iSaveSpecies

Prototyping and Rapid Testing Handbook

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Summary

iSaveSpecies Goals:

- **To engage millions of families in science and conservation through a shared national network of iSaveSpecies Stations.**

- **To rethink and redesign exhibit spaces so that they enable families to become part of the conservation story.**

- **To build Consortium partnerships and collaboration.**

The purpose of the Handbook is to inform the co-creation of a new wave of iSaveSpecies interactives designed to deepen engagement in science and conservation at zoos, aquariums, and other living-exhibit institutions. The Handbook allows participating institutions to easily collect visitor data, to better understand how visitors currently engage at exhibits, and to apply visitor data to the development of iSaveSpecies inquiry and action tools. We describe some common methods of data collection including: timing and tracking of visitors, prototyping exhibit mock-ups, and language testing using interviews and questionnaires. The Handbook describes various front-end methods and how the resulting data might be applied to improve living exhibits. One of the unique aspects of the Handbook is that each method has been field tested by staff and volunteers at partner institutions in the Wild Research Consortium, and modified as a result of these field tests. In part, the Handbook was created by informal science professionals for informal science professionals. By supporting cross-institution and some institution-specific protocols, we hope to build a general understanding about how to better engage families at living exhibits.

This Handbook was developed by the Institute for Learning Innovation and Project *Dragonfly* at Miami University, in collaboration with the partner institutions in the Wild Research Consortium, which now include:

Cincinnati Zoo & Botanical Garden • The Chicago Zoological Society • Cheyenne Mountain Zoo • Cleveland Metroparks Zoo • Columbus Zoo & Aquarium • Denver Zoo • Liberty Science Center • Louisville Zoological Garden • Oregon Zoo • Phoenix Zoo • Pittsburgh Zoo • ReefHQ Aquarium (Australia) • Riverbanks Zoo • The Santa Barbara Zoo • John G. Shedd Aquarium • Toledo Zoo • The Wilds • Woodland Park Zoo • Zoo Atlanta

Prototyping - Introduction

Prototyping can help to inform the final design of an exhibit or its components. Prototyping can help to determine what preferences visitors might have between different ways you are considering presenting an exhibit or exhibit component, which can be as varied as where you might want to place a new component within an exhibit to how visitors might interact with a tactile interactive you are considering putting in an exhibit. Prototyping allows you to incorporate the visitors' voice and actions into the decisions made for an exhibit or exhibit component. One key component to any prototyping study is that you have mock ups or examples for visitors to interact with of realistic options that you are considering putting in place at an exhibit. It would not make sense to prototype a concept that in the end would be completely unrealisic, just as it would not benefit you to prototype a concept whose final design and location has already been decided upon.

Typically prototyping is done by having a visitor or group of visitors engage with a mock up of the potential designs of an exhibit or exhbiit components. While this is being done the researcher is taking notes on how the visitor interacts with the mock ups, as well as how the visitors engage with or interact with each other, and what types of comments about the prototype the visitors are making. Upon conclusion of the interaction with the prototype, researchers administer a brief interview asking participants to reflect on the experience and any other pertinent questions that you might have that will be helpful to inform your decision. For example, you might wish to ask visitors who have engaged with the prototype:

- Was there anything difficult about this activity? If so, what?
- What do you think the point of this type of activity would be?
- Is this a type of activity that you would take part in if you encountered it during a regular visit?
- Would this activity be something that you would likely do more than one time, or on more than one visit?
- What age groups do you think this activity is appropriate for?

In general, it is best to avoid asking participants extremely open ended items such as "Do you have any recommendations?" or "What could we do to make this better?" as this is most likely the first encounter that the visitor has had with the prototype, their response will be based on the brief encounter they have had, without an adequate time to reflect upon the experience. This also helps to avoid giving off the impression that you do not have specific ideas for what the final product will look like or that if the visitor makes a suggestion you are likely to change your design and implement their idea. The information collected from having participants respond to the bulleted questions above can be very helpful in making decisions on the final design of an exhibit and its components.

