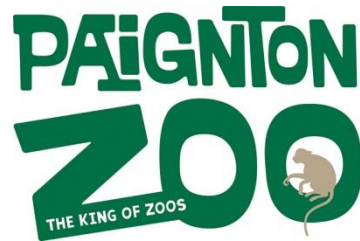
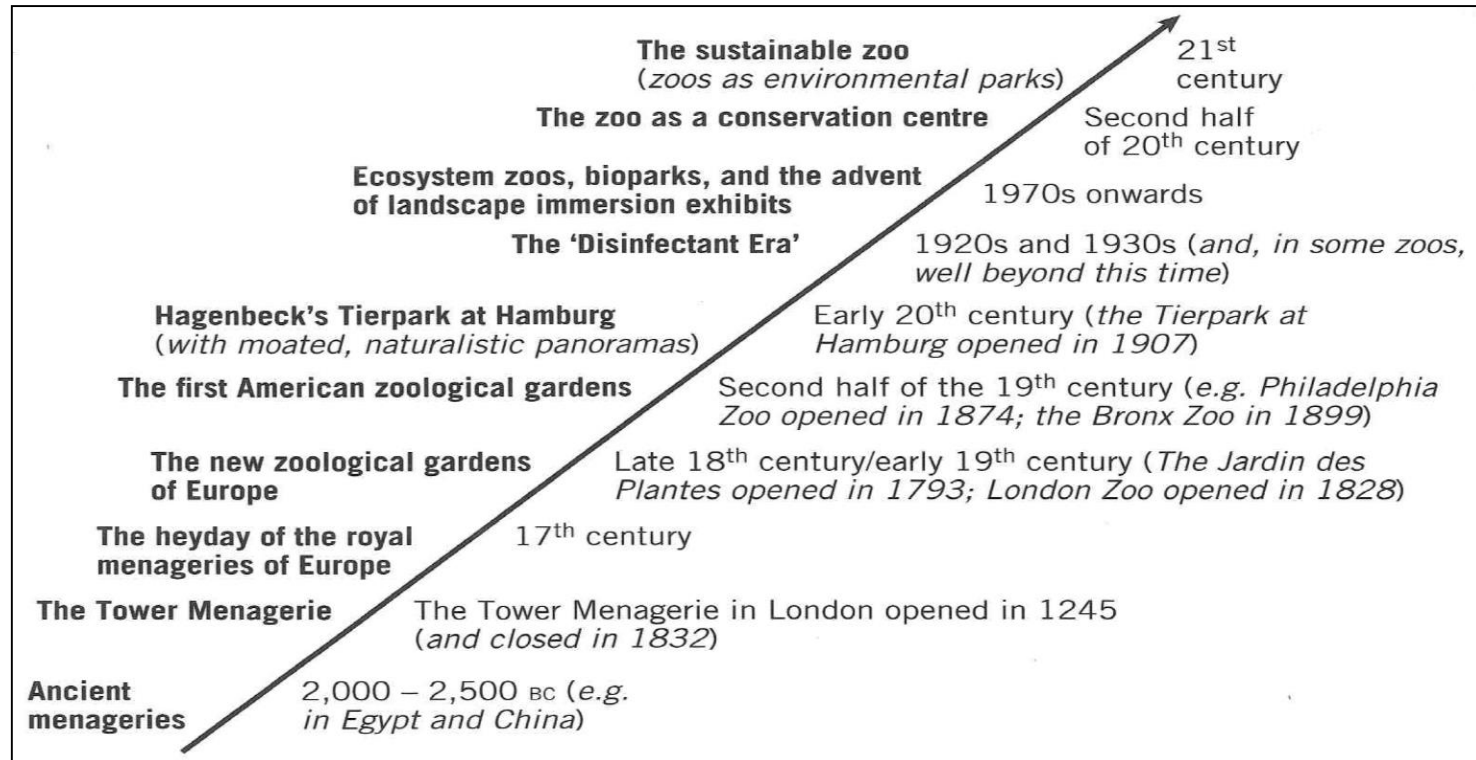


Good zoo design and good animal welfare: are we trying to reconcile the irreconcilable?

Simon Tonge



The evolution of zoos



Hosey, Melfi & Pankhurst (2013)



Introduction

- Zoos have existed in their modern format for over 200 years and their utility and legitimacy have always been challenged.

