial unique numerical code | Numeric |
| Temporal\_locality | If papers have trends split into different time points (e.g. 1980 - 1990, and 1990 - 2000), each consecutive time series is given its own temporal numerical code | Numeric |
| Locality\_name | Name of study site as described in the primary source | Character |
| Singular\_country | Country where studied population occurs following ISO3166 naming standards as of 2018 (e.g. source mentions Soviet Union and coordinates indicate Russia, Russia was recorded). | Character [populated from file: metadata\_countries] |
| Multiple\_countries | When studied population overlaps multiple countries, each country is included in a list separated with semi-colons. Country names follow ISO3166 standards. | Character [populated from ile: metadata\_countries] |
| Wider\_population | Further information about the study site e.g. name of the region, state or national park. | Character |
| Locality\_area | Numeric estimate of the study site area | Numeric |
| Locality\_area\_units | Units in which area of study site ‘Locality\_area’ is reported. Categories:  *Km2: Area where the population was studied (recorded in square kilometres)*  *Missing values represent no units or area value were provided* | Categorical |
| Study\_year\_start | Year of first population size estimate | Numeric |
| Study\_year\_end | Year of final population size estimate | Numeric |
| Field\_method | Field method for deriving population size estimates or demographic information. Categories:  *Individuals identified: All individuals of a population were identified.*  *Systematic – direct: Monitoring approach is systematic (not-opportunistic), is not clearly prone to spatial or temporal bias, and involves direct observations of the animal (either alive or dead) e.g. through camera-trap grids or road-transects.*  *Systematic – indirect: Monitoring approach is systematic (not-opportunistic), is not clearly prone to spatial or temporal bias, and involves indirect observations of the animal e.g. footprint, audio calls, fur traps.*  *Systematic -undefined: Monitoring approach is systematic (not-opportunistic) and is not clearly prone to spatial or temporal bias but the actual method of making observations is unclear or a mix of direct and indirect.*  *Unsystematic – direct: Monitoring approach is opportunistic or not completely systematic and is at least partially prone to spatial or temporal bias; also involves direct observations of the animal (either alive or dead) e.g. through camera-trap grids or road-transects.*  *Unsystematic – indirect: Monitoring approach is opportunistic or not completely systematic and is at least partially prone to spatial or temporal bias; also involves indirect observations of the animal e.g. footprint, audio calls, fur traps.*  *Unsystematic - undefined: Monitoring approach is opportunistic or not completely systematic and is at least partially prone to spatial or temporal bias; also the actual method of making observations is unclear or a mix of direct and indirect.*  *Undefined: Population monitoring method poorly defined or does not meet one of the above criteria*. | Categorical |
| Modelling\_method | Analysis method for deriving population estimates or demographic information. Categories:  *Model derived abundance/density: Statistical model used to convert field data into population abundance or density estimates.*  *Model occupancy: Statistical model used to convert occupancy field data into population abundance or density estimates.*  *Matrix modelling: Statistical model to estimate population change using demographic parameters.*  *Total count: Total population size is known, no need for statistical inference of abundance.*  *Relative abundance: Statistical approach to control for different sampling effort in detection events e.g. relative abundance.*  *Field values: Raw field data presented, no statistical modelling used to control for differences in sampling effort, observers etc.*  *Undefined: Approach for estimating population size is unclear or not explained, or does not clearly fall into any other category.* | Categorical |
| Population\_metric | Type of population size measurement. Categories:  *Abundance: Estimates of the number of individuals in the population.*  *Density: Estimate of the number of individuals per unit of area. Units defined by variable 'Density\_scale'.*  *Other: Estimate of the population size in alternate units e.g. relative abundance.* | Categorical |
| Density\_scale | Units of population\_metric when reported as *Density*. | Character |
| Population\_start | Population size estimate in the first recorded year (as listed in field ‘Study\_year\_start’). Type of estimate described in field ‘Population\_metric ‘ | Numeric |
| PS\_dispersion\_estimate | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_start’. Values entered here when they are provided as single estimate (e.g., SE or SD) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| PS\_dispersion\_lower | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_start’. Values entered here when they are provided as a lower bounded estimate (e.g., range or confidence intervals) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| PS\_dispersion\_upper | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_start’. Values entered here when they are provided as an upper bounded estimate (e.g., range or confidence intervals) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| Population\_end | Population size estimate in the last recorded year (as listed in field ‘Study\_year\_end’). Type of estimate described in field ‘Population\_metric ‘ | Numeric |
