

CORNELL LAB OF ORNITHOLOGY



Summative Evaluation of the Interpretive Elements in the Visitor Center
Serrell & Associates / 2006



Comments by Cornell Lab of Ornithology visitors:

*"This is a wonderful facility and I can't wait
to bring others here."*

*"Even a hick from New Jersey might be stimulated
to have an interest in ornithology."*

*"I've always wanted to come here.
I'm so glad to be here."*



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BILL HECHT, UNION SPRINGS, NY

An aerial view of the Cornell Lab of Ornithology on the pond, surrounded by Sapsucker Woods Sanctuary

INTRODUCTION

The Cornell Lab of Ornithology Visitor Center

In June 2002, the Cornell Lab of Ornithology Visitor Center (CLO-VC) opened in the new Imogene Powers Johnson Center for Birds and Biodiversity. The CLO-VC is located in the Sapsucker Woods Sanctuary of Ithaca, New York.

Surrounded by trails for bird watchers of all levels, the CLO-VC contains exhibits designed to enhance knowledge of birds and bird biology, and encourage participation in its Citizen Science Program. Sapsucker Woods Pond and the Treman Bird Feeding Garden are visible through walls of windows in the Morgens Observatory part of the VisitorCenter. The building, pond, garden, and trails make an enjoyable destination for birders in a range of ages and abilities.

Serrell & Associates (S&A) was hired over a period of three years, from 2003 to 2005, to find out what people were doing, thinking, and feeling as they experienced CLO's new Visitor Center.

What We Wanted to Find Out

There were many questions we wanted to answer with the summative evaluation. The studies are grouped into four categories: demographics; motivations and satisfaction; behavior and learning; and dissemination of CLO-VC exhibit concepts and software.

Demographics of visitors

Who was coming to CLO-VC? Were they bird watchers? If so, what was their level of expertise? Were there more male or female visitors? What were their ages? What were the social groupings? Families? Adults only? Was this their first visit? Were they members?

EVALUATION STUDIES OVERVIEW

2002

- Front-End Survey

2003

- Critical Appraisal
- Review of the Sound Studio

2004

- Exit Interviews
- Observations at Natural Sounds Kiosk and Bird ID Kiosk
- Questionnaires after the Object Theater Presentation

2005

- Follow-up Questionnaires about the Object Theater
- Observations and Questionnaires in Bartels Theater
- Observations in the Sound Studio
- Orientation Observations: "The First Five Minutes"

2006

- Critical Appraisal revisited



Motivations and satisfaction

Why did visitors come to CLO-VC? How much time did they spend in the Visitor Center? How did they feel about their visit? What did they enjoy most about their visit? What did they enjoy least? What suggestions would visitors make for improving the Visitor Center?

Behaviors and learning

What did visitors do after they entered the Visitor Center? Were they using the interactive exhibits? Were they finding the exhibits easy to use? Did they understand the message of the Object Theater program? What was their response to the programs in Bartels Theater? Were they having problems with the complexity of the Sound Studio equipment?

Dissemination of CLO-VC exhibits

Could any of the CLO-VC exhibits serve as prototypes, or be duplicated, for other museums and visitor centers? What marketing opportunities might they offer?

Short answers to all these questions are included in the Brief Summary on page 94, if readers wish to skip ahead.

Summative Evaluation Studies Conducted by Serrell & Associates

Front-End Survey/2002

The front-end study was done while the contents of the new Visitor Center were being developed. Twelve potential visitors in CLO's target audience (mainly birders) were interviewed about their prior knowledge of CLO, expectations for the Visitor Center, and interest in visiting. The results of the front-end study are briefly recapped in this report on page 10.

Critical Appraisal/2003 and 2006

A critical appraisal of the Visitor Center's effectiveness, completed five weeks after the opening in 2003, was based on observations by the exhibit developers, CLO staff, and outside experts. S&A made recommendations for changes to improve the total visitor experience, ranging from orientation problems to satisfaction levels. Those recommendations are updated throughout this report and in Appendix 1.

Review of the Sound Studio/2003

Thirteen visitors were observed as they used the Sound Studio. Based on these observations, S&A made recommendations to improve the program's content and ease navigation problems. Many of those recommendations were carried out, and a larger observation study was done in 2005 (see below). An update of the recommendations can be found in Appendix 2.

Exit Interviews/2004

Interviews were conducted with 97 randomly selected visitors as they were leaving the CLO-VC. Data collectors asked visitors questions to find out their demographics, motivations to visit, and satisfaction with their experiences. Results are covered in this report on page 85 and in Appendix 3.

Observations of Users at Natural Sounds Kiosk and Bird ID Kiosk/2004

Data collectors unobtrusively observed visitors as they used these two computer-based interpretive exhibits, noted how long they stayed, what parts of the program they used, and how they interacted socially while using the interactive kiosks. The results of these studies are covered in this report on pages 37 (Bird ID) and 48 (Natural Sounds) and in Appendices 4, 5, 6, and 7.

