

Ethogram

Examination of enrichment using space and food for African elephants at the San Diego Zoo Safari Park

States – *Italic Text* | Events – Normal Text

<i>Water Related</i>	
Behaviour	Description
Drink (DR)	Obtaining water from a receptacle, pool, or hose and placing into the mouth.
<i>In water (H₂O)</i>	<i>At least 25% of the body is submerged in the water and play is not occurring.</i>
Spray (SPR)	Water is sucked into the elephant's trunk and is ejected back out of the trunk with force on self, another elephant, or into nearby space.
<i>Water Play (H₂OP)</i>	<i>Various Behaviours, such as swimming, splashing, skimming, submerging and the elephant is not engaging with another elephant.</i>

<i>Trunk Related</i>	
Behaviour	Description
Self-Directed Touch (SDT)	An elephant touches itself anywhere on its body with the tip of its own trunk.
Trunk Curl (TC)	The bottom third of the trunk curls in any direction.
Trunk Flick (TF)	The very end of the trunk just prior to the trunk's finger like projections flicks back and forth. Trunk is generally in a downward position.
Trunk Swing (TS)	The entire trunk is moved back and forth in any direction, sometimes including a head bobbing motion.
Trunk Wriggle (TW)	The trunk is lifted at least parallel to the ground if not higher, folds upon itself, and is then dropped.

<i>Investigation Related</i>	
Behaviour	Description
Flehmen (FL)	The trunk tip is placed over the Vomeronasal organ in the roof of the mouth.
Ground Sniff (GS)	The trunk is placed just above the ground but does not make contact, generally moves slightly side to side.
Horizontal Sniff (HS)	The trunk is extended exactly parallel or within 45 degrees of being parallel to the ground, reaching in front of the elephant.
J Sniff (JS)	The bottom half of the trunk is curved to either side in the shape of the letter 'J'.
Periscope Sniff (PS)	The end portion of the trunk is placed on or near top of the head in a salute position.
Vertical Sniff (VS)	The trunk is extended upwards reaching over the head.

<i>Non-Locomotion Related</i>	
Behaviour	Description
<i>Laying Down (LD)</i>	<i>At least 75% of the body is on the ground with limited to no movement.</i>
<i>Standing (S)</i>	<i>Elephant is elevated on all four legs with little to no leg movement and is not eating, drinking, or nursing.</i>

<i>Food Related</i>	
Behaviour	Description
Collecting Food (CF)	Organizing food within one trunk's length reach into a pile that can be picked up as one unit and placed into mouth. Usually done with sparse pieces of hay or alfalfa pellets.
Food Hoarding (FH)	Storing more than one mouthful of food on top of body, head, wedged against tusk(s) or folded in trunk and removing the food matter at least one body length from the initial site.
<i>Eating Browse (EB)</i>	<i>Eating branches, bushes, bark, and/or other leafy plants.</i>
<i>Eating Hay (EH)</i>	<i>Eating hay without combining the hay with browse.</i>
<i>Eating Other (EO)</i>	<i>Eating food that cannot be classified as browse or hay. Such food includes beet pulp, alfalfa pellets, mud, dirt, sand, stones, salt, etc.</i>
Shake Food (SF)	The elephant shakes the food already being held in its trunk with a force large enough to break up the food matter being held.
Throw Food (THF)	An elephant throws, flings, or tosses the food matter without eating any remnants the elephant may have held onto during the throwing action.

<i>Social Contact Related</i>	
Behaviour	Description
Be Pushed (BP)	Receive force from another elephant's body that results in the physical displacement of the subject elephant.
Push (P)	Exert force on the body of another elephant to physically displace it.
<i>Social Play (SP)</i>	<i>Engaging in friendly lively contact out of the water without eating with at least one other elephant. Could include sparring, enrichment use, and the like.</i>
<i>Social Play in Water (H₂OSP)</i>	<i>The elephant is in the water and is playing with at least one other elephant who is also in the water.</i>
Social Touch (ST)	Head, trunk, tusk or body contact with another elephant that does not lead to play, aggression, or physical displacement.
Steal (ST)	An elephant takes an object (food, enrichment device, etc.) within one trunk's length of another elephant.
Vocalization (V)	A vocal noise is emitted from the elephant in any form such as a trumpet, grumble, etc.

