

Bugs Have Personalities, Too: Reducing negative perceptions of insects through empathy

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Background: Up to 40% of temperate insect populations are at risk of extinction over the next few decades, due to factors such as habitat loss, pesticides, and climate change [1]. Critical insect conservation efforts will need the support of the public to be effective [1]. However, insects are often viewed negatively and generate less interest than many other animal species [2].

In general, species that are perceived to be similar to humans are more likely to illicit positive associations and interest than those that are not. This is true whether that perceived “similarity” is physical, cognitive, or behavioral [2]. While insects are generally perceived as simple pests by the general public [3], research shows that they are more cognitively advanced than previously assumed, and in fact there is a growing push for consideration of insect cognition in regard to welfare [4]. To most people, “personality” (i.e. consistent behavior patterns within an individual) is a concept that is generally only applied to people and pets, but it exists in insects as well [5].

[1] Basset, Y. & Lamarre, G. (2019). *Science* **365**(6447). [2] Serpell, J. (2004) *Animal Welfare* **13**: S145-151. [3] Lemelin, R., et al. (2017) *Society and Animals* **25**(6). [4] Lambert, H., et al. (2021) *Applied Animal Behaviour Science* **43**(105432). [5] Prescott, M. (2021) *ideas.ted.com*.

Objective: Use animal personality as a building block to help zoo guests make meaningful connections with insects, and to better understand the cognitive and behavioral complexity of these animals.

The Saint Louis Zoo

- Free admission to the public
- About 3,000,000 guests every year.
- Over 1,400 school groups a year
 - 31% from economically disadvantaged neighborhoods

Bayer Insectarium

- More than 100 species of live insects
- 33% of the total number of guests visit each year



Activity Booth:

Docents at a booth inside the Insectarium engage guests in examples of animal personality research.

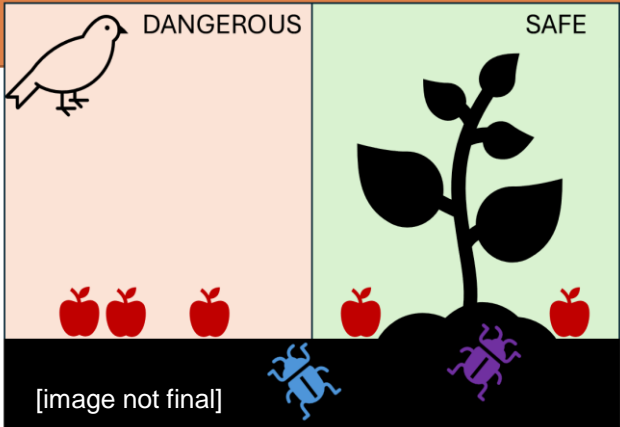
Testing for Boldness via Novel Object Trials

- Guests are presented with a box and are invited to reach inside, without being given any information regarding its contents.
 - Docents draw attention to the variation in guest responses, and how they relate to boldness and exploration tendency (two personality traits).
- Videos of domino cockroaches presented with a novel object (legos) are shown to guests on tablets.
 - Docents draw attention to the variation between individuals that demonstrate insect personality, and the ways it is similar to what we saw in the guest responses.
- General discussion with the docents regarding topics of animal personality, insect behavior, and insect conservation is encouraged

Take-Home Booklet:

An activity booklet aims to educate children on the concept of animal personality.

- Accessible language used to describe the five main characteristics of non-human personality:
 - **Boldness** -> Courage
 - **Sociability** -> Friendliness
 - **Aggressiveness** -> Assertiveness
 - **Exploration Tendency** -> Curiosity
 - **Activity** -> Energy
- Examples of personality types are provided using domino cockroach characters.
- Introduces readers to the idea of fitness trade-offs associated with personality through simple scenarios.
- **Free to all who visit the activity booth!**



Domino cockroaches must be courageous to move through dangerous areas that don't provide cover from predators. If Blue is courageous and Purple is cautious, how many food items can each find? If a predator is nearby, who is more at risk of becoming a meal himself?