Introduction to animal welfare science and the importance of welfare in a captive wildlife environment

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Back to basics

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Definitions and concepts

• The assessment of animal welfare relates to investigations of:
  – How animals try to cope with their environment
  – And how easy or how difficult it is for them to do so

• Can be defined as “the state of an animal as regards its attempts to cope with its environment” (Broom, 1986)
  – Ranges from very poor to very good
  – Refers to feelings, as well as physical and psychological health
  – Meeting biological needs
  – Measurable
Definitions and concepts (cont’d)

What is ‘coping?’

• Having control of mental and bodily stability – maintaining homeostasis (Broom and Johnson, 1993)

• Refers to ability to tolerate a range of stimulation, including noxious stimuli

• Animals have evolved coping strategies
  – Equipped to cope with the “standard” challenges they could face in the wild
  – But these are not necessarily the same challenges they face in captivity
  – Animals need the resources to cope; heterogeneous
Definitions and concepts (cont’d)

What do we mean by an animal’s “needs”?  
• Animals have functional systems  
  – E.g. to control body temperature, nutritional state, and social interactions  
• To “need” is to have a deficiency  
• So a “need” can be defined as a requirement that is fundamental to the biology of the animal  
  – To obtain a particular resource, or to respond to a particular environmental or bodily stimulus  
• Some needs are for food/water/heat, others are for opportunities to do certain behaviours  
  – E.g. foraging, grooming, exercising, or nest-building
Definitions and concepts (cont’d)

• Needs can be species-specific
• And can also vary by individual / time
  – E.g. Individual farmed mink differ in how much they value water for swimming in
  – Thus, water for swimming is not likely to be an “innate” need, but is still an important behaviour
  – We have to try to understand the motivation behind a behaviour
  – And provide animals with choice and control
Grooming?
(Hill, 2009)
Why should we care about animal welfare?

• **Animals (incl. people)**
  – Sentient beings
  – Are capable of experiencing suffering, and pleasure
  – Have biological needs that must be fulfilled if welfare is to be good

• **People**
  – Have an ethical (and legal) responsibility towards non-human animals in our care
    • …Although human attitudes to animals change over time
    • …And vary by country / cultural attitudes
  – But, regardless of people’s attitudes towards animals, poor welfare = poor welfare
Why might welfare problems develop in zoos?

- More limited opportunities for resources
  - Some needs might not be being met
- Reduction in stimulation
  - Positive and negative

But, we also have to remember:

 Does ‘free-living’ = ‘good welfare’?

No - poor welfare is not just some something that can occur in captivity
Zoo animal welfare

• Important for animals
  – Physical health
    • Animals free from injury and disease
    • Breeding success
    • Nutrition
  – Psychological health
    • Exhibiting natural behaviours to allow animals to fulfil their biological needs
    • Environmental enrichment
    • Enclosure design

• Important for visitors
  – To engage and connect people of all ages with the natural world
    • Seeing happy, healthy animals in a good zoo can inspire an emotional connection
    • A good zoo can provide unique lifelong learning opportunities, to raise awareness about wildlife and global issues
Old-style menageries
More naturalistic zoo enclosures
‘Environmental enrichment’ is the provision of species-appropriate stimuli that promote behavioural and mental activities and must address the biological needs of individuals adequately (Hill, 2004)

NB!! If the ‘enrichment effort’ is not successful, do not call it ‘enrichment’!!
Different types of enrichment efforts

- Social
- Food
- Cognitive
- Sensory
- Structural/habitat
  - Biologically meaningful
  - Species appropriate
Welfare indicators and difficulties

There are no universal indicators of welfare!
Welfare indicators and difficulties (cont’d)

Problem with physical health
  – “Easy”, because disease and injury are universally recognised as indicating poor welfare

Problem with psychological health
  – More problematic – why?
  • Because animals don’t just cope with *existing* challenges
    – Affected by prior experiences
    – Anticipate threats to welfare, even before a physical challenge has occurred
    – Very good at hiding behavioural signs of a problem
Welfare indicators and difficulties (cont’d)

• Ideally use a range of behavioural and physiological measures

• In reality, clinical and behavioural observations are used, often daily
What an animal’s behaviour can tell us

- Often one of the most obvious indicators of a problem, and perhaps best for long-term responses

- Normal vs. abnormal behaviours: intensity, frequency, duration, pattern

- Needs
What an animal’s behaviour can’t necessarily tell us…!

• Absence of abnormal behaviours does not necessarily mean absence of a welfare problem!

• And what IS “normal” anyway?!
  – What is a normal range of activity?
  – What level represents a deviation from this range?

• Pre-supposes a good knowledge of the species and of the typical range of individual differences (Knierim et al., 2001)
  – Do we always have this knowledge for captive wild animals?
Problems with interpretation of behaviour

• Anthropomorphism
• And ‘reverse anthropomorphism’!
• Many different responses to many different stimuli exist – individuals can respond to the same conditions differently from one another
• Simple lack of understanding of an animal’s natural history
Where do we go from here?
Do we need to collect scientific data?

- Ideal: evidence-based management of zoo animals
- But, can take time to do a full-scale scientifically rigorous study
  - Time is an issue when welfare is at stake!
- Keeper expertise & “gut feelings” are important
- We shouldn’t delay making sensible, targeted changes to husbandry or enclosures, just to collect data
  - But if we can collect data, then do! It contributes to our body of knowledge about animal welfare
Some take-home messages

• There are no universal indicators of welfare
• Behaviour can tell us a lot about an animal’s welfare (but we must recognise it is a far-from-perfect welfare indicator)
• We should assess welfare at the individual level
• We should provide species-appropriate control and choice for animals, for opportunities to fulfil their needs
• We should collect rigorous data when we can
• We have a duty of care, for as long as these animals are under human management
• Be objective, not subjective, in our approach to captive wild animal welfare
Acknowledgements

• Heather Bacon
• DG Sanco
• DG Environment
• FVE