<i>Locomotion Related</i>	
Behaviour	Description
Dig (DG)	The elephant stabs tusks into ground to displace dirt, sand, gravel, or other composition. May also use trunk or foot movements.
Dust (D)	The trunk's fingers pick up dust and fling it onto the elephant's top, side, or underbelly.
Head Shake (HSH)	The elephant shakes its head in one successive movement so as to remove debris, give a social cue, etc. Ears are usually outward during the motion.
Scratch (SC)	Rub head, foot, or body back and forth against self, wall, rock, tree, or other large object.
Throw Other (TO)	An elephant throws, flings, or tosses an object or mud onto itself, others, or into nearby space.
<i>Walking (W)</i>	<i>Moving so as to produce a walking gait without simultaneously eating, drinking, or playing.</i>
<i>Walking and Eating Browse (WEB)</i>	<i>The elephant is moving so as to produce a walking gait and is simultaneously eating browse. Browse could consist of branches, bushes, bark, and/or other leafy plants.</i>

<i>Walking and Eating Hay (WEH)</i>	<i>The elephant is move to as to produce a walking gait and is simultaneously eating hay.</i>
<i>Walking and Eating Other (WEO)</i>	<i>The elephant is move to as to produce a walking gait and is simultaneously eating food that cannot be classified as browse or hay. Such food includes beet pulp, alfalfa pellets, mud, dirt, sand, stones, salt, etc.</i>
<i>Wallowing (WA)</i>	<i>Lying down and moving body back and forth to cover the body in mud, dirt, or sand.</i>

<i>Self-Maintenance Related</i>	
Behaviour	Description
Defecate (DEF)	Discharging dung.
Urine (U)	Passing a stream of urine.

<i>Calf Related</i>	
Behaviour	Description
<i>Nursing (N)</i>	<i>(Adult) Mother stands for calf to suckle or (Calf) calf suckles mother so as to receive milk.</i>

<i>Zoological Institution Related</i>	
Behaviour	Description
<i>Loitering (L)</i>	<i>The elephant is standing in an exhibit within two body lengths of a closed gate for longer than 30 seconds and is not eating, drinking, playing or nursing.</i>
Perimeter Interaction (PI)	An elephant approaches the perimeter of the exhibit, and investigates but does not use the perimeter for other purposes such as scratching.
<i>Keeper Interaction (KI)</i>	<i>The elephant is within 20 feet of a keeper and is ether accepting directions from, interacting with, or loitering around, the keeper. Such interaction could occur during training sessions, herd shifting, or positive reinforcement opportunities.</i>

<i>Object Related</i>	
Behaviour	Description
Enrichment Use (non-food) (EU)	Active participation with any enrichment device that is not associated with food. Such devices could include barrels, and/or artificial rock surfaces, artificial tree stumps, etc.

<i>Abnormal Related</i>	
Behaviour	Description
<i>Abnormal (AB)</i>	<i>The elephant is displaying Behaviour that is atypical and can be defined as stereotypic. This could include head-bobbing (The elephant bobs its head in an up and down or side to side to motion consistently for a prolonged period of time and is stationary in stance) or swaying (The elephant is stationary in stance and moves body back and forth in a rocking motion either side to side or forward and backwards for a prolonged period of time).</i>

<i>Other Related</i>	
Behaviour	Description
<i>Not Visible (NV)</i>	<i>The elephant is out of sight from the observer.</i>
Other / Additional Notes	Any other events that may be of interest to the study but were not included in

	the ethogram may be noted in 'other'.
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<i>Covariant</i>	
Keeper Presence	One or more keepers is within sight or can be heard by the elephant but its not actively engaging with the elephant in any kind of training, reward acceptance, or shifting activity.