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# The Wildlife Rescue Traveling Exhibit

An Evaluation of the Visitor Learning Experience

Research Report

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# Wildlife Rescue

## An Evaluation of the Visitor Learning Experience

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*Wildlife Rescue is an exhibition that involves visitors in the compelling stories of animal rescue, the dedicated people taking action, and the science that supports their efforts.*

This 6000 square foot traveling exhibition, designed by Science North, has 30 exhibits and experiences which include mechanical interactives, multimedia exhibits, computer interactives, large graphic panels, specimens and replicas, a video theatre, and scientific tools used by rescuers.

### Exhibit Objectives

The key messages set out by the *Wildlife Rescue* development team are:

1. There are many successful efforts to restore individual animals and entire species back to their natural habitats;
2. People and science are making a difference;
3. Understanding the behaviors and adaptations of the animals is necessary for effective restoration efforts;
4. Individuals can make a difference.

In addition, the exhibit development team established visitor learning goals for individual exhibits. The Visitor Learning Behaviours (Table A) are based on Barriault & Pearson's (2010) Visitor Learning Behaviour Framework which outlines seven discrete learning behaviors that occur as part of a visitor's interaction with an exhibit. These behaviors are

further grouped into three categories that reflect increased involvement and depth of the learning experience.

**Table A. Visitor Learning Behaviours Framework (Barriault & Pearson, 2010)**

Learning Behaviours	Engagement Level
Doing the activity	<b>Initiation Behaviours</b>
Spending time watching others engaging in the activity	
Repeating the activity	<b>Transition Behaviours</b>
Expressing positive emotional response in reaction to engaging in the activity	
Referring to past experiences while engaging in the activity	<b>Breakthrough Behaviours</b>
Seeking and sharing information	
Engaged and involved: Testing variables, making comparisons, using information gained from the activity	

The exhibit development team designed the experiences with these learning behaviours in mind, and aimed to provide visitors with a variety of engagement opportunities. By designing exhibits that elicit all three levels of engagement, the exhibit development team, in consultation with the visitor researchers, hoped to provide a balanced visitor experience in *Wildlife Rescue*. Previous experience and evaluations of other traveling exhibits suggest that an ideal visitor experience is provided by an equal number of exhibits engaging visitors in primarily Initiation, Transition, and Breakthrough behaviours. Previous research suggests that a high performing exhibit engages over 40% of visitors in Breakthrough learning behaviours.

### Evaluation Objectives

The goals of this evaluation were to assess the learning impact of individual exhibits in *Wildlife Rescue* on visitors and to enable the development team to get a complete picture of the visitor learning experience with respect to the exhibition’s key messages.

## Methods - Data Collection

### 1. Observations of Visitor Behaviours

Observations of visitor behaviours were conducted through the use of video recordings of visitors interacting with exhibits. A video camera was set up in the exhibit hall at various times during the duration of the *Wildlife Rescue* exhibition. Video footage of visitors interacting at 25 of the 30 exhibits was collected. Two touch screen exhibits, the entrance experience, and the large video theatre were not included because they were not conducive to videotaping. We recorded a minimum number of 100 visitors interacting with each exhibit (with the exception of the Turtle Crawl exhibit).

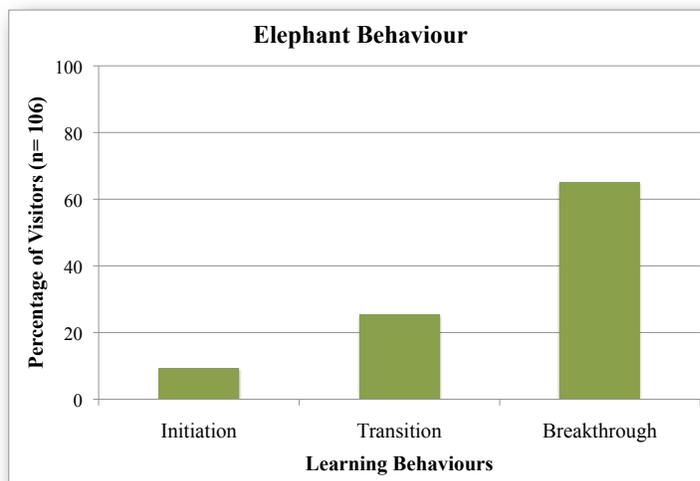
### 2. Visitor Surveys

Visitor surveys were conducted using a computer-based survey kiosk located in Science North's Special Exhibits Hall. In the survey, visitors were asked to rate their understanding or knowledge of *Wildlife Rescue's* key messages (see Appendix 1). A total of 238 visitors completed the survey.