Rapid prototyping using mock ups can generate very valuable data in a relatively short period of time, while also allowing to test multiple iterations of a design. Using an inexpensive mock up of a potential design allows you to test an idea, make changes based on initial visitor feedback, and test the idea again. Doing this will help ensure that the original feedback given by visitors is understood and utilized appropriately by other visitors. This can be done as many times as necessary or reasonable, and the information gained can be used to inform everything from the instructions to the design of an exhibit or exhibit component.

The next sections provide protocol for common forms of prototype data collection in informal science settings. Using these guides will allow for data to be collected systematically and reliably across different institutions. Each of these methods has been tested onsite, in an informal science setting , and refined based on that testing. A few rules of thumb that are based off years of collecting data in informal science settings include:

- Less is more in terms of questions asked e.g. ask specifics
- Sample size issues: utilizing a small sample of visitors is OK. Prototyping is mostly testing to see if something works, see if visitors understand what to do, and to see the trends in how visitors might react to an exhibit or new component.
- Engage with physical object as much as possible
- Keep interactions short in length. Visitors have budgeted their time according to what they would like to do, without incorporating participation in research.

Visitor Prototyping Interview Protocol

Materials Needed:

- Clipboard and pen/pencil
- Prototyping materials/mock ups
- Blank data collection forms – observation and interview
- Refusal log
- Incentives/Thank You gifts
- Other set-up materials

Selecting Visitors to Test Prototypes:

Who: You will engage individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor group that consists only of young children or school groups and their chaperones.

Where: You want to engage visitors who are currently engaged in a visit to your institution. It might be best to engage visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station.

How many: In total, we would like to engage about 25 visitors/groups. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to engage a representative selection of visitors for whom this exhibit component is designed. To select visitors randomly, you will create an imaginary line near your position to recruit visitors. The moment you are ready to engage someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should invite to participate.

Once the prototyping observation and interview is complete and you have checked it over, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will invite to participate.

Inviting Visitors to Participate

Once you select a potential participant, you will approach the potential participant, introduce yourself, explain that you're trying to help your institution, and invite them to participate in the interview. Always smile and be friendly when approaching visitors.

<u>To invite a visitor to participate you can say:</u>

> Hi. My name is ______. The (<u>your institution's name here)</u> is interested in visitors' thoughts about an upcoming interactive exhibit component. I have some examples of ideas that we are considering. Would you (and your group) be willing to spend a few minutes trying these out and answering some questions I have about your preferences for what we are considering doing for the new exhibit component?

<u>If the visitor declines:</u>

Stay friendly and cheerful, and say:

> That's OK. Thanks for your time. Enjoy the rest your day.

<u>If the visitor hesitates or asks how long it will take:</u>

> It should only take about 5 minutes, and your answers will really help us out.

<u>If the visitor accepts:</u>

> Great! Thank you.

And then you can ask the participant to examine the first prototype. While the participant and their group engage in the prototyping you can say to them: I'm just going to observe what you are doing for now. I will be taking notes, and once you are finished I will have a few questions for you.

Logging Refusals

Visitor refusal rate for the interviews is important information. To capture this information, you will record these data on the Refusal Log. On this log you will record data from any group who declines to participate in the interview:

- Date
- Time
- Interviewer initials
- Number of people in group
- (X if declined)
- Any visitor comments made

For visitors who complete the interview, you do not need to record any information on the Refusal Log.

How to use the Refusal Log

Using the refusal log will allow for you to look for patterns that might have implications to the findings, such as patterns that emerge in differences between participants and those who refuse (e.g. groups with multiple young children refuse vs. adult only groups who participate). Keeping a refusal log also allows for the researcher to record the percent of those who participated against the total number of potential (approached) participants, and report this in the discussion of the findings.

Observing Participants

You will complete the observation sheet for each participant/group of participants. Be sure to record how the participant interacts with the prototype, if it is a group, who leads the activities, what conversation takes place between group members? Note any comments or questions that the participant(s) make to you or to each other, if applicable. Note the order in which the participants complete any activities.