“Dear Sir,

As your paper champions so ably the cause of all dumb suffering creatures, may I plead with you to raise your powerful voice against the suffering inflicted in the most highly civilized country in the world on animals confined in Zoological Gardens.”

Quote from ‘The Echo’ c1900



Anti-Zoo sentiment

- Anti-zoo sentiment is probably cyclical and follows social changes
- The modern era dates from the Born Free Foundation, which was founded in the 1980s
- Where are we in this cycle?
- E.g. No reaction to the BBC Horizon documentary except from the 'zoo haters' who were matched by the 'zoo supporters'



The challenge from 'animal rights'

- Arguably that challenge has never been greater than it currently is because of the rise of social media and the growing disconnect between people and nature.
- But the zoo community (we!) believes that its (our) relevance and importance in conservation and education has never been greater.
- How do those two statements get reconciled and what are the long term implications for zoos?



Consensus on what is good animal welfare slowly developing

- But still confusion about what the term 'good animal welfare' means (e.g. re: culling)
- Difficulty in establishing agreed standards for accreditation
- Husbandry Guidelines (Minimum Standards; Optimal Standards; Best Practice)
- The World Zoo & Aquarium Animal Welfare Strategy (2015)



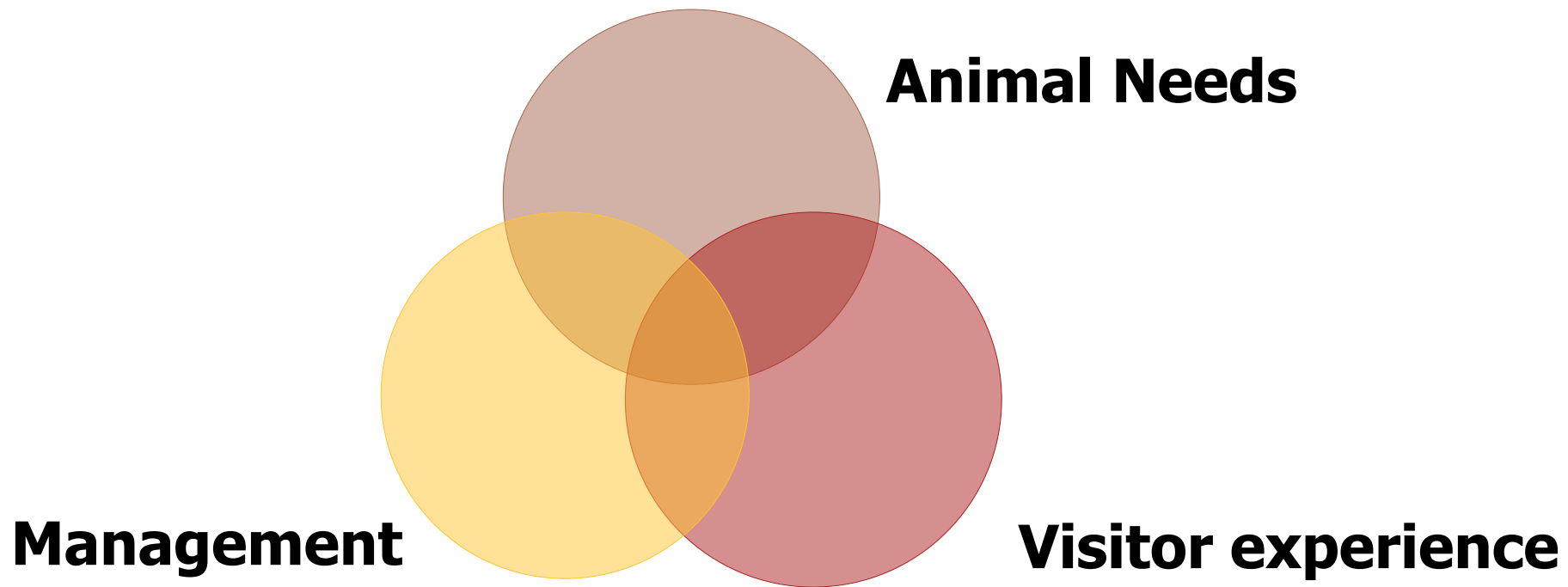
So what is good zoo design?

- No consensus; personal taste
- Might be easier to agree what is not good design!