## Results

### Visitor Observation Results

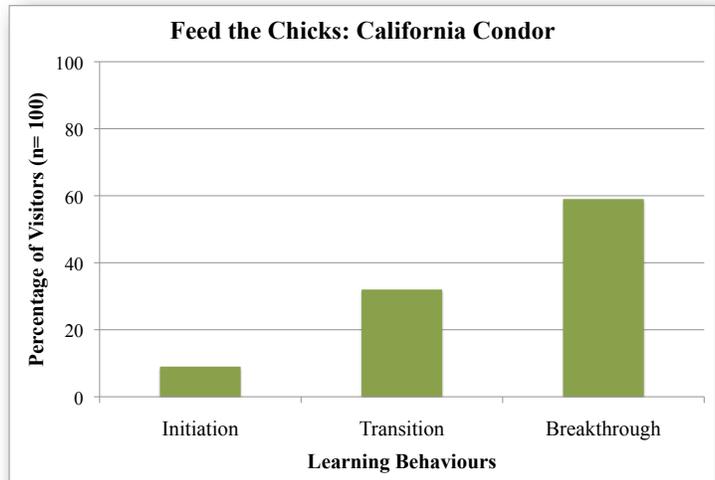
The exhibits in *Wildlife Rescue* engaged visitors in all levels of learning behaviours. Of the 25 exhibits evaluated, 13 (52%) engaged visitors in high levels of Breakthrough learning behaviours (Table B). Five examples are shown below (Charts 1, 2, 3, 4, 5).



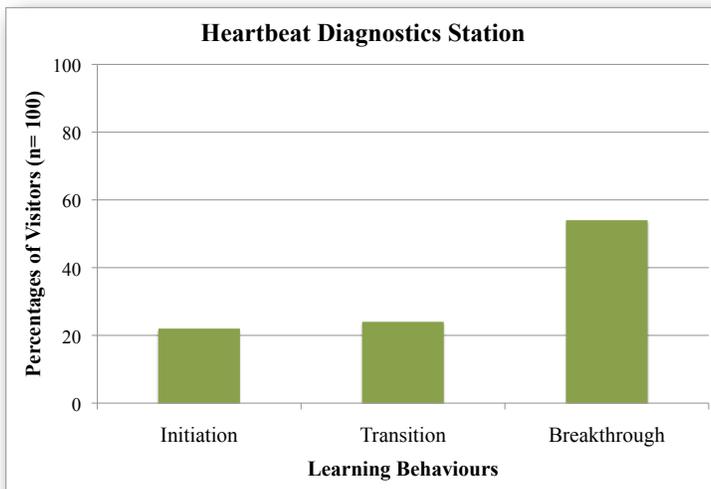
**Chart 1. Visitor Engagement Profile for *Elephant Behaviour* Exhibit**

Visitors at the *Elephant Behaviour* exhibit participate in a multi-player computer quiz. Video clips of elephant communication are played and visitors must interpret and answer questions to identify behaviours and emotion expressed by the elephant. Over 60% of visitors who interacted with the *Elephant Behaviour* exhibit (Chart 1) displayed Breakthrough learning behaviours such as seeking and sharing information with others, engaging in the activity for as long as 15 minutes, and participating in the quiz several times.

At *Feed the Chicks: California Condor*, visitors use the puppet adult condors attempting to pick up food pellets to feed the chick. The exhibit engages 59% (Chart 2) of visitors in Breakthrough learning behaviours as they compare their results, repeat the activity, and share information about condor chicks.



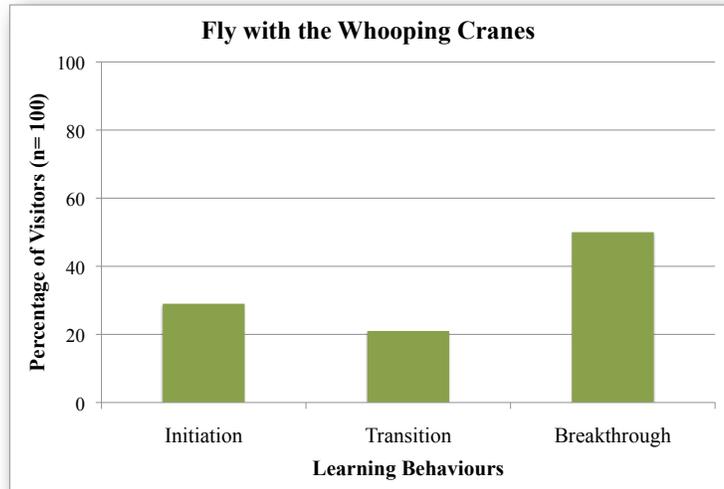
**Chart 2. Visitor Engagement Profile for *Feed the Chicks: California Condor* Exhibit**



