



# iSaveSpecies—Sustaining Life Summative Evaluation Report

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## Boonshoft Museum

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## Executive Summary

The iSaveSpecies project, created by Project Dragonfly at Miami University and a consortium of museums, zoos, and aquariums, designed and implemented a socially-networked exhibit system to engage family visitors to museums and zoos in inquiry and conservation. The second wave of the iSaveSpecies exhibit stations focused on *Sustaining Life*, allowing families to conduct research and learn about conservation efforts. Participating zoos and museums incorporated up to three touchscreen-based research and/or action kiosks in exhibition areas.

To support these efforts, the Lifelong Learning Group conducted a summative evaluation to determine the effectiveness of the iSaveSpecies electronic interactive kiosks at engaging families in inquiry, STEM, and conservation actions. The study was designed to answer the question: Do the iSaveSpecies kiosks achieve their desired (collective) outcomes?

Data for this study were collected at three different zoos and one museum. This report focuses on the Boonshoft Museum; data were collected onsite at the Museum from adult visitors (N=62) who explored the Mead Westvaco Hallway and Treehouse area. Two types of participants were sought—those who used the iSaveSpecies kiosk and those who did not—to complete a questionnaire or an interview.

The study found that visitors who engaged with the iSaveSpecies kiosks reported they were somewhat more likely to use basic science inquiry skills during their museum visit, including listening to calls that animals made, comparing research results with others, and thinking about how they differ from others in how they think about animals and nature.

Visitors who interacted with the iSaveSpecies kiosks reported they felt they were more knowledgeable to some degree about bats and conservation issues than visitors who did not interact with the kiosks. Visitors who interacted with the kiosks stated they learned that bats make more than one sound and that bats eat lots of insects, are an endangered species, and don't fly in your hair. Visitors that engaged with the kiosk reported that they understood bats and themselves better, were more aware that they can help bats and that animals need to be protected than visitors who did not interact with the kiosks; however, visitors that did not interact with the kiosks were more likely to report they might like to study bats/people's relationship to nature and work to help save bats in the wild.

Boonshoft Museum visitors interacting with the iSaveSpecies poster kiosk were somewhat more likely to report they were more aware that animals need to be protected than visitors who did not use the iSaveSpecies poster kiosk. The Poster kiosk appears to influence specific conservation actions; including creating and sharing a conservation poster and actively seeking opportunities to help Ohio's bats. Visitors who complete the poster interactive receive an e-mail prompt to view their poster online. This e-mail includes conservation actions they can take, including forwarding the conservation message poster they created. Data is currently unavailable to determine the percentage of visitors who took further action.

Visitors who engaged with the iSaveSpecies interactive kiosks felt it added value to their museum visit. Respondents indicated they had fun and found a different way to engage with the animals from the kiosk. They also indicated the touchscreen interactive was appealing.

The key outcomes of this study include:

- Visitors who interacted with the iSaveSpecies kiosks felt it added value to their museum visit.
- Visitors who interacted with the iSaveSpecies kiosks appear to be somewhat more knowledgeable about bats and conservation issues than visitors who did not interact with the kiosks.
- Visitors who engaged with the iSaveSpecies kiosks were somewhat more likely to report they used basic science inquiry skills during their museum visit. Visitors who interacted with the kiosk reported they were more likely to listen to calls that animals made, compare research results with others, and think about how they differ from others in how they think about animals and nature

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## Introduction

The iSaveSpecies project, created by Project Dragonfly at Miami University and a consortium of museums and aquariums, designed and implemented a socially-networked exhibit system to engage family visitors to museums and aquariums in inquiry and conservation. iSaveSpecies inquiry and action tools reside in an evolving library of exhibit interactives, modified by partner institutions to suit the particular needs of their visitors.

The first wave of the iSaveSpecies exhibit stations focused on *Great Apes*, the second wave focused on *Sustaining Life*. Both sets of exhibits allow families to conduct research on animals by joining the work of experienced field conservationists. The second wave of exhibits were placed in five partner institutions during 2015 — Boonshoft Museum, Chicago Zoological Society/Brookfield Zoo (Brookfield Zoo), Cleveland Metroparks Zoo (Cleveland Zoo), Oregon Zoo, and Toledo Zoo. These institutions incorporated up to three touchscreen-based research and action kiosks in an exhibition area. By building cross-institutional partnerships committed to sustaining life on our planet, the iSaveSpecies projects believes that the new tools for inquiry and public action will achieve broad national impact.

To support these efforts, a summative evaluation was conducted to determine the effectiveness of the iSaveSpecies electronic interactive kiosks at engaging families in inquiry, STEM, and conservation actions. This study built on the Great Apes Summative (Wojton & Heimlich, 2015) and a front-end evaluation, which focused on visitor interactions in the Mead Westvaco Hallway and Treehouse exhibit. The front-end study found that visitors shared a rudimentary, generic understanding of the flora and fauna that populate the forest and a very low level understanding of bats. Visitors observed moving through the Mead Westvaco Hallway moved through quickly. The interactive exhibits and those more likely to invoke a personal connection were the most popular exhibits in the Hallway and increased visitor dwell time.

While the prior evaluation provided insight into visitor interaction through the hallway before the iSaveSpecies exhibits were installed, this study focused on the efficacy of the iSaveSpecies interactive kiosks engaging visitors and delivering their messages, including encouraging visitors to develop inquiry skills, knowledge of pertinent STEM content, and engaging in specific conservation actions.

