



WOODLAND
PARK ZOO

Matt Minarchek, PhD Bonnie Baird, PhD

Empathy Project Research

WOODLAND PARK ZOO SAVES WILDLIFE AND
INSPIRES EVERYONE TO MAKE CONSERVATION
A PRIORITY IN THEIR LIVES.

ZOO.ORG

Research Component:

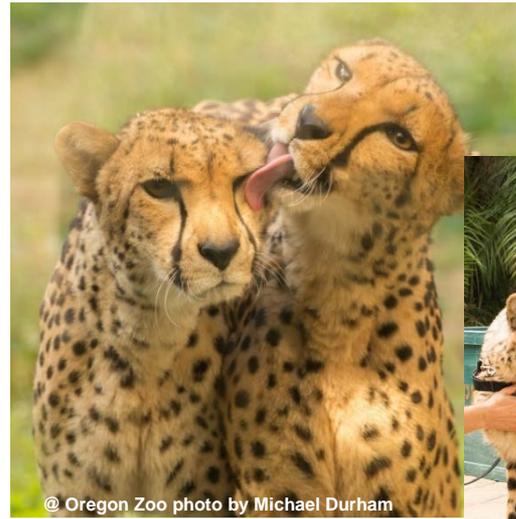
- Examining the intersections between animal welfare, perceptions of animal well-being, and empathy-based programming.

Two Aspects:

- Social Science Research – Matt Minarchek, PhD
- Animal Welfare Research – Bonnie Baird, PhD

Ambassador Animal Welfare

- Are there any differences in indicators of welfare between armadillos or cheetahs managed in education, exhibit, or off-exhibit roles?
- Does handling for education programs affect indicators of welfare?



What did we learn?

- *No differences between **management roles***
 - Ambassador, Exhibit, Off-exhibit
 - Fecal cortisol or behavior



What did we learn?

- *No differences between management roles*
- *No effect of **handling specifically for education programs***
 - But LOTS of individual differences!



What did we learn?

- *No differences* between **management roles**
- *No effect* of **handling specifically for education programs**
- **More frequent handling of ANY KIND** associated with:



Fecal Cortisol



Undesirable Behavior



Resting



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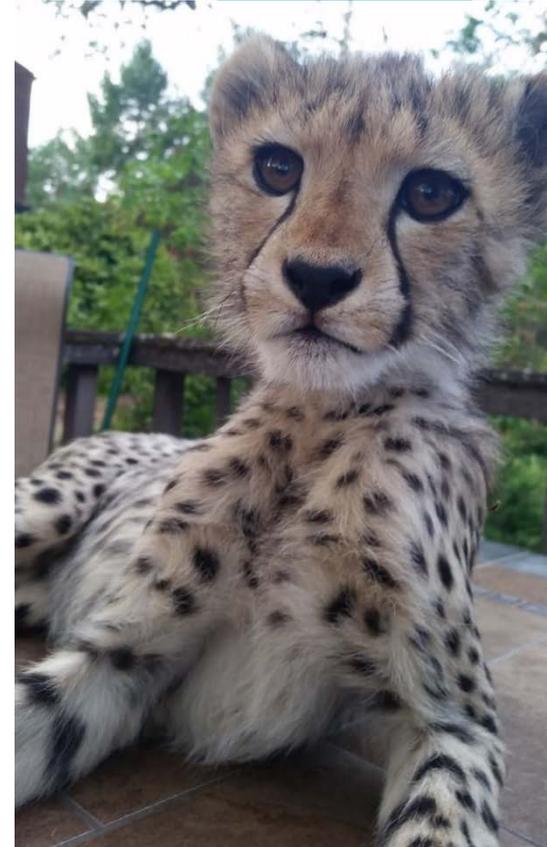


What does this mean?

- Ambassador animals do not have inherent welfare differences
- Welfare is individual! Not every animal will thrive in any management role
- Specific aspects of husbandry and management affect welfare indicators
 - Enclosure size, substrate, public viewing
 - Handling and human interaction

Why was handling associated with welfare in the smaller animals, but not in cheetahs?

Choice and Control?