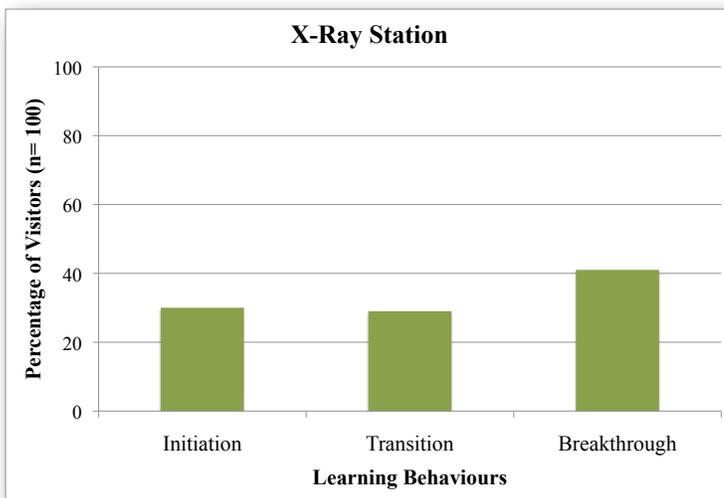
**Chart 3. Visitor Engagement Profile for the *Heartbeat Diagnostics Station* Exhibit**

At the *Heartbeat Diagnostic* exhibit, over 50% (Chart 3) of visitors engaged in Breakthrough learning behaviours while listening to the heartbeats of different mammals using a stethoscope, discussing the differences, and learning why particular mammals have fast heartbeats or slow heartbeats. Visitors were also measuring their own heartbeats and comparing with family and friends.

In the *Fly with the Whooping Cranes* multimedia exhibit, visitors sit in an ultralight aircraft and experience a simulated flight to direct whooping cranes on their first migration route. Fifty percent of visitors at this exhibit (Chart 4) engaged in Breakthrough learning behaviours. For example, visitors stay for the entire duration of the flight, return more than once to experience the flight again, and engage in discussions about the exhibit with others.



**Chart 4. Visitor Engagement Profile for *Fly with Whooping Cranes* Exhibit**



**Chart 5. Visitor Engagement Profile for the *X-Ray Station* Exhibit**

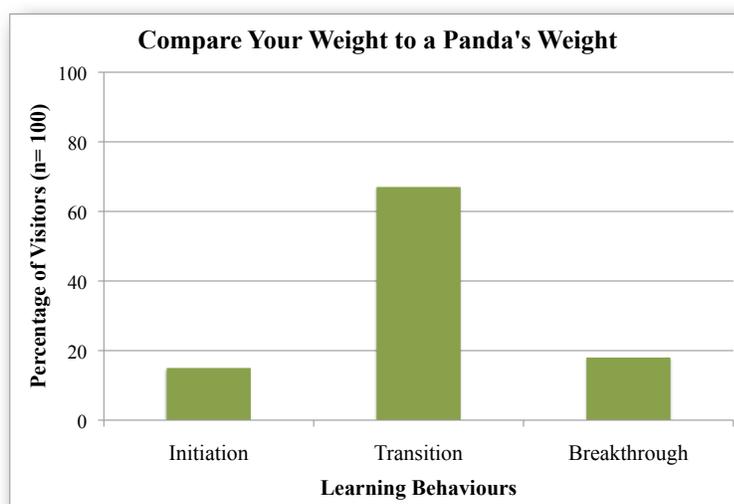
At the *X-Ray Station* visitors position the x-ray machine over animals' injuries to light up the x-ray. Over 40% (Chart 5) of visitors were engaged in Breakthrough learning behaviours as they discussed reasons for injury, types of treatment, and how further injuries to these animals can be prevented.