A summative design utilized questionnaires and interviews to gather data from museum visitors. Questionnaire data were gathered from two types of museum visitors: those who used an iSaveSpecies kiosk and those who did not. Interviews were conducted with adult visitors seen interacting with at least one of the iSaveSpecies kiosks.

The overarching evaluation question for this summative evaluation was: Do the iSaveSpecies kiosks achieve their desired (collective) outcomes? To address this larger question, five sub-questions were asked:

1. Did visitors who engaged with the iSaveSpecies inquiry kiosks report they have used basic science inquiry skills during their museum visit?
2. Did visitors who engaged with the iSaveSpecies interactive kiosks have a better understanding of the STEM content related to the iSave Species kiosks than those who did not engage with the kiosks?
3. Did visitors who engaged with the iSaveSpecies conservation poster kiosk understand conservation efforts focused on bats?

4. Did visitors who engaged with the iSaveSpecies conservation poster kiosks report involvement in specific conservation actions?
5. Did visitors who engaged with the iSaveSpecies interactive kiosks feel it added value to their museum visit?

## Methods

The audience for this summative evaluation study was adult visitors to the Boonshoft Museum Mead Westvaco Hallway and Treehouse exhibition area. Two types of participants were sought to better understand the impact of the iSaveSpecies interactives—those who used the iSaveSpecies kiosk and those who did not.

To answer the evaluation questions, two different methods were used: a structured, intercept interview and a questionnaire. Using a continuous ask format, visitors who interacted with one of the iSaveSpecies kiosks were invited to participate in the interview as they finished the interactive. The interviews asked adults to describe what they did at the kiosk (s), and what they gained from the interaction in regards to scientific inquiry and environmental conservation.

The second method was a questionnaire. Since each kiosk had different goals for participants, separate questionnaires were designed and administered for each of the kiosks. While each questionnaire used the same demographic, conservation, and affect questions; each kiosk questionnaire had different inquiry questions. To better understand the impact of the kiosks, data were collected from those who did and those who did not engage with the kiosk. Visitors were asked to complete the questionnaire after they had passed the iSaveSpecies kiosk. Interview scripts and questionnaires can be found in Appendix A.

All data for the two methods of the study were collected with different groups of visitors. Data gathering was impacted by the uniqueness of the museum's exhibition area, including the placement of the kiosks within the viewing area. Additionally, data collection was limited by the museum attendance.

Data were analyzed collectively. Interview responses were entered into an Excel spreadsheet and coded based on the question and the objectives of the interactive kiosks. During analysis, categories of visitor responses about their knowledge were developed inductively through the coding process (i.e., they emerged from the data itself rather than being prescribed). No demographic information was collected for interviewed visitors.

All questionnaire data were entered into an Excel spreadsheet. Quantitative data were transferred into SPSS for analysis. Open-ended data were coded using coding rubrics developed for this study. Quantitative data were analyzed descriptively and, where appropriate, inferential statistics were used to test specific questions or hypotheses about the data.

## Findings

### Museum

The Boonshoft Museum, located in Dayton Ohio, consists of two floors, offering 94,000 square feet of exhibition space. Areas are divided by specific topics. The three iSaveSpecies exhibits were located in the Mead Westvaco Hallway and Treehouse exhibition area, which consists of both static

and interactive displays focused on Ohio’s deciduous forest. During the four days of data collection, visitor attendance at the museum averaged 363 visitors per day, with a range of 319 to 415.

### Participants

Visitor participants in this study completed either an interview or a questionnaire. Those who completed interviews are referred to as “interviewees” throughout this report, those who completed questionnaires are referred to as “respondents.” Table 1 illustrates the number of visitors in each group.

Table 1. Visitor participants by study method

<b>Museum</b>	<b>Number of Interviewees</b>	<b>Number of Respondents</b>
Boonshoft	3	59

Every effort was made to gather data for each interactive kiosk; however, since the Wild Me kiosk was only available for this study at the Boonshoft Museum, an extra effort was made to gather data from visitors who interacted with this exhibit. Every effort was made to collect data from a representative sample of visitors; however, we were hampered in our efforts to obtain an equivalent number of participants who did not interact with the kiosk. Visitors who had not interacted with a kiosk were approached after they passed the kiosks and asked to complete a questionnaire, but many of these visitors returned and interacted with the kiosk, therefore the number of respondents who interacted with the kiosks is roughly 5:1.

Separate questionnaires were designed and administered for each of the kiosks. Table 2 has a breakdown of questionnaires completed by kiosk. Questionnaire data indicate that respondents were primarily white (94%), non-members (80%) traveling through the museum with family (91%). For many of the respondents this was their first visit to the Boonshoft Museum (36%), but there were also several who had visited the museum 5 or more times this year (17%); the majority spent 5 – 15 minutes in the Treehouse Hallway (88%). Appendix B contains tables for each of the demographic questions included in the questionnaire.

Table 2. Questionnaires completed for each interactive kiosk

<b>Interactive Kiosks</b>	<b>Number of Respondents</b>
Wild Me	24
Conservation Poster	18
Chirp Like a Bat	17

N=59

### **Inquiry Skills**

Overall, visitors interacting with the iSaveSpecies kiosks used inquiry skills slightly more often than those who did not interact with the iSaveSpecies kiosk during their visit to the Mead Westvaco Hallway and Treehouse at the Boonshoft Museum. Skills most often used by those who interacted with the kiosks were listening to calls that animals made, comparing research results with others, and thinking about how they differ from others in how they think about animals and nature.