Questionnaires after the Object Theater Presentation/2004

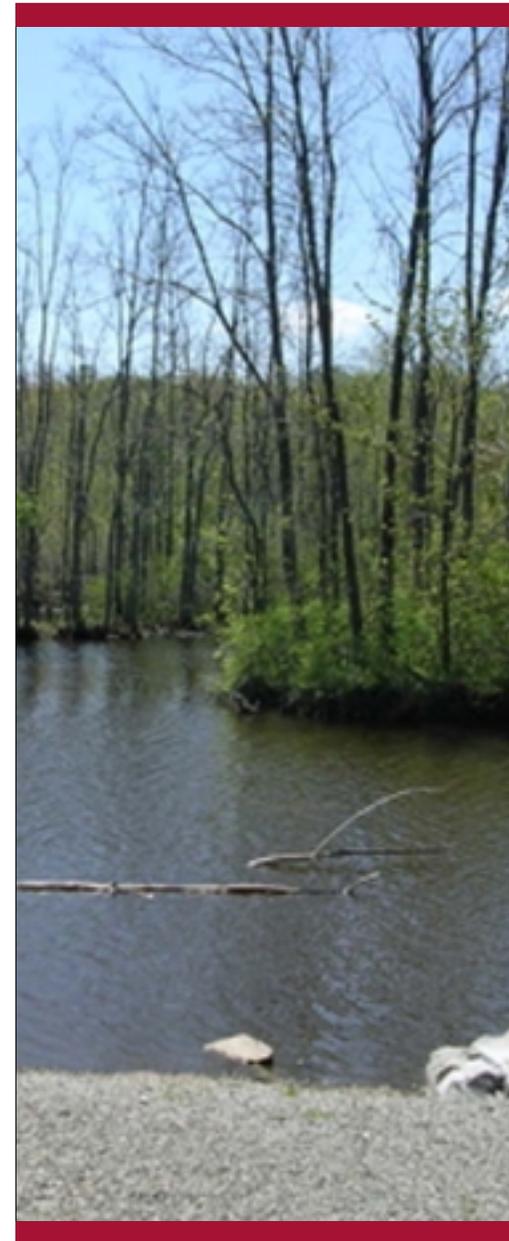
Data collectors handed out questionnaires to 103 randomly selected visitors after they had seen the Object Theater presentation. Questions probed visitor understanding of the program's messages. Findings are discussed in this report starting on page 72 and are listed in Appendices 8, 9, and 10.

Follow-up Questionnaires about the Object Theater/2005

Eight months after the Object Theater questionnaire, follow-up questionnaires were sent to the same people, to see what impact the program had had on them and what they could recall about it. Findings are discussed in this report on page 78 and are listed in Appendices 11, 12, and 13.

Observations and Questionnaires in Bartels Theater/2005

Ninety-one visitors were observed as they used Bartels Theater and were given a questionnaire to fill out after they had selected and watched one of the programs. We asked visitors about their choices and what they had learned from the program. Results are discussed in this report on page 62 and listed in Appendices 14 and 15.





Observations in the Sound Studio/2005

Many changes were made in the Sound Studio program since S&A's first study, and 56 observations were made of visitors in the Sound Studio in 2005. (The first observations of the Sound Studio in 2003 and this study were not designed as a "before and after" formative evaluation. Many of the changes were instigated for reasons beyond the 2003 study's findings, such as content and graphics that had been planned earlier, but not yet installed in 2003.) Findings are discussed in this report on page 53 and are listed in Appendices 16, 17, and 18.

"The First Five Minutes" Study/2005

As visitors entered the CLO-VC, data collectors watched where people went during the first five minutes and what exhibits they used. After five minutes, visitors were also surveyed for one piece of demographic data: Was it their first visit? Results are covered in this report on pages 29 and 44 and can be found in Appendix 19.

Recap of the 2002 Front-End Survey

Twelve potential visitors who fit the profile of CLO's most interested target audience were interviewed before the new Lab opened. Only one was not a professional or amateur bird watcher, and all lived in Chicago. When asked if they had heard of the Lab, answers ranged from "Yes" to "Of course!" Most were very familiar with CLO's Citizen Science program, and aware of CLO's research, outreach, and sound archives. When asked if they would visit the Lab if they were in the Ithaca area, all interviewees (except the non-birder who wanted to know more about it), responded with an enthusiastic "Yes!"

Many of the interviewees were concerned that the CLO Visitor Center should distinguish itself in some way from other nature-oriented visitor centers, to justify a trip to such an "out-of-the-way" location. To those who had visited the old Center, Sapsucker Woods alone was a big draw. Many had suggestions for appealing to both amateur and professional bird watchers.

These were some of the questions and answers from the Front-End Survey:

• *Can you tell me briefly what you know about the Lab?*

"The main thing is that they are a repository of all sorts of bird sounds, that's the place to go. Also I think, besides being a research body they have a lot of programs that involve more casual or leisure bird watchers—non-professionals—in gathering data and doing a variety of things, so they do both research and educational efforts."

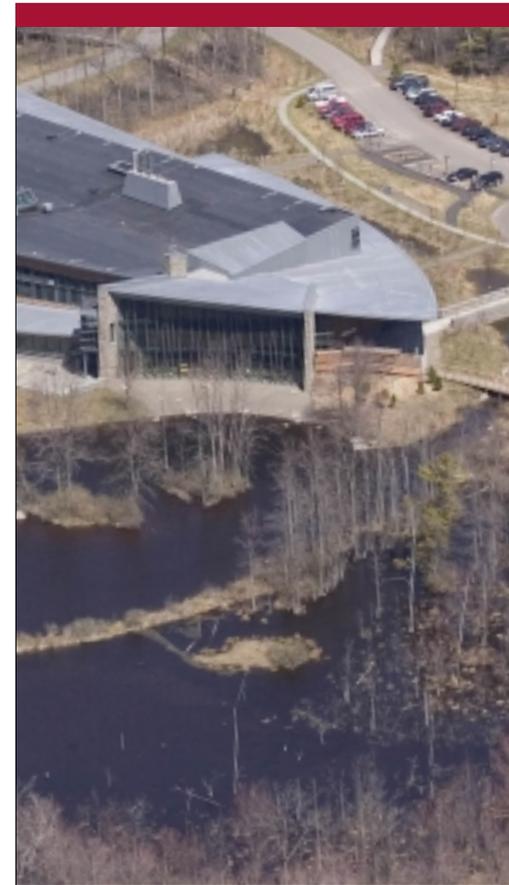
• *What would you expect to see or do there?*

"I'd want to know what they do there, and why, and I'd want to do some of it myself maybe. Have a place to see specimens and maybe live birds. Learn what I could do, like this backyard monitoring thing. It'd be interesting to know whether what they're finding is interesting and scientifically valuable, or is it just to get people involved."

• *Anything else you would WANT to see or do?*

"I'd like to see an aviary, but since it's a lab, that's not the way they want to go maybe. They are more geared toward research and information rather than entertainment. I want to see feeding stations and info on what is and isn't a good idea for native birds, and about the research that's going on and what's happening behind the scenes."

These interviews showed that potential visitors to CLO were interested in learning about what the Lab does as much as they were about birds in general. This observation guided further development of the Lab's interpretive elements.



BILL HECHT, UNION SPRINGS, NY

"Don't make it just another nature visitor center."

