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Research: Saskatoon Forestry Farm Park and Zoo Delivers Missing Information Critical to Sustaining Biodiversity

Despite volumes of data currently available on mankind, it is surprising how little we know about other species. A paper published this week in the journal *Proceedings of the National Academy of Sciences* (PNAS) – using data recorded by Saskatoon Forestry Farm Park and Zoo in collaboration with other zoos and aquariums worldwide - confirms that critical information, such as fertility and survival rates, is missing from global data for more than 98 percent of known species of mammals, birds, reptiles, and amphibians.

That changed when researchers added data from a previously untapped source, the [Zoological Information Management System](#) (ZIMS). Saskatoon Forestry Farm Park and Zoo records their animal data in ZIMS, which is curated by wildlife professionals working within zoos, aquariums, refuge, research, and education centers in 97 countries. It is maintained by Species360, a non-profit member-driven organization that facilitates information sharing among its nearly 1,200 institutional members, and is the world's largest set of wildlife data. Saskatoon Forestry Farm Park and Zoo has been contributing data on their animals since 2016. Since then, they have added data on 1480 birds, reptiles, amphibians, and mammals of 183 species, making a huge impact on the understanding of those species' life histories.

A multidisciplinary team led by [Species360 Conservation Science Alliance](#), believes we can substantially increase what we know by applying new analytics to data that has been long overlooked – using data contributed by Saskatoon Forestry Farm Park and Zoo and other zoos and aquariums around the world. “Providing that missing data – filling in those gaps – is game-changing for these species,” adds Tim Sinclair-Smith, the Manager of Saskatoon Forestry Farm Park and Zoo.

Predicting when species are at risk, and how best to bolster populations, requires knowing at what age females reproduce, how many hatchlings or juveniles survive to adolescence, and how long adults live. To understand what data are currently available, and to measure the void, researchers developed a [Species Knowledge Index](#) (SKI) that classifies available demographic information for 32,144 known species of mammals, birds, reptiles and amphibians.

Incorporating ZIMS boosted the Species Knowledge Index eightfold for comprehensive life table information used to assess populations. Information on the age of first reproduction for females, a key piece to estimating how a population will fair in coming years, grew as much as 73 percent.

“Adding ZIMS was like turning on the lights in an otherwise very dim room,” said Conde. “Class by class, from mammals through amphibians, we saw large gaps fill with fundamental data needed to help conservationists assess populations and advocate for threatened, endangered, and vulnerable species.”

For more information about Saskatoon Forestry Farm Park and Zoo, visit saskatoon.ca/zoo.