Conducting the Prototyping Interview

Once the participant(s) have completed their engagement with the prototype, you will ask them to answer a few questions about what they just did. The entire interview will be administered to visitors verbally, with the interviewer reading each question to the individual or group, and recording their answers on the data sheet. Please ask the participant to repeat anything you do not hear clearly. Allow the participant time to reflect after you ask each question. If a participant is unable to think of a response to a question record that the participant gave "No response" underneath that question.

After Visitor Completes the Interview

Say: "Thank you so much for your help. We really appreciate it. Enjoy the rest of your day."

If a visitor wants to stop participating in the interview:

A participant may want or need to stop the interview before completing it. If this happens, thank them for their help and let them go. Turn to the last section of the survey and fill in any of the demographic information that you can (male/female, group composition, age of adult).

After the Prototyping Interview:

Be sure you have filled in the information at the top of each survey sheet: Your initials, date, time, and a number for the survey. Each day you can start numbering your surveys at 1.

Look over your notes for all open-ended questions, and take a minute to elaborate on any of the answers and make your handwriting more legible while the interview is still fresh in your mind. Write down any interesting notes or comments you had on the interview on the back of the data sheet.

Visitor Prototyping Think Aloud Protocol

Materials Needed:

- Clipboard and pen/pencil
- Prototyping materials/mock ups
- Blank data collection forms – observation and interview
- Refusal log
- A weatherproof box or container to store completed questionnaires
- Thank You gifts
- Other set-up materials

Selecting Visitors to Test Prototypes:

Who: You will engage individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor group that consists only of young children or school groups and their chaperones.

Where: We want to engage visitors who are currently engaged in a visit to your institution. It might be best to engage visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station.

How many: In total, we would like to engage about 25 visitors/groups. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to engage a representative selection of visitors for whom this exhibit component is designed. To select visitors, you will create an imaginary line near your position to recruit visitors. The moment you are ready to engage someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should invite to participate.

Once the prototyping think aloud is complete and you have checked it over, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will invite to participate.

Inviting Visitors to Participate

Once you select a potential participant, you will approach the potential participant, introduce yourself, explain that you're trying to help your institution, and invite them to participate in the prototyping. Always smile and be friendly when approaching visitors.

To invite a visitor to participate you can say:

> Hi. My name is ______. The (your institution's name here) is interested in visitors' thoughts about an upcoming interactive exhibit component. I have some examples of ideas that we are considering. Would you (and your group) be willing to spend a few minutes trying these out and telling me more about what you are thinking while you are trying it out?

If the visitor declines:

Stay friendly and cheerful, and say:

> That's OK. Thanks for your time. Enjoy the rest your day.

If the visitor hesitates or asks how long it will take:

> It should only take about 5 minutes, and your answers will really help us out.

If the visitor accepts:

> Great! Thank you.

And then you can ask the participant to examine the first prototype. Inform the participant "I am going to ask you to tell me out loud what you are thinking as you engage in this activity. Please be as detailed as possible about your thoughts on what you are doing and how you are doing it. I'd like to know what comes to your mind when you approach the activity, what your first thought is about how and what you should be doing, and any questions you have upon starting the activity."

Logging Refusals

Visitor refusal rate for the interviews is important information. To capture this information, you will record these data on the Refusal Log. On this log you will record data from any group who declines to participate in the interview:

- Date
- Time
- Interviewer initials
- Number of people in group
- (X if declined)
- Any visitor comments made

For visitors who complete the interview, you do not need to record any information on the Refusal Log.

How to use the Refusal Log

Using the refusal log will allow for you to look for patterns that might have implications to the findings, such as patterns that emerge in differences between participants and those who refuse (e.g. groups with multiple young children refuse vs. adult only groups who participate). Keeping a refusal log also allows for the researcher to record the percent of those who participated against the total number of potential (approached) participants, and report this in the discussion of the findings.

