Explaining the Population Overview Report

Explanation and Assumptions
Contact Species360 Support

How to use the Population Overview Report

Explanations and Definitions – Population Overview

This is intended to be a one-screen per taxon (species or subspecies levels only) overview of the state of the animal population, including key metrics on genetic and demographics, and indicators of the underlying data quality.
There are four quadrants:
The upper left graph plots 6 "basic vital rates" (births, deaths, acquisitions from non-Species360 member sources, dispositions to non-Species360 holders, acquisitions directly from the wild, releases directly to the wild) – each is a count of the events of that kind, by year. For individuals (not necessarily for groups), the net result of these basic rates should explain the observed changes in census at lower left, Note that acquisitions from the wild and releases to the wild may be undercounted, as those transactions may have been entered as to/from wildlife agencies, etc., rather than directly from/to the wild. Species360 current membership is used for the entire time period. Various events in groups may go unrecorded, so group data recorded vital rates may not total to the recorded changes in the census.
The lower left graph plots two variables – the living population size (individuals plus groups) on Species360 by year (census as of today's date each year), and the number of institutions physically holding the animals on those dates. Species360' current membership is used for the entire time period to hold the institutional-scope constant (not all current members may have entered data for 20 years ago, so some positive census trend might be caused by recent years being more comprehensive).
The upper right graph is a smaller version of the Age Distribution (Pyramid) Report. Occasionally a data entry error generates an apparently very long-lived animal, stretching the vertical axis.
The lower right quadrant presents calculated metrics on the data available for the population – some measures provide demographic information, some genetic info, and some are indicators of the data quality on Species360 for this taxon. Due to potential missing institutional information (not in Species360) and historical data weaknesses, some of these calculated parameters may represent a lower bound. More Contributing Founders, for example, may be identified if more complete histories and pedigrees are filled in for today's living animal population.

1. **Contributing Founders** (lower bound) – a count of the number of unique (wild-caught) animals that can be traced in Species360 data from the base of the population pedigree to today's living population. To count this, Species360 traces each living animal back through each institution that held it, finds its parents, follows them back through all their institution moves, as far as possible, hopefully to the original wild-caught ancestors. Any not reporting institutions, or missing parental data along the way, means the path will break. When such a break happens, Species360 will undercount the number of unique founder animals that contributed genes to today's living population.
2. **Living Individuals** – the number of live individual animals currently on inventory as reported by current Species360 members (animals pending/in transit are not counted, because no institution reports having them at this moment, groups are also not included here, see below).
3. **Living Descendants** (lower bound) – the number of Living Individuals which can be traced back to the Founders. This may be a fractional number because only part of a living individual is counted if that individual is only partially traced to founders. For example, a living animal with one founder parent and one unknown parent counts as 0.5 living descendant.
4. **Living Breeders** – the number of living individuals who have reproduced.

5. **Average % Pedigree Known** – % pedigree known is the percent of an individual's genome that is traceable to a known group of founders (includes MULT parents where all candidates are identified, as traceable to founders). For example, if an individual has a founder Dam and an unknown Sire, the % pedigree known is 50% for this individual. The average is calculated across all living individuals.

6. **Average % Pedigree Certain** - % pedigree certain is the percent of an individual's genome that is traceable to specific individual founders (i.e. excludes MULT parents whether identified or not). The average is calculated across all living individuals.

7. **Percent Estimated Birth Dates** (> One Month) – this is an indicator of demographic data quality – it is calculated as the total number of individuals animals (living and dead historically) in the denominator, with the number that have significantly estimated birthdates in the numerator. Similar to PMx, only estimates with an uncertainty of +/- a month or more count as estimates here – estimates to within a few days have little or no demographic impact.

8. **% Unknown Date of Birth** – the percent of all individual animals, living and dead, with undetermined or indeterminate birth dates.

9. **% Individually Identified Sires and Dams** – this is a simple % where the denominator is twice the number of captive-born individual animals (living and dead) in the dataset, and the numerator is sum of the Sire and Dam fields that have an animal ID in them.

10. **% Individuals with Multiple Sires or Dams** – this is a simple % where the denominator is twice he number of individual animals (living and dead) in the dataset, and the numerator is the number of multiple candidate sires and/or dams, recorded in ZIMS with % probability.

11. **% individuals with MULT parents without further identification** – this is the percent of animals with sires and/or Dams recorded as MULT – where there are no individual animal IDs identified as candidates under the MULT label. This data is from Species360' legacy ARKS systems, which did not identify MULT parents.

12. **% Animals without Recorded Birth or Capture** – the denominator is the number of individual animals (living and dead) in the dataset, and the numerator is a count of the number of animals (living and dead) which cannot be traced back to birth or wild capture. These are also known as "left-truncated" data. These commonly occur when an animal is acquired from a non-Species360 source.

13. **% Animals Lost to Follow Up**– the denominator is the number of individual animals (living and dead) in the dataset, and the numerator is the number of animals which are Lost to Follow Up – meaning they are recorded as transferred to a location from which there is no further information available to Species360 [also known as right-truncated].

14. **Living Animals in Groups** – the number of living animals today which are in groups (a subset of the total number of living animals)

15. **Current Founder Groups** – the number of current founder groups (wild-caught-origin groups still in existence).

16. **Number of Current Groups** – the number of non-zero groups currently recorded.

Revised 10 August 2017
* Species360 Organizational name change added on 07/18/2016