





BY MARY ELLEN COLLINS

HOME SWEET HOME

ELEPHANT HABITATS INCORPORATE WELFARE SCIENCE

If you have heard a visitor to an elephant exhibit ask if the animals are **HAPPY**, you know what they mean: it's their way of expressing concern for the animals' well-being, a concern that welfare scientists, animal keepers and exhibit designers in the Association of Zoos and Aquariums community share.



OVER SEVERAL DECADES,

zoo professionals have increased their focus on providing habitats that allow these highly intelligent and social animals to display natural behaviors, thereby contributing to their physical, mental, psychological and social well-being.

Using Science to Understand Elephant Welfare was a multi-year, multi-institutional study that began in 2012, in which researchers looked for connections between specific ways elephants are managed and variations in welfare outcomes. According to consulting project manager Cheryl Meehan, director of the AWARE Institute, the data gathered provided valuable confirmation about elephants' needs and identified management practices that resulted in positive outcomes—information which is invaluable to the people who create exhibits.

“The design of all animal habitats has been changing over the past 30 years with the greater knowledge of animal psychology and their mental and emotional needs,” said architect Chuck Mayes, principal at AZA commercial member, MIG | Portico. “Now there’s been a change of thought patterns as animal management is informed by a lot more education and research. We make the animals’ home ... and our design is the framework for allowing keepers to provide really good care to the animals.”

Supportive Spaces

Today, key design components that contribute to elephant welfare include larger, flexible configurations; soft surfaces and varied terrain; and a layout that facilitates the animals' ability to interact with others and choose between indoor and outdoor spaces. And even though many new facilities are larger than the ones they replace, lack of space isn't an automatic deterrent to animal well-being, according to Bruce Bohmke, chief operating officer at Woodland Park Zoo in Seattle, Wash., and Elephant Taxon Advisory Group Steering Committee member. “It’s not about how much space you have, it’s about how you use it.”



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For example, when Denver Zoo in Denver, Colo., built a new facility for three bulls (and possibly an additional two), they implemented a flexible design with five adjoining outdoor yards. The space also accommodates rhinos at certain times; and will be able to support a breeding facility if the Zoo decides to go that direction in the future. “There’s real value in having a number of contiguous exhibits that can link together,” said Sharon Joseph, director of animal welfare and internal research at Denver Zoo. “We are one of the facilities that pioneered rotational exhibits. We can configure the yards in multiple ways: as two yards, three yards or five. The substrate is a mix of sand and dirt that is tilled to keep it loose and soft on the feet.”

There is a commonly held belief that grass isn't practical for outdoor habitats because the elephants are simply too hard on it, but Mayes dispels that myth. “The trick is having enough room so elephants can roam around. At the Fresno Chaffee Zoo we designed a well-drained substrate with tough, deep-rooted Bermuda grass. Some areas are worn down, but the grassy exhibit is more comfortable, looks better, and is good for the elephants’ feet.”



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Social Interaction

Elephants are very social creatures, and the research confirms that they are less stressed when they spend more time in proximity to each other. “Although elephants have a relationship with the care staff, our priority is their relationships and opportunities to communicate with each other,” said Greg Vicino, associate curator of elephants and animal welfare at San Diego Zoo Global in San Diego, Calif. “Our 13 elephants at the Safari Park—adults, juveniles and babies—occupy the same, large outdoor habitat. Because each individual has so many chances to interact with others of different ages, they had very high social experience scores, which resulted in our herd being the most socially complex of any herd in the study. They spend 30 percent of the time we observe them in play behavior.”

Staff at the Oregon Zoo in Portland, Ore., was planning a new exhibit while the study was underway, and the results confirmed much of what they already knew, according to Nadja Wielebnowski, conservation

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“This means they can choose whether they want to be together or alone,” said Wielebnowski. “When the elephants are less dependent on keepers, that allows for more variety of social behaviors. Once they got into the new area, they started vocalizing more with each other. When people ask if we can provide what the wild provides, I look at the human/elephant conflict in the world out there and say, ‘I think these elephants have a pretty amazing habitat and life.’”

Climate typically determines how much time, if any, elephants spend indoors. But making sure that indoor habitats provide for their physical and emotional needs is just as important as the focus on the outdoor habitats. And that includes keeping in mind the fact that elephants do not sleep all night.

“Twenty or thirty years ago most elephants were kept in individual stalls inside,” said Bohmke. “Now there’s a push toward large herd rooms to put them together, and using natural substrates. So instead of being alone on concrete they’re with friends in a bigger space with a softer surface. The more we can do to put them together, the better.”

Enrichment Activities

Providing opportunities for elephants to display their natural behaviors, an integral part of healthy habitat design, is often done through the incorporation of complex feeding strategies that involve puzzles, unpredictability and other challenges.

“At our new facility for four geriatric elephants, we put a big emphasis on creating a natural feeding strategy with a sophisticated feeding system,” said Vicino. “We installed hay feeders that can be raised and lowered at different times in six different places, trying to mimic the random distribution of food in the wild. We want the elephants to forage and problem solve.”

Similarly, at the Los Angeles Zoo in Los Angeles, Calif., and the Fresno Chaffee Zoo in Fresno, Calif.,





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Mayes' outdoor habitat design includes an artificial rock/mud wall with holes and crevices. "We created a tunnel behind the wall so keepers could put different food treats in different holes at different times of the day."

He also shares an example of a design decision that gave the elephants a chance to be participants in building their own environment. "At the Fresno Chaffee Zoo we decided to let them create their own mud hole instead of us designing a concrete hole and filling it with mud. The staff over soaks an area in the habitat and lets elephants make their own mud bath. After a while they let that area dry out and choose another spot to over soak. It takes space, but if you have enough room it's good for the elephants to do the work."

The Oregon Zoo's new indoor facility has an enrichment tower in the middle of it that features suspended toys, hay holders and crevices in which food can be hidden. "We want elephants to have opportunities 24/7 to make choices, solve challenges and have social interactions," said Wielebnowski.

Looking Ahead

"Caring for animals in a zoo is a science that's based on data," said Vicino. "Real time feedback is so valuable. You can look at the data and say, 'The enrichment diversion today wasn't as great as last week. Let's change it up.'"

As elephant care teams and architects continue to assess habitat design and elephant management based on welfare science, Meehan imagines what the future might look like.

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