Observing and Prompting Participants to Think Aloud

You will complete the observation/think aloud sheet for each participant/group of participants. Be sure to record how the participant interacts with the prototype, if it is a group, who leads the activities, what conversation takes place between group members? As the visitor interacts with the prototype ask them to discuss out loud what they are doing and why. If the participant pauses or stops discussing what they are doing out loud ask them "what are you thinking now?" Please ask participants to repeat anything they say that you don't hear or that is said to quickly to record. Note any comments or questions that the participant(s) make to you or to each other, if applicable. Note the order in which the participants complete any activities. Once the activity is completed ask the participant if there is anything they would recommend for instructions that are posted with the activity.

After the Prototyping Think Aloud:

Be sure you have filled in the information at the top of each sheet: Your initials, date, time, and a number for the think aloud sheet. Each day you can start numbering your sheets at 1.

It is critical to ensure you have clearly recorded all information about the order the participant took through engaging in the prototype, the reasons the participant gave for the order they did specific tasks, and if there was anything difficult noted by the participant or questions asked by the participant.

Look over your notes for all open-ended questions, and take a minute to elaborate on any of the answers and make your handwriting more legible while the interview is still fresh in your mind. Write down any interesting notes or comments you had on the interview on the back of the data sheet. Place completed sheets in the weatherproof container you have brought with you.

Visitor Prototyping Observation and Question Protocol

Materials Needed:

- Clipboard and pen/pencil
- Prototyping materials/mock ups
- Blank data collection forms – observation and interview
- Refusal log
- Incentives/Thank You gifts
- Other set-up materials

Selecting Visitors to Test Prototypes:

Who: We will engage individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor group that consists only of young children or school groups and their chaperones.

Where: We want to engage visitors who are currently engaged in a visit to your institution. It might be best to engage visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station.

How many: In total, we would like to engage about 25 visitors/groups. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to engage a representative selection of visitors for whom this exhibit component is designed. To select visitors randomly, you will create an imaginary line near your position to recruit visitors. The moment you are ready to engage someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should invite to participate.

Once the prototyping observation and interview is complete and you have checked it over, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will invite to participate.

Inviting Visitors to Participate

Once you select a potential participant, you will approach the potential participant, introduce yourself, explain that you're trying to help your institution, and invite them to participate in the interview. Always smile and be friendly when approaching visitors.

To invite a visitor to participate you can say:

> Hi. My name is ______. The (your institution's name here) is interested in visitors' thoughts about an upcoming interactive exhibit component. I have some examples of ideas that we are considering. Would you (and your group) be willing to spend a few minutes trying these out and answering some questions I have about your preferences for what we are considering doing for the new exhibit component?

If the visitor declines:

Stay friendly and cheerful, and say:

> That's OK. Thanks for your time. Enjoy the rest your day.

If the visitor hesitates or asks how long it will take:

> It should only take about 5 minutes, and your answers will really help us out.

If the visitor accepts:

> Great! Thank you.

And then you can ask the participant to examine the first prototype. While the participant and their group engage in the prototyping you can say to them: I'm just going to observe what you are doing for now. I will be taking notes, and once you are finished I will have a few questions for you.

Logging Refusals

Visitor refusal rate for the interviews is important information. To capture this information, you will record these data on the Refusal Log. On this log you will record data from any group who declines to participate in the interview:

- Date
- Time
- Interviewer initials
- Number of people in group
- (X if declined)
- Any visitor comments made

For visitors who complete the interview, you do not need to record any information on the Refusal Log.

How to use the Refusal Log

Using the refusal log will allow for you to look for patterns that might have implications to the findings, such as patterns that emerge in differences between participants and those who refuse (e.g. groups with multiple young children refuse vs. adult only groups who participate). Keeping a refusal log also allows for the researcher to record the percent of those who participated against the total number of potential (approached) participants, and report this in the discussion of the findings.

Observing and Questioning Participants

You will complete the observation sheet for each participant/group of participants. Be sure to record how the participant interacts with the prototype, if it is a group, who leads the activities, what conversation takes place between group members? If the participant makes a decision to do or not do something ask them why they made that decision. Ask the participant if they are having any trouble with the activity or if there is anything unclear about what they are doing. Always be ready to ask “Why did you just decide to do that?" Note any comments or questions that the participant(s) make to you or to each other, if applicable. Note the order in which the participants complete any activities.