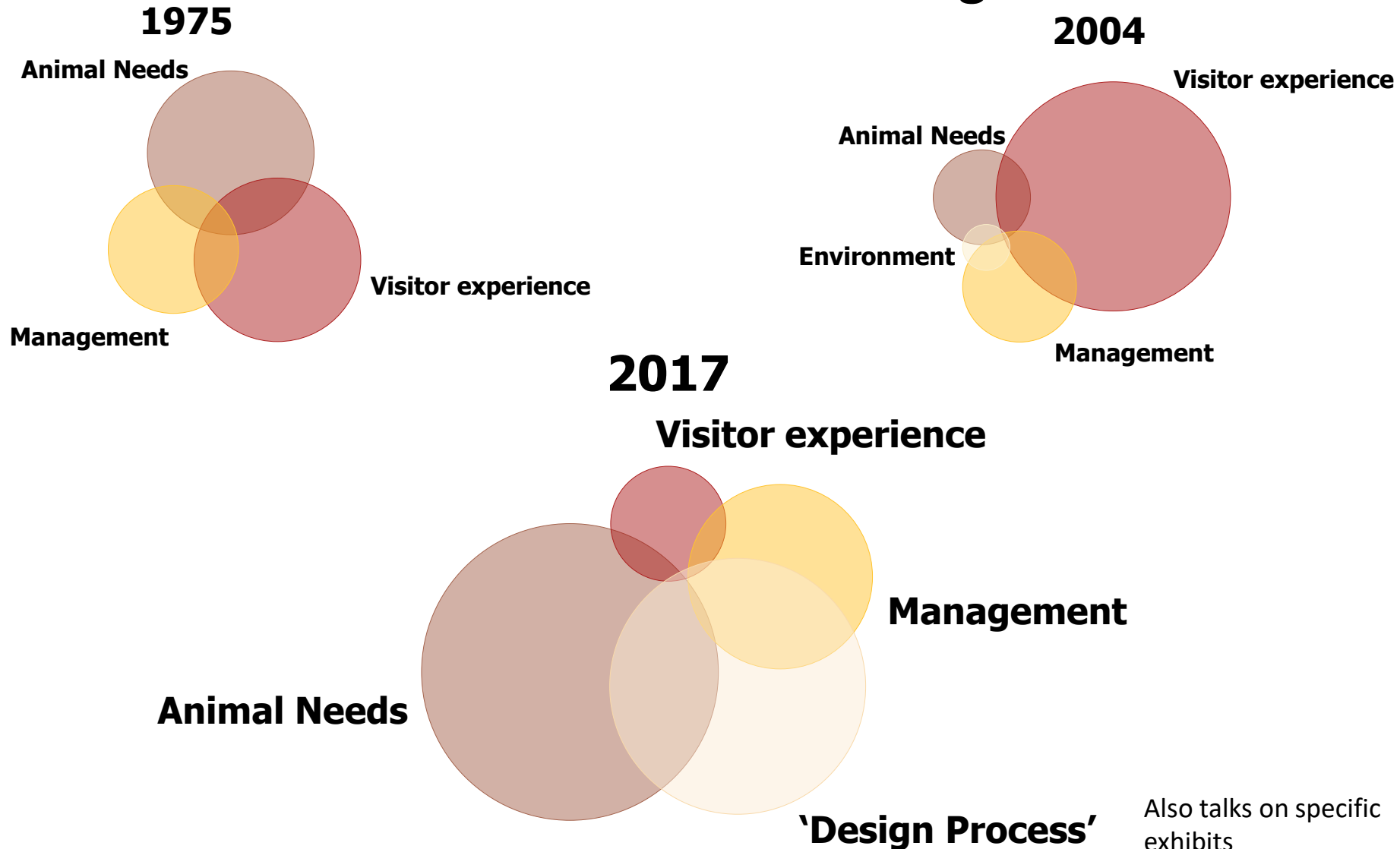


Zoo Design Symposia Content

Three 'clients' for zoo designers



The visitor experience had become the overwhelming consideration in zoo design



Conservation zoos?

- Big discussion about the primary role of the zoo collection (Jones 2016).
- Many threatened species have not established long term populations in zoos; not because they could not have but because we lost interest and focus (pink pigeons)
- If zoos are for education and inspiration, not for Ex Situ management why do we need to manage so many species intensively?



Or are they ‘learning zoos’?

- “..a display of domesticated zoo animals providing opportunities for general education and fund raising.”
- “..(their) conservation focus will be upon learning and training.”