—CLO prospective visitor

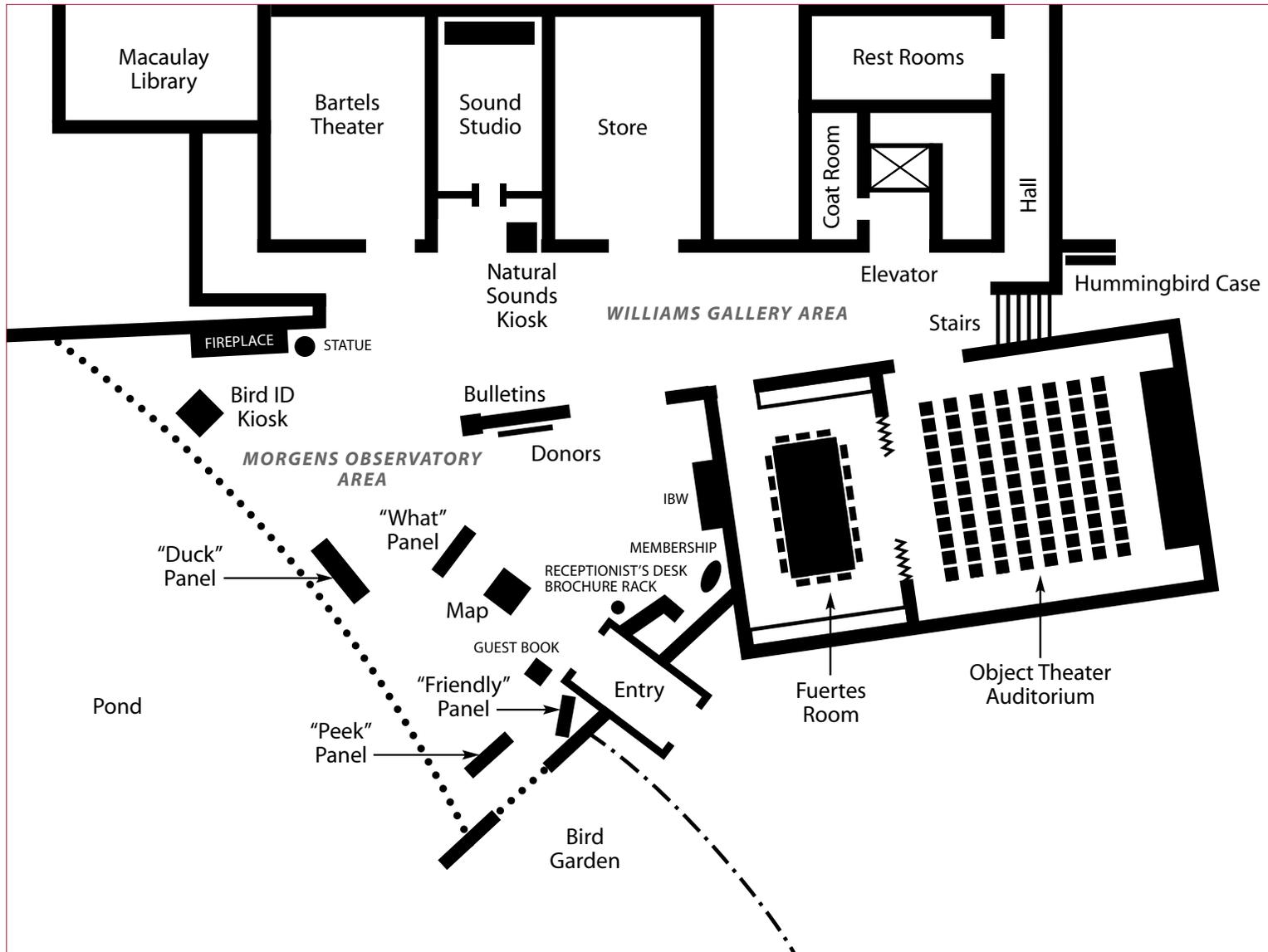


Figure 1. Floor Plan, The Cornell Lab of Ornithology Visitor Center, first floor public spaces and exhibits

THE CLO VISITOR CENTER EXPERIENCE, EXHIBIT BY EXHIBIT

In this section we will be following the path visitors took through the CLO-VC, to help us experience the elements of the Center as they would have. To further help visualize the CLO visitor experience, we will be going through the Center with “the Crowes,” a hypothetical family: mother, father, son, and daughter. Many of Serrell & Associates’ findings have been incorporated into their behavior. Evaluator comments, study results, and recommendations pertinent to each area follow, as we make our way through the CLO-VC.

Part One of this section begins with the entry aspects of the visitor experience—approaching and entering Morgens Observatory; and walks through the orientation area elements—the brochure rack, receptionist’s desk, membership table, Ivory-billed Woodpecker video, donor panel, guest book, and map.

Part Two visits the interpretive exhibits located in Morgens Observatory: the “What,” “Duck,” “Peek,” and “Friendly” panels, the Bird ID Kiosk, Bird Feeding Garden, IBW statue, and scopes. (Long graphic panel names have been shortened here, and on the floor plan.)

Part Three completes our walk through the CLO-VC with assessments of the more complex multimedia visitor experiences offered by the Williams Gallery exhibit area: the Natural Sounds Kiosk, Sound Studio, Store, Bartels Theater, Fuertes Room, and Object Theater Auditorium. The Hummingbird Case, rest rooms, and bulletin board are also included here.

Refer to Figure 1 to locate the exhibits on the floor plan.



WHO COMES TO CLO?

Data showed that the majority of visitors are:

- Females
- In an adults-only group
- Making their first visit
- Interested in birds, but not experts
- Not a member of the Lab



WHERE IS THIS PLACE?

Visitors needed help finding CLO. There was no sign posted along Route 13, the highway leading to the Lab. Visitors who managed to see the Sapsucker Woods Road sign would see a CLO sign, but only if they looked or turned south.

The newer small, green, “Sapsucker Woods” sign with the binoculars probably means something to your devotees, but it does not communicate to the un-believers whizzing by on Route 13.

Suggestion: Add the words, “Cornell Lab of Ornithology Visitor Center,” underneath the sign.