After the Prototyping Observation and Questioning:

Be sure you have filled in the information at the top of each observation sheet: Your initials, date, time, and a number for the sheet. Each day you can start numbering your observations at 1.

Look over your notes for all open-ended questions, and take a minute to elaborate on any of the answers and make your handwriting more legible while the interview is still fresh in your mind. Write down any interesting notes or comments you had on the interview on the back of the data sheet. Place completed sheets in the weatherproof container you have brought with you.

Visitor Interview Protocol

Materials Needed:

- Clipboard and pen/pencil
- Blank data collection forms
- Refusal log
- Weatherproof box or container to store completed instruments
- Thank You gifts
- Other set-up materials

Selecting Visitors to Interview:

Who: We will interview individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor group that consists only of young children or school groups and their chaperones.

Where: We want to interview visitors who are currently engaged in a visit to your institution. It might be best to interview visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station.

How many: In total, we would like to collect a maximum of 25 completed questionnaires. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to interview a representative group of visitors for whom the exhibit or component is designed. To select visitors, you will create an imaginary line near your position to recruit visitors. The moment you are ready to interview someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should invite to participate.

Once this interview is complete and you have checked it over, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will invite to participate.

Inviting Visitors to Participate

Once you select a potential participant, you will approach the potential participant, introduce yourself, explain that you're trying to help your institution, and invite them to participate in the interview. Always smile and be friendly when approaching visitors.

To invite a visitor to participate you can say:

> Hi. My name is ______. The (your institution's name here) is interested in visitors' thoughts about an upcoming interactive exhibit component. We're wondering if you (and your group) would be willing to spend a few minutes answering some questions that I have about your preferences for what we are is considering doing for the new exhibit component?

If the group declines:

Stay friendly and cheerful, and say:

> That's OK. Thanks for your time. Enjoy the rest your day.

If the group hesitates or asks how long it will take:

> It should only take about 5 minutes, and your answers will really help us out.

If the visitor accepts:

> Great! Thank you.

And then you can begin with the first question in the interview.

Logging Refusals

Visitor refusal rate for the interviews is important information. To capture this information, you will record these data on the Refusal Log. On this log you will record data from any group who declines to participate in the interview:

- Date
- Time
- Interviewer initials
- Number of people in group
- (X if declined)
- Any visitor comments made

If you receive three refusals in a row, it is best to take a quick break from recruiting participants. Remember, visitors are often on a tight timeline and even ones who would like to help out might refuse to participate.

For visitors who complete the interview, you do not need to record any information on the Refusal Log.

How to use the Refusal Log

Using the refusal log will allow for you to look for patterns that might have implications to the findings, such as patterns that emerge in differences between participants and those who refuse (e.g. groups with multiple young children refuse vs. adult only groups who participate). Keeping a refusal log also allows for the researcher to record the percent of those who participated against the total number of potential (approached) participants, and report this in the discussion of the findings.

Conducting the Interview

The entire interview will be administered to visitors verbally, with the interviewer reading each question to the individual or group, and recording their answers on the data sheet. Please ask the participant to repeat anything you do not hear clearly. Allow the participant time to reflect after you ask each question. If a participant is unable to think of a response to a question record that the participant gave “No response” underneath that question.

After Visitor Completes the Interview

Say: “Thank you so much for your help. We really appreciate it. Enjoy the rest of your day.”

If a visitor wants to stop participating in the interview:

A participant may want or need to stop the interview before completing it. If this happens, thank them for their help and let them go. Turn to the last section of the survey and fill in any of the demographic information that you can (male/female, group composition, age of adult).

After the Interview:

Be sure you have filled in the information at the top of the first page of the interview sheet: Your initials, date, time, a number for the Interview, and the location you collected the data (e.g. exhibit entrance, exit, specific program area). Each day you can start numbering your Interviews at 1.