Choice and Control

Opportunity for Choice and Control

- Spatial and social choice, positive reinforcement training, allowing animals to communicate their choices, making behavior meaningful



Choice and Control



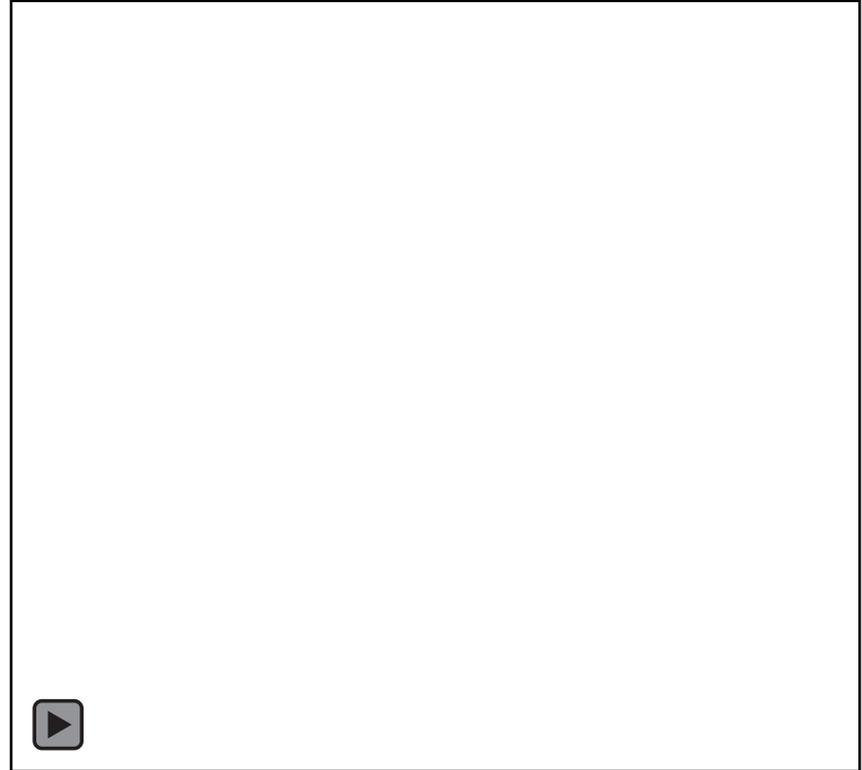
- How much choice to small animals have, especially regarding handling?
- How does providing animals with choice and control affect their welfare?
- How does the way we present ambassador animals affect our audiences?
 - Perceptions of animal welfare?
 - Unintended messages?
 - Fostering Empathy?

Choice in Ambassador Programming



Traditional Handling

Choice & Control



Empathy Project Research Plan



- How does **adding** or **removing choice** affect ambassador animal welfare?
- Does **presentation style and/or messaging** affect what our audiences take away from ambassador programs?

AIMS

- Assessed effects of providing ambassador animals with choice & control on indicators of welfare. (BB)
- Explored welfare indicators in individual animals over time in conjunction with varying degrees of choice and control. (BB)
- Determined visitor perceptions of and empathy toward different species of ambassador animals. (MM)
- Assessed effects of various combinations of messaging and animal presentation style on guests' perceptions of welfare and empathy for animals. (MM)

Animal-Based Research



Animal A: Current Ambassador



Animal B: New/Naïve Animal



Behavioral



Physiological (fecal cortisol)



Indicators of Welfare:

Preliminary Results – Guinea Pigs

- **No overall effect** of Handling Condition (Traditional vs. Choice)

- BUT!



Handling



Human Interactions



Fecal Cortisol

Individual Differences!