## How We Know

Table 3 contains a list of inquiry skills divided by those who interacted with a kiosk (either on this or a prior visit) and those who did not interact with any of the kiosks. On a scale where 1 represents Definitely Not and 7 represents Absolutely Yes, questionnaire respondents who interacted with an iSaveSpecies kiosk were slightly more likely to believe they had used inquiry skills than those who did not.

Mean scores ranged from a slightly negative  $\bar{x} = 3.08$  to a positive  $\bar{x} = 5.57$  on a 7 point scale, with most scores being neutral ( $\bar{x} = 4.0$ ) to slightly positive ( $\bar{x} = 4.90$ ). Those who engaged reported higher mean scores than those who did not with the exception of “Shared what I learned with others”; all other items for those who didn’t interact received negative to neutral mean scores ( $\bar{x} = 2.5$  to  $4.0$ ). Using a t-test, a statistically significant positive difference was found for the skill of “Listened to different calls animals make” at the .10 level, an acceptable significance level for small samples.

The kiosks appear to nurture four inquiry skills. To determine which skills were nurtured by the kiosks, data was analyzed for positive trends by calculating the mean difference between those who interacted with a kiosk and those who did not. Inquiry skills most likely nurtured by the kiosks, with the greatest mean difference (greater than 1 point) between those who interacted with a kiosk and those who didn’t, include:

- Listened to different calls animals make
- Compared research results with others
- Thought about how I differ from other people in how we think about animals and nature
- Explore how I relate to nature

Table 3. Respondents’ use of inquiry skills, separated by interaction with kiosks

	Interact Mean	No Interact Mean	Mean Difference	t	Df	p
Talked with others in my group about what I observed or did	4.63	4.00	0.63	0.96	55	0.339
Thought of a question about the bats behavior	4.15	3.80	0.35	0.42	30	0.680
Explore how I relate to nature	4.90	3.75	1.15	1.25	22	0.226
Compared research results with others	3.71	2.50	1.21	1.04	14	0.316
Thought about how I differ from other people in how we think about animals and nature	4.90	3.50	1.40	1.62	22	0.120
Compared myself to an animal	3.08	2.50	0.58	0.43	13	0.677
Listened to different calls animals make	5.57	3.00	2.57	2.14	14	0.051
Shared what I learned with others	4.24	4.29	-0.05	-0.08	39	0.936
Learned I am like an animal	4.00	3.00	1.00	0.76	14	0.458

N varies from 14-56

n for Interaction ranges from 13-48

n for No Interaction ranges from 2-9

An essential inquiry skill is the ability to ask questions that lead to investigations. To get a sense of a visitor’s ability to do this, interviewees were asked “Based on your experience in the MEAD Westvaco Treehouse Hallway, do you have any questions about bat’s (or any other animal’s)

behavior? What about how your behavior might impact the planet?" and "How could someone investigate this?" Each of the three interviewees were able to share a question and investigation.

These questions were classified as simple or investigable. To determine if a question was simple or investigable, responses to the question and investigation were examined collectively. A question was considered simple if the interviewee suggested the answer could be found in a book or on the internet. Two questions shared by interviewees were simple, including "What specific ways can we help bats?" and "What specific things [do people] do to harm bats?" Visitors reported they would investigate these questions by "Look[ing] at movies about bats, do an Internet search about bats, come back to Boonshoft to learn more, read books about bats." The third question, "How can we protect bats?" was considered investigable because the visitor would observe bats in the bat house she had built.

## STEM Content

Visitors who interacted with the iSaveSpecies kiosks reported that they were somewhat more likely to understand bats and themselves better, were more aware that they can help bats and that animals need to be protected than visitors who did not interact with the kiosks; however visitors who did not interact with the kiosks were more likely to want to study bats/people's relationship to nature and work to help save bats in the wild. Interviewed visitors learned that bats make more than one sound and that bats eat lots of insects, are an endangered species, and don't fly in your hair.

### How We Know

On a scale where 1 represents Strongly Disagree and 7 represents Strongly Agree, related to STEM content, questionnaire respondents who interacted with an iSaveSpecies kiosk had mean scores ranging from neutral ("I would like to work to help save bats in the wild"  $\bar{x} = 4.0$ ) to positive ("I want to learn more about wildlife"  $\bar{x} = 5.35$ ). Most mean scores were neutral to slightly positive. Those who did not interact rated two statements slightly negative, with mean scores that ranged from  $\bar{x} = 3.25$  to 3.50, six items that were neutral ( $\bar{x} = 3.83$  to 4.50) with the remaining statements rated slightly positive to positive ( $\bar{x} = 4.60$  to 5.00).

Respondents who interacted with a kiosk were more likely to agree with statements that they understood bats and themselves better, were more aware that they can help bats and that animals need to be protected. See Table 6. While the findings indicate respondents feelings were neutral to slight agreement, STEM content nurtured by the kiosks (those where positive trends with mean differences greater than .900 were observed) were seen with the following statements:

- I understand bats better
- I learned more about myself
- I am more aware that animals need to be protected.
- I can help bats.

When those who interacted were compared to those who did not interact, positive mean differences were seen in all but two statements:

- I might like to study bats/people's relationship to nature
- I would like to work to help save bats in the wild

Analyzing the data with an independent samples t-test, a statistically significant difference was found with one statement, I understand bats better ( $p = .038$ ). This quantitative finding is supported

by those who were interviewed. An interviewee who completed the Chirp Like a Bat Kiosk learned that “bats make more than one sound to communicate and hunt insects.” Interviewees who created a Poster shared that they learned several things about bats, including “bats eat a lot of insects,” “bats are an endangered species,” and “bats don’t fly in your hair.”

