

Observations of an Asian Elephant at Edmonton Valley Zoo, Alberta (2007)

VALLEY ZOO BACKGROUND

The Valley Zoo is a municipally owned and operated facility located in the River Valley Park System in the heart of Edmonton, Alberta. Established in 1959, the zoo is a menagerie-style, urban facility displaying a broad range of animal species, including reptiles, birds, ungulates, primates, big cats and elephants, in a variety of exhibit types. Many of the exhibits were originally designed as part of a children's storybook theme.

ELEPHANT FACTS

Elephants are highly social, intelligent, sensitive animals with very complex systems of communication, that include physical contact, body movements and postures, chemical cues, seismic vibrations, infrasound and a broad array of audible vocalizations. They are long-lived with some individuals surviving into their 80s.

Wild elephants live in a structured, matriarchal clan society, the core unit being the family, which typically consists of a female, her dependent offspring, and grown daughters with their dependent offspring. Females tend to live out their lives in the same family group, while males disperse once they reach sexual maturity. Some males may congregate for periods of time in bachelor herds

Asian elephants tend to be forest dwellers, while African elephants have historically occupied a variety of habitat types, including savannah, forest and desert. Elephant home ranges vary in size from a low of 14km² in an African groundwater forest to thousands of square kilometers for savannah and desert elephants.

VALLEY ZOO ELEPHANTS

At the time this study took place, two elephants were in residence at the Valley Zoo.

Samantha, a 19 year old female African elephant, arrived at the zoo as an infant after her family was killed during a culling operation in Zimbabwe. In 2006, Samantha tore off a 20cm section of her trunk after it was caught in a gate latch. In September 2007, Samantha was sent to the North Carolina Zoo on a multi-year breeding loan.

Lucy, a 31 year old female Asian elephant born in Sri Lanka, arrived at the zoo when she was two years old. Since her arrival, Lucy has experienced a range of health issues, including recurrent foot problems and arthritis.

CONDITIONS

The Valley Zoo elephant enclosure consists of a barn separated into two distinct stalls divided by a concrete wall and entrance corridors that allow access between the stalls and to the outdoor yard. The floor of the barn is marginally, sloping, grooved concrete. A small electric barrier and dry moat separates one stall from the visitor gallery window, while the other stall is separated by a heavy steel grid barrier. An alcove behind one of the stalls contained a sizable sand mound.

The outdoor yard consists of relatively flat, bare earth substrate surrounded by a steel fence of moderate height. One end of the yard contains a large, open canopy structure with several ground level vertical, wooden posts (presumably for rubbing) and a hanging plastic barrel. There were no other features in the enclosure.

OBSERVATION CRITERIA

To determine the extent of Lucy's daily activity and species-typical behaviour, several criteria were formulated as part of a simple ethogram for recording purposes. These criteria were based in part on similar behavioural studies conducted in other jurisdictions. Each criterion represents a basic facet of elephant movement or behaviour.

Idle: Remaining stationary in a standing position in one location, including sleeping.

Moving: Any movement of the entire body greater than ½ of body length.

Trunk explore: Use of the trunk to explore and/or manipulate immediate surroundings, including substrate, furnishings and objects. Does not include drinking containers/apparatus or food items.

Social: Any interaction, such as trunk touching, head or body contact, tail touching, moving forward or backward resulting in contact, smelling or probing and inspecting feces or urine.

Aggression: Any aggressive social interaction, such as biting, butting with head and pushing with force causing Samantha to bend her legs.

Abnormal Behaviour: Unusual or repetitive behaviours, such as head pushing against wall or gate, bobbing, weaving, swaying of body, stepping back and forth and pacing in a repeated pattern.

Vocalize: Any sound generated from the vocal cords or trunk, including trumpets, roars, barks, snorts, growls, squeals and rumbles.

Drink/ Eat: Any activity involving drinking out of a receptacle or hose and any consumption of food items.

Interaction: Any interaction with Valley Zoo staff.

Location: Whether body is positioned indoors, outdoors or in the barn door access area.

Observers were also asked to record significant activity not represented in the observation criteria, as well as anything they considered particularly noteworthy or unusual.

METHOD

Lucy was observed on April 25-26, 2007 during the Valley Zoo's regular business hours (9 am – 4 pm). Observation criteria were listed on prepared sheets and observers recorded Lucy's activity at two minute intervals, each observation representing one focal point. Individual focal points may represent concurrent criteria. For example, stereotypic swaying exhibited while standing stationary would result in both the idle and the abnormal behaviour criteria being recorded. A total of 356 focal points are represented in this report.