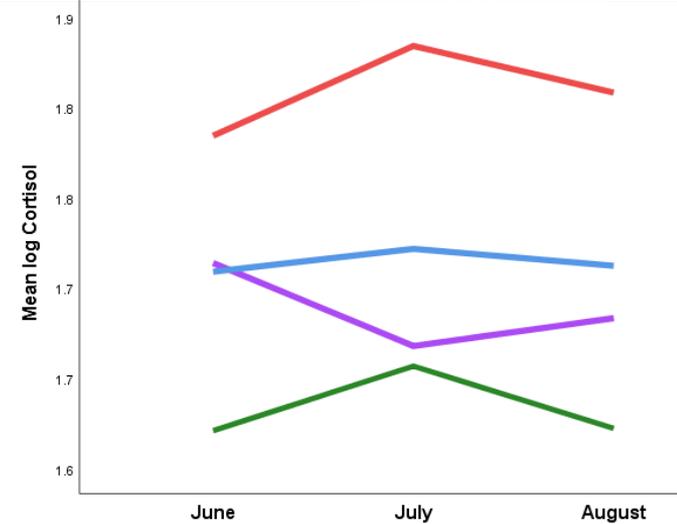
Preliminary Results – Current Ambassadors

• When Choice was **Removed** (July):

↑ Cortisol (trend)

↓ Rest

↑ Time Under Cover



Valentina

Catalina

Camila

Sofia

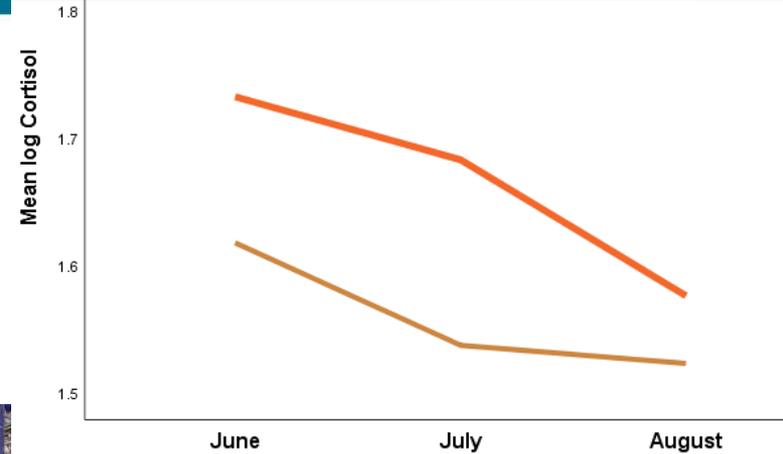
Preliminary Results – New Ambassadors

- When Choice was **Added** (July-Aug):

↓ Cortisol (significant)

↑ Locomotion

↓ Time Under Cover



Cider

Pumpkin

Messaging Conditions



- **Traditional Messaging**

“Armadillos live in South America and dig burrows for shelter using their powerful claws. They can curl into a ball to defend against predators”

- **Empathic Messaging**

“Maria receives excellent care from her keepers, which as allowed her to become the oldest armadillo in North American zoos at 28! Her favorite snack is mealworms, which she receives during training sessions.”

- **Choice & Control Messaging**

“All of our ambassador animals are trained to make choices everyday about what they want to do, including coming here to see you all today.”

Research Conditions



Animal Condition	Messaging Condition
Traditional handling	Traditional Messaging
Traditional handling	Traditional Messaging + C&C
Traditional handling	Empathic Messaging
Traditional handling	Empathic Messaging + C&C
Free choice	Traditional Messaging
Free choice	Traditional Messaging + C&C
Free choice	Empathic Messaging
Free choice	Empathic Messaging + C&C

Human-Based Research

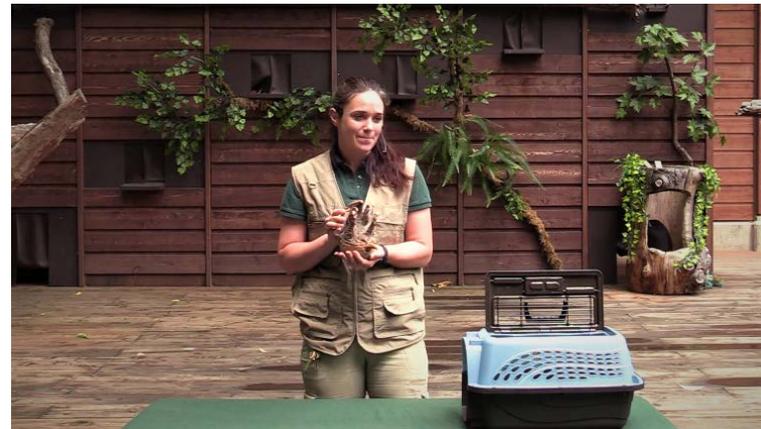


Quantitative Research – Online

- Video-based research using SurveyGizmo.