Look over your notes for all open-ended questions, and take a minute to elaborate on any of the answers and make your handwriting more legible while the interview is still fresh in your mind. Write down any interesting notes or comments you had on the interview on the back of the data sheet. Place the completed data sheet in the weatherproof box or container that you have brought with you.

Visitor Self Administered Questionnaire Protocol

Materials Needed:

- Multiple clipboard and pens/pencils.
- A weatherproof box or container to store completed questionnaires
- Blank data collection forms
- Refusal log
- Thank You gifts
- Other set-up materials

Selecting Visitors to Interview:

Who: We will survey individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor groups that consist only of young children or school groups and their chaperones.

Where: We want to survey visitors who are currently engaged in a visit to your institution. It might be best to approach visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station.

How many: In total, we would like to collect about 25 completed questionnaires total. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to survey a representative selection of visitors for whom this exhibit component is designed. To select visitors, you will create an imaginary line near your position to recruit visitors. The moment you are ready to recruit someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should invite to participate.

Once this questionnaire/clipboard has been distributed, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will invite to participate. Continue doing this until you have distributed all of the clipboards, or you are engaged by any of the participants who are returning a completed questionnaire.

Inviting Visitors to Participate

Once you select a potential participant, you will approach the potential participant, introduce yourself, explain that you're trying to help your institution, and invite them to participate in the questionnaire. Always smile and be friendly when approaching visitors.

To invite a visitor to participate you can say:

> Hi. My name is ______. The (your institution's name here) is interested in visitors' thoughts about an upcoming interactive exhibit component. Would you be willing to spend a few minutes answering some questions that I have about your preferences for what we are considering doing for the new exhibit component?

If the potential participant declines:

Stay friendly and cheerful, and say:

> That's OK. Thanks for your time. Enjoy the rest your day.

If the potential participant hesitates or asks how long it will take:

> It should only take about 5 minutes, and your answers will really help the museum.

If the potential participant accepts:

> Great! Thank you. Here is a clipboard containing a questionnaire, and a pen to fill it out. You may have a seat over here (if available) while you are completing the questionnaire. Please feel free to ask me any question you have about the items or if you would like anything further explained. When you are finished with the questionnaire, please bring it back to me, along with the clipboard and pen.

Logging Refusals

Visitor refusal rate is important information. To capture this information, you will record these data on the Refusal Log. On this log you will record data from any group who declines to participate in the interview:

- Date
- Time
- Interviewer initials
- Number of people in group
- (X if declined)
- Any visitor comments made

If you receive three refusals in a row, it is best to take a quick break from recruiting participants. Remember, visitors are often on a tight timeline and even ones who would like to help out might refuse to participate.

For visitors who complete the questionnaire, you do not need to record any information on the Refusal Log.

How to use the Refusal Log

Using the refusal log will allow for you to look for patterns that might have implications to the findings, such as patterns that emerge in differences between participants and those who refuse (e.g. groups with multiple young children refuse vs. adult only groups who participate). Keeping a refusal log also allows for the researcher to record the percent of those who participated against the total number of potential (approached) participants, and report this in the discussion of the findings.

Completing the questionnaire:

The entire questionnaire should be completed by the visitor (self-administered). You should remain within visual contact with the visitors who are currently completing a questionnaire. If a visitor should approach you with a question about any of the items on the questionnaire, you should do your best to explain or answer the question that the participant has.

After Visitor completes the questionnaire:

Say: "Thank you so much for your help. We really appreciate it. Enjoy the rest of your day."

Be sure you have filled in the information at the top of each survey sheet: Your initials, date, time, and a number for the questionnaire. Each day you can start numbering your questionnaires at 1.

Write down any interesting notes or comments you had on the back of the data sheet. Place the completed data sheet in the weatherproof box or container that you have brought with you.

If a visitor wants to stop early:

A participant may want or need to stop filling in the questionnaire before completing it. If this happens, thank them for their help, accept the clipboard, pen, and partially completed questionnaire, and let them go. Turn to the last section of the questionnaire and fill in any of the demographic information that you can (male/female, group composition, age of adult).