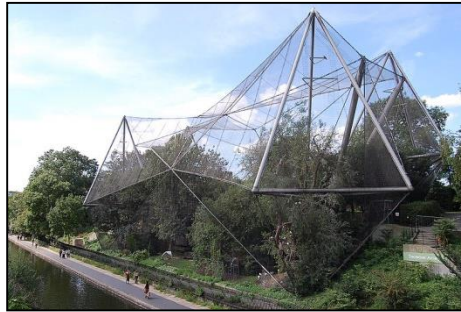
The need to touch/personalised experiences

- Increasing desire for close encounters
- Disease risks?
- Animal welfare risks?
- Ethical issues re e.g. hand-rearing



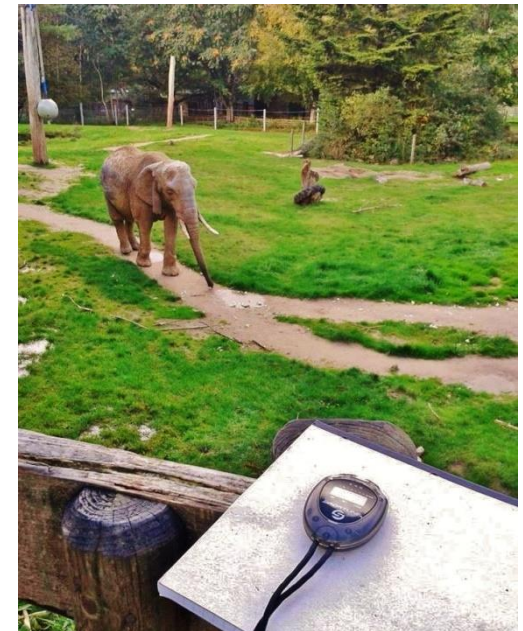
Increase in walk-through and free range exhibits because visitors want close contact

- Walk-through aviaries first appeared in 1920s (Olney, 1975)
- How many now? Almost every zoo has at least one walk-through aviary, plus others e.g. callitrichids, lemurs, kangaroos
- “...enhance visitors’ interest, knowledge and enjoyment” (Price *et al.*, 1994)
- Are they good or bad for animal welfare? We found only one published study (kangaroos)



How can research improve enclosure design for the needs of the animal?

- How do different enclosures affect animal behaviour, breeding and welfare?
- How have animals reacted to new enclosures?
- What do the animals want?
- What do animals do in the wild?