Part One / Entry and Orientation

The Critical Appraisals in 2003 and 2006 dealt largely with issues of orientation and discussed changes that could be made to improve the first-time-visitor experience.

In this section, we will focus on the many important features of the CLO-VC that can help visitors find their way and feel comfortable, physically and cognitively. As described in the criteria for excellent exhibitions from a visitor-centered perspective (Serrell 2006), “Good comfort opens the door to other positive experiences. Lack of comfort prevents them.”

The Entry Area:

1/ Approaching the Visitor Center

Located in midst of the 225-acre Sapsucker Woods Sanctuary, CLO is likely to be a “destination,” rather than a spur-of-the-moment drop-in visit. For some avid birders the trip amounts to a bird watcher’s pilgrimage, with four miles of trails to explore and 230 species of birds to look for. The new Lab building is enormous—90,000 square feet—with most of the space devoted solely to research. The Visitor Center, located at one end of the building, occupies 5,500 square feet. The Center was created to draw the public to the Lab with the goal of creating a greater understanding of birds, increasing membership in CLO, and fostering participation in the Citizen Science program.

Now let’s join our hypothetical family, the Crowes, as they begin their visit to the CLO Visitor Center...

It is a beautiful Saturday in May and the Crowe family has just pulled into the CLO parking lot. As the family gets out of their car, Dad stretches and says, “We finally made it! Can you believe how huge that building is? No wonder I missed the sign to the parking lot!”

“You almost missed the one on the highway, too, Dad,” says his son, Joel, “Who would think a place this big would have such a little sign?”

Some friends of the Crowes who are avid birders, told them about this place and described it as “not just another visitor center.” They said it was interesting to find out all the things they did at the Lab, too. The Crowes thought it might be “educational”—for all of them—and a nice family outing. It wasn’t too far from their home in Syracuse either.

Mom has a bird feeder outside the kitchen window at home and she always looks up the names of the birds she sees in her bird books. Her daughter, Cassie, knows some of the bird names already. (Mom is thinking this will be a perfect place to buy herself some really good binoculars.) Dad and Joel both love hiking and have become curious about the birds they’ve seen.

The family plans to walk the trails, but wants to see what is in the Visitor Center first. Dad says, “I love the terrain around here. Can’t wait to hit the trails.”

“Sapsucker Woods Sanctuary,” Cassie reads. Joel is wondering if there will be computers in the exhibits.

“There’s the entrance to the Visitor Center!” yells Joel. Cassie sits on the bench at the bottom of the ramp to tie her shoelace, and then the family walks up to the door.

• • •



BILL HECHT, UNION SPRINGS, NY

YOU CAN’T GET THERE FROM HERE. . .

Parking lot directions for entry and exit were disorienting because you don’t exit at the same place where you drove in. The Lab is so overwhelmingly huge at first sight that visitors miss the small sign for the parking lot. Over the years, parking lots have multiplied, and perhaps they need to be numbered or named to help new visitors realize that some are farther away from the Lab’s entrance than others.

In 2003, we noted that the most logical, direct path to the building—a straight line—took visitors across a seeded area. S&A recommended adding stepping stones on this obvious route, instead of redirecting the visitor’s path to the building. Two tarmac paths led to the Visitor Center in 2005.



Arriving at the entrance to the CLO Visitor Center

2 / Arriving at the Entrance

"What a great-looking place! There's a map of the trails on that fence," says Dad, as he tries to peek through the fence into the garden beyond, but Mom and the kids have already gone through the doors.



Welcome to... What?

At the top of the entry ramp, an attractive trail map on the plaza area fence draws visitors with a big "Welcome"—inadvertently directing them to the trails. Suggestion: An outdoor sign, something as short and simple as, "What's Outside—Walk the trails; What's Inside?—See the exhibits and shows," would inform visitors of their immediate choices.

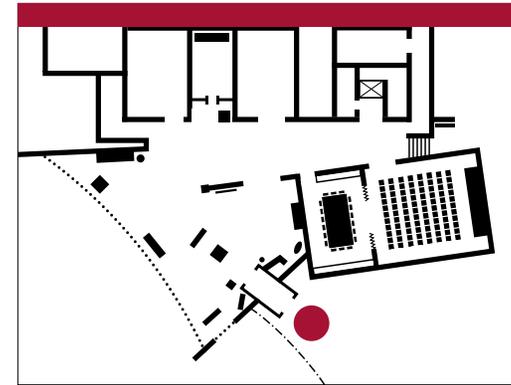
On the stone wall to the right of the CLO-VC entry doors, large letters read, "Imogene Powers Johnson Center for Birds and Biodiversity." As visitors go through the doors they see "Morgens Observatory" printed on the vestibule wall. People who are looking for the CLO Visitor Center might wonder if they've come to the right place.

The elements of the entry area should be considered through the eyes of the visitor, to eliminate confusion and add comfort, wherever possible.

(See Appendix 1, Critical Review Update for the status of these issues and other recommendations.)



A CLO membership brochure, Living Bird magazine, and a Sapsucker Woods trail map are in boxes near the bench in the entry area.



DAILY AND MONTHLY ATTENDANCE AT CLO-VC

From CLO Visitor Survey data:

- More visitors came on Saturdays than any other day of the week.
- More visitors came in June than any other month.
- More visitors heard of the Lab by word-of-mouth than any other way.



Visitors said that they thought the building was airy, open, impressive, and welcoming. They liked the aesthetic, tranquil places to sit.

Entering Morgens Observatory

The first area visitors see when they walk through the glass-walled entryway of the CLO Visitor Center is Morgens Observatory. To the left as you walk in, this large and airy space has a spectacular wall of windows.

Straight ahead is “The Map,” a floor plan of the CLO-VC, and to the right, away from the windows, is the receptionist’s desk and a brochure rack.

The visitor hears, then sees, a continuously playing video of a recent sighting of the Ivory-billed Woodpecker on the wall, and the membership recruitment display next to it. At the end of this side of Morgens Observatory (near the entrance to the Williams Gallery portion of the Visitor Center) is the Donor Panel.