| PE\_dispersion\_estimate | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_end’. Values entered here when they are provided as single estimate (e.g., SE or SD) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| PE\_dispersion\_lower | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_end’. Values entered here when they are provided as a lower bounded estimate (e.g., range or confidence intervals) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| PE\_dispersion\_upper | Estimate of dispersion or uncertainty in the population size value provided in field ‘Population\_end’. Values entered here when they are provided as an upper bounded estimate (e.g., range or confidence intervals) Type of estimate described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| PS\_PE\_dispersion\_description | Type of dispersion or uncertainty estimate(s) in population size values. Categories:  *SD: Standard deviation.*  *SE: Standard error.*  *Range: Minimum and maximum estimates.*  *90% CI: 90% confidence intervals.*  *95% CI: 95% confidence intervals.*  *Bayesian 90% CI: 90% credible intervals derived through Bayesian sampling.* | Categorical |
| Quantitative\_trend | Numerical estimate of change in population size. Type of estimate described in field ‘Quantitative\_method’. | Numeric |
| Quantitative\_method | Type of population trend metric provided in field ‘Quantitative\_trend’. Categories:  *Manual calculation required: complete time series available in the table [timeseries.csv]. Data fall into two categories: 1) estimates of abundance at different time points. 2) Estimates of change in abundance (e.g. population lambda, or percent change) at different time points. See metadata: timeseries.csv for more detail.*  *Lambda: finite rate of population change (lambda=1 represents a stable trend). Lambdas were estimated using different methods including ratio of abundance between two time intervals (Nt+1/Nt), different demographic models, or as the exponential of an R-trend coefficient.*  *R-trend:* *instantaneous rate of population change. Values were calculated with different methods but most frequently using a log-regression model of population size (R-trend = 0 represents a stable trend).*  *Percentage change: change in population size between two time points (100 is stable) [formula = (Nt+1/Nt) \* 100].*  *Fold change: change in population size between two time points (1 is stable) [formula = (Nt+1/Nt)].*  *Qualitative only: only a verbal description of population change was available*. | Categorical |
| Other\_quantitative\_descriptor | Additional notes and comments about the quantitative descriptor extracted during data compilation to explain less-clear cases. | Character |
| Dispersion\_description | Type of estimate of dispersion or uncertainty provided for the population trend metric. Estimate of dispersion provided in field ‘Dispersion\_estimate’. Categories:  *VAR: Variance.*  *SD: Standard deviation.*  *SE: Standard error.*  *Range: Minimum and maximum estimates.*  *90% CI: 90% confidence intervals.*  *95% CI: 95% confidence intervals.*  *Bayesian 90% CI: 90% credible intervals derived through Bayesian sampling*. | Categorical |
| Dispersion\_estimate | Estimate of dispersion or uncertainty for population trend (provided in field ‘Quantitative\_trend field’). Type of uncertainty/dispersion described in field ‘PS\_PE\_dispersion\_description’ | Numeric |
| Dispersion\_lower | Estimate of lower bound dispersion or uncertainty (e.g., confidence intervals or range) for population trend (provided in field ‘Quantitative\_trend’). Type of uncertainty/dispersion described in field ‘Dispersion\_description’ | Numeric |
| Dispersion\_upper | Estimate of upper bound dispersion or uncertainty (e.g., confidence intervals or range) for population trend (provided in field ‘Quantitative\_trend’). Type of uncertainty/dispersion described in field ‘Dispersion\_description’ | Numeric |
| Significance\_reported | Descriptor of whether statistical significance in population trend was tested. Categories:  *NA: not reported or not relevant.*  *Yes: test statistic and/or significance level reported.* | Categorical |
| Test\_statistic | Value of the statistic (e.g. z, t, or F value) used to describe significance in population trend when available. | Numeric |
| Significance | P-value associated to the ‘Test\_statistic’ used to describe significance in population trend when available. | Numeric |
| Significant\_trend | Binary descriptor of whether, if statistically tested, the population trend was found to be significantly increasing or declining. Categories:  *TRUE: trend was significant.*  *FALSE: trend was not-significant* | Categorical |
| Time\_lapse | Timeframe (in years) at which Quantitative\_trend should be interpreted e.g. a 10-year study may describe the annual finite rate of change (lambda), as its annual the Time\_lapse would equal 1. However, some lambda’s are measured at 0.5 year or 10 year scale, so the metric is used to scale the Quanittative\_trend to a standard time-frame. This value equals NA when the Quantitative\_method is Qualitative only or a Manual trend estimate. | Numeric |
