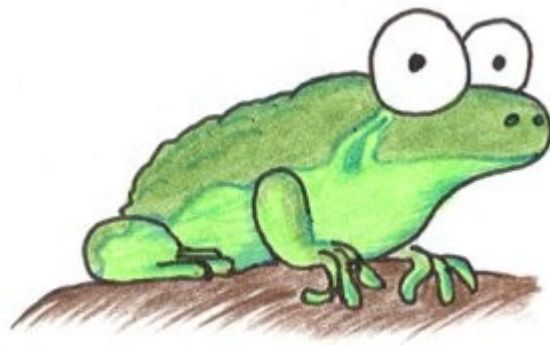


Will Frogs **CROAK** ?



A Background Report for the 2008
Amphibian Crisis Exhibition at the National
Zoological Park



Smithsonian Institution

Office of Policy & Analysis

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Preface

The Association of Zoos and Aquariums (AZA), and its member zoological parks and aquariums, is highlighting 2008 as the *Year of the Frog* to mark a major conservation effort to address the amphibian extinction crisis. The World Conservation Union (IUCN) estimates that at least one-third of known amphibian species are threatened with extinction. Yes, frogs are going extinct.

The *Year of the Frog* is meant to inform, educate and engage the public in amphibian conservation, as well as raise funds for future amphibian conservation efforts.

The National Zoological Park (NZIP) has been a participant in research and public education related to the amphibian crisis. As part of that effort, a new, permanent exhibition dealing with the amphibian crisis is scheduled to open in late 2008.

As part of planning for the new exhibition, NZIP asked the Office of Policy and Analysis (OP&A) to work with the exhibition team to gain insight into public attitudes, behaviors, knowledge and feelings towards amphibians and frogs in specific. This report presents the results of these explorations.

Members of the NZIP exhibition team, coordinated by Miles Roberts, Wildlife Biologist and Curator of the Amazonia Science Gallery, and OP&A staff conducted interviews for the project. The OP&A team included Zahava Doering, Andrew Pekarik and Randal Lucas, an intern in the Smithsonian-Alberta Internship Program. Randal analyzed the interviews and wrote this report. I would like to express my appreciation to everyone who participated.

Carole N. P. Neves, Director
Office of Policy and Analysis

Introduction

This report presents the results of qualitative interviews conducted by a team of interviewers from the Office of Policy and Analysis (OP&A) and the National Zoological Park (NZIP) for an upcoming Amphibian exhibition at the Amazonia Science Gallery. The study was an inquiry into visitors' knowledge, perception, and general thoughts about amphibians and the current crisis that they face.

The majority of this study was conducted over a two-week period in May 2008. The interviewers spoke with people using a text provided by NZP. [This document, entitled *Amphibian Exhibit Brief*, is found in Appendix A.] The document sets out the main messages for the forthcoming exhibition. This was the only document used during the study and all references in this study will be to it.

The people interviewed were visitors to the National Zoological Park. They were chosen at the discretion of the interviewers, with no scientific sampling criteria. Generally, larger groups and adults with children were avoided, due to the length of the interview and complexity of interviewing multiple individuals.

The interviews were informal discussions between a team member and visitors, after the visitor had read the document. The discussion involved the use of in-depth, open-ended questions to encourage the visitor to share his or her basic familiarity, understanding, and thought processes about amphibians, the crisis mentioned in the document, and zoos in general.

This report is based on comments from thirty-one people who were interviewed in seventeen separate interviews. Fifteen of those interviews are recorded. The average length of the interviews was approximately fifteen minutes.

This report summarizes the findings and conclusions, with some illustrative quotes from specific interviews. The findings are organized into five categories: amphibians, the crisis, what to do, visitors' comments about the exhibition, and zoo visiting. The findings on each topic are, in most cases, followed by suggestions. The final section is a summary of the key points.

Findings

Amphibians

Visitors were asked about their general knowledge of amphibians. This included what they understood “amphibians” to be and what they knew about them, the value they placed on amphibians, and their familiarity with them.

Definition - Every visitor in these interviews had a basic understanding that amphibians are creatures that dwell on land and in water. However, a few visitors failed to recognize the necessity of both water and land to an amphibian’s life cycle, and assumed that the animals could either live on land or in water, at their discretion. Furthermore, this general understanding led some visitors to the false conclusion that all animals that live both on land and in water are amphibians. The following quote is an example of a visitor’s typical confusion:

Interviewer: What kinds of animals are amphibians?

