



Impact Planning, Evaluation & Audience Research

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Exhibition and Program Evaluation

Summative Evaluation of *California Condor Rescue Zone*

Prepared for the
**Los Angeles Zoo and Botanical Gardens
Los Angeles, CA**

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Some appendices removed for proprietary purposes.

SUMMARY AND DISCUSSION

INTRODUCTION

This report presents the findings from a summative evaluation of the California Condor Rescue Zone (CCRZ) conducted by Randi Korn & Associates, Inc. (RK&A) for the Los Angeles Zoo and Botanical Gardens (LA Zoo). RK&A conducted this evaluation to examine adults' and children's experiences with the exhibits and the play facilitators who staff the exhibition. Data for this study—including observations and in-depth exit interviews—were collected in February and March 2011.

This summary and discussion is organized by CCRZ goals, as defined by staff, and synthesizes an analysis of the data, knowledge of the LA Zoo, and findings from other RK&A studies. The goal of this discussion is to help staff and stakeholders reflect on and use the evaluation findings.

**Selected highlights of the study are included in this summary.
Please consult the body of the report for a detailed account of the findings.**

OVERVIEW

The CCRZ was very successful in achieving the four overarching goals for visitors in the space: to increase knowledge of California Condors; to demonstrate why people should care about California Condors; to increase understanding of the LA Zoo's participation in Condor conservation; to increase understanding and engagement with the three roles presented in the play activities (Biologist/Keeper, Condor, Veterinarian); and to foster a supportive and satisfying learning relationship with the LA Zoo's play facilitators. The observation and interview data provide corroborating evidence of CCRZ's successes. Observation data show that nearly all children and most adults were consistently engaged and enthusiastically used the space in an appropriate manner. Interviews with children and adults demonstrate learning that resulted from using the activities and interacting with the play facilitators.

The evaluation findings provide greater detail and nuance with which to understand CCRZ's successes and shortcomings. CCRZ's accomplishment of its specific goals is examined below. The final section of the discussion provides recommendations.

ACCOMPLISHMENT OF SPECIFIC GOALS

CCRZ GOAL ONE: INCREASE KNOWLEDGE OF CALIFORNIA CONDORS AND DEMONSTRATE WHY PEOPLE SHOULD CARE ABOUT CALIFORNIA CONDORS

CCRZ was successful at increasing knowledge and greater appreciation of the natural world as well as demonstrating why people should care about condors.

Nearly all visitors, adults and children reported leaving the space knowing something about condors, including the environmental threats and actions taken to protect the species. Many adults and children also observed that the exhibition reinforced the importance of caring for condors, protecting the environment, and valuing life in general.

In particular, many visitors said that the Vet Clinic was a key family learning area. Some also said that the interactive and information-rich design of the exhibition was most helpful, or that the presence of play facilitators greatly assisted with family learning. A number of condor stories were especially salient for adults and children; for example, the destructive effects of microtrash, the near extinction and subsequent revitalization of the species, the potential for humans to save hurt or dying condor chicks, and condors' attentive parenting. Interestingly, children responded so positively to what they had learned about condors that many described condors as "cute" and "pretty," adjectives generally not used to describe the California condor.

The LA Zoo made an institutional decision not to display a live animal exhibit in CCRZ—an unusual choice for a zoo. To gauge reactions, interviewees were asked if they thought anything was missing from the exhibition. Only two adults requested a live animal display and one of them spoke at length about the detrimental effect of doing so on condors, and concluded a live condor display was not an option. Observations suggest that visitors to CCRZ used the activities and spoke with the play facilitators to such an extent that a live animal display was not necessary to capture visitor interest and enthusiasm.

CCRZ GOAL TWO: INCREASE UNDERSTANDING OF THE LA ZOO'S PARTICIPATION IN CONDOR CONSERVATION

The CCRZ was successful in increasing nearly all visitors' understanding of condor conservation. However, fewer explicitly connected condor conservation to the work of the LA Zoo.

It is not uncommon for visitors to have limited knowledge of the research functions of science centers, zoos, and aquariums. In another study RK&A conducted for the California Academy of Sciences, we found that many did not perceive the Academy as an active scientific research institution even though text and exhibits highlight its research function (2009). That study found that interviewees expressed high interest in what happens behind the scenes at the Academy but knew little about its operations and scientific activities. We recommended the Academy more explicitly describe its research function by providing visitors with personal profiles of Academy scientist and concrete examples of their work.

Overall, adult interviewees said that they left CCRZ with positive feelings toward the Zoo. Many felt that CCRZ is a demonstration of the Zoo's commitment to families. However, most visitors did not come away with an increased understanding of the Zoo's specific role in condor rehabilitation. For example, interviewees reported that they were very engaged with activities at the Vet Clinic but generally viewed the Clinic as a medical area and therefore conceptually separate from the Zoo.

CCRZ GOAL THREE: INCREASE UNDERSTANDING OF AND ENGAGEMENT WITH THE THREE ROLES PRESENTED IN THE PLAY ACTIVITIES

All three roles were successful. The Veterinarian role was very successful, while the Biologist/Keeper and Condor roles had more opportunities for improvement.

Visitors to CCRZ reported engagement with the three roles presented in the play activities at varying levels. For most visitor groups, the Vet Clinic was the most compelling area. The activities in the Vet Clinic were used by nearly all children. Some adults also mentioned the Vet Clinic and found it personally interesting. Some also said that it provided a chance for their children to learn about appealing careers. While visitors rarely used the term Veterinarian, instead calling the activities "playing doctor" or being a "vet," they grasped the role that they were playing and mentioned learning from the activities and play facilitators.

The Biologist/Keeper and Condor roles and corresponding activities were less immediately understandable to visitors. The observation data also showed that some visitors, especially first-time visitors, were unsure how to behave in certain areas of the CCRZ such as the Mountain Home, Valley Floor, and Feeding Area. Yet, there were activities that appealed to visitors, including sifting for microtrash, scavenging for meat, and having the opportunity to dress up as a condor. If CCRZ is considering adding new activities, each of these roles might benefit from additional framing and facilitating.

CCRZ GOAL FOUR: FOSTER A SUPPORTIVE AND SATISFYING LEARNING RELATIONSHIP BETWEEN VISITORS AND THE LA ZOO'S PLAY FACILITATORS

CCRZ was successful in achieving Goal Four with children and had more opportunities for improvement with adults.

Observations and interviews highlight that facilitation engages visitors, conveys knowledge, and creates a welcoming and enjoyable experience. Furthermore, the observation data show that facilitators skillfully tailored activities to diverse visitor groups and interacted with visitors in a friendly and encouraging manner. Facilitators were also attentive and spoke to visitors in English or Spanish as appropriate. This study demonstrates that the play facilitators were essential to creating high-quality experiences in CCRZ and supports the LA Zoo's commitment to providing visitors with exceptional facilitated experiences.

Though fostering parent-child interactions was not explicitly included as an overarching goal for CCRZ, LA Zoo staff members have mentioned that they would like to support such interactions. CCRZ is already encouraging some adults and children to play and learn together—in fact, much more so than other family spaces RK&A has evaluated (2010, 2011). That said, CCRZ has great potential for further increasing parent-child interactions. Research has shown that parents often lack a clear understanding of the connection between play and learning and have little confidence and knowledge as to how to interact with their children in a museum setting (Downey, et. al., 2010); in fact many adults in this study were observed deferring to the play facilitators. Though parents' lack of understanding presents a barrier to facilitating collaboration within families, it also represents an important opportunity since facilitation and contextual cues within exhibits (such as labels) can greatly affect visitor behavior.

RECOMMENDATIONS

- ◆ Explicitly tie the Zoo's actions to save California condors with key stories and activities in CCRZ.
- ◆ Implement strategies (whether through additional staffing or activities) to increase the use of the front sections of CCRZ (e.g., the Feeding Area, Valley Floor and Mountain Home).
- ◆ If fostering parent-child interactions is an important goal for CCRZ, develop a goal statement and explore ways to increase this type of family learning. For example, provide additional training and professional development for play facilitators and implement a self or peer assessment to track facilitators' development.
- ◆ We also recommend addressing these technical issues to improve the visitor experience:
 - Remind play facilitators to demonstrate how to use/focus the binoculars when introducing the Biologist Backpack activities to young children.

- Remind play facilitators that young children may need assistance figuring out how to position their fingers inside a condor hand puppet in order to move its beak.
- Consider displaying comment books with blank pages to encourage visitors to leave comments; display a book with comments and one with blank pages.
- Consider changing “Brooder Box” to “Nesting Box” on the CCRZ map.
- Rather than storing the condor costumes on hangers, explore ways to display the adult and juvenile condor costumes to increase their attracting power and help visitors visualize what they will look like wearing the costumes.
- Consider reexamining the usability of the condor cam joystick interface in the Keeper Lab to ensure its accessibility to the CCRZ target audience.