Empathy Project Survey

- Values (Ballantyne et al., 2018);
- Dispositional Empathy with Nature (Tam, 2013);
- Visitor Pre-Dispositions (Luebke et al., 2016);
- Perceptions of Animal Welfare;
- Affect / Empathy.



Quantitative Study



Who participated in this study? 1185 Respondents across 8 surveys

77%	Female
20%	Male
1%	Nonbinary

41%	Bachelor's Degree
23%	Master's Degree
11%	Did not complete degree

86%	White or Caucasian
6%	Asian American or Asian
3%	Hispanic/Latinx

51%	Visit 3 or more times per year
30%	1 or 2 times per year
14%	Few times in the last 5 years

What have we learned?



Initial Results from Survey:

DEN mean between 4.7 – 5.1 across scales		
Perceptions of Animal Welfare	Traditional	➡ 4.92 - 5.49
	Choice and Control	➡ 6.07 - 6.40
Affect / Empathy	Traditional	➡ 4.45 - 4.89
	Choice and Control	➡ 5.03 - 5.16



- Empathy Messaging did not appear to make much of a difference.

Human-Based Research



Qualitative Research – at Woodland Park Zoo

- Semi-structured interviews and observations.
- Questions targeted:
 - Perceptions of animal welfare;
 - Interactions between trainer and animal;
 - Motivation for attending the zoo;
 - Past experiences in zoos;
 - Affective connections with animals.
- Goals of qualitative study.



Qualitative Study



Who participated in this study? 45 Respondents (20 members, 28 choice and control and 17 traditional handling programs)

64%	Female
34%	Male
2%	Nonbinary

32%	Master's Degree
21%	Bachelor's Degree
18%	Associate's Degree

75%	White or Caucasian
16%	Asian American or Asian
11%	Hispanic/Latinx

48%	Visit WPZ 3 or more times per year
21%	Few times in the last 5 years
16%	1 or 2 times per year

What have we learned?

Initial Results from In-Person Interviews:

- 43/45 - animal was handled with care.
- What stood out? (trainer actions and handling)
- Primarily concerned with:
 - Activity;
 - Physical appearance;
 - Exhibit size and type;
 - Mental appearance (expression and stereotypic behaviors).
- Species of concern?
- For some species, guests rely on trust.
- Few felt a connection but empathy elicited from stories.



Questions?



**Thank you WPZ Ambassador Animal Team
and Volunteers!!!**

Videos



https://youtu.be/AY01_bWNFos

<https://youtu.be/JNx67Z0RukM>

What have we learned?



Survey Version (N)	Dispositional Empathy w/ Nature (M \pm S.D.)	Pre-Dispositional Scale (M \pm S.D.)	Perceptions of Animal Welfare (M \pm S.D.)	Affect/Empathy (M \pm S.D.)
1. TH/EM/CC (173)	4.70 \pm 1.32	4.94 \pm .76	5.49 \pm .91	4.75 \pm .90
2. TH/TM (192)	4.82 \pm 1.22	4.97 \pm .72	4.92 \pm 1.10	4.45 \pm 1.11
3. TH/TM/CC (195)	4.90 \pm 1.22	5.08 \pm .69	5.00 \pm 1.13	4.55 \pm 1.09
4. TH/EM (161)	4.88 \pm 1.28	5.14 \pm .65	5.39 \pm 1.06	4.89 \pm 1.02
5. CH/EM/CC (115)	4.96 \pm 1.20	5.20 \pm .59	6.18 \pm .72	5.16 \pm 1.10
6. CH/TM (130)	4.73 \pm 1.11	5.12 \pm .66	6.07 \pm .75	5.03 \pm .92
7. CH/TM/CC (102)	5.10 \pm 1.24	5.25 \pm .64	6.40 \pm .57	5.15 \pm .98
8. CH/EM (109)	4.92 \pm 1.31	5.24 \pm .67	6.21 \pm .80	5.04 \pm 1.10