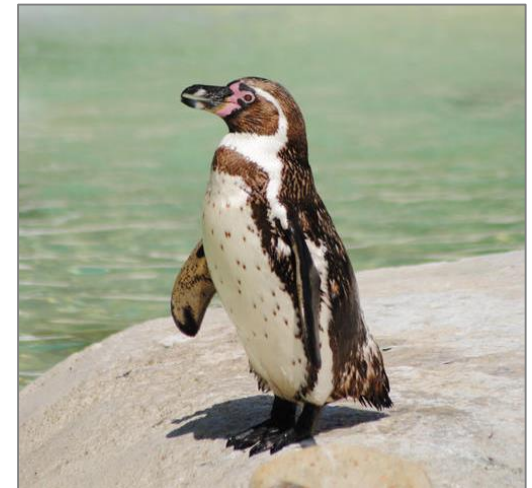
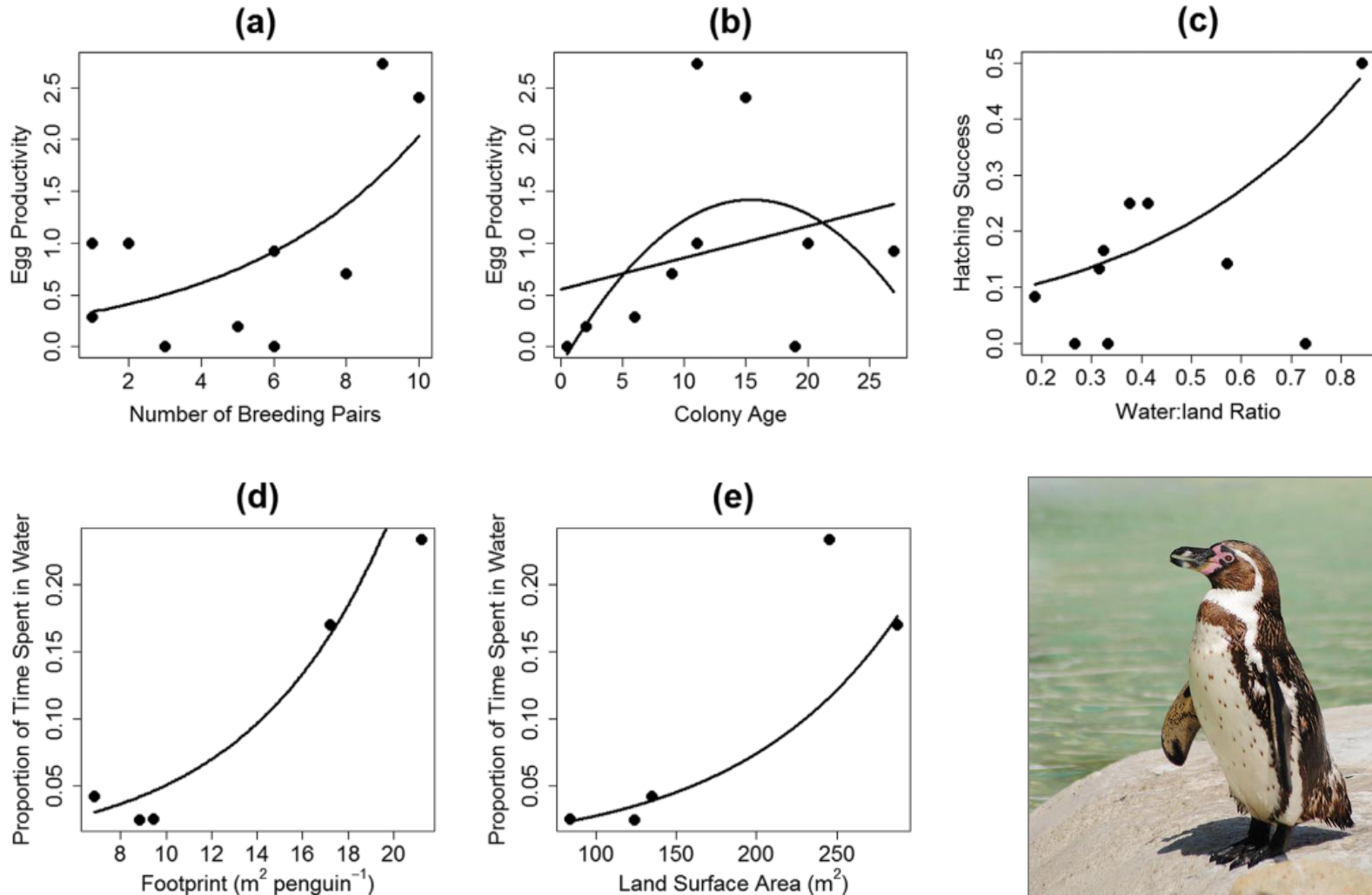


Multi-zoo comparisons – black rhino

- Percentage of public access along barrier correlated with ‘fear’ in males
- Percentage of solid wall barriers correlated with ‘agitation’ in females
- Large enclosure area and low percentage of solid walls are positive indicators of high reproductive success



Multi-zoo comparisons – Humboldt penguin



Taken from: Marshall, A. R., Deere, N.J., Little, H.A., Snipp, R., Goulder, J., Mayer-Clarke, S. (2016). Husbandry and Enclosure Influences on Penguin Behavior and Conservation Breeding. *Zoo Biology*, 35: 385–397.

Multi-zoo comparisons – King penguin

- Penguin density positively related to egg productivity
 - (Basel Zoo: medium colony size → higher growth rates than low or high colony size)
- Greater deviation from an even adult sex ratio → decreased egg productivity.
- Increased visitor interaction (outside walks or interactive shows) → higher hatching success and chick productivity



Andrew Shiva / Wikipedia, via Wikimedia Commons

Managing the visitor effect

- Gentoo penguin behavioural diversity and pool use increased with increasing visitor numbers.
- Nesting behaviour unaffected by visitor numbers
- Penguins at Dingle aquarium have high educational potential.¹