Table 6. Respondents’ feelings regarding STEM content, separated by interaction with kiosks

I feel . . .	Interact Mean	No Interact Mean	Mean Difference	t	Df	p
I am more knowledgeable about how to study bats.++	4.571	4.000	.5714	.988	32	.330
I can investigate behavior through careful observation.+++	4.625	4.000	.6250	1.253	56	.215
I am more aware that animals need to be protected.+++	5.319	4.400	.9191	1.651	55	.105
I can help bats++.	4.786	3.833	.9524	1.360	32	.183
I might like to study bats/people's relationship to nature++	4.447	4.600	-.1532	-.280	55	.781
I understand bats better++	4.852	3.500	1.3519	2.173	31	.038*
I would like to work to help save bats in the wild++	4.000	4.167	-.1667	-.211	32	.834
I visit this museum to learn and/or support conservation+++	4.896	4.300	.5958	1.149	56	.255
I am more interested in learning about how humans relate to nature+	4.850	4.500	.3500	.365	22	.719
I want to learn more about wildlife+	5.350	5.000	.3500	.430	22	.671
I want to learn more about environmental issues+	5.050	5.000	.0500	.058	22	.954
I learned more about myself+	4.300	3.250	1.0500	1.133	22	.269

+N=20 respondents interacted/4 respondents did not interact

++N=28 respondents interacted/6 respondents did not interact

+++N=48 respondents interacted/10 respondents did not interact

## Conservation Efforts

Boonshoft Museum visitors interacting with the iSaveSpecies poster kiosk were more aware that animals need to be protected and they visit the museum to learn and/or support conservation than visitors who did not use the iSaveSpecies poster kiosk. Additionally specific conservation actions appear to be influenced by the Poster kiosk; including creating a conservation poster and sharing it and actively seek opportunities to help Ohio’s bats.

### How We Know

The poster kiosk appeared to increase visitors’ willingness to share what they learned about bats or conservation issues with others; however visitors who did not interact with the kiosk had a higher mean score for the statement “Learned about bats and conservation issues.” Table 7 illustrates visitors’ knowledge of conservation issues divided by interaction with the poster kiosk.

Table 7. Visitors' knowledge of conservation issues separated by interaction with kiosks

	Interact Mean	No Interact Mean	Mean Difference	t	Df	p
Learned about bats and conservation issues+	5.357	5.667	-.30952	-.403	15	.693
Shared what I learned about bats or conservation issues with others, either at the museum or via e-mail++	4.429	4.148	.28042	-.571	39	.572

+n for No Poster =3

++n for No Poster =27

n for Poster = 14

An interviewee interacting with the poster stated the exhibit “showed us more information about how bats live and what harms them. We saw that we can build a bat house.”

Respondents were asked to rate their level of agreement with a set of conservation-themed statements, where 1 represents Strongly Disagree and 7 represents Strongly Agree. See Table 8. Data were analyzed for two groups, those who interacted with the Poster kiosk on this visit or a prior visit and those who did not interact with the Poster kiosk. Respondents who interacted with the poster kiosk had mean scores ranging from neutral (“I might like to study bats/people’s relationship to nature  $\bar{x}$  = 4.0) to positive (“I am more aware that animals need to be protected”  $\bar{x}$  = 5.769). Most mean scores for those who interacted were slightly positive. Respondents who did not interact had scores that ranged from neutral (“I would like to work to help save bats in the wild  $\bar{x}$  = 3.75) to slightly positive ( $\bar{x}$  = 4.97). Respondents interacting with the iSaveSpecies poster kiosk were more likely to agree with statements that they are more aware that animals need to be protected and they visit the museum to learn and/or support conservation.

The statement with the highest mean score for both groups ( $\bar{x}$  =5.769 for those who interacted and  $\bar{x}$  =4.977 for those who did not interact with the kiosk) was “I am more aware that animals need to be protected,” indicating visitors understand that the animals need to be protected, either from this or prior museum visits, or from messages received outside the museum.

Table 8. Respondents' feelings regarding conservation measures separated by interaction with the poster kiosk

	Poster Mean	No Poster Mean	Mean Difference	t	df	P
I am more aware that animals need to be protected ++	5.769	4.977	.7919	-1.565	55	.123
I can help bats +	4.643	4.600	.0429	-.077	32	.939
I might like to study bats/people's relationship to nature ++	4.000	4.628	-.6279	1.317	55	.193
I understand bats better +	4.929	4.368	.5602	-1.095	31	.282
I would like to work to help save bats in the wild +	4.429	3.750	.6786	-1.129	32	.267
I visit this museum to learn and/or support conservation ++	5.00	4.727	.2727	-.591	56	.557

+N ranges from 27-28 respondents interacted/6 respondents did not interact

++N ranges from 47-48 respondents interacted/10 respondents did not interact

Specific conservation actions appear to be influenced by the poster kiosks; all of the conservation action statements were rated higher by those who interacted with the poster than those who did not. See Table 9.

