Keeping wild animals in captivity – challenges and solutions

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Accommodating their animals under **conditions** which aim to satisfy the biological and conservation requirements of the individual species, by providing **species specific enrichment** of the enclosures; and maintaining a **high standard of animal husbandry** with a developed programme of **preventive and curative veterinary care and nutrition**.
What are the biological and conservation requirements of... 

- Bottlenose dolphin?

- Black rhino?

- Asian elephant?

- Polar bear?
  - Social interactions? Environmental complexity? Space?
Understanding animals

“Wisest is he who knows he does not know”

Descartes

“Our knowledge and efforts to improve zoo animal welfare are biased to very few taxa... our ability to provide zoo animals with good welfare is exacerbated by our over reliance on using myth and tradition to determine zoo animal management”

Melfi, Zoo Biology 2009
What is welfare?

“the state of an animal as regards its attempts to cope with its environment”

• Welfare is a spectrum and may range from good to poor
Welfare and Ethics

Ethics – Is about what WE think about the animal's situation based on our own Morals/Viewpoints

Welfare – Is about the subjective experience of the Animal

As caregivers we have a responsibility to provide good welfare for the animals we keep in captivity

Animals which are physiologically and psychologically fit contribute effectively to captive breeding and in-situ conservation
Behavioral Health

-Expression of Natural Behaviors

Physical Well-Being

Mental Well-Being
Affective/Emotional states
Behavioural/Appetitive drives vary across species

All species have biological (appetitive) drives that must be accommodated in the captive environment
Frustration

- Created by
  - Lack of opportunity to express appetitive drives
  - Sub optimal environments or husbandry regimes
  - In - utero stress, maternal separation, lack of social contact or environmental complexity as a young animal create stress and may lead to changes in the brain

- Symptoms include Abnormal Repetitive Behaviours e.g.
  - Pacing, headswaying, rocking
  - Wall licking, tongue rolling
  - Regurgitation and ingestion, hair plucking, barbering

Abnormal behaviours are symptoms ...

....Address the underlying cause......
How is this assessed?

- Research (examples - not complete)
  - Cortisol
  - Behavioural ethograms
  - Disease prevalence
  - Reproductive success

- Zoo inspections
  - Should be part of national legislation
  - Requires initial and ongoing training
What is normal?
Timeframe for Welfare Assessment

DAILY
Keepers, Curators and Veterinarians
- Daily keeper inspection and written record
- Keeper reports any welfare problems to senior Staff
- Type of problem is assessed
- Veterinary treatment plan developed needed
- Follow-up care, Monitoring and re-assessment

WEEKLY
Keeper records

BIANNUAL
WELFARE AUDIT

YEARLY
Zoo licensing Inspection
# Welfare Indicators


<table>
<thead>
<tr>
<th>Animal- Based indicators</th>
<th>Resource based indicators</th>
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<tbody>
<tr>
<td>Give an accurate representation of the animal’s physical and mental wellbeing</td>
<td>Describe the resources provided for an animal but doesn’t assess whether they are suitable/accessible</td>
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<tr>
<td>Do all of the animal appear in good health?</td>
<td>Provision of bedding material</td>
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<tr>
<td>Do all of the animals have a good body condition?</td>
<td>Provision of hygienic and appropriate food and drink</td>
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<td>Are the animals displaying any abnormal behaviours?</td>
<td>A comprehensive programme of veterinary care</td>
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<tr>
<td>Do any of the animals show signs of untreated disease or injury?</td>
<td>Enclosures equipped in accordance with the needs of the animal</td>
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Quality of a life

A good life

A life worth living

A life not worth living
Solutions

“A universal influence on all animals is stress, and it is critical that managers, administrators, veterinarians and regulatory officials understand basic concepts and take steps to minimize stress in captive wild animal husbandry.”

ME Fowler OIE 1996
Husbandry guidance

How do we prevent physical and mental health problems?

- Familiarise ourselves with an animal’s physiological and psychological needs, and provide for these needs
  - Environmental complexity
  - Environmental and Cognitive Enrichment
  - Choice and control
  - Human-Animal Interactions
  - Behaviour-based nutrition
  - Preventative Healthcare
  - Quality of life assessment

- Can you see the Binturong?
Appropriate environmental complexity
ZooLex

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ZooLex is designed by the ZooLex Zoo Design Organization

The goal of Jon Coe Design is to collaborate in the creation of enriching and sustainable environments for people, plants and animals.

New: Environmental Enrichment Videos
Environmental and Cognitive Enrichment

1. Food
   - Scatter feeding, smears
2. Auditory
   - Music, vocalisations
3. Tactile
   - Substrates, toys
4. Cognitive
   - Puzzle feeders, operant conditioning
5. Olfactory
   - Essential oils, dung
6. Social
   - Conspecifics, mixed species, human
7. Visual
   - Banners, flags, mirrors
Choice and Control

Choice and control are very important to animals
• One of the most important factors in ensuring zoo animal health and welfare is the behaviour of zoo staff towards the animals
  – Consistency
  – Trust
  – Knowledge
  – Skills
Human-animal interaction

• Operant conditioning
• Can be useful as a management tool
• Must be enjoyable and progressive
• May be helpful as an educational tool
Behaviour-based nutrition
Nutrition

- Feeding strategies
  - Puzzle feeders
  - Scatter feeding
  - Enrichment
  - Browse
  - Mimic natural foraging patterns
  - Seasonal availability of food.
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**Welfare** – Is about the subjective experience of the Animal

**Ethics** – Is about what **WE** think about the animal’s situation based on our own Morals/Viewpoints
Welfare of Euthanasia

Good welfare

Poor welfare
“So far as animals are concerned it matters not what we think or feel but what we do”

Webster 1994
The end
Further reading

- www.zoolex.org