Visitor: They live in and out of water, [for example,] various lizards, frogs, alligators. They’re more reptiles, but still.

Interviewer: So are reptiles and amphibians the same?

Visitor: They can be.

Moreover, since many do not fully understand what amphibians are, they are confused that the dialogue did not mention “frogs” specifically, since frogs seem to be ultimately what the text is discussing.

Suggestion: If the exhibit primarily deals with frogs, the word “amphibian” should be replaced by “frog” throughout the exhibit, so as to avoid visitor confusion. It should, however, be noted somewhere in the exhibit (as an ancillary note) that this problem affects all amphibians, and then proceed to identify what is meant by “amphibians.”

Knowledge – Visitors’ knowledge of amphibians was varied. Some knew very little and some knew a substantial amount. Several people desired to know more, and expressed the wish that the document contained more detail.

Suggestion: Even though basic information should be provided for those who know little, detail should be included for the benefit of those already familiar with amphibians.

Value - Most visitors recognize that amphibians have value to the environment as a whole. They assume that frogs eat insects, and, in turn, provide food for fish and birds. Therefore most visitors recognize that if there were no frogs the food chain would be off-balance. Even those who do not particularly like amphibians concede that “there must be some benefit to them,” even if they could not specify anything in particular. Three visitors that were interviewed were aware that frogs have been used for medicinal or pharmaceutical purposes.

Suggestion: Highlight the benefits of amphibians, with specific examples, since the general notion already exists. It would be very helpful to the visitors to know what harm might be caused by the absence of amphibians.

Familiarity - Visitors’ familiarity and personal experiences with frogs and other amphibians is varied and diverse. Some people like frogs; some do not. Some caught frogs and salamanders in their childhood, some shunned such activities, and some did not have the opportunity. Some would jump at the chance to hold a frog, again or for the first time, others would abhor such an invitation if it was presented to them.

The Crisis

This section addresses these visitors' general reactions to amphibian crisis, the specifics of the fungus, how global climate change and pollution are involved, the language used to convey the idea of the "crisis," and what species of amphibians are at risk.

General reaction to the "amphibian crisis" - The text that was provided to those interviewed stated that "amphibians are declining globally," and that "[they] are in crisis!" (see Appendix A). It further stated that the reason for this decline is a fungal disease. Most visitors had no idea that the amphibian populations are declining, and only one visitor had any previous knowledge of the fatal fungal disease. However, among those who learned for the first time that amphibian populations are suffering, none were surprised. There was a general inclination towards conservation values among these visitors, and also a general belief that humans have degraded the planet and are continuing to destroy it; therefore, no one questioned the assertion that amphibians are in crisis.

Interviewer: When you had said that you had known all of these, were you aware that the amphibians were in the crisis that they were?

Respondant1: It makes sense.

Respondant2: We're killing more species than we know.

Most visitors were puzzled, however, why they had not heard anything about this crisis in the media if it is more severe than the extinction problems facing "[any] birds or mammals," (see Appendix A). Many have heard a great deal about problems with polar bears and bees, but not about amphibians. As one visitor said,

To be honest, as a whole people are not taking interest or paying attention to amphibians as far as frogs being extinct. People think, "I see a frog every day, I see a frog in my backyard, I see frogs everywhere." I see recently in the paper it was talking about polar bears. That's something you don't see every day, so people take more interest in polar bears, lions, tigers, stuff like that. But frogs, and certain turtles, people don't really pay much attention, unless someone brings it up to them and is constantly bringing it up to them. If it is not

constantly in the media and the papers, and stuff like that, people don't really care.

Suggestion: Provide figures showing how the decline of amphibians is greater than that of birds or mammals.

The fungus - Only one visitor had heard of a fungus affecting amphibian populations. When visitors read the text, they did not know how to fit it in the larger framework of other species' decline, and they put their own story behind its inception. For example, some assumed that the fungus is a result of pollution and global warming.

Interviewer: So you understand that we are the main cause of this crisis?

Visitor: Sure, it says that they are susceptible to pollutants and environmental changes, and we're causing environmental changes.

Others, because they had not heard of the fungus before, were skeptical and wanted to know more details.

... Where it talks about the fatal fungal disease. It mentions it specifically, but actually qualifies it in general terms, "because of human activities and climate change." That's very broad. That just lends more to skepticism, and it tells me that they don't know as much as they think they know. Or if they did know more, they're not expressing it here.