After the questionnaire is complete:

Be sure you have filled in the information at the top of the first page of the questionnaire sheet: Your initials, date, time, a number for the Interview, and the location you collected the data (e.g. exhibit entrance, exit, specific program area). Each day you can start numbering your Interviews at 1.

Write down any interesting notes or comments you had on the back of the data sheet. Place the completed data sheet in the weatherproof box or container that you have brought with you.

Timing and Tracking

We can also learn a lot about our visitors from observing what they do while they are visiting and how long they spend doing it. This is commonly referred to as timing and tracking visitors. For an excellent overview of the history and use of timing and tracking please refer to the Yalowitz and Bronnenkant (2009) article found in Volume 12 Issue 1 of the journal *Visitor Studies*. Much of the information found in this section is informed by this article.

Basically, timing and tracking visitors can tell you what they are doing in a specific area of your institution, how or if they engage with other group members or visitors, and how long they spend engaged in the different activities. Timing and tracking involves a researcher strategically observing a selected visitor or group of visitors while they are in a designated area, while recording the types and length of the different engagements the visitor has. It is critical for the researcher to be discrete in order to observe the visitor engaging in behaviors they would naturally engage in. If a visitor feels they are being observed, they will behave as if they are being observed.

While timing and tracking data are powerful, their usefulness can be enhanced when combined with data collected from interviews and questionnaires. For example, if timing and tracking data suggest that visitors are not engaging with certain exhibit components this can be paired with interviews with visitors to find out why they might not be choosing to engage with these components. By combining timing and tracking with other methods of data collection you begin to develop a bigger picture for how visitors are experiencing a visit.

Visitor Timing and Tracking Protocol

Materials Needed:

- Clipboard and pen/pencil
- Stopwatch
- Map or layout of exhibit space to record data
- Weatherproof box or container to store completed instruments
- Other set-up materials

Selecting Visitors to Time and Track:

Who: We will track individuals and family/intergenerational groups who are visiting pre-selected areas of your institution. Do not approach any visitor group that consists only of young children or school groups and their chaperones.

Where: We want to track visitors who are currently engaged in a visit to your institution. It might be best to engage visitors in the potential exhibit or location that your institution is considering placing the iSaveSpecies Station. It is also critical to identify the boundaries of this area so that when a participant crosses this boundary it is time to stop timing and tracking.

How many: In total, we would like to track about 25 visitors/groups. On each day, collect as many as is possible during a scheduled data collection period.

How to Select:

We want to track a representative selection of visitors for whom this exhibit component is designed. To select visitors randomly, you will create an imaginary line near your position to recruit visitors. The moment you are ready to track someone, look at the imaginary line and the next individual or group who fits the criteria that crosses the line is the individual or group you should engage in tracking. If you have selected a group, it is critical that you identify one of the members that you will maintain visual contact with if the group should split up during the visit.

Once the timing and tracking is complete and you have checked it over, you will return to your original position, look at your imaginary line and again, the next individual or group who crosses that line is who you will track through the area.

During the Timing and Tracking:

Once you have decided who you will be tracking, you will start the stopwatch. Be sure to maintain visual contact with the participant you have selected to track. If it is important for your study to find out what route visitors take through an area you will want to draw a line designating the path that the Remember that if you have selected a group to track you should also select one individual within that group that you will continue to track should the group split up during the time you are tracking them.

Here are some critical items to note while tracking a group or visitor:

- Mark with an X on the map any location that they have stopped for longer than two seconds
- The duration (min:sec) of each stop under or near the X
- Behaviors of visitor towards others in their group or other visitors, for example talking with others or pointing at an exhibit
- Interaction with staff or volunteers
- Use of technology such as cell phone or tablet
- Time of day
- Crowd level
- Group size and composition (e.g. all adults, adult with multiple children)
- Any other information that you observe and might be helpful to inform the iSaveSpecies station

The timing and tracking is completed once the group or visitor crosses the threshold you have designated as being the exit for your study area.

