Real Time Animal Care Information
Collection: Environmental Enrichment

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Mission: San Diego Zoo Global is a conservation, education, and recreation organization dedicated to the reproduction, protection, and exhibition of animals, plants, and their habitats.
Providing opportunities for animals to engage in species-appropriate behavior.

Providing some choice or control within the environment.

Promotes animal welfare and guest experience by increasing behavioral diversity.
Environmental Enrichment

Examples

- Boomer ball
  - Hunting
- Puzzle feeder
  - Cognitive abilities
- Browse
  - Foraging
- Scents
  - Exploration
Enrichment Application

Provide animal care staff the ability to randomly schedule the enrichment provided to the animals.

Document the effect of the enrichment on the animals.

Provide animal care staff and managers the ability to monitor information real-time.
Application Requirements

• Portable tablet (Apple, Sony, etc.)
• Real time
• User friendly
• Flexible/ability to update
• Minimal upkeep
Enrichment Program

Individual Identification

Enrichment Scheduling

Enrichment Documentation

Enrichment Provided

Effects of Enrichment

Feedback Loops
Enrichment Scheduling

Type and time are equally important

Type: Ensure opportunities for all behavioral needs of animals

Time: Enrichment should be randomized based on behavior, availability (keeper/enrichment), previous enrichment provided and use patterns (feedback loop)

Input Variables:
• Species
• Individual animals
• Behavioral needs
• Enrichment list
• Enrichment availability
• Keeper availability
• Recent enrichment provided

Output:
• Randomized enrichment schedule
Enrichment Provided and Effects

Observer name
Date
Time of day
Species
Individual animal ids
Enrichment provided
Duration of observation
Effects
  - Indirect use
  - Scale data
  - Duration of interaction
Enrichment Effects

Observation Duration –
Need to know time and duration of animal care staff observing animals to determine differences in effects.

Indirect Use (Binomial Data) –
Can animal care staff determine enrichment was used by changes in location, quality, etc?

Scale (Nominal Data) –
Did animal care staff observe the animal engaging in appropriate behavioral interaction with enrichment?

Duration (Ratio Data) –
How long did animal interact with enrichment?
Enrichment Scale

Negative use
Avoid
Positive Use
  (unintended)
Positive Use
  (intended)
Analysis

Enrichment provided by species/individual
- Type
- Quantity
- Time

Enrichment effectiveness
- Behavioral goals
  - Indirect/Scale data
- Animal preferences
  - Duration data
Benefits

Ease of documenting enrichment (no data entry)
Real time analysis for animal management
Increased animal welfare
Plan of Action

Prototype at San Diego Zoo and San Diego Zoo Safari Park

Make available to zoos throughout the world

Highlighted through ACE (Animal Care Excellence) Training Program

Peer-reviewed publications on effectiveness throughout each stage
Questions?