**Table B. Exhibits engaging a high percentage of visitors in Breakthrough Behaviours**

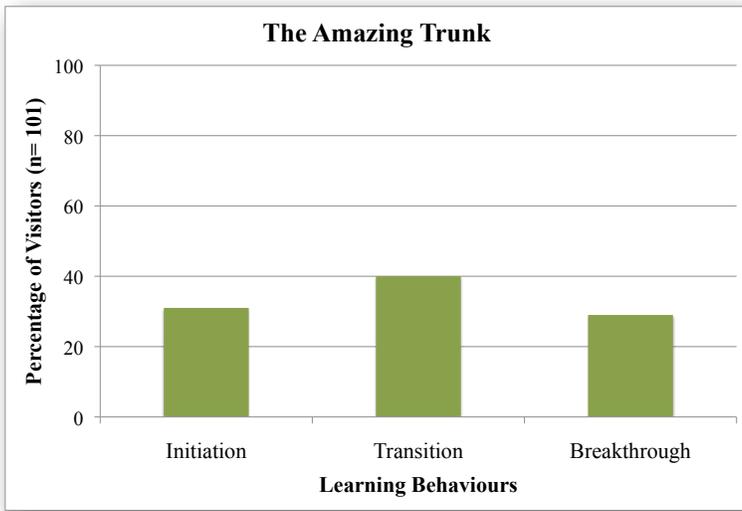
Exhibit Name	Visitors Engaged in Breakthrough Behaviours
Elephant Behaviour Quiz	65%
First Response Station	65%
How Oil Impacts Birds	64%
Oil Spills and Wildlife	64%
Feed the Chick: California Condor	59%
Heartbeat Diagnostics Station	54%
Species Recovery Around the World	53%
Fly with Whooping Cranes	50%
Giant Panda Adaptations	50%
Turtle Rehabilitation	49%
Making a Good Pet Choice	43%
Life Expectancy	43%
X-Ray Station	41%

The other exhibits in *Wildlife Rescue* engaged visitors primarily in Initiation and Transition learning behaviours with a medium or low percentage of visitors engaging in Breakthrough learning (Table C and Table D). The following examples highlight these results.

Visitors at the *Panda Weight* exhibit step on a large scale to compare their weight to that of a panda. This exhibit elicited mostly Transition learning behaviours (67%) from visitors as they expressed positive emotional responses through surprise, laughter, and smiles, and often repeated the activity to see their weight compared again with different sized pandas (Chart 6).



**Chart 6. Visitor Engagement Profile for *Compare Your Weight to a Panda's Weight* Exhibit**

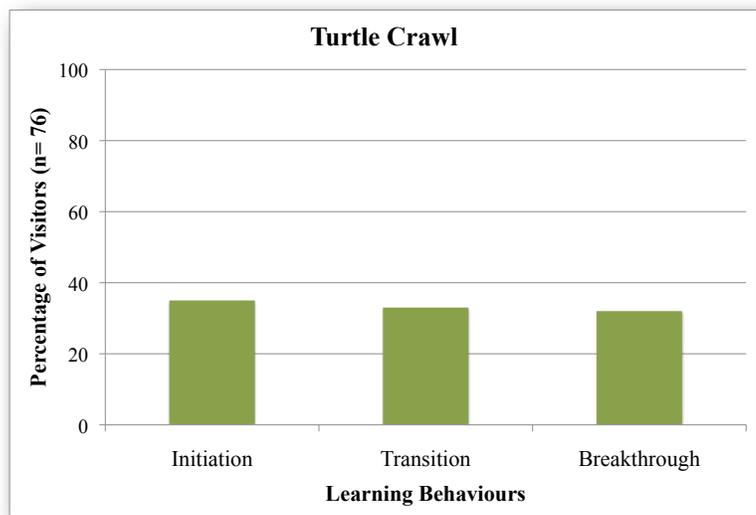


**Chart 7. Visitor Engagement Profile for *The Amazing Trunk* Exhibit**

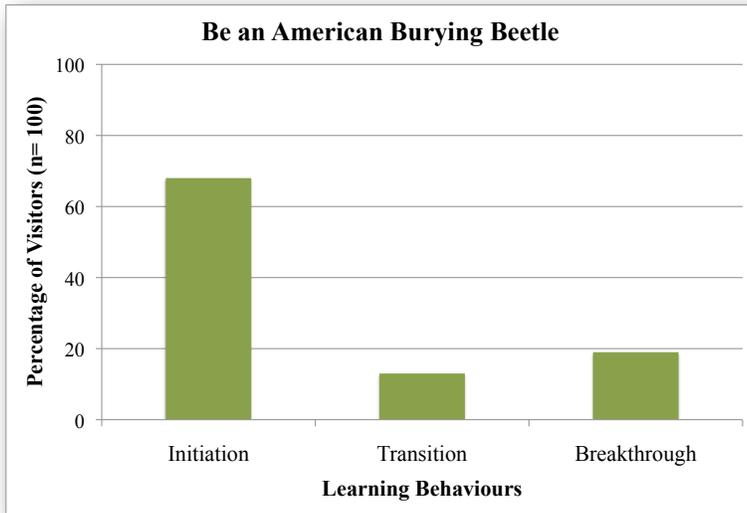
At the *Amazing Trunk*, visitors can discover how the elephant trunk moves, how an elephant uses it, and how baby elephants must learn how to use their trunks properly.