Suggestion: Visitors will want to know the origin of the fungus and how it spreads among amphibians. It also might be useful to explain why all amphibians are susceptible. Where there are gaps in the scientific knowledge, it should be explained that those gaps exist, and that is why the zoo wants to conduct further study and research.

How climate change and pollution fits in - Several visitors failed to understand how global climate change and pollution are involved in the story. Some believe that it is the cause of the fungus.

Suggestion: Perhaps it would be clearer if one more step was inserted in the second point in the text. For example, since global climate change and pollution are affecting water and marshes, and since water is essential to the survival of frogs, they are especially being affected. If this is the case, it might also be helpful to explain that because of stresses due to changing/polluted

environments, amphibians are in a weakened condition that makes them more susceptible to being affected by the fungus.

Language of crisis - Opinions on the language used in the text were divided. Some visitors (especially those who were less conservation-minded or who had no warm feelings towards frogs) felt as if species “in crisis” seemed to be everywhere, and that the concept had become tiresome and overused.

Respondent: Well, I think everyone's tired of hearing “Crisis! Everything's a crisis!” You know? And so if you did it more on the DL, you know?

Interviewer: The DL?

Respondent: Down Low. You know, cause everything's a crisis. So if you presented the animals, and talked about the animals, and then at the end you said, “BUT, we need to do more, we need protect them,” and that sort of thing.

This particular visitor later explained that she had been deeply moved by an exhibit she attended at Disney World's Animal Kingdom, where one sits in a darkened area and uses special headphones that give the feeling of being surrounded by animal sounds to create the feeling that one is in the Amazon. She was particularly moved by the sounds of the frogs that she heard. The visitor did not recollect the exhibit saying explicitly anywhere that the sounds of the frogs are disappearing, but she said that she concluded on her own: “What would happen if there were no more frogs?” This is what this visitor meant by saying things should be done more subtly (or on the “Down Low”).

However, some who were conservation minded and liked frogs felt that, if what the document said is true, the language should be even stronger.

Interviewer: A lot of people we've talked with have said that the language needs to be changed, and that saying that something is “in crisis” is overused. Do you guys agree with that?

Visitor1: I definitely disagree!

Visitor2: I think that is complete B-S! If it is a problem, it's a problem! Especially what we're doing to the environment. We're causing a lot of problems and it should be in your face. It should be something that is very

explicit and saying exactly what is going on. It shouldn't be pushed aside. Yeah, it's a problem, but we did it.

Visitor1: I think a lot of people think we're trying to turn the environment into a charity case, but really they're not aware of what they are doing. A lot of people live their daily lives and aren't aware of what they leave behind.

One visitor who was less conservation-minded thought that she would be more captivated by the exhibit if it included a timeline indicating when the amphibians would disappear. This said, she admitted that if the extinction point was too far off, say 2050, she still would not care. If it said that there would be no more amphibians in 2010, then she would be motivated to action.

Another visitor suggested that an appropriate title would be "The Amphibian Extinction," rather than "The Amphibian Crisis," since he felt the term crisis is overused.

Suggestion: The "sounds" of frogs should definitely be included somehow in the exhibit. As displayed by the interviewee cited above, the sounds can provide a powerful tool to create awareness and captivate their attention, leaving a lasting memory of the exhibit.

What species are at risk - Many visitors failed to comprehend that this crisis implicates all species. Some visitors even doubted that this could be referring to local species of amphibians, since they see and hear frogs in their backyard.

One visitor thought that if local species were implicated, it must only be one particular species, and was doubtful that all amphibians could be at risk:

Visitor: We hear the frogs all the time, so we don't recognize what is going on in other areas. Any place you get a wet spot, right now in Wisconsin, the frogs are out and they are croaking.

Interviewer: So you don't see any crisis where you're at.

Visitor: Not personally. But we're not out looking for specific species. We have a couple of garden ponds and we'll end up with some leopard frogs every year. I don't know where they come from.

Suggestion: The extent of this decline in population species locally and globally needs to be explicit. Some visitors will need to see actual figures that will convince them that this decline is occurring and is severe.

What to Do?

The text brings up two points in response to the crisis. It explains that “zoos, like the National Zoo, can help... by bringing individuals... into captivity.” The text concludes by saying that visitors’ actions can help conserve amphibians as well (see Appendix A).

