Denver Zoo Resilience Planning: Anticipating, Preparing for, and Adapting to Changing Conditions

By Jennifer Hale

Resilience planning goes beyond emergency preparedness and stockpiling resources, and instead takes a look at “interdependencies of systems and applying a long-term sustainability lens to ensure safety of animals and staff, as well as building redundancy in systems” (source: AZA Connect, Planning for Resilience at Zoos and Aquariums, March 2018).

Denver Zoo in Denver, Colo., has long understood the need to develop a resilience plan, based on our own experiences from water main breaks, major storm events, or from indirect impacts of national weather events. Identified as an objective in the Zoo’s ISO 14001 Environmental Management System, resilience planning also aligns with the global sustainability goals outlined by United Nations Sustainable Development Goals. With support from the U.S. Department of Energy’s National Renewable Energy Laboratory (NREL), Denver Zoo has been making strides to develop our plan by initiating the process outlined in NREL’s Resilience Roadmap (www.nrel.gov/resilience-planning-roadmap/).

Through a series of internal workshops and surveys held with key stakeholders representing various departments in the Zoo, members of our Facilities Department have worked through the steps of:
1. Developing a common understanding for resilience planning;
2. Identifying key outcomes which include: animal welfare, safety, support long range planning, and financial stability;
3. Identifying critical infrastructure; and
4. Identifying natural and technological hazards and threats that have potential to impact our operations.

The stakeholder group was tasked with developing a list of vulnerabilities associated with our operations and the interdependencies of the vulnerabilities across our entire campus. The vulnerabilities with the greatest interdependencies established our prioritized list and key focal areas. Although these workshops may not have uncovered any surprising or previously unknown facts, the process helped gain consensus among stakeholders and supported our direction to first improve the operational procedures and processes listed below. Taking these first steps would help guide us in addressing our highest priority vulnerabilities of: aging infrastructure, external infrastructure failure (City, County), lack of coordination, and communication with external stakeholders and responders, and inflexibility of existing infrastructure.

Emergency Planning
Taking an all hazards approach, Denver Zoo is improving our emergency management programs to follow the National Incident Management System (NIMS) Guiding Principles. The objectives of this plan include: development of standardized protocols for emergency response, effective coordination between zoo and external agencies, and prioritizing mission critical functions.

Facilities Condition Assessment
We need to understand our infrastructure and conditions to help us identify mission critical systems and expected life span and replacement strategies so we can begin to develop response plans, design for future flexibility, and build redundancy into the system to reduce vulnerabilities.

Integration of Sustainability Factors into Institutional Collection Plan
We are developing metrics to understand resource footprints associated with different species in our collection plan. Using a life cycle process approach, the information will help inform decision making at collection level, but also support developing resilience priorities of exhibit maintenance, design, and building in redundancy to critical needs (i.e. diversify priority food resources).

Although we have a lot of work to do, we are proud of where we are in this journey and look forward to continuing our collaboration with organizations such as NREL so we can support fellow AZA member facilities' access to tools and resource to develop their own resilience plans.

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