RESULTS

Idle

Lucy spent the majority of her observed time in a stationary position. A total of 274 (77%) of 356 focal points. On Day 1 Lucy was idle for 153 (81%) of 189 focal points. On Day 2 she was idle for 121 (72%) of 167 focal points.

Note: On Day 2, zoo staff walked Lucy out of her enclosure to a wooded section of the zoo property and then back again. Whether or not this activity and the way it was conducted is a regular part of the management regime is not known. Weather conditions were the same on both observation days.

Moving

Movement of more than ½ body length. A total of 56 (15.5%) of 356 focal points. On Day 1 Lucy moved for 16 (8.5%) of 189 focal points. On Day 2 movement was recorded for 40 (23%) of 167 focal points.

Note: 35 (87%) out of 40 focal points took place during Lucy's walk.

Throwing

Lucy exhibited almost no contact with the substrate and no throwing of earth, straw or other materials. A total of 3 (.85%) of 356 focal points. Two of 189 focal points on Day 1 and one of 167 focal points on Day 2.

Explore Trunk

Minimal use of trunk to explore surroundings. A total of 28 (7.8%) of 356 focal points.

Social

Virtually no social activity was observed. Only 2 (.56%) of 356 focal points. One focal point on Day 1 and one on Day 2. Each social interaction consisted of reaching out for a brief trunk touch.

Aggression

No aggressive behaviours recorded.

Abnormal Behaviour

Abnormal behaviours (excluding idleness) consisted primarily of rocking forward and backward, swaying and head bobbing. A total of 30 (8.4%) out of 356 focal points. 23 focal points on Day 1 and seven on Day 2.

Vocalize

Vocalizations were heard at 11 (3%) of 356 focal points. One focal point on Day 1 and 10 focal points on Day 2.

Drink/ Eat

A total of 89 (25%) out of 356 focal points. 36 focal points on Day 1 and 56 focal points on Day 2.

Interaction

Total of 65 (18%) of 356 focal points. 65 focal points on Day 1 and 19 focal points on Day 2.

Note: The majority of the interaction with staff took place during a demonstration in front of a group of young children and Lucy's walk through the zoo grounds.

Location

A total of 184 (51%) of 356 focal points recorded Lucy as being indoors, meaning her entire body was in the elephant barn. 177 (49%) focal points indicate Lucy being partially or entirely outdoors.

COMMENTARY

Depending on the species, location and resources available, wild elephants are known to walk distances ranging from a minimum of about 8 – 12 kilometers to many dozens of kilometers on a daily basis. However, while the total daily distance traveled is impressive, the time that elephants remain active, 20 out of every 24 hours (18 devoted to foraging), is equally significant and impressive.

The observations of Lucy during this review indicate that she is abnormally inactive. On Day 1 she was inactive for 81% of the time and on Day 2 she was inactive 72% of the time. For a highly social, extremely active species that is biologically and behaviourally structured for walking and foraging, this finding is cause for concern. It does not however properly convey the gravity of Lucy's situation, because Lucy's movement and stimulation are further restricted through confinement indoors during off hours, a practice that may exacerbate her already serious physical health issues, such as arthritis, and contribute to a variety of unpleasant emotional states.

At the end of the first observation period (approx. 4 pm), Lucy was placed indoors. She was let out at 9 am the next morning, having spent 15 hours (62.5% of the day) confined indoors. While there may be minor daily fluctuations in the total time Lucy is kept indoors, it almost certainly is the majority of her time. This was corroborated by zoo staff. While not a consideration during this study, Lucy's situation will be considerably more problematic during winter months when she may be kept in for additional periods of time because of inclement weather.

Lucy's spatially restricted, behaviourally impoverished living conditions are antithetical to what is currently known about natural elephant biology, behaviour and lifestyle. The key elements in establishing an acceptable quality of life for elephants in captivity, such as space to roam, explore and exercise, unfettered access to the outdoors, appropriate stimulation and social contact with other elephants are restricted or missing altogether.

Prepared by Zoocheck Canada, 788 ½ O'Connor Drive, Toronto, Ontario, M4B 2S6, Canada
zoocheck@zoocheck.com