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INTRODUCTION

The Los Angeles Zoo and Botanical Gardens (LA Zoo) in Los Angeles, California contracted Randi Korn & Associates, Inc. (RK&A) to conduct a summative evaluation of the *California Condor Rescue Zone* (CCRZ), an immersive, facilitated play space designed for elementary school-age children. Data collection took place over a six-day period in February and March, 2011. The summative evaluation was designed to examine the experiences of children (ages 5 to 10) and their parents/caregivers in the CCRZ exhibition. Specifically, the summative evaluation examined:

- ◆ The behavior of children and adults in the exhibition;
- ◆ Interactions between visitors and Zoo staff/volunteers in the exhibition;
- ◆ Overall visitor experiences in the exhibition, including peak experiences and low points for both the children and adults;
- ◆ Children's affective response to condors and the exhibition experiences;
- ◆ Children's knowledge of California condors;
- ◆ Children's perceptions of the exhibition's overall messages, including understanding of the three roles presented in the play activities (biologist/keeper, condor, veterinarian);
- ◆ Adults' perceptions of what their children are taking away from the exhibition experiences;
- ◆ Adults' understanding of the LA Zoo's participation in California condor conservation; and
- ◆ General demographic and visitation characteristics of the visitor groups.

METHODOLOGY

RK&A conducted naturalistic observations and interviews. Data were collected in February and March 2011 at the LA Zoo weekdays and weekend days.

NATURALISTIC OBSERVATIONS

RK&A conducted naturalistic observations to document the behavior of visitors and Zoo staff/volunteers in *California Condor Rescue Zone* and provide important context for the exit interviews conducted in this study. The data collector was unobtrusive, meaning that visitors were unaware that they were being observed. Such a strategy provides an objective account of visitor behavior, enabling the evaluator to document the range of behaviors. A trained data collector observed 25 visitor groups comprised of 92 visitors. The sample included eligible visitors (children ages 5 to 10 accompanied by adults/caregivers) who were selected using a continuous random sampling method. In accordance with this method, the data collector imagined a line at the entrance to CCRZ and selected the first eligible visitor to cross this imaginary line. Once the target visitor (a child age 5 to 10) crossed the imaginary line, the data collector started her stopwatch and discretely followed the selected target visitor through the exhibition, recording the activities used, noting interactions with other visitors and Zoo staff/facilitators, and total time spent in the exhibition (see Appendix A for the observation form).

EXIT INTERVIEWS

To examine the cognitive and affective experiences of children and adults in *California Condor Rescue Zone*, RK&A conducted in-depth, open-ended exit interviews. In-depth interviews encourage and motivate visitors to describe their experiences, express their opinions and feelings, and share with the interviewer the meaning they constructed from an experience. In-depth interviews produce data rich in information because interviewees talk about personal experiences.

Exit interviews were conducted with 39 visitor groups, comprised of 54 visitors to CCRZ. A trained data collector intercepted visitors exiting the exhibition using a continuous random sampling method. In keeping with this method, the data collector intercepted English-speaking adult visitors (18 years or older) accompanied by one or more children in the target age range (5 to 10 years) upon exiting the exhibition and asked them to participate in the interview. If the visitor declined, the data collector logged the visitor's gender, estimated age, and reason for declining. If the visitor agreed, the interviewer first asked the adults questions using an interview guide and then asked the child(ren) questions (see Appendix C for interview guide). The interviews were audio-recorded with visitor consent and transcribed to facilitate content analysis.

DATA ANALYSIS AND REPORTING

The data are qualitative, meaning that results are descriptive, following from the nature of observations and interviews. In analyzing the data, the evaluator studies behaviors and responses for meaningful patterns and, as patterns and trends emerge, groups similar behaviors and responses. Trends and themes in the observation and interview data are presented from most- to least-frequently occurring.

Exemplary quotations from the exit interview data are presented to elucidate the trends. The interviewee is identified in brackets following the quotation with the interviewee's gender and age. If there is more than one speaker in the quotation, the first speaker is identified by one asterisk (*), the second speaker by two asterisks (**), the third speaker by three asterisks (***), and so on. Readers should note that the data collector conducting naturalistic observations took notes as visitors experienced the CCRZ exhibition. On a few occasions, the data collector captured the verbatim words and phrases used by visitors. In the report, observed visitors' words and phrases are presented within quotation marks.

EXHIBITION OVERVIEW

Funded by the Greater Los Angeles Zoo Association, the *California Condor Rescue Zone* is a facilitated play space designed for children age 6 and older and their families. CCRZ is located in the Bank of America Foundation's Children's Discovery Room just inside the LA Zoo's entrance. The exhibition is open to the public from 10:00 a.m. to 4:00 p.m. on Fridays, Saturdays, and Sundays.

The aim of CCRZ is to foster appreciation for the endangered California condor, the threats this species faces in the wild, and the key role that the LA Zoo is playing in the species' recovery. The Zoo's said overarching goals for CCRZ are as follows:

- ◆ To increase knowledge of California condors and demonstrate why people should care about California condors;
- ◆ To increase understanding of the LA Zoo's participation in condor conservation;
- ◆ To increase understanding and engagement with the three roles (Biologist/Keeper, Condor, Veterinarian) presented in the play activities; and
- ◆ To foster a supportive and satisfying learning relationship with the LA Zoo's play facilitators.

Through role-play and hands-on exploration, visitors can experience what it is like to be a California condor—the largest flying bird in North America. In this immersive environment, visitors can participate in a range of facilitated activities highlighting aspects of condor life history and conservation (see Appendix C for activity descriptions). For example, visitors can assume the role of a field biologist, scaling a rock wall searching for a remote nesting site. A game of hide-and-seek delivers a lesson about what items are beneficial for a parent bird to bring back to a hungry chick. Overhead, life-size condor figures illustrate the condor's tremendous wingspan. In the Vet Clinic visitors can pretend to operate on plush condor chicks, learning about the threats that “microtrash” poses to condors in the wild. There are no interpretive panels or exhibit labels in the CCRZ. Instead, facilitators are on hand to offer information and encouragement in an unscripted, open-ended manner. Three Zoo staff members facilitate the exhibition at any given time.

The CCRZ exhibition is comprised of two rooms/gallery spaces (see Image 1) divided into six thematic areas: Feeding Area, Valley Floor, Mountain Home, Nesting Caves, Vet Clinic, and Keeper Lab (see Appendix B for exhibition map).

IMAGE 1

EXHIBITION ROOMS/GALLERIES

FEEDING AREA AND VALLEY FLOOR



VET CLINIC AND KEEPER LAB



PRINCIPAL FINDINGS: OBSERVATIONS

Observation data for the *California Condor Rescue Zone* (CCRZ) were collected at the LA Zoo on three days in February 2011—on a Friday, Saturday, and Sunday, the only days of the week that the exhibition was open to the public at the time of the study. The data collector observed 25 visitor groups to the exhibition, comprised of 25 target visitors (children 5 to 10 years), 27 additional children (under 18 years), and 40 accompanying adults. The purpose of the observations was to record the behaviors of children and adults in the exhibition and their interactions with Zoo staff/play facilitators. The observation data was also used to provide context for the exit interview data analysis.

VISITOR CHARACTERISTICS

AGE AND GENDER

Of the 25 target visitors RK&A observed, 15 were male and 10 were female. The data collector estimated the age ranges of all children in the visitor groups. About one-half of the target visitors appeared to be between 5 and 7 years, and one-half appeared to be between 8 and 10 years. Twenty-four of the 40 adult visitors were female and 16 were male.¹ Of the children who accompanied the target visitors, 15 were female and 12 were male, ranging from infants to a few teenagers.

FIRST-TIME VERSUS REPEAT VISITORS

In most cases, a Zoo play facilitator greeted the observed visitors as they entered the exhibition. About one-half of the observed visitor groups indicated to the facilitator that they were repeat visitors, whereas one-half indicated that they were visiting CCRZ for the first time.

VISITATION TO EXHIBITION

TIME SPENT IN THE EXHIBITION

The data collector recorded the overall time that each visitor group spent in CCRZ. The median stay-time of an observed visitor group was 34 minutes. The longest stay-time in the exhibition was about 1 hour and 32 minutes, whereas the shortest stay-time was about 7 minutes. Most repeat visitors stayed longer in the exhibition than first-time visitors. For example, over one-half of the visitor groups that stayed in the exhibition over 30 minutes were repeat visitors. Of the one-fifth of visitor groups that stayed 10 minutes or less, all were first-time visitors.

In some cases, the data collector recorded visitors' comments as they were preparing to exit the exhibition. Of those visitors, most cited lack of time as the reason for leaving the exhibition when they did.

ACTIVITIES USED

As noted, the CCRZ exhibition is divided into six thematic areas: Feeding Area, Valley Floor, Mountain Home, Nesting Caves, Vet Clinic, and Keeper Lab (see Appendix B for exhibition map). Visitors to the exhibition had an opportunity to engage in over a dozen open-ended activities (see Appendix C for activity descriptions). The median number of activities target visitors participated in was seven, with

¹ Note that the data collector did not estimate and record the ages of the adult visitors included in the observation sample.

many doing as many as 12 activities and a few visitors participated in only two or three activities. Not surprisingly, the number of activities a target visitor participated in was proportionate to the overall time he or she spent in CCRZ. Of all the exhibition offerings, the Vet Clinic activity area most frequently visited. In contrast, only three visitors were observed reading the visitor comment book.