(Note: Locations of some of the entry and orientation elements may have changed since this visit.)



Entering Morgens Observatory



The Orientation Area:

3 / The Brochure Rack

Dad enters the Visitor Center. He is amazed at the amount of light in the room and the wall of floor-to-ceiling windows. There are beautiful wooden chairs scattered near the window wall, and there's a lot of space to move around in between the exhibits. Most of the exhibits seem to be in the left side of the room by the windows. The right side of the room... "Oh there you are!"

He joins the rest of the family huddled over the brochure rack. They are looking for a brochure with a floor plan of the Visitor Center in it, but they can't find one. Mom chooses a brochure about other museums in the Ithaca area.

• • •

Where's the CLO-VC Brochure?

The brochure rack located next to the information desk, was a jumble of CLO and non-CLO brochures. There were brochures about CLO programs but not about the Visitor Center.

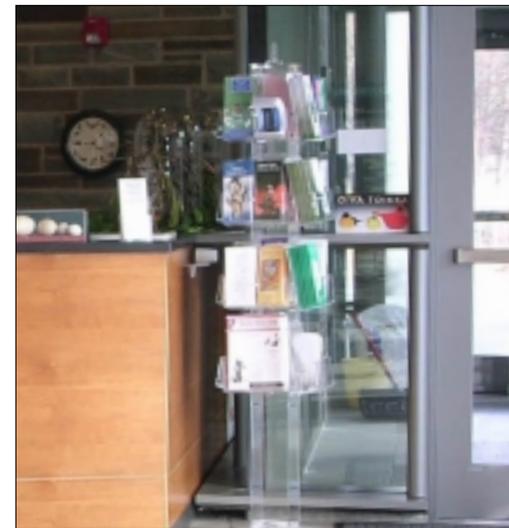
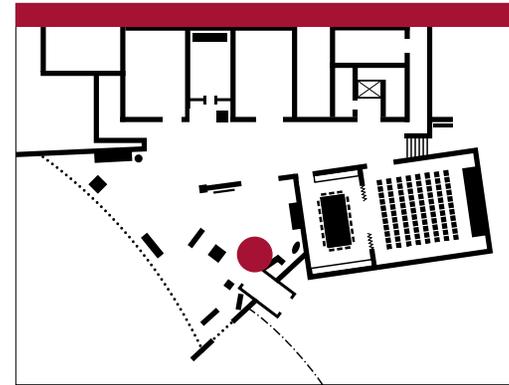
The CLO "Inside Tour" brochure was misleading—it gave the impression that visitors could tour the CLO offices throughout the building. As of 2005, there was a new handout titled, "The Lab," which helped clarify this issue.



In 2006, there were three piles of brochures on the receptionist's desk, with facts about the Lab, listings of the Monday night seminar series, and "Ten Best Places" to visit at the Lab. A colorful brochure with information that is *only* about the Visitor Center, which would include an accurate, up-to-date floor plan, is still needed.

(See Appendix 1, Critical Review Update)

CLO's "Ten Best Places" brochure



The brochure rack contained many items related to things other than the CLO-VC.

Excerpt from “Front Desk Basics”
(July 25, 2003)

Your main functions are:

- Greet guests
- Answer questions
- Answer the phone/answering machine messages making callbacks
- Take registrations for projects and memberships
- Keep the brochure holders and magazine rack full
- Periodically check the exhibits to make sure they are working
- Protect the scopes from little kids(!)
- Make sure that visitors don't access secure areas
- Leave detailed notes of any problems you encountered, brochures that are needed or out-of-stock, etc.
- Phone is set up for dealing with emergencies...

“Have a Great Day!”

4 / The Receptionist's Desk

The receptionist greets them with a smile, and the family walks a few steps over to the receptionist's desk. They are about to ask her if there is a floor plan of the Visitor Center when the phone rings, and her attention is focused on answering a question about an injured bird. “Maybe we can ask her later,” says Mom.

“She was really nice,” says Joel, “but I guess that bird had a bigger problem than we did.”



The Receptionist's Duties

The receptionist may have too many other responsibilities to perform her most important job, which is dealing with the visitors.



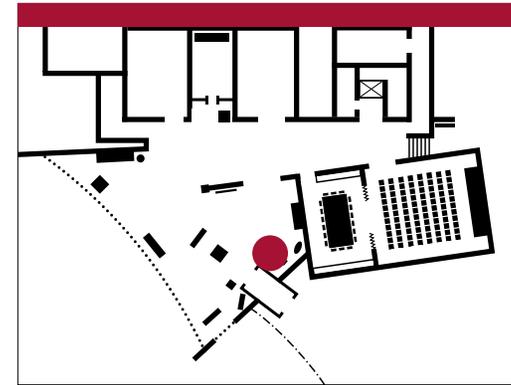
“What Do You Have Here?”

Many visitors come up to the receptionist’s desk and ask, “What’s here? Where do I begin? How long does it take to see everything?” If visitors saw and did everything there is to do in the Visitor Center—watch birds, see the shows, interact with computers, look at art, read interpretive labels, and shop—it would probably take about two hours.

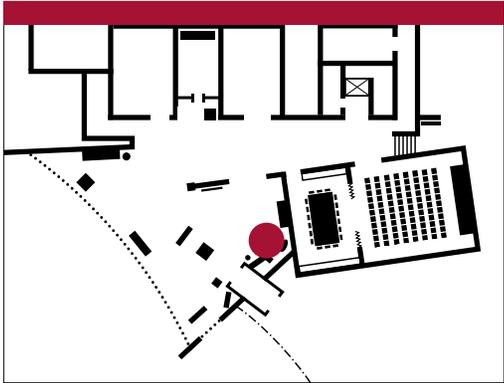
Some people want to get their information from a human, but others prefer to figure it out themselves by looking at signage or brochures. (There are people who are happy to just wander.) At CLO-VC, if the receptionist is on the phone or busy with other duties, visitors are left to fend for themselves.

The receptionist’s desk might be better located if it was in the visitors’ line of sight, that is, straight ahead as they walk in the door. This position would allow visitors to scan more of the room as they approach the desk, thereby orienting themselves more, instead of turning away and having their backs to the room.