Approximately 30% (Chart 7) of visitors engaged in Breakthrough learning behaviours at this exhibit. For example, visitors tried to preform the tasks like the elephants in the video, remarked how difficult it must be for baby elephants, and engaged in watching the elephants preform all types of tasks with great dexterity.

Visitors at the *Turtle Crawl* wear a turtle shell and crawl under an overpass while listening to the sounds of the zooming cars above. Approximately 35% of visitors at this exhibit engaged in Initiation learning behaviours and 32% of visitors engaged in Breakthrough learning behaviours (Chart 8).



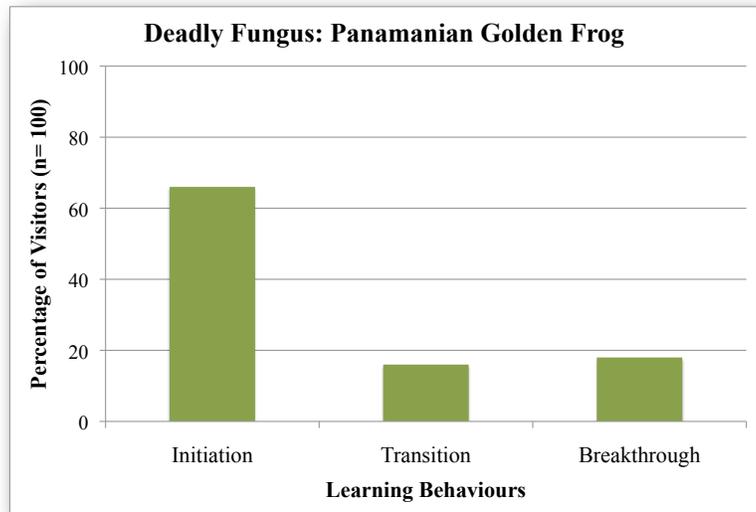
**Chart 8. Visitor Engagement Profile for the *Turtle Crawl* Exhibit**



Visitors watch video of the *American Burying Beetle* burying and preparing a dead mouse for its young. Visitors can then turn a crank to bury a mouse deep in the sand, just like the beetle. Most visitors (68%) display Initiation learning behaviours by doing the activity once and watching the video.

**Chart 9. Visitor Engagement Profile for the *Be an American Burying Beetle* Exhibit**

At the *Deadly Fungus: Panamanian Golden Frog* exhibit, visitors use a touch screen video, micrographs of infected skin and a model of the frog to learn about the deadly fungus that is threatening amphibian populations worldwide. This exhibit engages most visitors at an Initiation level (68%), where visitors look at the artifacts and interact with the touch screen computer to access video (Chart 10).



**Chart 10. Visitor Engagement Profile for *Deadly Fungus: Panamanian Golden Frog* Exhibit**

**Table C. Exhibits engaging a medium percentage of visitors in Breakthrough Behaviours**

<b>Exhibit Name</b>	<b>Visitors Engaged in Breakthrough Behaviours</b>
Fostering Chatham Island Black Robin Eggs	<b>39%</b>
Great Lakes Lake Sturgeon	<b>38%</b>
Grip Strength	<b>37%</b>
Turtle Crawl	<b>32%</b>
The Amazing Trunk	<b>29%</b>
Tracking the Iberian Lynx	<b>23%</b>
A Day in the Life of a Black-Footed Ferret	<b>22%</b>

**Table D. Exhibits engaging a low percentage of visitors in Breakthrough Behaviours**

<b>Exhibit Name</b>	<b>Visitors Engaged in Breakthrough Behaviours</b>
Be an American Burying Beetle	<b>19%</b>
Biodiversity Puzzle	<b>18%</b>
Deadly Fungus: Panamanian Golden Frog	<b>18%</b>
Compare Your Weight to a Panda's Weight	<b>18%</b>
Facial Recognition: Who's Who?	<b>11%</b>

## **Survey Results**

### **Survey Section A**

The survey questions were based on the learning goals of *Wildlife Rescue*. When exiting the exhibit hall, visitors were asked to rate their knowledge and understanding of:

- a) the need to help and protect wildlife around the world.
- b) the methods used to help reestablish wildlife.
- c) the number of wildlife restoration projects around the world.