Findings indicate that the order in which the target visitors participated in the activities was dependent on two factors: 1) the availability of a facilitator when the visitor group entered the exhibition, and 2) whether the visitor group was comprised of first-time or repeat visitors. In many cases, a facilitator invited first-time visitors to investigate the Biologist Backpack and associated activities as an entry point to the exhibition. However, when not directed, many first-time target visitors went directly to the Hatching Eggs, the oversized condor egg replicas in the Nesting Caves area, upon entering the exhibition. There appeared to be no apparent pattern to the order in which repeat visitors engaged in the various activities in the exhibition. Although some began their investigation of CCRZ by picking up one of the Biologist Backpacks, others went directly to the Nesting Caves and engaged in the microtrash sorting activity. In addition, some repeat visitors entered the exhibition and went directly to the Vet Clinic located in the second room of CCRZ. Of all the target visitors none began their interaction with the Keeper Lab, located close to the exit of CCRZ.

INTERACTION WITH SPECIFIC ACTIVITIES

ENTRYWAY

MAP

As visitor groups entered the exhibition, a facilitator welcomed them and asked if they were visiting CCRZ for the first time. If they indicated that they were first-time visitors, the facilitator offered the group a map of the exhibition. Of the first-time visitor groups offered a map by a facilitator, less than one-half actually took a map. Moreover, only a few observed visitors, all adults, referred to the map during their visit to CCRZ.

JET STREAM

Nearly all observed visitors appeared not to notice the “jet stream” (i.e., fans blowing air) when they entered CCRZ. However, one target visitor waved his hands in front of the fans and was the only visitor who appeared to stop deliberately in front of the jet stream exhibit element.

CONDOR COSTUMES

About one-third of the visitor groups stopped at and investigated the condor costume display. Of the visitors in the groups who wore a costume, most were children. A few of the observed adult visitors wore a costume and role-played with the child(ren) in their group. Findings indicate that repeat visitors were more likely to wear a condor costume than first-time visitors. . The data collector also observed that only a few of the visitor groups interacted with a facilitator at the condor costume display. However, the first-time visitors who interacted with a facilitator at the condor costume display were more likely to put on a costume than were those who were not invited to do so by a facilitator. A few target visitors who stopped at the condor costume display when a facilitator was not present asked someone in their group what they were “supposed to do.”

Most of the observed children and adult visitors who wore a costume pretended to flap their wings and displayed condor role-playing behavior, making comments such as “You be the baby [condor], and I’ll be the mommy.” Many of the facilitators who interacted with visitors at the condor costume display explained that the feathers around a condor’s neck are referred to as a “ruff” and that adult condors have white markings on their wings, whereas juvenile condors are all black. In addition, many

facilitators mentioned to that the wingspan of an adult California condor averages nine and one-half feet, which makes this species one of the largest birds in North America.

IMAGE 2

ENTRYWAY

CCRZ ENTRANCE AND JET STREAM



CONDOR COSTUME DISPLAY



VALLEY FLOOR

BIOLOGIST BACKPACK

Many target visitors used the Biologist Backpack and associated activities (e.g., hand lens, binoculars, scavenger hunt, walkie-talkies, and field notebook), and, as noted, this was the first activity station stopped at by many first-time visitors. The facilitators often introduced the Biologist Backpack as an opportunity to “play condor biologist” and then proceeded to show visitors the items in the backpacks.

The data collector observed many target visitors wearing the Biologist Backpack during their visit. Of the various Biologist Backpack activities, visitors were most frequently observed using the scavenger hunt field guide and the walkie-talkies. Many target visitors appeared to enjoy working with other children or adults in their group to search for the flora and fauna identified on the scavenger hunt card (e.g., tarantula, scorpion, butterfly, roadrunner) and dispersed throughout the exhibition. In some cases, the data collector observed adults assisting the children in their group with locating the scavenger hunt items. In addition, observed facilitators assisted visitors searching for the scavenger hunt items, offering clues such as, “You’re getting warmer.” Moreover, many target visitors used the walkie-talkies to communicate to the other children and adult members of their group about the location of the scavenger hunt items, using terms such as “Roger that,” “10-4,” and “copy.”

Some target visitors used binoculars to search for items on the scavenger hunt card, however, in several cases, they appeared to have difficulty focusing the binocular lenses when not assisted by a parent or a play facilitator. The data collector did not observe any adult visitors using binoculars in the exhibition.

CONDOR FEEDING GAME

IMAGE 3

VALLEY FLOOR ACTIVITIES

BIOLOGIST BACKPACK AND COMPONENTS



CONDOR FEEDING GAME MODELS



CONDOR FEEDING GAME CARDS



FABRIC "MEAT" PIECE HIDDEN IN ROCKWORK



Most first-time and repeat visitors played the hide-and-seek component of the Condor Feeding Game, which involved visitors searching for pretend pieces of “meat” (fabric) hidden in the Whale Carcass and rock crevices. In contrast, the Valley Floor area of CCRZ was used by fewer visitors where some engaged with a facilitator to explore the life stages of California condors and learn about the dependent relationship between condors and turkey vultures. In those interactions, a facilitator explained that healthy California condors have a relatively long life expectancy and are scavenger feeders with a poor sense of smell. Many of the facilitators also used inquiry techniques to encourage visitors to identify the life stage of the condor models. For example, a facilitator encouraged the children in the visitor groups to identify the adult condor by observing which condor model appeared to be “bald” with no feathers on its head.

When not facilitated by zoo staff, the data collector observed some young visitors climbing and jumping on the California condor models and sitting on the models as if they were riding a rocking horse. In some cases, the data collector observed adult visitors sitting on the rockwork in the Valley Floor area and watching their children free play.

FEEDING AREA

WHALE CARCASS

Most of the observed visitors stopped at the Whale Carcass replica in the Feeding Area of CCRZ. Of those, many used the Whale Carcass as a fort-like structure in which to play and hide. The data collector observed many adult visitors playing the Condor Feeding Game with the children in their group, hiding pieces of pretend meat and tucking the meat into crevices of the Whale Carcass for children to pull out. In some cases, a facilitator wore a condor hand puppet as a prop to demonstrate adult condor feeding behavior. In addition, some facilitators explained to visitors at the Whale Carcass that condors are scavenger birds and that when the first California condors were released into the wild, a whale carcass was one of the first food sources that biologists observed them eating.

IMAGE 4

FEEDING AREA

WHALE CARCASS AND CONDOR PUPPET



BIRD BLIND



CAVE/NESTING BOX ("BROODER BOX")



NESTING BOX

The Nesting Box is a small, enclosed space next to the Bird Blind that can be accessed from both the Vet Clinic and the Feeding Area. Although labeled "Brooder Box" on the CCRZ map, a Zoo staff member informed RK&A that this activity area is supposed to represent a nesting box similar to the one included in the Bird Blind video.

The data collector observed some target visitors using the Nesting Box area as a space to play and hide. However, several visitors who accessed the Nesting Box on the Feeding Area side of the exhibition appeared confused about what this area was supposed to represent. For example, one adult visitor replied to his son, "I'm not sure what it is. It's kind of random. Maybe it's a storage space." None of the observed facilitators explained to visitors what this area is supposed to represent (i.e., a cave on the Feeding Area side of the exhibition and a nesting box on the Vet Clinic side of CCRZ). In addition, none of the observed adult visitors entered the Nesting Box/Cave to play with their.

MOUNTAIN HOME

CONDOR NEST CLIFFS (CLIMBING WALL)

About one-half of the observed target visitors used the Climbing Wall. Of those, most were assisted by either a parent or a facilitator. However, the data collector observed many of the older children climbing to the top of the rock arch without adult assistance and a facilitator reminding many of the children to place two hands and two feet on the rocks at all times. In addition, a facilitator explained to many of the first-time visitors using the Climbing Wall that California condors nest in rocky cliffs and caves and that biologists need to know how to rock climb in order to access and monitor condor nest sites. The data collector also observed several children from different visitor groups interacting with each other and "making friends" while climbing on the rocks. A few of the younger children appeared

frightened when they climbed higher on the rock face and asked an adult for assistance climbing down. One visitor attempted to climb on the rock wall while wearing a condor costume but removed the costume when it appeared to limit her climbing mobility.

IMAGE 5

MOUNTAIN HOME ACTIVITIES



CONDOR HABITAT MURAL

Although most stopped at the Habitat Mural during their visit to CCRZ, about one-third of observed visitor groups used the sticker activity to create a customized mural. Of those, all were first-time visitors. Adults and children in these groups did the sticker activity together. In addition, a facilitator interacted with all of the visitors who participated in the activity at the Habitat Mural, encouraging them to reflect on what are the essential elements of a healthy condor habitat (e.g., food, shelter, and water).