Zoos - All of the visitors interviewed focused on the conservation efforts of the zoo. No one was surprised to hear that the National Zoo is making efforts to conserve the most endangered species. The idea of amphibians being in crisis developed as they read the text, but as soon as they read that the Zoo is doing something, some visitors conclude that this crisis is under control since the Zoo is looking after matters. These visitors have confidence in the National Zoo and no longer feel that the crisis is something that they need to concern themselves with.

Suggestion: Perhaps the Zoo’s conservation efforts could be less prominent. It does not seem to be needed. Visitors either assume those efforts are already in place, or can observe them for themselves. It appears in visitor interviews that this point about the zoo’s effort on behalf of amphibians, in fact, undermines the concern that was created by the previous points. Instead, it might be useful if this point was shifted to highlight research efforts to understand the decline.

Visitors - Visitors tended to glance over the claim that “they can help too,” because it does not tell them how they can help. These visitors already know that they need to be respectful to the environment in general, as nearly all are already conservation minded. A couple of visitors, for example, referred to the display on plastic bags near the sea lion sanctuary, and mentioned how it showed them that their simple actions can, in fact, have global consequences.

The most conservation-minded individuals and frog lovers earnestly desired to know what they could do to help, as this was the first time that they had heard of such a crisis.

Suggestion: If this is a “call-to-arms,” it needs to be specific about what the visitors are requested to do. A simple invitation to do one or two specific things could help the visitors take note of how their actions are affecting the amphibian decline. Furthermore, specifically knowing how they can change

their behaviors will not only give them concrete steps, it will also allow them to feel that they are truly helping. This feeling of validation might cause them to continue such practices.

Visitor's Comments about the planned Exhibit

These visitors were also asked what stood out the most for them in the dialogue, as well as what they would say or recommend to those in charge of the Zoo, and specifically this exhibit.

The most poignant point for visitors - A surprisingly large number of people responded that the issue that stood out the most was that the National Zoo is making efforts to conserve certain species of amphibians. For those who seemed particularly conservation-minded, the most important point was that amphibians are in such a crisis.

Suggestion: As mentioned previously, emphasizing the conservation efforts of the Zoo, for many, seems to communicate the idea that the Zoo will solve the problem. If nothing else, the statement detracts attention away from the central issue of a crisis.

Visitors' suggestions - When asked if they had any advice for those setting up this exhibit, visitors' responses were varied. These included comments like:

- *Statistics usually help... Statistics do tend to have more of an effect on people than just words. Even estimated statistic would make it more effective.*
- *"Before" and "After" pictures.*
- *Tell the curators this: if you bring all the amphibians here, you still have to educate the people where the animals live. Constantly going down there and scoping them up and bringing them here, but they are still dying out there, is pointless to me. Okay. Bring some here, but educate the people where it is going on so you slow the process down.*
- *Show what the effect on the frogs has been. Tell what's going on to their environment and what's causing it, and what we can do to cut back on them. Timelines really get me. When I find out it's too late or not.*

Even though there were many diverse comments, many visitors expressed a desire to view the animals in their natural habitats and to have personal experiences with them; for most, this is what makes a zoo exhibition interesting. Some take it a step

further by asserting that seeing animals in their natural, or simulated-natural, habitat is an integral part of education. Still others conclude that it is likely to be less stressing to the animals if they are placed in areas that simulate their natural habitat.

Some visitors felt that it would be better if the exhibit were geared toward children, so that no matter who visitors are, they would be able to understand the materials.

Are they interested? - Most visitors that we spoke with said that they would be interested in attending such an exhibit, although most qualified their interest by saying that, for them, it would not necessarily be a high priority. While a couple of frog-lovers were excited about such an exhibit, those who had expressed dislike or distaste towards the animals said that they would not be interested.

One couple expressed their interests this way:

Visitor1: ...But something like amphibians, as an exhibit? I can see preserving them, but as an exhibit it is going to be a hard sell. The size [of the animals] is not going to attract crowds.

Interviewer: Is it only the size?

Visitor1: Umm...

Visitor2: Uh... no, it's not only the size. People like to see animals that, uh... I don't know, maybe it is the size?

Visitor1: The closest thing I can think is like at the National Aquarium, they have the rain forest and then sometimes you can see amphibians in the rain forest. ...Maybe have amphibians part of your Amazonia Exhibit. That is about the only way I see it working, I can't see having, like, "Amphibian Hall." I don't think people would go in it.