| Qualitative | Verbal description of population change as provided by the primary sources/publications. Categories:  *Increase: trend described as increasing, or recovering, or something synonymous.*  *Stable: trend described as stable or exhibiting no population change, or something synonymous.*  *Decrease: trend as described decreasing, declining, or reducing, or something synonymous.*  *Varied: trend described as showing both increases and decreases at different time periods, but crucially, the first and the last population estimates are similar.* | Category |
| N\_observations | Number of population size estimates used to derive the trend - the minimum value is 2. For matrix models, this value represents the number of sampling years, rather than the number of population size estimates. | Numeric |
| Population\_trend | Estimated instantaneous rate of change *(rt)* for each quantitative trend. As quantitative trends were reported in a variety of ways, we conducted the following conversions:   1. Finite rate of change   Where λ represents the mean annual finite rate of change, recorded as ‘Lambda’ in the “Quantitative\_method” field.   1. Estimates of relative abundance change between two points in time (e.g. percentage or fold change in the past 10 years)   Where *P* represents the additive percentage change (e.g. a population doubling in size = 100%), and *N* is the difference in time (in years) between the two estimates of abundance. For fold changes, we first converted the fold change into an additive percentage change.   1. For timeseries of abundances (population estimates), we fitted log-linear regressions with abundance and year, extracting the slope coefficient. 2. Timeseries of population change estimates, reported as either population lambdas or percentage changes e.g. in year 1 the population doubled (λ = 2) and in year 2 it halved (λ = 0.5). We back-converted the change estimates into abundance estimates against a constant value of 100. We then fitted log-linear regressions with abundance and year, as in the abundance timeseries.   Qualitative trends are left as missing values. | Numeric |
| Trend\_variance | Describes the variance of annual instantaneous trend. We only report this variance from options 3 and 4 above, where the variance simply represents uncertainty around the slope of abundance through time. | Numeric |
| Other\_driver\_of\_trend | Factors described in source as influencing population trends but which could not be captured by threat or conservation actions schema | Character |
| Comment | Additional notes and comments extracted during data compilation. | Character |
| Possible\_issues | Description of issues that may limit use or interpretation of the trend e.g. author may describe the trend estimate as inaccurate. | Character |
| Genetic\_data | Binary descriptor of whether the population trend was derived from genetic information. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Harvest\_data | Binary descriptor of whether the population trend was derived from harvest information e.g. number of individuals hunted. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Invasive\_species | Binary descriptor of whether the studied population was non-native to the study site. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Record\_labelled\_inaccurate | Binary descriptor of whether the population trend was described as inaccurate in the source. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Asymptotic\_growth | Binary descriptor of whether the population trend described asymptotic or observed growth. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Metric\_unusual | Binary descriptor of whether the population trend was reported in an unconventional way. Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Peer\_review | Binary descriptor of whether the source has been published after peer-reviewed. Categories:  *1: no*  *NA: yes* | Numeric-binary |
| Date\_missing | Binary descriptor of whether any of the date values are missing (Study\_year\_start or Study\_year\_end). Categories:  *1: yes*  *NA: no* | Numeric-binary |
| Latitude | Latitudinal centroid in decimal degrees of the study site/population | Numeric |
| Longitude | Longitudinal centroid in decimal degrees of the study site/population | Numeric |
| Source | Source of the coordinates. Categories:  *Georeferenced – automatically: obtained from OpenCage georeferencer using locality name and country from the source.*  *Georeferenced - manually adjusted: obtained from OpenCage georeferencer using locality name and country, but coordinates were inaccurate so were manually corrected.*  *Within study - calculated centroid: Coordinates included in the source as extent ranges from which the centroid was calculated.*  *Within study - reported centroid: centroid reported in the source.* | Categorical |
| Coordinate\_comment | Process for reviewing coordinates that were georeferenced. Categories:  *Checked - location is approximate: georeferenced coordinates were checked and the precise location could not be found. Coordinates approximated manually.*  *Checked - Location refined: georeferenced coordinates were checked and the deemed inaccurate, so were manually adjusted.*  *Checked - Original is robust: georeferenced coordinates were checked and deemed robust.*  *Not checked - Record appears robust: georeferenced coordinates had high a confidence value (greater than or equal to 7) and so were not checked.*  *NA – coordinates not checked as they were extracted from the primary source.* | Categorical |
| LPD\_link | Unique identifier to link CaPTrends to their duplicates in the Living Planet database. The identifier describes the Living Planet databases trend id. | Numeric |
| LPD\_citation | The LPD\_link reference to the primary literature. | Character |