NESTING CAVES

HATCHING EGGS

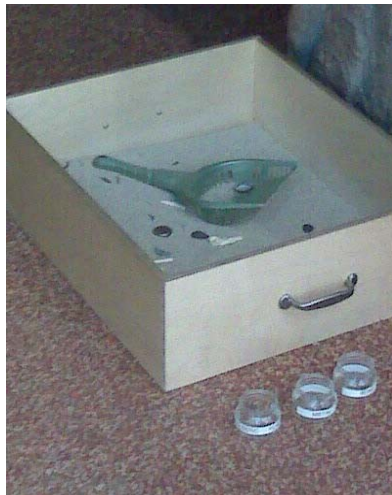
Most of the observed visitors—both first-time and repeat visitors—stopped at the Hatching Eggs, the two oversized condor egg replicas in the Nesting Caves area of the exhibition. Most child visitors used the Hatching Eggs as a play/hiding area, and, in many cases, exhibited condor family role-playing behavior. About one-third of observed visitor groups used the Hatching Eggs as a photo opportunity (i.e., adults taking photographs of their children posing in the eggs). In most cases, facilitators did not interact with visitors while they were playing in the Hatching Eggs. Moreover, if not greeted by a facilitator at the entrance, many visitors first ran directly to the Hatching Eggs upon entering the exhibition. The data collector observed a few adults crawl inside the Hatching Eggs.

MICROTRASH

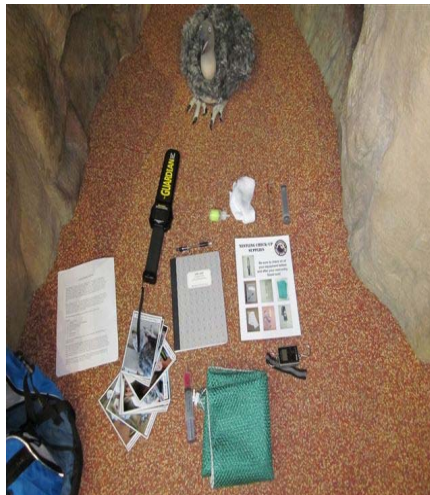
Most of the observed visitors participated in the microtrash activity, which involved digging for bits of microtrash in a sandbox-like area and sorting the pieces of plastic, metal, and bone into separate jars. A facilitator introduced the activity and used it as an opportunity to explain the threat that microtrash has on California condor chicks. The data collector also observed visitors from different groups participate in the microtrash activity together and engage in cooperative learning. In several cases, repeat child visitors who had prior experience with the activity demonstrated to first-time child visitors how to sort the bits of trash and explained that microtrash is “bad for birds.” Several adults used the activity with the children in their group, but only when a Zoo staff member was not present.

IMAGE 6

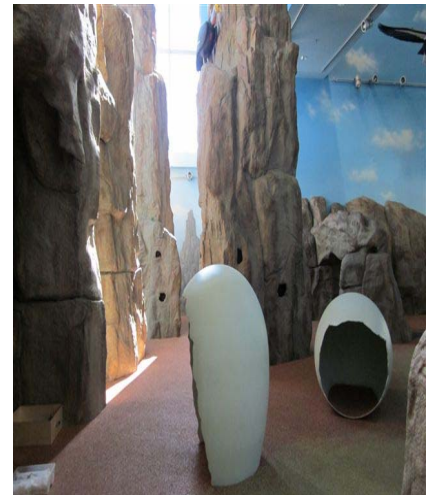
NESTING CAVES ACTIVITIES
MICROTRASH ACTIVITY



BIOLOGIST BACKPACK



HATCHING EGGS COMPONENTS



CHICK MONITORING

About one-half of the target visitors engaged in the facilitator-led chick monitoring activities, which involved blindfolding a pretend condor chick and role-playing several sampling procedures such as using a metal detector to search for ingested microtrash, taking a blood sample, administering a vaccine, and weighing the condor chick.² A facilitator invited child visitors to participate in the activity, and, in most cases, would systematically read the activity cards while visitors took turns conducting the procedures. In all cases, adults stood back and observed but did not participate in the chick monitoring activities.

VET CLINIC

Nearly all of the observed visitors engaged in some aspect of the Vet Clinic activity area during their time in CCRZ. About one-quarter of the target visitors wore one of the available lab coats. Of those, all were either repeat visitors familiar with this veterinarian role-playing activity or were invited by a facilitator to put on a lab coat. The data collector observed one adult visitor ask her son why he was willing to wear a lab coat but did not want to put on a condor costume. The child responded, “I like that you can see the doctor coats on the hooks. I didn’t know what the condor clothes were.” None of the observed adults wore a lab coat.

IMAGE 7

VET CLINIC

VET CLINIC ACTIVITIES



VETERINARIAN LAB COATS



RADIOGRAPHS



² Note that the egg candling activity was not offered as an option during the period that RK&A conducted the CCRZ summative evaluation.

RADIOGRAPHS

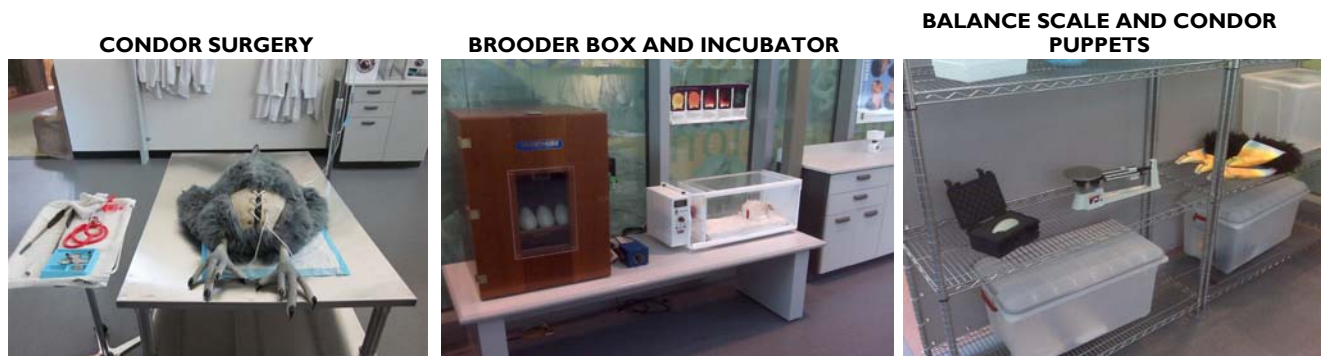
A facilitator pointed out the radiographs (i.e., “x-ray” films) of injured California condors to most of the visitor groups who stopped in the Vet Clinic area. However, adult visitors demonstrated more interest in the radiographs than children did. Several observed adult visitors had in-depth conversations with a facilitator about the impact of microtrash and lead bullet casings on condors. The data collector observed a few adult visitors encourage their children to observe the microtrash visible in the condor radiographs.

SURGERY

Many of the target visitors did the veterinarian role-playing activities such as using a stethoscope to check the health of pretend (plush animal) California condors. Often introduced to the activities by a facilitator, many target visitors conducted “surgery” on one of the two condors, using pretend forceps (large tongs) to remove bottle caps and other bits of microtrash from the condor’s stomach. Some observed adults participated in the surgery activities with the children in their group. In several cases, due to the size of the tongs and difficulty of use for younger visitors, adults assisted the children with removing the microtrash. A few child visitors abandoned trying to manipulate the tongs and removed the microtrash from the condor chicks with their hands.

IMAGE 8

VET CLINIC



BROODER BOX AND INCUBATOR

Many observed visitors investigated the brooder box and incubator in the Vet Clinic, but only some interacted with a facilitator at these stations. Of those, several target visitors observed a facilitator demonstrate how to use an adult condor puppet to “feed” pretend pieces of meat to the condor chick in the brooder box. Several facilitators used this activity as an opportunity to introduce the concept of human imprinting and to communicate that the condor specialists try to avoid condors seeing them. A facilitator also explained to several adult visitors how the Zoo “swaps” eggs amongst brooding condors in an effort maintain genetic diversity in the recovering California condor population. Moreover, a facilitator assisted a few of the target visitors who had difficulty positioning their fingers inside the hand puppet in order to move the condor’s beak. The data collector did not observe any adult visitors use the condor puppets, move any of the eggs in the incubator and brooder box, or “feed” the condor chick in the brooder box.

In addition to investigating the eggs in the incubator, several target visitors took eggs from the incubator to play with in other areas of the exhibition. The data collector also observed several target visitors, with a parent or on their own, using the balance scale to weigh a condor chick.