Respondents who interacted with the poster kiosk had mean scores that were neutral to positive ( $\bar{x}$  = 4.143 to 5.0). Respondents who did not interact had scores that ranged from negative (“Create a conservation poster”  $\bar{x}$  = 2.909) to slightly positive (“Actively seek opportunities to protect the planet”  $\bar{x}$  = 4.886). Additionally, one of the four statements were found to have a statistically significant difference, as measured by a t-test; create a conservation poster and e-mail it to someone.

Table 9. Visitors’ likelihood of completing specific conservation actions

	Poster Mean	No Poster Mean	Mean Difference	t	df	P
<b>Create a conservation poster and e-mail it to someone.</b>	4.357	2.909	1.448	-2.504	56	.015*
<b>Actively seek opportunities to protect the planet</b>	5.000	4.886	.114	-.229	56	.820
<b>Donate to organizations that support bat conservation or ask others to do so.</b>	4.143	3.886	.257	-.482	56	.631
<b>Actively seek opportunities to help Ohio bats</b>	4.286	3.727	.558	-1.078	56	.286

n for Poster = 14

n for No Poster = 44

Visitors who complete the poster interactive receive an e-mail prompt to view their poster online. This e-mail includes conservation actions they can take, including forwarding the conservation message poster they created. Data is currently unavailable to determine the percentage of visitors who took further action.

## Value Added

Visitors who used the iSaveSpecies kiosks found that the kiosks added value to their visit.

### How We Know

Respondents who indicated they interacted with a kiosk were asked to rate their level of agreement with a set of value-added statements, where 1 represents Strongly Disagree and 7 represents Strongly Agree. See Table 10. All statements were found to be above the midpoint, indicating visitors were generally pleased with the kiosks. Respondents indicated they had fun and found a different way to engage with the animals from the kiosk. They also indicated the touchscreen interactive was appealing.

Table 10. Respondents who interacted with a kiosk feelings regarding value added statements

	Mean	SD
<b>Stopping at the touchscreen interactive was worth my time</b>	5.400	1.3883
<b>The touchscreen interactive was appealing</b>	5.600	1.2685
<b>The touchscreen interactive provided an activity I could do with others in my group</b>	5.356	1.4948
<b>I had fun with the touchscreen interactive activity.</b>	5.698	1.3893
<b>The touchscreen interactive activity provided me a different way to engage with the animals</b>	5.678	1.3019
<b>The touchscreen interactive provided me with new information</b>	5.578	1.4220
<b>I will look at bats differently because of the touchscreen interactive activity</b>	5.289	1.6184

N ranges from 43-45

## Conclusions

The overarching question for this summative evaluation was:

Do the iSaveSpecies kiosks achieve their desired (collective) outcomes?

To answer this question, five sub-questions were asked to allow for analysis of the impact of iSaveSpecies interactive kiosks on the different outcomes:

- Did visitors who engaged with the iSaveSpecies inquiry kiosks report they have used basic science inquiry skills during their museum visit?

To some degree. Closed-ended questions indicate the kiosks appear to be somewhat effective in promoting basic inquiry skills and increasing visitors' knowledge of bats and conservation. Visitors who interacted with a kiosk were more likely to listen to calls that animals made, compare research results with others, and think about how they differ from others in how they think about animals and nature than those who did not engage. Mean scores were somewhat depressed for all visitors although higher for those who engaged across all items.

- Did visitors who engaged with the iSaveSpecies interactive kiosks have a better understanding of the STEM content related to the iSave Species kiosks than those who did not engage?

To some degree. Visitors who interacted with the iSaveSpecies kiosks reported that they understood bats and themselves better, were more aware that they can help bats and that animals need to be protected than visitors who did not interact with the kiosks. Analyzing the data with an independent samples t-test, a statistically significant difference was found with one statement, I understand bats better, although those who did not engage also felt they learned more about bats and observation issues. Interviewed visitors learned that bats make more than one sound and that bats eat lots of insects, are an endangered species, and don't fly in your hair.

- Did visitors who engaged with the iSaveSpecies conservation poster kiosk understand conservation efforts focused on bats?

- Did visitors who engaged with the iSaveSpecies conservation poster kiosks report involvement in specific conservation actions?

To some degree. Boonshoft Museum visitors interacting with the iSaveSpecies poster kiosk were more aware that animals need to be protected and they visit the museum to learn and/or support conservation than visitors who did not use the iSaveSpecies poster kiosk. Additionally specific conservation actions appear to be influenced by the Poster kiosk; including creating a conservation poster and sharing it and actively seek opportunities to help Ohio's bats. Data is currently unavailable to determine the percentage of visitors who took further action after receiving an e-mail prompt that shared additional conservation actions the visitor could take at home.

- Did visitors who engaged with the iSaveSpecies interactive kiosks feel it added value to their museum visit?

Yes, mean scores for those who used the iSaveSpecies kiosks were all well above the midpoint. Respondents indicated they had fun and found a different way to engage with the animals from the kiosk. They also indicated the touchscreen interactive was appealing.

## Appendix A: Data Collection Instrument Samples

Date:

Number:

### Boonshoft Interview

This museum has recently installed some new interactive touch screen kiosks in this area and we are trying to better understand who uses these and what visitors might gain from these experiences. I noticed you interacting with one and would like to ask you a few questions about the kiosk and your experience in the MEAD Westvaco Treehouse Hall. It will take about five minutes and your participation is voluntary and your responses are completely confidential.

I believe someone in your group explored the interactive touchscreen kiosk? Is that correct? Can you tell me who?

What did you[they] do with it?

What, if anything, did you[they] learn from this interactive touchscreen kiosk?