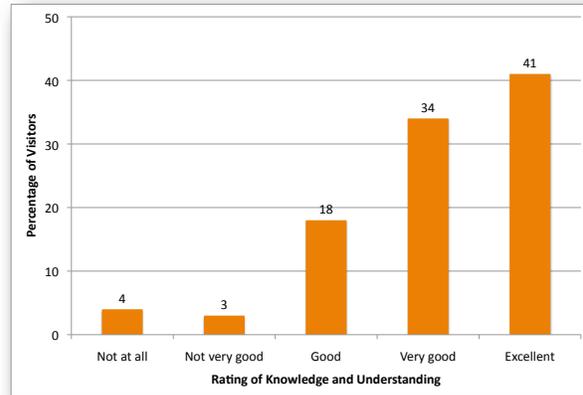
Respondents rated their level of previous knowledge and understanding of these topics, on a scale from “not at all” to “excellent”. Using the same scale, visitors were asked to rate their knowledge and understanding of these topics, **after** experiencing the *Wildlife Rescue* exhibition.

### a) Knowledge and Understanding of the Need to Help and Protect Wildlife

A total of 50% of visitors rated their previous knowledge and understanding of the need to help and protect wildlife as “very good” or “excellent” (Chart 11). When visitors were asked to rate their knowledge and understanding of the need to help and protect wildlife after visiting the exhibition, they reported an increase in knowledge and understanding despite the original ratings being fairly high (Chart 12).



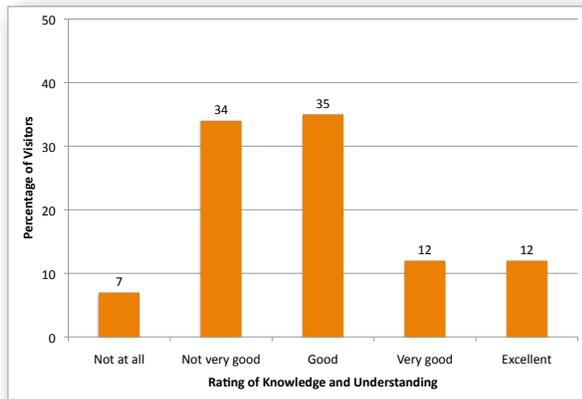
**Chart 11.** Rating of previous knowledge and understanding of the need to help and protect wildlife around the world.



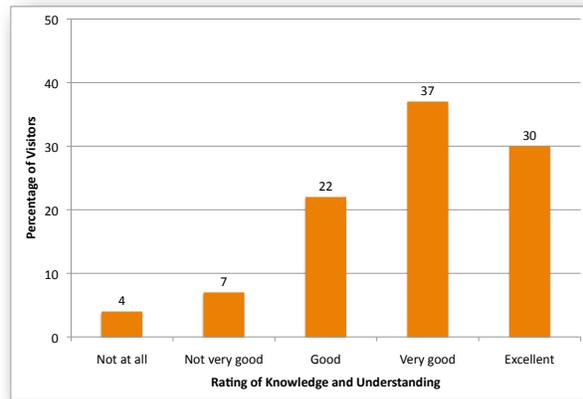
**Chart 12.** Rating of knowledge and understanding of the need to help and protect wildlife around the world *after* visiting *Wildlife Rescue*.

### b) Knowledge and Understanding of Methods Used to Help Reestablish Wildlife

Most visitors rated their previous knowledge and understanding as “not very good” or “good”, while a total of 24% of visitors rated themselves as having “very good” or “excellent” previous knowledge and understanding of the methods used to help reestablish wildlife (Chart 13). Visitors reported a marked increase in their knowledge and understanding after experiencing the *Wildlife Rescue* exhibition (Chart 14). For example, most visitors (67%) described their knowledge as “very good” or “excellent”.