IMAGE 9

NESTING BOX AND BIRD BLIND ACTIVITIES

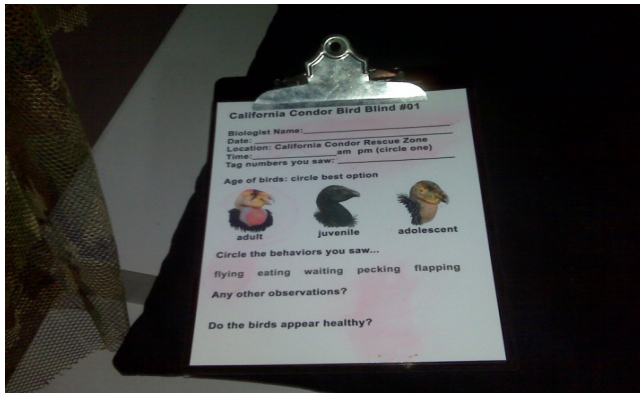
NESTING BOX (“BROODER BOX”)



BIRD BLIND



CONDOR OBSERVATION CHECKLIST



CONDOR BEHAVIOR VIDEO



BIRD BLIND

Some visitors entered the Bird Blind activity area, and of those, most used the Bird Blind as a play space in which to hide. Because most of those who entered the Bird Blind closed the curtain, the data collector was not able to observe all of the visitor behaviors inside the space. However, from what the data collector could observe, it appeared that several visitors viewed at least a portion of the condor video. The data collector also observed several visitors, both children and adults, interacting with a facilitator at the Bird Blind. Of those, a few used the available checklist to focus their observation of bird behaviors demonstrated in the video. In a hushed voice, facilitators modeled effective observation skills and encouraged visitors to speak quietly as biologists would when observing condors from a real bird blind. Although a few observed adult visitors sat on the edge of the Bird Blind, none fully climbed into the darkened space along with the children. The data collector observed a few adults view the condor video while standing outside of the Bird Blind with the curtain only slightly drawn. Two adults assisted their children in completing the condor observation checklist.

KEEPER AREA

IMAGE 10

KEEPER AREA

MULTIMEDIA STATIONS WITH VISITOR COMMENT BOOKS



MULTIMEDIA TOUCHSCREEN



CONDOR RECOVERY PROGRAM MULTIMEDIA STATIONS

About one-half of observed visitor groups stopped to use one of the multimedia touchscreen stations located in the Keeper Area near the exit of the exhibition. Of those, adult visitors appeared to be the most engaged with the multimedia programs, whereas many children expressed more of an interest in playing in other areas of the exhibition. Although some adult visitors read the written content aloud to the children in their group, several target visitors randomly navigated through the touchscreen interface paying little attention to the specific content presented. In addition, two target visitors appeared to have difficulty operating the joystick interface that controls the position of the condor cam. One target visitor asked his parent what “in the field” meant-- a term used in the In the Wild section of the multimedia program.

Many of the observed visitor groups viewed portions of the three program selections (i.e., Condors A to Z, In the Wild, and At the Zoo). However, the At the Zoo program was most frequently selected, which includes the live condor cam at the Zoo. The data collector observed minimal interaction between the facilitators and visitors at the multimedia stations, but several adult visitors asked a facilitator whether live California condors were on exhibit at the Zoo.

A few target visitors appeared to make a connection between the microtrash references in the At the Zoo section and the microtrash activity in the Nesting Caves area. For example, one target visitor said, “Hey, we just did that! Let’s go to the sandbox [microtrash activity area] because there’s bad stuff for the birds that we have to get rid of.” Moreover, another adult visitor commented to a facilitator, “This is such a great place! The video shows for real what the kids get to do for play.”

VISITOR COMMENT BOOKS

Three adult visitors thumbed through and read entries left by other visitors in the comment books displayed in the Keeper Area of the exhibition, however, none of the observed visitors wrote comments in the books, perhaps because both books were full. Although none of the observed visitors wrote comments in the books, the data collector read the comments left by prior visitors. The comments left

in the books to date were thoughtful, positive, and on message with surprisingly very little lewd, silly, or off-topic comments.

INTERACTION WITH FACILITATORS

As noted, three Zoo staff members facilitated the exhibition at any given time. All of the observed CCRZ play facilitators appeared to interact with visitors in a friendly and encouraging manner. The data collector observed facilitators offering personal attention and positive feedback to visitors such as giving children “high-fives” or consistently saying “nice job” after a child visitor successfully completed an activity. Some child visitors observed activities formally facilitated by Zoo staff and then role-played those same activities with other children in their group. In a few cases, the data collector observed a facilitator switch from speaking English to Spanish when she noticed that the visitors were speaking Spanish to others in their group.

In keeping with the open-ended nature of the CCRZ experience, the play facilitators followed the interests, age-levels, and flow of participants rather than leading visitors through a linear set of scripted activities. At the same time, the data collector observed that the individual play facilitators demonstrated different facilitation styles. For example, one facilitator tended to convey a lot of information to visitors about California condor life history and conservation efforts in a more didactic manner. Others tended to play with the child visitors more than convey a lot of factual content. It was also noticed that by directly asking visitors if they wanted to do certain activities, a facilitator provided visitors with an opportunity to decline. In contrast, a facilitator was more likely to engage the interest of a visitor if he or she simply said something to the effect of “let’s go do something cool” and then proceeded to physically start an activity (e.g., sat down with the condor chick monitoring backpack and began to remove the sampling equipment).

During peak visitation times, the facilitators were not available to engage with all visitor groups. The data collector observed that first-time visitors were less likely than repeat visitors to engage in the activities if a facilitator was not available. Moreover, if a Zoo staff member was available to facilitate an activity, many observed adult visitors deferring to the play facilitator (i.e., adults tended to watch the facilitator interact with children rather than directly engage in the activity). Furthermore, rather than participate in the activities with the children in their groups and interact with the facilitators, some observed adults appeared disengaged and sat on the rockwork ledges conversing with each other or using their “smart” phones. In those instances, the data collector observed that the facilitators played with the children and did not specifically invite their parents/caregivers to participate.

The data collector overheard several adult visitors offer positive feedback to the facilitators about the CCRZ exhibition, e.g., “This is such a wonderful experience for the kids. There are a lot of things to see and touch—very tactile.” Another visitor commented, “I love this place! It’s so realistic and authentic. And you guys [facilitators] do such a great job with the kids.”

In addition, facilitators were observed having positive interactions, including communicating about rotating through the different activity areas and which props needed attending to or which activities needed modification. Moreover, the facilitators appeared to work together to reset the activity props between the flow of visitor groups.

PRINCIPAL FINDINGS: INTERVIEWS

Interview data for the California Condor Rescue Zone (CCRZ) were collected at the LA Zoo over four days in February 2011—on a Friday, Saturday, and two Sundays, during the only days of the week that the exhibition was open to the public at the time of the study. The data collector interviewed 39 visitor groups to the exhibition, comprised of 59 target visitors (children 5 to 10 years), 12 additional children (under 5 or between 10 and 18 years), and 40 accompanying adults. The purpose of the interviews was to understand adults' and children's experiences in the exhibition from the visitors' perspective, to examine their learning about condors, and, for adults, to understand the effect of the exhibition on their opinions about the LA Zoo.

BACKGROUND INFORMATION

Both parents³ and children of each visiting group were interviewed. According to the interview guide protocol, qualifying adults (English speakers over the age of 18) were invited to participate in the interview. The interviewer asked parents about their experience in CCRZ. The interviewer transitions at the last section of the interview guide to interview children, between the target ages of 5 and 10 years, about their experience. Data from both parts of the interview are presented below and organized according to relevant topics and themes.

VISITOR CHARACTERISTICS

PARTICIPATION RATE

Over the four days of data collection, 51 visitors were invited to participate in interviews upon exiting CCRZ. Of those, 11 declined to participate and one was disqualified, for a 78 percent participation rate. RK&A interviewed 39 visitor groups, comprised of 54 English-speaking adults, ages 18 years and older.

AGE AND GENDER

Of the 39 groups interviewed, slightly over one-half of adult interviewees were female. Interviewees ranged in age from 25 to 67 years, with a median of 37 years. Less than one-half of the adult interviewees were visiting with another adult in their group. Interviewees were asked to provide ages for all of the children in their group. Children ranged in age from 1 year to 11 years, with a median age of 7 years. Slightly over one-half of the children visiting CCRZ were male.

FIRST-TIME VERSUS REPEAT VISITORS

Over one-half of interviewees said they were visiting CCRZ for the first time. Of those who were repeat visitors, most had visited CCRZ once before. A few responded that they had visited as often as weekly or every other week for the past 2 months.

³ In this study, the term adults refers to family or other caregivers accompanying the target visitor. The majority of interviewees at LA Zoo's CCRZ were parents, though a few were grandparents or other family members.

IMAGE 11

CHILDREN'S DISCOVERY ROOM OUTSIDE VIEW CCRZ INTERVIEW DATA COLLECTION LOCATION



CCRZ EXPERIENCE

OVERALL OPINION

ADULTS

All but one of the adult interviewees were pleased with CCRZ. When asked to provide their opinion of the exhibition, most praised its rewarding educational offerings and the hands-on learning in the Vet Clinic area (see the first quotation below). A number of themes emerged in adults' descriptions of the educational opportunities enjoyed by their families, including appreciating a new species and the opportunity to learn about careers in medicine and research related to caring for animals (see the second and third quotations).

