

## The AZA Population Management Center

Lincoln Park Zoo hosts the Population Management Center (PMC) in partnership with the Association of Zoos and Aquariums (AZA). Established in June 2000, the center provides assistance to zoo professionals across the country by conducting demographic and genetic analyses and preparing breeding and transfer plans for Species Survival Plan® (SSP) species.

AZA-accredited zoos in North America participate in Species Survival Plans® for more than 500 species housed and cared for within our facilities. These science-based plans help map out the best way for zoos and aquariums to maintain healthy and robust animal populations. Experts make recommendations for breeding, or not breeding, individual animals based upon population dynamics, available housing, and family lineage. Animals are recommended to breed only when sustainable housing for any offspring can be assured for the entirety of the animal's natural life.

When animals are not recommended to breed, AZA-accredited zoos and aquariums employ a number of birth control methods including temporary or permanent contraception, nest manipulation or separation of males and females.

In their management of animals, zoos and aquariums focus on the long-term maintenance of healthy populations in conjunction with education and conservation goals. Cooperative, scientific population management is critical to the long-term sustainability of most zoo and some aquarium animal collections.

The primary goal of population management is to maintain demographically stable and genetically diverse populations for the future. These goals are achieved by balancing births with deaths to best utilize available space and resources, maximizing gene diversity retention, avoiding inbreeding, and continually monitoring the health and welfare of all individuals.

**Demographic stability** can be maintained by ensuring that

- Population sizes are large enough to avoid being vulnerable to random events (e.g., birth sex ratio biases, unexpected changes in birth or death rates, disease outbreaks, catastrophes, etc.)
- Births equal or outnumber deaths caused from old age, illness, injury or other natural causes.
- There are sufficient juveniles to replace breeding-aged animals and animals that are too old to breed
- Population growth rates are steady or increasing

**Genetic diversity** can be maintained by ensuring the following

- Breeding should attempt to retain all the lineages that the population was originally founded on, and keep them equally represented in the living population
- Inbreeding is avoided

These population management goals are achieved by regular examination of the demographic and genetic health of the populations and the development of breeding and transfer recommendations based on the results of these analyses. Essentially, demographic analyses are used to guide “family planning” and genetic analyses assist with “matchmaking.” Breeding recommendations are developed as a collaboration among PMC advisors, AZA studbook database keepers, AZA species coordinators, husbandry experts, and representatives of the institutions holding the individual animals. In making individual breeding and transfer recommendations, data on individual animals including their relative genetic value in the population, age, health, behavior, temperament, geographic location, housing, and other factors are all considered. Institutional wants and needs (e.g., requests to place offspring, acquire a mate, fill a new exhibit, etc.) are also considered. A breeding and transfer plan should thus balance short-term animal and institutional needs with long-term genetic diversity and demographic stability.

Operational support for the PMC is provided by the AZA, Rice Foundation, U.S. Department of Agriculture and Lincoln Park Zoo.