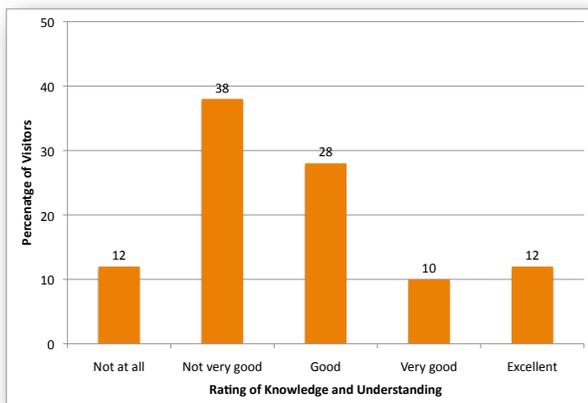
**Chart 13. Rating of previous knowledge and understanding of methods used to help reestablish wildlife.**



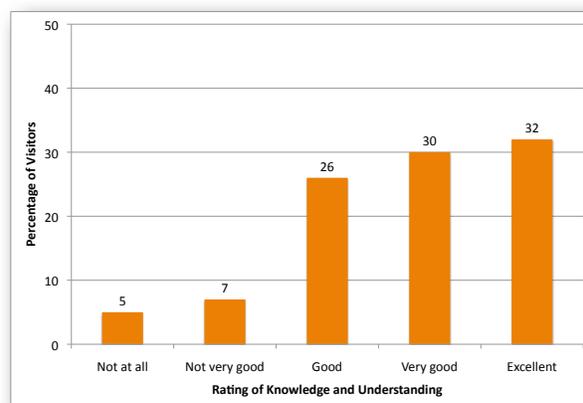
**Chart 14. Rating of knowledge and understanding of methods used to help reestablish wildlife after visiting *Wildlife Rescue*.**

### c) Knowledge and Understanding of Wildlife Restoration Projects

Visitors were asked to rate their knowledge and understanding of the number of wildlife restoration projects around the world before and after their visit to the *Wildlife Rescue* exhibition. Chart 15 shows that most visitors (66%) rated their previous knowledge as being “not very good” and “good”. Visitors felt that their knowledge and understanding of restoration projects increased after visiting *Wildlife Rescue*, with most visitors (62%) rating their knowledge as “excellent” or “very good” (Chart 16).



**Chart 15. Rating of previous knowledge and understanding of wildlife restoration projects.**



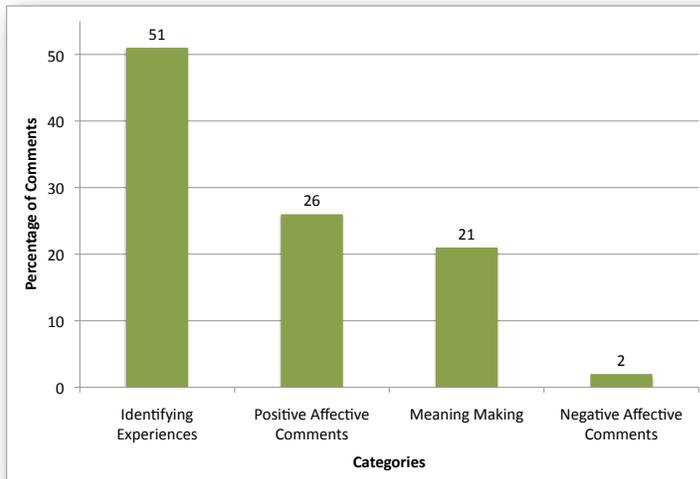
**Chart 16. Rating of knowledge and understanding of wildlife restoration projects after visiting *Wildlife Rescue*.**

## Survey Section B

Visitors were invited to comment on what they found *most interesting* during their visit to *Wildlife Rescue*. This was an open question where visitors could type as little or as much as they wanted regarding their visit. A total of 175 comments were collected, reviewed and coded into categories and themes (Table E). The percentage of comments found in each of the themes are displayed in Chart 17.

**Table E. Comment Themes, Categories and Comment Examples**

Themes	Categories within theme	Examples “What did you find most interesting?”
<b>Identifying Experiences</b>	Naming or Identifying an Exhibit	<i>“[name] was very knowledgeable and interested in the work that was going on”</i>  <i>“... feeding chicks, acting like an elephant, crawling like a turtle”</i>  <i>“It would be nice to see more on local animals affected”</i>
	Naming or Identifying Demonstration	
	Naming or Identifying Staff Member (Bluecoat)	
	Identifying Need for Further Information / Experience	
<b>Positive Affective Comment</b>	Positive Emotional Response	<i>“The interactive stuff, just reading and watching doesn’t really stick with you but when you DO stuff it’s funner and you’ll remember it better”</i>
	Entertaining	
	Interactivity	
<b>Meaning Making</b>	Change in Understanding	<i>“The weight and size of the Giant Panda”</i>  <i>“How so many people want to help. It really inspires people to do something”</i>  <i>“That it is remarkable for children’s learning”</i>
	Acknowledging Relevance to Self or Society	
	Further Action	
	Acknowledging Learning of Others (Facilitator)	
<b>Negative Affective Comment</b>	Negative Emotional Response	<i>“I hated it”</i>