I thought it was very educational. I liked it. (What did you find educational about it?) [The play facilitators] showed children how they take care of the condor birds and how [to] take the metal out of their stomach and take care of them. [female, 32]

This is a good learning station for [children]. You have the experience of the bird's eye view; learn how they survive out there, how they struggle, too. It's not very easy being a wildlife animal. [male, 37]

We think it is wonderful. It's a good learning tool, and since I have a child who wants to work at the Zoo when she grows up, it's a good way for her to kind of get hands-on experience at an early age. [female, 38]

Some adults did not explicitly mention learning but still valued the experiences CCRZ provided. A few simply described the exhibition as "nice, friendly, and welcoming for children." A few others emphasized the importance of volunteers in shaping their successful experience (see the first quotation

below). In contrast, one interviewee was disappointed in her experience, because she felt there were not enough staff to facilitate her experience (see the second quotation).

It was amazing for these kids. They had so much fun exploring. The gentleman that was helping with the condor in the vet area, he explained everything, and [it had] just really good hands-on [activities]. It was really good. [female, 32]

My first visit I was very, very impressed. Today, I was very, very under-impressed. The first time we came here, we were greeted [by a play facilitator, who said,] 'Here's your adventure backpack, children!' and, 'Here, you can find all this stuff [in CCRZ].' [Previously,] we were in there for about an hour while the kids looked for everything. They identified stuff [and] they talked about it later. I don't see that happening today. Even though they know where everything is, they still like [help] to play it, and they didn't get that today. [female, 38]

CHILDREN

Children between the ages of 5 and 10 years were asked to describe the rooms they had just left, and the interviewer refrained from mentioning condors at all to avoid any priming effect. Over one-half responded that the rooms were about birds and condors. Of those, most also stated that the entire space was about appreciating and helping condors (see the first quotation below). Some others stated that the room was about combining learning about condors with fun, as one child said, "It was about condors; saving their life and playing around" (see the second quotation). A few spoke about the facts presented, including those about the condor environment.

I would tell [a friend] that this whole room is about trying to save condors and seeing how interesting they are. And seeing how much we need to protect them. [female, 7]

I would say it's about playing and learning how to take out the stuff of, what like, doing surgery on condors. *I would say it's about, like, you could play and then the person talks to you, and you could do surgery and take out the stuff from the bird, and then put them in the cage. [male, 6; male, 9]

Less than one-half of the children interviewed did not mention condors in their description of the CCRZ. Of those, most instead described the space as a "playground" or "about something that's fun." A few others stated that the rooms were about "rocks," "the vet," or "dinosaurs."

WHAT WORKED WELL

Adult interviewees were asked what aspects of CCRZ worked well for adults and children. Approximately one-half stated that the interactive activities and ability to touch everything in the space worked especially well for their families (see the first quotation below). A few adults also valued the enclosed space as a safe environment in which they can always keep an eye on their children. A few others valued the pro-environmental message (see the second quotation).

Climbing is good. It's good physically for them. [They can] see animals over across the room and identify them. That's all fun. My son loved [the backpack activities]! I really loved to see anything like that where they can actually touch the objects, and as they're learning how to play with them, the [activities are] also being explained [by play facilitators]. I wasn't even sure if he would be able to do [the chick monitoring activity, but] to watch him learn, because he's so curious and wants to explore, [is] important. Those [are] interactive things [that] I like. It's not

just him sitting in front of a computer, but that it's more interactive personally and environmentally. [female, 41]

[It works well that] we get to see what [condors] eat, how they, and how they live, where they put their eggs and things like that. We could show [children] things about the wildlife [which] helps a lot. [male, 53]

Adult interviewees also emphasized the overall importance of learning within the CCRZ. One-third said that learning while engaging in age-appropriate play worked well for their families (see the first quotation below). One-third also mentioned that the play facilitators positively affected their experience (see second quotation). Another one-third named the Vet Clinic as an area as a highlight for their families (see the third quotation).

(What about CCRZ works well for your children?) The fact that it's designed for them [works well]. They can crawl, they can run, they can climb. There [are] no restrictions for them when they go in the room. But then, it also has the educational aspects so that they learn at the same time that they're playing. [female, 38]

The people that are helping are interacting with the children. They walk with them, they help them out, [and] they talk to them as they're going through it, educating them about what they're seeing and, so I think he's learned a lot also. Having other people in there to help guide them through it [also worked well for us]. That was really beneficial. [male, 51]

[My son] liked putting the coat on. He liked operating on the bird. He really liked all that. It kept him occupied and he liked it. So, that [also] worked for me! [female, 27]

Additional themes emerged from a few adult interviewees' responses. A few noted that their experience in CCRZ gave children a chance to think about future careers in medicine or research (see the first quotation below). A few others appreciated that the space allowed parents to learn with their children (see the second quotation).

The surgery worked well for [my child]. She wants to be an animal rescuer, that's why we come here. And she's learning a lot. And that's a good thing they have this for them. It's a really good thing. [female, 27]

It's fun! It's exciting. I feel like a child myself. I get to do the same things [children] can. They have big space for [parents], and where we actually can join them. [female, 27]

WHAT COULD BE IMPROVED

CCRZ staff and stakeholders were interested to learn both generally and specifically if visiting families felt CCRZ met their needs. Adult interviewees were asked what, if anything, was missing or could be improved within CCRZ. Most interviewees said there was neither anything that could be improved nor anything missing from CCRZ. While opinions of the exhibition were overwhelmingly positive, some adults offered suggestions for the space. A few said that their experience would have been better if there was more instructions in certain areas (see the first quotation below). A few others wanted more activities or an even larger space (see the second quotation). Two mentioned wishing to see a live bird in CCRZ (see the third quotation).

I think [the feeding area and valley floor], this first part, [could be improved because] we weren't quite sure what to do with it. I mean, for younger kids, it's very good. But between 5 and 10,

maybe something a little more interactive, or something instructive [would help]. It's a lot of area. And we weren't quite sure what it was meant for. [female, 42]

Make it [CCRZ] bigger. *Yes, they need more, more stuff. *More activities. That's what it [needs] more activities, because I only saw the activity where you have to find the [animals]. [female, 40; male, 34]

It's very well done and they should consider adding more exhibits like this. I wish they had, and it's probably not possible, I wish they had an actual Condor somewhere in the area so the kids could see it. We asked last time and they said there was one in the Zoo, but that it was, I guess, it wouldn't mate if it were out in the public's view. So they just have a camera linked to it or something, they said. [male, 37]

A few others requested clearer wayfinding directions toward the CCRZ, noting that families might have difficulty finding it (see the quotation below).

Maybe when you come in [to the Zoo] and you get a map, maybe let people know that it's here and it's open. *Truly! I mean, it's hidden away over here. *I thought maybe it was a members-only area. [female, 42; male, 43]

CCRZ ACTIVITIES AND FACILITATORS

ADULTS' RECOLLECTIONS OF ACTIVITIES USED

Adult interviewees were asked what their children did in CCRZ and almost all were able to identify specific activities that their children enjoyed. The Vet Clinic was the most commonly named area, and over two-thirds said that their children were participated in the surgery activity in that area (see the quotation below). Most interviewees reported that their children did a number of different activities on their own, including the nest cliffs, microtrash, condor dress-up, backpack activity, and the keeper lab. Two or three interviewees named the brooder box, bird blind, chick monitoring, feeding game, hatching eggs, radiographs, whale carcass and mural. None of the interviewees named the jet stream or animal books.

[My daughter] went through it all. She did surgery. She liked the medical part especially. And she had been here before. Today she went right for what she had enjoyed the last time. [female, 37]

CHILDREN'S RECOLLECTIONS OF ACTIVITIES USED

Children in the family groups were also asked what they did in the rooms they had just left. Once again, the interviewer did not name CCRZ to avoid any priming effects. The Vet Clinic was the most commonly named area, and nearly all of the children said that they were participated in the surgery activity in that area (see the quotation below). Most children reported that they did a number of different activities, including the climbing walls, microtrash activity, condor dress-up, brooder box, keeper lab, feeding game, chick monitoring, backpack activity, and whale carcass.

We did the [surgery activity] when you dress up as a doctor and when you take out the bottles caps, a bullet, the shells—how they tell you [to, in order to] save the condors. *When we [were] doctors, and we went in there [and] we [saw an] X-ray of a baby condor, of how the parents accidentally brought them metal things that could make them, their stomach all [blocked] up and

they could get sick of that and then die. *And then, when we got there, we would take it out—the metal material—from the baby chicks. [female, 6; male, 10; male, 11]

A few additional themes merged from the children's responses. Almost one-third of the children interviewed said that they especially liked activities that allowed them to help condors (see the first quotation below). Another one-third stated that they valued the chance to pretend to be a doctor or scientist (see the second quotation). The final one-third said that the opportunity to have active play greatly contributed to their experience.