Talk to me about how this/these experiences [with the kiosks] helped you to investigate your relationship with the planet, or bats and how to understand this relationship, or bats, better?

Based on your experience in the MEAD Westvaco Treehouse Hallway, do you have any questions about bat's (or any other animal's) behavior? What about how your behavior might impact the planet?

How could someone investigate this?

This museum is committed to helping bats and protecting the planet. Did these experiences introduce you to or remind you of things you might do to help the bats or protect the planet?





## Boonshoft Museum Bats Poster Questionnaire June 2015

This museum has recently installed some new touch screen interactive kiosks in this area and we are trying to better understand who uses these kiosks and what visitors might gain from these experiences. The survey will take you about five minutes to complete. Your participation is voluntary and your responses are completely confidential.

During your visit today, about how much time did you spend in the Mead Westvaco Hallway and Treehouse?

- Less than 3 minutes
- 3 – 5 minutes
- 5 – 10 minutes
- 10 – 15minutes
- 15 + minutes



During your visit today, do you remember seeing this touch screen interactive kiosk?

- Yes
- No

Did you, or anyone in your group, interact with the touch screen interactive kiosk (push buttons, read information, etc.)?

- Yes
- No

Who in your group interacted with the touch screen interactive kiosk? Check all that apply.

- Adult
- Youth

Did you or anyone from your group already interact with this touchscreen interactive kiosk on an earlier visit to this museum?

- Yes
- No

Next →

To what degree do you believe you did any of the following during your visit to the Mead Westvaco Treehouse Hallway?

	Definitely Not	Absolutely Yes					
Learned about bats and conservation issues	1	2	3	4	5	6	7
Shared what I learned about bats or conservation issues with others, either at the museum or via e-mail	1	2	3	4	5	6	7
Thought of a question about the bats behavior	1	2	3	4	5	6	7
Talked with others in my group about what I observed or did	1	2	3	4	5	6	7

How likely are you to participate in these conservation actions, where 1 represents very unlikely and 7 represents very likely.

	Very Unlikely	Very Likely					
Create a conservation poster and e-mail it to someone.	1	2	3	4	5	6	7
Actively seek opportunities to protect the planet	1	2	3	4	5	6	7
Donate to organizations that support bat conservation or ask others to do so.	1	2	3	4	5	6	7
Actively seek opportunities to help Ohio bats	1	2	3	4	5	6	7

We would like to know if that interaction changed the way you feel about science and conservation. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

I feel . . .	Strongly Disagree	Strongly Agree					
I am more knowledgeable about how to study bats.	1	2	3	4	5	6	7
I can investigate orangutan behavior through careful observation.	1	2	3	4	5	6	7
I am more aware that bats need to be protected.	1	2	3	4	5	6	7
I can help bats.	1	2	3	4	5	6	7
I might like to study bats (behavior, personality, etc.)	1	2	3	4	5	6	7
I understand bats better	1	2	3	4	5	6	7
I would like to work to help save bats in the wild	1	2	3	4	5	6	7
I visit this museum to learn and/or support conservation.	1	2	3	4	5	6	7

If you used any of the touchscreen interactive kiosks today, please answer the next question. **If not, please skip to the “Tell me a little bit about yourself” section.**

Next →

We would like to know if the touchscreen interactive kiosks **added value** to your experience at the museum. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

	Strongly Disagree			Strongly Agree			
	1	2	3	4	5	6	7
Stopping at the touchscreen interactive was worth my time	1	2	3	4	5	6	7
The touchscreen interactive was appealing	1	2	3	4	5	6	7
The touchscreen interactive provided an activity I could do with others in my group	1	2	3	4	5	6	7
I had fun with the touchscreen interactive activity.	1	2	3	4	5	6	7
The touchscreen interactive activity provided me a different way to engage with the animals	1	2	3	4	5	6	7
The touchscreen interactive provided me with new information	1	2	3	4	5	6	7
I will look at bats differently because of the touchscreen interactive activity	1	2	3	4	5	6	7

**Please tell me a little about yourself.**

Are you a member of this museum?  Yes  No

Are you  Male  Female

**About how often do you visit this museum? (Select the one best answer)**

- Today is my first visit
- I haven't visited for many years
- Once every few years
- About once a year
- 2-4 times per year
- 5+ times per year

**Who are you visiting the museum with today? (Please check all that apply)**

- Alone
- Date
- Family
- Friends
- Organized Group (i.e., Scouts, Church, School, etc.)

**What is your race/ethnicity? (Please check all that apply)**

- African American/Black
- American Indian/Native Alaskan
- Asian/Asian American
- Latino(a) or Hispanic
- Native Hawaiian/Pacific Islander
- White, Non-Hispanic

**What are the ages of the adults in your group? (Please check all that apply)**

- 19-29
- 30-39
- 40-49
- 50-59
- 60+

**What are the ages of the children in your group (if any)? (Please check all that apply)**

- Infant – less than 2 years old
- 2 – 4 years old
- 5 – 7 years old
- 8 – 12 years old
- 13 – 17 years old



## Boonshoft Museum Chirp Like a Bat Questionnaire June 2015

This museum has recently installed some new touch screen interactive kiosks in this area and we are trying to better understand who uses these kiosks and what visitors might gain from these experiences. The survey will take you about five minutes to complete. Your participation is voluntary and your responses are completely confidential.

During your visit today, about how much time did you spend in the Mead Westvaco Hallway and Treehouse?