The receptionist’s desk has a tendency to become cluttered.



For orientation, some people are happy to talk to the receptionist; others prefer to seek answers to questions in a brochure or map.



5 / The Membership Table

Mom spots the membership table nearby and walks over to it. She turns to Dad and says (with raised eyebrows), "A tablecloth?" One of her friends is a member and gets a beautiful magazine four times a year, a newsletter, and discounts at the store here. "I could get 10% off on the binoculars! We should join right now!" "Let's do that on the way out. The kids are getting restless," says Dad. "Mom wants to see everything!" he says to the kids, but Joel and Cassie are already roaming around the room. Mom is hearing sounds from a nearby video. . .



RECRUITING NEW MEMBERS

From demographic data gathered from 2003 to 2005, we know that one-quarter or fewer of the visitors are members.

Increasing membership was one of the three main reasons CLO created the Visitor Center. There has obviously been time and money spent on the membership panel itself. This exhibit structure should be mounted and permanent provision made for the various brochures.

Emphasize the 10% discount for members in the store, since many people come to shop.

The membership display has a makeshift feel about it.



6 / The Ivory-billed Woodpecker Video and Display

Mom wanders over to the next table where a six-minute video is playing. Dad retrieves the kids and they watch it again. It's about a possible sighting of the Ivory-billed Woodpecker. "It was supposed to be extinct," Mom explains, "I saw this film on the news."

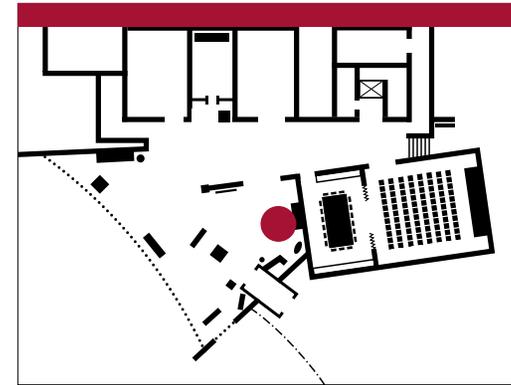
"It's so blurry. Can they really tell what kind of bird it is from that?" asks Dad.

• • •



Location, Location...

The IBW video was a big attraction. Incoming visitors were attracted by the sound and the moving screen, and many of them had heard about this sighting. A table-top display had a variety of information and pictures about the events. (Like the membership table, this area also had a makeshift feel about it.



Given the excitement of the topic and the good location, many visitors were attracted to the IBW video and display.



Evaluator's Opinion

"The issue of aesthetic consistency strikes me as more important for CLO than many other places."

The tablecloth-covered folding table beneath the video screen was strewn with brochures and magazines.)

An IBW display, minus the video, was moved to a location near the fireplace at the far end of Morgens Observatory. This free-standing exhibit about the IBW sightings (with photos and lots of small text) should be redone to make it easier to read, and to include content related to the controversial nature of the sighting. The exhibit could discuss the nature of scientific evidence and the way scientists communicate and argue through publications. The IBW Video and Display, in its previous location (shown on the floor plan), attracted more immediate visitor attention than any other exhibit in Morgens Observatory, most likely because of its placement and content. In 2006, when the exhibit was moved, an older, twelve-minute film that used to be played in Bartels Theater, was being shown in this location. Suggestion: Use this prime lobby real estate for a short film that is an introduction to the Lab, or a video clip about a recent development related to the Lab. Make it an area for fresh, brief news, not recycled media.

The news of the Ivory-billed Woodpecker sighting could be replaced by another exciting find someday. Why not make this area a permanent "Sightings" exhibit, with brochure and magazine holders as part of the structure?



The new IBW display could discuss the nature of scientific evidence and the way scientists communicate.

7 / The Donor Panel

As the family walks back to the center of the room, Mom stops to glance at the Charter Donors panel and thinks, "I thought I heard that the National Science Foundation funded all the programs here. I'm surprised there's not a bigger mention of them. Oh, there's the logo."



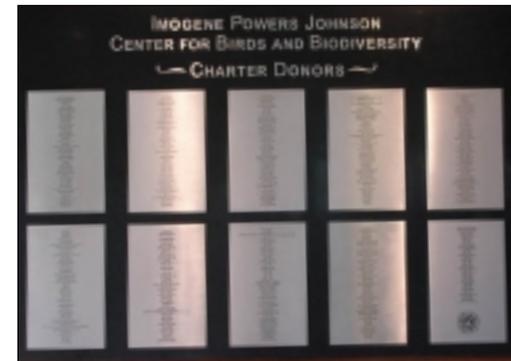
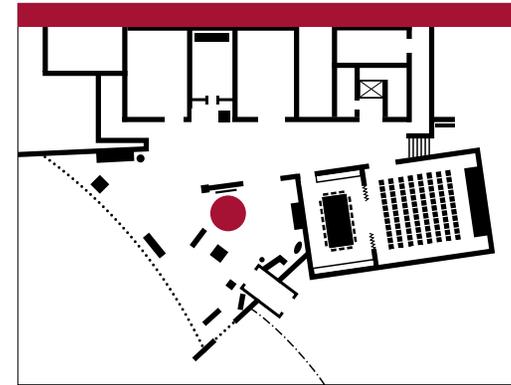
Donor Signage and Placement

The Donor wall is located on the most visible line-of-sight location in the room, perhaps a better place for more orientation information or the receptionist's desk. The donor plaques will not fade, and they could be moved to an area that gets more sun, where panels with color photographs cannot be displayed.

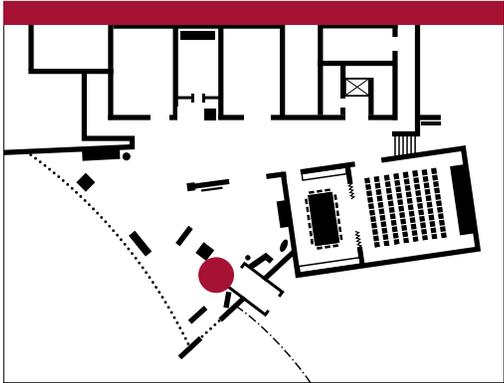
Giving Credit Where Credit is Due

Donor signage should not compete or interfere with interpretive or orientation signage. In 2003, the donor signage and room signage were the same color and size, and this was confusing. Improvements had been made in 2006.