I was doing the condor [games], playing around, and putting on the costume. *[My favorite part was] saving the condor's life. [male, 7; male, 3]

All we did was pretend we were a doctor and open the stomach of the condors. And took all of the things—the metal things that they thought were bones—out of them. The whole doctor thing [was my favorite because] since I'm just a kid, I just like to have fun. I like to play doctor [and] I had fun. [male, 9]

PARENT-CHILD INTERACTION

Adult interviewees were asked which, if any, activities in CCRZ they used together with their children. Overall, two-thirds of the adults reported using activities with children. The Vet Clinic was again the most commonly named area, with most adults stating that they used the surgery activity with their children (see the first quotation below). The following were also named by a few interviewees each: the backpack activity, the computer lab, the keeper lab, the nest cliffs, chick monitoring, and brooder box. A few noted that they took pictures of their children engaged in the activities. None of the interviewees named the jet stream, hatching eggs, radiographs, or animal books.

Together, we did the surgery. I joined him after. Because even I was interested in it. [male, 34]

Almost one-third stated that they did not engage with their children at all in the space or preferred to only observe (see the quotation below).

I observe a lot. I'm mostly an observing parent anyways. That's just the way I've always been. But I can see that there's a lot of stuff that people can do together. [female, 37]

PLAY FACILITATOR INTERACTION

Adult interviewees were asked in what ways, if any, staff affected their experiences in CCRZ. All of the individuals interviewed were appreciative of staff and reported positive interactions. Slightly over one-third praised the play facilitators for their skill with children and ability to encourage participation in various activities (see the first quotation below). Another one-third said that the play facilitators were informative and answered questions (see the second quotation). Almost one-third reported that they found the play facilitators to be helpful and welcoming (see the third quotation).

[In] the Vet Clinic, the [play facilitator] who was there was really good at hands-on, and [said,] 'Let's put this on,' [and] gave them the shawl, 'Let's cover their eyes,' very step by step. [It made my children feel] as if they were the doctors. That really, really made them feel special. [male, 33]

[One play facilitator that] I just spoke to, not only was I asking him questions about the condors, but then I asked just random questions that I've always been curious about the Zoo, and he was so informative and so helpful! You can tell that they're really caring people and they're also

educated and informed. There's a sense of respect and honor in what they're doing. [It] is so nice as opposed to just a person that's getting paid minimum wage standing there. It really, really makes it a great experience in that way. [female, 41]

The [play facilitators] were helpful. They welcomed [my child] in. They helped him put a coat on, told him, 'Let's get busy. Let's start operating.' They let him know what he was doing. So, that was really good. [female, 27]

COGNITIVE AND AFFECTIVE RESPONSES TO CCRZ

TAKE AWAY MESSAGES

Over one-third of the adult interviewees left the exhibition with “a better understanding of the efforts that are being undertaken by conservationists to save the Condor” (see the first quotation below). Almost one-third reported that they generally learned about the impact of humans on animals from an environmentally conscious perspective (see the second quotation). The remaining one-third talked about their experience in CCRZ rather than messages: a few simply stated that their children enjoyed the space and were looking forward to returning for another visit (see the third quotation). A few others were especially impressed by the opportunities for interactive play (see the fourth quotation).

Definitely [we are leaving with] more appreciation of what a condor is, and what affects them in terms of what they do, [and] the environment. I think [it] is really valuable. [female, 40]

[We are] a little more aware of the impact we as humans have on other birds and animals. I think it's more of a reality for [my child]. Being more mindful about [the] consequences to the way we live and that it does affect other species. [male, 51]

In general, [my children] are ecstatic. This is the first place that they want to come to when we come here. They always talk about all the different things about the condor. They always have questions as we're walking around the Zoo about how big [the condor] is and the different things that it does. The only thing that they wish, obviously, is that it [CCRZ] was open more often. [female, 38]

I think it was a great experience, especially something that we weren't expecting. We didn't know what to do in here, and once we got in and we realized it was for them, they could touch everything, feel everything, and they were able to take the lead with the exploration. I could stand back and just let them explore. I think they'll remember that. Especially the puppet feeding the baby condor. That was a really good experience. [female, 32]

UNDERSTANDING OF MESSAGES FOR CHILDREN

Adult interviewees were asked what the exhibition was trying to show and tell children. Approximately two-thirds said that the exhibition was trying to convey to children the importance of caring for life and nature in general (see the first quotation below). Approximately one-third said that the exhibition was trying to communicate specific condor facts or the importance of caring for condors (see the second quotation). A few said that the exhibition also left them more aware of other messages such as the negative impact of litter, the importance of paying attention to nature, and the positive changes that have occurred at the LA Zoo (see the third quotation below).

(Overall, what do you think this exhibition is trying to show and tell children?) Just that life is precious and that every single piece of the food cycle needs to be looked at and conserved. And

hopefully, it'll give them a better understanding as they get older and they have an opportunity to make decisions when it comes to purchasing and when it comes to just caring for life. [male, 37]

I think, basically, [CCRZ is] trying to show how important it is to take care of the animals in whatever aspect that we are able to. And especially [care] for the California condors, it's a bird that's very important to our State. Obviously, it's important for us as people to try and do as much as we can to help them. [female, 38]

I think it was showing [that] your actions definitely affect the environment, affect the birds and the animals around us, and that it's, luckily there are people [and] organizations like the Zoo, who are able to help these birds and be able to make a difference. Which I think is a great lesson. [female, 40]

THOUGHTS AND FEELINGS ABOUT CONDORS

The adults interviewed left with generally positive feelings about condors. Interviewees were also asked whether they thought this exhibition changed their children's feelings towards condors. One-third said that the exhibition increased their children's desire to help animals (see the first quotation below). Slightly less than one-third said that the exhibition increased their children's awareness of condors and the efforts to protect them (see the second quotation). A few felt that their children were leaving with the idea that condors are special creatures (see the third quotation). Finally, a few were unsure about their children's reaction.

My daughter is more caring. She didn't know about [condors before]. She wanted to take care of [them], pick up their trash and stuff. She didn't want them to eat metal [and] she was worried about it. [female, 32]

I think it opened [my children's eyes]. [They have] an awareness which they probably didn't have before—an awareness about the condor and the efforts that are being undertaken to rescue this magnificent animal. [male, 37]

Well, one, I'm sure he's never heard of one [before] because we're from out of state. Now he knows what a California condor is, the plight they're in, and [that] the condors and vultures are a good help to our environment because [without them it] would be all stinky. [male, 51]

LEARNING ABOUT CONDORS

ADULTS

Most adults said that they learned some facts about Condor's behavior, life cycle, or environment. There were a number of stories about California condors that were especially salient. Almost one-third mentioned that the story of the condor's near extinction and the ways that humans are helping them was interesting and something they did not know before visiting (see the first quotation below). Another almost one-third said that the problems of eating metal and other microtrash was new information for them (see the second quotation). A few also mentioned being impressed with condors' parenting abilities (see the third quotation).

[I learned] the fact that they were at the brink of extinction, and through man's effort to save them, they were saved from the brink of extinction, and they're actually on the rebound now—both in captivity and in the wild. [The] last time I was here [I learned] the fact that the numbers

went down to less than two dozen condors overall, total in the world. And that's pretty amazing that you can take an animal that's that close to being extinct and turn it around. [male, 37]

From this exhibit[ion] [I learned that condors] confuse eating bone with eating trash. They find all kinds of things in their stomachs. It makes you more conscious about what you're doing, like throwing away trash. You never know where it's going to end up. [female, 57]

[We learned about] the co-parenting. *They stay together forever. *That was great! [female, 35; male, 36]

CHILDREN

Children were asked what, if anything, they learned about in the rooms that they had just left. Most said that they learned something about condors, although many were unable to expound on their response. A few others said that they learned about microtrash problems, that "They [condors] eat a lot of stuff that they shouldn't be eating." A few others stated that they learned condors were "good" or "amazing" (see the quotation below). Of those who did not mention condors specifically, a few stated that they learned about "birds" or "dinosaurs," and few said that they did not learn anything at all.

I think that they're good birds. That they're an amazing kind of species, and we should all do our part to help them. *[We learned] what happens if they don't get the proper food they need, and what happens if their parents aren't around, and if humans are feeding them by hand. [female, 6; male, 10; male, 11]

Children who mentioned condors were subsequently asked what they thought of condors after experiencing the exhibition. Children overall had positive feelings about condors and said that they were "awesome," "cool," "cute," and "pretty." Some children also mentioned again the problems of microtrash (see the first quotation below). A few others said that learning about condors reminds them that humans need to be more environmentally responsible (see the second quotation).

I learned that a condor should not be eating stuff like bullets and screws, and the worst thing ever, lead. They should be eating dead meat! I [think] they help our environment from being all stinky. I think they're a very good animal. Even though they look kind of ugly, they really help our environment. [male, 8]

[Condors are] very sensitive and that they should be well treated. *Well treated and protected. [male, 8; female, 9]

FAMILY INTERACTION

CCRZ staff and stakeholders hoped that this new exhibition would provide an opportunity for families to learn together about California condors. Adult interviewees were asked what, if anything, in the exhibition helped their families learn about condors. Nearly one-half identified the Vet Clinic area as a key family learning area (see the first quotation below). About another one-half said that the interactive and information-rich design of the exhibition was most helpful (see the second quotation below). A few mentioned that the information is relevant and connects directly to nature, and a few others said the play facilitators are helpful and assist with family learning.