- Less than 3 minutes
- 3 – 5 minutes
- 5 – 10 minutes
- 10 – 15minutes
- 15 + minutes

Over →



During your visit today, do you remember seeing this touch screen interactive kiosk?

- Yes
- No

Did you, or anyone in your group, interact with the touch screen interactive kiosk (push buttons, read information, etc.)?

- Yes
- No

Who in your group interacted with the touch screen interactive kiosk?

Check all that apply.

- Adult
- Youth

Did you or anyone from your group already interact with this touchscreen interactive kiosk on an earlier visit to this museum?

- Yes
- No

Next →

To what degree do you believe you did any of the following during your visit to the Mead Westvaco Treehouse Hallway?

	Definitely Not							Absolutely Yes
Compared myself to a bat	1	2	3	4	5	6	7	
Listened to different calls bats make	1	2	3	4	5	6	7	
Learned that I am like a bat	1	2	3	4	5	6	7	
Compared what you learned to what others learned about bats	1	2	3	4	5	6	7	
Thought of a question about the bats behavior	1	2	3	4	5	6	7	
Talked with others in my group about what I observed or did	1	2	3	4	5	6	7	

How likely are you to participate in these conservation actions, where 1 represents very unlikely and 7 represents very likely.

	Very Unlikely							Very Likely
Create a conservation poster and e-mail it to someone.	1	2	3	4	5	6	7	
Actively seek opportunities to protect the planet	1	2	3	4	5	6	7	
Donate to organizations that support bat conservation or ask others to do so.	1	2	3	4	5	6	7	
Actively seek opportunities to help Ohio bats	1	2	3	4	5	6	7	

Over →

We would like to know if that interaction changed the way you feel about science and conservation. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

I feel . . .	Strongly Disagree							Strongly Agree
I am more knowledgeable about how to study bats.	1	2	3	4	5	6	7	
I can investigate bat behavior through careful observation.	1	2	3	4	5	6	7	
I am more aware that bats need to be protected.	1	2	3	4	5	6	7	
I can help bats.	1	2	3	4	5	6	7	
I might like to study bats (behavior, personality, etc.)	1	2	3	4	5	6	7	
I understand bats better	1	2	3	4	5	6	7	
I would like to work to help save bats in the wild	1	2	3	4	5	6	7	
I visit this museum to learn and/or support conservation.								

If you used any of the touchscreen interactive kiosks today, please answer the next question. **If not, please skip to the next section to tell us a little bit about yourself.**

Next →

We would like to know if the touchscreen interactive kiosks **added value** to your experience with the Mead Westvaco Treehouse Hallway. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

	Strongly Disagree		Agree		Strongly		
	1	2	3	4	5	6	7
Stopping at the touchscreen interactive was worth my time	1	2	3	4	5	6	7
The touchscreen interactive was appealing	1	2	3	4	5	6	7
The touchscreen interactive provided an activity I could do with others in my group	1	2	3	4	5	6	7
I had fun with the touchscreen interactive activity.	1	2	3	4	5	6	7
The touchscreen interactive activity provided me a different way to engage with the animals	1	2	3	4	5	6	7
The touchscreen interactive provided me with new information	1	2	3	4	5	6	7
I will look at bats differently because of the touchscreen interactive activity	1	2	3	4	5	6	7

**Please tell me a little about yourself.**

Are you a member of this museum?  Yes  No

Are you  Male  Female

**About how often do you visit this zoo? (Select the one best answer)**

- Today is my first visit
- I haven't visited for many years
- Once every few years
- About once a year
- 2-4 times per year
- 5+ times per year

Over →

**Who are you visiting the museum with today? (Please check all that apply)**

- Alone
- Date
- Family
- Friends
- Organized Group (i.e., Scouts, Church, School, etc.)

**What is your race/ethnicity? (Please check all that apply)**

- African American/Black
- American Indian/Native Alaskan
- Asian/Asian American
- Latino(a) or Hispanic
- Native Hawaiian/Pacific Islander
- White, Non-Hispanic

**What are the ages of the adults in your group? (Please check all that apply)**

- 19-29
- 30-39
- 40-49
- 50-59
- 60+

**What are the ages of the children in your group (if any)? (Please check all that apply)**

- Infant – less than 2 years old
- 2 – 4 years old
- 5 – 7 years old
- 8 – 12 years old
- 13 – 17 years old

**Thank you for taking the time to help us today!**



## Boonshoft Museum Wild Me Questionnaire June 2015

This museum has recently installed some new touch screen interactive kiosks in this area and we are trying to better understand who uses these kiosks and what visitors might gain from these experiences. The survey will take you about five minutes to complete. Your participation is voluntary and your responses are completely confidential.

During your visit today, about how much time did you spend in the Mead Westvaco Hallway and Treehouse?

- Less than 3 minutes
- 3 – 5 minutes
- 5 – 10 minutes
- 10 – 15minutes
- 15 + minutes



During your visit today, do you remember seeing this touch screen interactive kiosk?

- Yes
- No

Did you, or anyone in your group, interact with the touch screen interactive kiosk (push buttons, read information, etc.)?

- Yes
- No

Who in your group interacted with the touch screen interactive kiosk? Check all that apply.

- Adult
- Youth

Did you or anyone from your group already interact with this touchscreen interactive kiosk on an earlier visit to this museum?

- Yes
- No

Next →



To what degree do you believe you did any of the following during your visit to the Mead Westvaco Treehouse Hallway?