In 51% of the comments, visitors identified an experience, whether it was a particular exhibit that they found most interesting, or a conversation they had with a staff member. Positive comments (26%) reflected the enjoyment visitors experienced while interacting with exhibits. In 21% of the comments, visitors referred to gaining knowledge and learning something new.

**Chart 17. Percentage of visitor comments in each theme when answering the question “What did you find most interesting?”.**

## Discussion

Although summer attendance was lower than expected, this seems to have benefited the visitor experience in Wildlife Rescue. As we have seen at many exhibits in the science centre, including one in this exhibit (*Seabird Rescue*), visitors tend to shorten their stay at an exhibit and Breakthrough is quite low when it is very busy. When the centre is not very busy, visitors stay longer, ask bluecoats more questions, return to the exhibit more often, and there is a marked increase in Breakthrough learning behaviours.

Some exhibits may have a low breakthrough percentage because they were recorded during the March break 2011. When an exhibit is busy, visitors tend to shorten their stay at the exhibit which normally does not allow them enough time to really experience any Breakthrough learning. We have witnessed this at other exhibits in the science centre (*K’Nex Racetrack*, *Streamtable*) during busy times like March Break, summer, and Christmas break.

We exceeded our goal of having 30% of exhibits engage 40% or more visitors in Breakthrough learning behaviours. Our final total was 13 exhibits of 25 (52%).

Not all the predicted exhibits were the actual exhibits that elicited high Breakthrough. For example, the *Compare Your Weight to a Panda’s Weight* exhibit was predicted to have a high percentage of visitors engaging in Breakthrough learning behaviours, but actually had a low percentage (18%). Exhibits that we predicted would elicit low Breakthrough behaviours (for example, *Seabird Rescue*) actually had a high percentage of visitors engaging in Breakthrough learning behaviours at 64%.

Overall the exhibition performed very well with respect to delivering our key messages, educating our visitors, and providing visitors with a balanced, enriched experience.

## Recommendations

Some exhibits benefit more from bluecoat interaction than others. For example, exhibits in the Species Recovery Centre (Zone 2), in particular, the *Deadly Fungus: Panamanian Golden Frog*, *Compare Your Weight to a Panda's Weight*, and *Be an American Burying Beetle* exhibits engaged a higher percentage of visitors in Breakthrough behaviours when a bluecoat was present to ask and answer questions, and participate in the activity with the visitors.

The condor exhibit needs to be repaired and maintained. During video taping, the shorter side of the exhibit was damaged and young children had a very difficult time doing the activity because they could not see the inside of the exhibit. We did ensure that a stool was put at the exhibit but for some, it was still too low.

At the *Seabird rescue* exhibit, *Oil Spills* and *Wildlife*, many visitors did not understand how to use the exhibit. For example, many visitors attempted to touch the screen and did not realize that the game required them to touch the objects on the counter. For this exhibit, the directions should be clearer for the visitor and include a note that the screen is not a touch screen.

## Conclusions

Based on the three sources of visitor experience data, we conclude that The *Wildlife Rescue* exhibition is successful in providing a rich learning experience. Many of the exhibits engaged a high percentage of visitors in Breakthrough learning behaviours. This was evident in 13 of the 25 exhibits, all of which engaged at least 40% of visitors in learning behaviours like:

- seeking more information through discussions with family members
- making meaning through previous experiences and knowledge
- returning to the exhibit numerous times to experience it again
- sharing new knowledge
- interacting with individual exhibits for 3 to 5 minutes or more.

*Wildlife Rescue* is also successful at communicating most of the key messages surrounding wildlife restoration and rescue. The open-ended responses to “What did you find most interesting in the exhibition?” suggest that visitors were not explicitly identifying ways that they could contribute but instead expressed the need and obligation for society to protect and rescue wildlife. Survey responses also indicated that visitors felt they had increased their knowledge and understanding of the need for efforts to protect and restore wildlife, the number of restoration projects around the world, and the methods used to rehabilitate and restore wildlife populations.