After the Timing and Tracking is Complete:

Timing and tracking can be a fast paced activity. It is not always possible to record the details you observe while also maintaining visual contact with your participant. Once the timing and tracking is complete you should be sure to add any detail that is necessary to the data. Be sure to update any shorthand you might have used during the data collection period in case you will not be the one who enters the data. Double check to be sure you noted the critical items listed in the bullet points in the section above. Be sure you have filled in the information at the top of the first page of the timing and tracking sheet: Your initials, date, time, a number for the timing and tracking, and the location you collected the data (e.g. exhibit entrance, exit, specific program area). Each day you can start numbering your data sheets at 1.

Write down any interesting notes or comments you had on the back of the data sheet. Place the completed data sheet in the weatherproof box or container that you have brought with you.

Categories of iSaveSpecies Interactives

iSaveSpecies currently develops four categories of public engagement tools: Poster, Full Inquiry, Quiz, and Exploratory Play. Examples of each type of interactive are available at http://www.projectdragonfly.org/isavespecies/arcade/. We adapted text and examples to present here as a context for thinking about the different visitor outcomes that might be associated with different types of interactives.

Poster Tools

Poster interactives are powerful tools that allow visitors to take conservation action at an exhibit. They are successful in prominent exit locations immediately after significant animal encounters. Posters stand out more where ambient light is low. They should be deployed indoors. Signs and exhibit staff should clearly identify Stations with posters as Conservation Stations, so that all visitors know this is the place they can make a difference and become part of the conservation story.

Example:

Help Save Manatees is a conservation action tool allowing visitors to make and send conservation posters, view results, and donate to conservation.

Sample baseline (or post) Station assessment question: “Do you fell like you took a conservation action at this exhibit?”

Full Inquiry Tools
(visitors make predictions, collect data, and share results)

Inquiry tools transform visitors from spectators to investigators. These Station elements allow visitors to observe animals more carefully and to share discoveries. Inquiry-enhanced exhibits provide exciting possibilities for school groups and can help form the backbone of educational programming. Because they require close animal observation, Inquiry Tools should only be placed in areas that allow an OBSERVATIONAL ADVANTAGE of the target species. Consider simple exhibit modifications to create the feeling of a field research site. Inquiry interactives can be combined with sensors, GPS, thermal infrared cameras or other elements that enable compelling new visitor experiences.

Examples:

What Do Gorillas Do All Day?
Visitors investigate gorilla activity patterns using scan sampling.

Leaf-Cutter Ants: tough/soft leaves
Visitors use a penetrometer to test leaf preference in leaf-cutter ants.

Sample baseline (or post) Station assessment question: “Can you tell me anything about the leaves the ants are choosing to cut and take back to their nest?” If yes: “What can you tell me?”

Quiz Tools

Quiz tools are popular, visitor-focused, and can provide useful precursors to conservation action. They also allow direct investigation of important themes in conservation psychology, and enable visitors to reflect on their relationship with nature. Quizzes can be located in any area where visitors gather, though they should be placed where animals are visible. They are best used in combination with other engagement tools.

Examples:

Which Gorilla Are You?
Visitors take a personality quiz and find out which gorilla they are most like. (A Gorilla Behavior Index is used to score gorilla personalities).

Wild Me Quiz
Designed to provoke reflection on and conversation about how visitors relate to nature. Explores themes in environmental psychology.

Sample baseline (or post) Station assessment question: “Did this exhibit make you think about how you relate to nature and the environment?”

Exploratory Play Tools

Exploratory Play Tools have fun, playful elements in an interactive that is typically shorter than a Full Inquiry Tool. They often elicit inquiry-compatible skills such as observation, listening, and sharing information. Exploratory Play can appeal to very young visitors without requiring much, if any, adult help. Use Exploratory Play Tools to expand the types of interactive experiences at an exhibit and engage diverse audiences.

Example:

Hoot Like a Gorilla
While exploring gorilla vocalizations, families can compare their recorded hoots to gorilla hoots on a sonograph.

Sample baseline (or post) Station assessment question: "Did you think about how gorillas communicate today?"