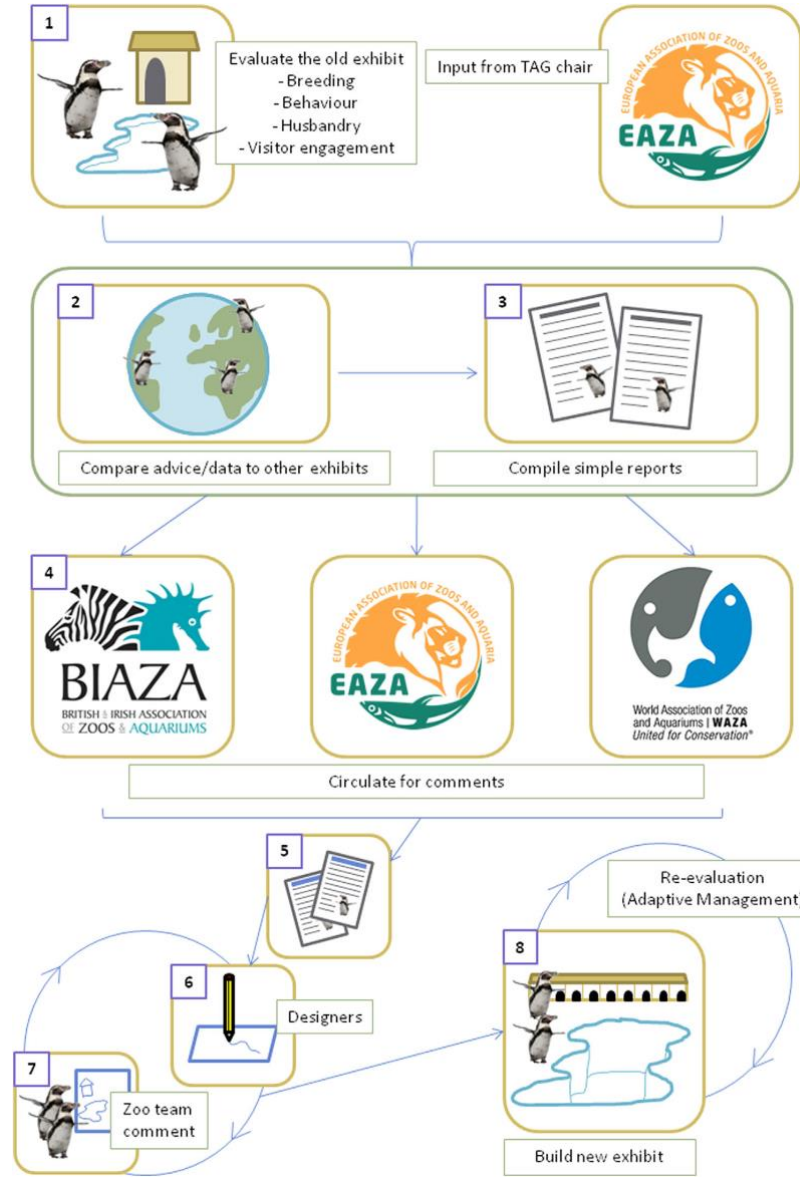
- Felid behaviour and enclosure use changes in the presence of visitors
- In contrast to some previous work (e.g. O'Donovan *et al* (1993) and Margulis *et al* (2003)). Enclosure design (hiding places) suggested as a possible influence.²



¹Collins C *et al.* (2016) The effect of the zoo setting on the behavioural diversity of captive gentoo penguins and the implications for their educational potential *Journal of Zoo and Aquarium Research*, 4(2), pp 85-90.

²Suárez, P., Recuerda, P., Arias-de-Reyna, L. (2017). Behaviour and welfare: the visitor effect in captive felids. *Animal Welfare*, 26, pp 23-34.

A possible process



Taken from: Marshall, A. R., Deere, N.J., Little, H.A., Snipp, R., Goulder, J., Mayer-Clarke, S. (2016). Husbandry and Enclosure Influences on Penguin Behavior and Conservation Breeding. *Zoo Biology*, 35: 385–397.

Conclusions

- I think there is still a bias in zoo design towards the visitor experience, potentially at expense of the animals' needs
 - Visitor perceptions of animal welfare are often inaccurate (based on aesthetics)
 - Could/should we redistribute some of the huge budgets used to give visitors what they want to explain what they should want?
- Animal needs from zoo design are not always well known or understood
- Not enough zoo people know enough about wild animals
- Scientific research in zoos and *in situ* can, and should, be used to improve enclosure designs for the benefit of the animals.



Conclusions

- If good zoo design means both a great experience for visitors and a positive welfare outcome for animals then the answer to the title question is no!
- But, such evidence as there is (and there ain't much) suggests that it's not for all the species all the time.
- Empathy, wisdom and a deep knowledge of animal behaviour and ecology are a requisite for those briefing the zoo designers.
- Too much zoo design input is still based on received wisdom. We need to get outside the box.



Thank you for listening