	Definitely Not							Absolutely Yes
Explore how I relate to nature	1	2	3	4	5	6	7	
Shared what I learned about conservation issues with others, either at the museum or via e-mail	1	2	3	4	5	6	7	
Thought about how I differ from other people in how we think about animals and nature	1	2	3	4	5	6	7	
Talked with others in my group about our connections to nature	1	2	3	4	5	6	7	

How likely are you to participate in these conservation actions, where 1 represents very unlikely and 7 represents very likely.

	Very Unlikely							Very Likely
Create a conservation poster and e-mail it to someone.	1	2	3	4	5	6	7	
Actively seek opportunities to protect the planet	1	2	3	4	5	6	7	
Donate to organizations that support bat conservation or ask others to do so.	1	2	3	4	5	6	7	
Actively seek opportunities to help Ohio bats	1	2	3	4	5	6	7	

We would like to know if that interaction changed the way you feel about science and conservation. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

I feel . . .	Strongly Disagree							Strongly Agree
I am more interested in learning about how humans relate to nature.	1	2	3	4	5	6	7	
I can investigate human and animal behavior through careful observation.	1	2	3	4	5	6	7	
I am more aware that animals need to be protected.	1	2	3	4	5	6	7	
I want to learn more about wildlife.	1	2	3	4	5	6	7	
I might like to study people's relationship to nature.	1	2	3	4	5	6	7	
I want to learn more about environmental issues.	1	2	3	4	5	6	7	
I learned more about myself.	1	2	3	4	5	6	7	
I visit this museum to learn and/or support conservation.	1	2	3	4	5	6	7	

If you used any of the touchscreen interactive kiosks today, please answer the next question. **If not, please skip to the "Tell me a little about yourself" section.**

Next →



We would like to know if the touchscreen interactive kiosks **added value** to your experience at the museum. Please rate the extent to which you agree with the following statements using a scale from 1 (strongly disagree) to 7 (strongly agree).

	Strongly Disagree			Strongly Agree			
	1	2	3	4	5	6	7
Stopping at the touchscreen interactive was worth my time	1	2	3	4	5	6	7
The touchscreen interactive was appealing	1	2	3	4	5	6	7
The touchscreen interactive provided an activity I could do with others in my group	1	2	3	4	5	6	7
I had fun with the touchscreen interactive activity.	1	2	3	4	5	6	7
The touchscreen interactive activity provided me a different way to engage with the animals	1	2	3	4	5	6	7
The touchscreen interactive provided me with new information	1	2	3	4	5	6	7
I will look at bats differently because of the touchscreen interactive activity	1	2	3	4	5	6	7

**Please tell me a little about yourself.**

**Are you a member of this museum?**       Yes       No

**Are you**       Male       Female

**About how often do you visit this museum? (Select the one best answer)**

- Today is my first visit
- I haven't visited for many years
- Once every few years
- About once a year
- 2-4 times per year
- 5+ times per year

**Who are you visiting the museum with today? (Please check all that apply)**

- Alone
- Date
- Family
- Friends
- Organized Group (i.e., Scouts, Church, School, etc.)

**What is your race/ethnicity? (Please check all that apply)**

- African American/Black
- American Indian/Native Alaskan
- Asian/Asian American
- Latino(a) or Hispanic
- Native Hawaiian/Pacific Islander
- White, Non-Hispanic

**What are the ages of the adults in your group? (Please check all that apply)**

- 19-29
- 30-39
- 40-49
- 50-59
- 60+

**What are the ages of the children in your group (if any)? (Please check all that apply)**

- Infant – less than 2 years old
- 2 – 4 years old
- 5 – 7 years old
- 8 – 12 years old
- 13 – 17 years old

## Appendix B: Demographic Tables

Table 11. Amount of time spent in the Mead Westvaco Hallway and Treehouse

	Number	%
Less than 3 minutes	3	5
3 – 5 minutes	11	20
5 – 10 minutes	25	45
10 – 15 minutes	13	23
15 + minutes	4	7

N = 56

Table 12. Museum membership

	Number	%
Yes	12	20
No	47	80

N = 59

Table 13. Visit frequency

	Number	%
Today is my first visit	21	36
I haven't visited for many years	7	12
Once every few years	8	14
About once a year	9	15
2-4 times per year	4	7
5+ times per year	10	17

N = 59

Table 14. Others in respondents' group

	Number	%
Family	49	91
Friends	8	15
Date	2	4
Alone	0	0
Group	1	2

N = 54

Respondents chose all answers that applied.

Table 15. Ages of adults in respondents' group

	<b>Number</b>	<b>%</b>
18-29	13	24
30-39	32	59
40-49	13	24
50-59	7	13
60+	3	6

N = 54

Respondents chose all answers that applied.

Table 16. Ages of children in respondents' group

	<b>Number</b>	<b>%</b>
Infant – less than 2 years old	10	19
2 – 4 years old	27	50
5 – 7 years old	30	56
8 – 12 years old	21	39
13 – 17 years old	4	7

N = 54

Respondents chose all answers that applied.

Table 17. Respondents' Gender

	<b>Number</b>	<b>%</b>
Male	24	41
Female	35	59

N = 59

Table 18. Respondents' Race/Ethnicity

	<b>Number</b>	<b>%</b>
African American/Black	3	6
American Indian/Native Alaskan	3	6
Asian/Asian American	1	2
Latino(a) or Hispanic	2	4
Native Hawaiian/Pacific Islander	0	0
White, Non-Hispanic	50	94

N = 53

Respondents chose all answers that applied.