I didn't expect [any]thing like this. I expected just to come to the Zoo to see live animals, but seeing [and being able to] perform something and look at them live with the camera [was] educational. *It's just educating us [about] their lifestyle [and] research [female, 40; male, 34]

There were a lot of tactile, interactive things where I feel my son could have an experience [and feel] a sense of self-discovery, or discovery [about animals]. And that there was always an interest [in] him to keep going on to see what else was available. So in a way, for him, it was [all about] discovery. [female, 39]

COGNITIVE AND AFFECTIVE RESPONSES TO THE LA ZOO

CCRZ staff and stakeholders were interested to learn what impact, if any, the exhibition had on visitors' overall thoughts and feelings about the LA Zoo. One-third said that the CCRZ reinforced positive thoughts and feelings they already had towards the LA Zoo (see the first quotation below). Approximately one-third were pleased that the LA Zoo seemed to have made a commitment to education and interactive play spaces for children (see the second quotation), and a few felt that CCRZ represented positive changes and showed that the Zoo was improving (see the third quotation). Finally, two interviewees said that CCRZ seemed completely unrelated to the Zoo (see the fourth quotation).

We love the [Zoo.] We think this is a great institution. We joined last year, and we come here all the time. I think this exhibit is just another example of why we like to support the Zoo. I think that there [are] a lot of things [that the Zoo offers], besides just [what visitors see] coming to the Zoo. I think this shows that there are other things that you guys do. It's not just the Zoo itself and the animals that are here. [female, 40]

I'm very happy with the LA Zoo. I'm born and raised here, and it was a disturbing experience to come when I was a child because of the exhibits, and they were small. I actually had a philosophical conversation with a friend of mine that does not go to the Zoo, and I said, 'It's about educating.' It's bringing [children] and seeing, so they have a firsthand experience, and she said, 'Yeah, but [the animals are] not in their environment.' [I said,] 'If they want to keep their environment, we'd better educate people so that [we] can sustain animal populations.' We don't go to Sea World, [because] we don't believe that you should be using animals for entertainment. But we want to come to the Zoo. They're educating, and learning, and having empathy, and seeing that we have a responsibility as people to take care of these animals in our environment. [female, 41]

I think the LA Zoo has improved greatly since the last time I was here. And it's been maybe five years, six years. And it's probably cleaner, better organized, better distributed than I remembered. So, it's overall improvement. [female, 39]

I don't think it had any effect. I don't think they were really related. I mean, it's [in] a Zoo, yeah, but I think they were kind of separated. [female, 32]

APPENDICES

APPENDIX A: DATA COLLECTION INSTRUMENTS

Removed for proprietary purposes.

APPENDIX B: CALIFORNIA CONDOR RESCUE ZONE MAP



APPENDIX C: DESCRIPTIONS OF ACTIVITIES

The following are brief descriptions of the CCRZ activity areas and specific activities available to:

ENTRY

- ◆ Facilitators welcome visitors and offer the exhibition map.

JET STREAM

- ◆ Visitors pass through “wind” (low fans) as they enter the space.

CONDOR COSTUMES

- ◆ Adult and juvenile condor costumes are available near entry. (Adults have white on wings; juveniles all black. Adults have a 9-½ ft. wingspan.)

VALLEY FLOOR

CONDOR FEEDING GAME

- ◆ The Condor Feeding Game helps visitors recognize the California condor life cycle and to interpret condors’ parenting behavior. Facilitators lead visitors through an inquiry activity to identify condor models at different life stages (e.g., juvenile and full-grown adult) and an adult turkey vulture. Visitors are also invited to play a hide-and-seek game, which involves searching for fabric “meat” pieces hidden throughout the exhibition. The condor models used there consist of anatomically correct, life-size images of condors painted on fabric “pillows.” The models are weighted at the bottom to represent the weight of the actual birds. [Note that the “meat” weighing activity was not offered as an option during the period that RK&A conducted the CCRZ summative evaluation.]

BIOLOGIST BACKPACK

- ◆ Visitors can choose to wear a “biologist” backpack during their visit to CCRZ, decorated with thematic patches. The backpack includes a field notebook, binoculars, a field guide (scavenger hunt activity), hand lens, and a set of walkie-talkies.

FEEDING AREA

WHALE CARCASS

- ◆ A large faux whale carcass is used as a play space and prop for facilitators to interpret condor feeding behavior. Adult condor hand puppets and pieces of pretend meat are available as props.

MOUNTAIN HOME

CONDOR NEST CLIFFS

- ◆ Faux rockwork simulates condor habitat (modeled after Pinnacles National Monument, which is a release site for endangered condors). Rockwork includes model snakes and other fauna hiding in rock crevices.
- ◆ Visitors can try “bouldering” (climbing without ropes) on a climbing wall to simulate the experience of biologists traversing rocky terrain to monitor condor nest sites in rocky crags. To add to the immersive experience, a condor replica is suspended from the ceiling with a corresponding silhouette on the exhibition floor.

CONDOR HABITAT MURAL

- ◆ Similar to a Colorforms activity, visitors are invited to create their own mural by arranging large 3M stickers (e.g., food sources, predators, local flora, hiker with binoculars) on a wall mural that represents typical condor habitat (resembles Pinnacles National Monument). Facilitators use this activity as an opportunity to address the habitat requirements of California condors.

NESTING CAVES

- ◆ The Nesting Caves area serves as a backdrop to interpret messages about biologists' monitoring of condors that are released into the wild.

HATCHING EGGS

- ◆ Two oversized condor egg replicas offer a thematic play space and attractive photo opportunity.

MICROTRASH

- ◆ One of the activities in the Nesting Caves area addresses the threat of “microtrash” (e.g., bottle caps and bullet casings) on juvenile condors (Scientists find microtrash in the crops of condor chicks. Adult condors presumably mistake microtrash for pieces of bone and feed it to their chicks.) The microtrash activity simulates the sandy-bottom habitat of nesting caves. Visitors dig through a small sandbox and sort collected pieces of microtrash into small jars.

CHICK MONITORING

- ◆ Another facilitated experience at the Nesting Caves area is the condor specialists' backpack, which interprets the procedures biologists follow to monitor the health of condor chicks in the wild. A Zoo facilitator plays the role of the condor specialist monitoring a condor chick (custom-fabricated plush toy bird). Using a series of laminated activity cards, the facilitator invites visitors to assist in the play monitoring procedures which include: blindfold chick, palpate gut and crop, check for metal debris with metal detector, draw blood sample, administer West Nile vaccination, and weigh bird (14 lbs.).

EGG CANDLING

- ◆ The egg candling activity demonstrates a method condor specialists use to illuminate a condor egg to monitor chick development. [Note that the egg candling activity was not offered as an option during the period that RK&A conducted the CCRZ summative evaluation.]

VET CLINIC

RADIOGRAPHS

- ◆ In Vet Clinic area, visitors can role play caring for and performing medical procedures on condors. This area contains many props including condor radiographs (i.e., “X-ray” films), which show, among other conditions, impacted condor crops (i.e., bits of microtrash in a bird's crop). In some cases, facilitators use this area as an opportunity to discuss with adult visitors the threat of lead ingestion by condors, which is primarily attributed to ingested lead bullet casings.

SURGERY

- ◆ The Vet Clinic area offers visitors an opportunity to conduct “surgery” on pretend (plush animal models) condors. Visitors use a pair of tongs to remove microtrash from the condor's stomach and use props such as a stethoscope to conduct other medical procedures on the condors.

BROODER BOX AND INCUBATOR

- ◆ The Vet Clinic includes a replica of a condor brooder box and incubator, which presents an opportunity for facilitators to touch on the techniques that condor specialists use to increase the genetic diversity and survival rate of condor chicks, including conducting egg swaps. In this area, visitors are invited to wear adult condor hand puppets and pretend to feed a condor chick (toy plush animal). Facilitators reinforce the proper protocol that condor specialists use to avoid chick imprinting.

NESTING BOX

BIRD BLIND

- ◆ Visitors can climb into a cubby with black curtain, which replicates a condor biologist's bird blind. Inside the Bird Blind, visitors can view a video of bird baiting station in the wild and use a checklist to conduct focused observations of bird behaviors observable in the video.

KEEPER AREA

CONDOR RECOVERY PROGRAM MULTIMEDIA STATIONS

- ◆ Two multimedia touchscreen stations interpret the condor recovery program at the Zoo. Visitors have an opportunity to virtually go behind the scenes to keepers' trailers and meet condor specialists to learn how they care for condors at the Zoo and in the field. Topic selections include Condors A to Z (natural history), In the Wild, and At the Zoo. The multimedia programs include a live feed (real-time) cam featuring captive condors at the Zoo.

VISITOR COMMENT BOOKS

- ◆ The Vet Clinic includes two books in which visitors can leave comments about the CCRZ exhibition.