Naming opportunities, while good for marketing and fund raising purposes, are not good from a visitor-orientation point of view. Johnson, Morgans, Macaulay, Bartels—who are these people and should a visitor care? If someone was was looking for the library, theater, or auditorium it doesn't help to have a donor's name attached to it.



Donor names on chairs and benches, and on the donor wall, do not interfere with interpretation or wayfinding.



The location of the receptionist's desk, guest book, donation box, and donor wall all need further discussion for a design solution that will serve visitors better.

8 / The Guest Book

"Mom! We forgot to sign the guest book!" says Cassie (pointing), "It's over there, by the other side of the doors we came in!"

There are people entering the building, so the Crowes wait for them to come in before walking over to sign the guest book. "I wonder why they put it here?" says Dad. "A lot of people must forget to sign it."

"Let's go and see the real stuff!" says Joel. "All of this is taking too long."

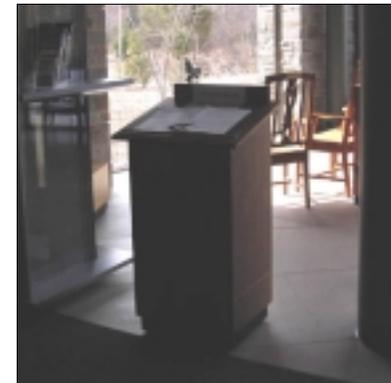


A Bad Location

The location of the guest book and donation box caused a traffic flow problem and an obstruction.

In 2003, S&A recommended moving the guest book and donation box so they wouldn't block access to the windows. In May of 2005, the donation box was moved to the IBW video area, but the guest book is still in its odd location.

The guest book structure still blocks the way to the windows and the view of the "Friendly" exhibit panel in the corner behind it. If the receptionist's desk is moved, the guest book could be located to the right of the entranceway and visitors could sign in on their way in or out.



9 / The Map

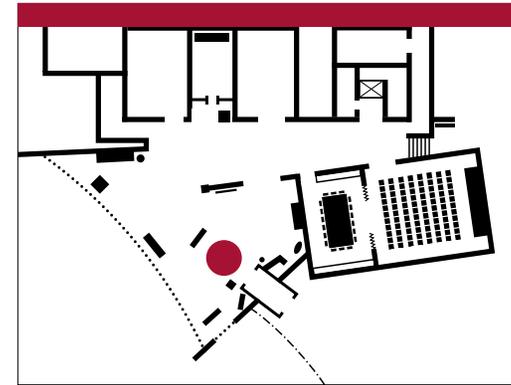
After the Crowe family has signed the guest book, the kids go immediately to the windows. (There are ducks landing on the pond!) Dad looks at the floor plan sign in the middle of the room and mutters, "You'd think there was nothing in this room. Must be an old floor plan."



A New Welcome/Orientation Panel Is Needed

The existing floor plan is not an accurate representation of the Visitor Center because it was drawn at an early stage of development and never replaced. An updated floor plan of the CLO-VC, including the interpretive exhibits, is much needed.

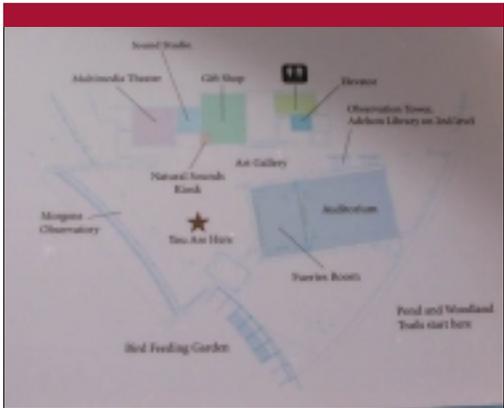
The floor plan on the Map should include the location of all the interpretive exhibits.



VISITORS AND THE FLOOR PLAN

"I think that people often feel intimidated about the CLO, because they're not really sure what it is. If you were to create a larger map sign, that literally stopped people at the door, it could explain what the CLO is and provide a map to the different activities that people might actually look at. I would also have a dispenser for the brochures attached to the map, rather than sitting on top of the desk, in an area that is unmarked."

—Chris Marx, data collector



The old floor plan map is missing several important features that exist in the CLO-VC.

The orientation of the floor plan, the words on it, and the list of things to do could all be rewritten and redesigned to be more legible and comprehensible. Often the addition of a donor name, e.g., Bartels Theater, or a name like “Tree House” obscures the actual function of the area. Making things clear to visitors should be the main goal of this panel.

A new Welcome/Orientation panel needs to address this main question: What’s there to do at the CLO Visitor Center? The answer is basically five things:

1. **Watch Birds**—outside, on the Sapsucker Woods trails; inside, through the windows of the Visitor Center overlooking the pond and bird feeding garden, or from the upstairs tower. Use our scopes for a closer look.
2. **See A-V Shows**—in the Object Theater Auditorium and the surround-sound mini-theater.
3. **Use Interactive Sound Computers**—in the Sound Studio and at the Natural Sounds Kiosk.
4. **Look at Art**—the oil paintings of birds displayed throughout the Visitor Center.
5. **Shop for a Gift**—for yourself, or your favorite bird-watching friend, at the Wild Birds Unlimited store.

Orientation Area Observations

“The First Five Minutes” Study in the Visitor Center

One of the summative studies was the orientation study, a systematic observation and tracking of what 198 visitors did during the first five minutes of their visit. We wanted to find out about visitor orientation, behavior, and patterns of use to see what people did when they entered the Visitor Center and which orientation devices were used most (“the Map or Marge?”).

Trackings showed that all of the available forms of orientation—paper (brochures), person (at the receptionist’s desk), and panel (welcome map)—were used by someone.

Although the sample sizes and percentages are too low for statistical comparisons to be meaningful, the numbers suggest that first-time visitors were making more use of the guest book and map, and repeat visitors made more use of the rest rooms, the receptionist’s desk, bulletin board, and store. We don’t know if more first-time visitors would have eventually discovered some of those elements and used them after five minutes.