It is also important to note that many people with whom we spoke said that although though they had visited Amazonia and enjoyed it, they had not ventured past the conference room. They thought the Science Gallery was only for staff, and were not aware that it was a public space. These people, even if they said they would be interested in this exhibit, would not have viewed it, if it were presented in the last room of the Amazonia Building.

Zoo Visiting

As part of the interview, visitors were asked what they felt the benefits to visiting a zoo are, and how they felt about animal captivity.

Benefits - In nearly all visitors' opinions there were two main benefits to visiting a zoo: education, and the opportunity to view live animals that are not otherwise accessible to them.

Other benefits included a chance to be outside, relaxation, nostalgia for their homeland, and a place to spend time as a family.

Visitor education within the zoo is very important to nearly all visitors interviewed. They view their visits as learning experiences, not only for children, but for adults as well. Furthermore, some visitors felt that a specific type of "hands-on" learning occurs at the zoo, which they say is unique to a zoo.

Of course, visitors want to see the animals, because for them, that is what a zoo is for: viewing animals. Most visitors desire to see the animals in their natural habitats.

Summary

To gain insight into how an exhibition on amphibians might be received, qualitative interviews probed visitors about a text summarizing the exhibition's main points that they were asked to read. Moreover, visitors were asked in-depth questions about their experiences and feelings towards amphibians and zoos in general. The key points are summarized below.

What visitors knew about amphibians

- Many visitors did not know what was meant by “amphibians,” and often wrongly concluded which animals were being discussed.
 - Perhaps replace “amphibians” with “frogs,” and note within the exhibit that this also applies to newts, salamanders, caecilians, and toads.
- Nearly all visitors had only a cursory knowledge of the value of amphibians to the environment, and very few listed any benefits for humans.

What visitors knew about the amphibian crisis

- Few knew that amphibians were in crisis.
- Essentially no one had heard of the fungal disease before.
- Some were skeptical about the fungus and desired more information about it.
- Visitors associated the fungal problem with pollution and climate change.
- Few understood from the text that ALL amphibians are in crisis.
- Visitors wanted to know how this crisis is unique. Specifically, many questioned how this crisis is different from that of the polar bears and the bees.

What is to be done about the crisis

- The fifth statement in the text that visitors read noted the Zoo's conservation efforts. This was a distraction from the main point of the dialogue, since it seemed to lead visitors to believe that the Zoo has the crisis under control.
 - It may be beneficial to highlight the research efforts of the Zoo, rather than the conservation efforts.

- Generally, visitors seemed to be conservation minded.
 - Either give them concrete things to do, or do not include the sixth point of the text mentioning that “[the visitors’] actions help too.”
- The most conservation minded were very interested in knowing specific things that they could do to help the amphibians.

About the exhibit

- A number of visitors assume that the last room in Amazonia is not for the public; therefore they do not enter it.
- Those who have no emotional connection to frogs, even though they are willing to consider the benefits and value of them, do not seem thrilled about the exhibit.
 - Communicating a positive image of frogs will be vital to this exhibition’s popularity.
- Visitors expressed the desire to see the animals in their natural habitats.
- One visitor shared an experience at an Amazonian exhibit elsewhere, describing how the sounds of the amphibians made her consider, “What would happen if there were no more amphibians?”
 - Incorporating the sounds of amphibians would be extremely beneficial.
- Many visitors indicated that they visit zoos expecting “unique education experiences.”

Appendix A

4/15/08

Amphibian Exhibit Brief

Exhibit Statement (Big Idea)

Amphibians are declining and worldwide coordinated efforts are needed for their conservation.

Exhibit Messages

1. Amphibians are in a crisis! They are going extinct at a faster pace than birds or mammals.
2. An amphibian's dependence on water makes it especially susceptible to pollutants, diseases and environmental changes.
3. The most severe threat to amphibians at the moment is a fatal fungal disease that is spreading because of human activities and climate change.
4. Scientists are trying to understand how the disease works and are trying to find ways to stop its spread in the wild. But their efforts may be too late for many species.
5. Zoos, like the National Zoo, can help conserve amphibians by bringing individuals of the most threatened species into captivity where they can be safe until a solution is found.
6. Your actions help too; when everyone does a little, it adds up to a lot.