Number of visitors observed: 198

Percentage of visitors out of 198 who, during the first five minutes of their visit:

Looked at IBW video	27
Went to store	25
Rest rooms	15
Map	14
Receptionist’s desk	13
Took brochure/info	13
Looked at bulletins	9
Guest book	6
Donor panel	3

IMPRESSIONS ABOUT DEMOGRAPHICS

“There seems to be a big difference in classification (gender, age, family size) of observations on Fridays/Wednesdays v. Saturdays/Sundays. It almost felt like two different labs—the intent/destinations of visitors on weekdays being much more loose and open than those on the weekend—who so often went straight to the rest room or the store.”

—Nicole Dandi, data collector



“Good comfort opens the door to positive experiences. Lack of comfort prevents them.”

—Criterion from Framework in *Judging Exhibitions* (Serrell 2006)

Forty-eight percent of the visitors in the orientation study were first-time visitors. More than half of them (59%) used some form of orientation. Of repeat visitors, 30% used some orientation device.

There were some limitations to the methods of this study. Some data collectors marked visitor stops on the data sheets in a way that made it difficult for the transcriber to tell which exhibit the visitor stopped at. Many data sheets were discarded from the sample for inconsistencies and lack of clarity. Unfortunately this problem was not noted until after all the data had been collected.

Summary of the Entry and Orientation Area

In this section we noted many issues with wayfinding: from the highway, from the parking lots, and inside the building. Visitors who have been to CLO-VC before will have worked through these issues. But if they have not come for many months, or are coming for the first time, being disoriented can be a negative experience and is not a good way to start a visit. The lack of an accurate, clear floor plan and a specific brochure to explain the Visitor Center is a problem.

The makeshift appearance of the Ivory-billed Woodpecker video display and the membership table detract from the otherwise spectacular design of the space.

Donor names abound. The naming opportunities on the walls and on the chairs, while certainly important from a marketing standpoint for a nonprofit institution, need to be kept separate from the interpretive exhibits and building locations.

The Orientation Study showed that visitors used all the forms of orientation available—receptionist’s desk, map, and bulletin board. The most popular stopping places were the IBW video (good location), store (motivated shoppers), and the rest rooms (basic bodily functions). The latter two features will be discussed more below on pages 59 and 71.

Part Two / Morgens Observatory

The Exhibits Area

Sky, earth, and water are all visible from the wall of windows spanning an entire side of Morgens Observatory. Visitors can watch the waterfowl on Sapsucker Woods Pond through these windows or gaze into the Treman Bird Feeding Garden, a landscaped area that attracts smaller birds with its feeders and plants, through a window to the immediate left of the entryway. Chairs and scopes are placed along the windows for leisurely bird watching.

There are five interpretive graphic panels in this part of Morgens Observatory: two about the Lab, one about ducks, one about backyard birds and one about backyard bird habitats. An interactive computer kiosk is located at the far end of the room. There are also two sculptures: a green bronze Peregrine Falcon and a large painted metal Ivory-billed Woodpecker.

(Note: The position or content of some of these elements may have changed since this visit.)

In this section, we will focus on the interpretive elements in this area of the CLO-VC—what kinds of experiences they afforded and how visitors used them.

The windowed side of Morgens Observatory offers the visitor chairs, scopes, and interpretive exhibits. (The Bird ID Kiosk is shown here.)



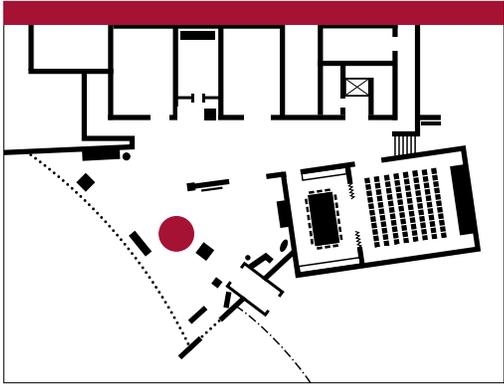
THE "VOICE" FOR CLO-VC'S EXHIBIT PANELS

In 2004, the exhibit planners held several discussions about the voice they would use for the writing for the exhibits. After much discussion, they agreed that the copy on the panels should be:

friendly, respectful, encouraging, enthusiastic, and engaging.

The style of the writing followed many of the recommendations in *Exhibit Labels: An Interpretive Approach* (Serrell 1996):

active verbs, not abstract, relating to the context, clear, and short.



10 / "The Cornell Lab of WHAT?" Panel

"Ornithology. I'll have to make sure the kids learn that word," Mom says as she turns around, but Dad has already joined the kids at the window.

In the center of the Morgens Observatory, "The Cornell Lab of WHAT?" (a vertical, flat graphic panel) provides the definition of "ornithology," an overview of the functions, programs, and facilities of the Lab with photographs illustrating each, and an invitation to become a participant in Lab research. On the other side of this panel, "The Cornell Lab of Ornithology has a long history," depicts pivotal years in the Lab's history starting with its creation in 1915.



Visitor Use of the Graphic Panels

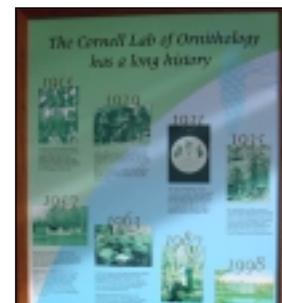
Data from the "First Five Minutes" study showed that only 5% (9 out of 198) of the incoming visitors stopped at the "What" panel. The majority of visitors headed for the much more fascinating windows, while others looked for some sort of orientation—or the store or rest rooms—before they too were drawn to the window area and its exhibits. "The Cornell Lab of WHAT?" exists in the center of the room, a no-man's-land" between more highly attractive elements. Visitors might, however, have looked at the "What" panel or read other interpretive exhibits later on during their visit.



"I hadn't heard of 'ornithology' before."

—CLO visitor in an exit interview

Besides location, the size and shape of the panels may contribute to their attractiveness. See more discussion below.



The "What" panel (above right). The other side of this panel (right) covers the history of CLO.

11 / The “What’s That Duck Doing?” Panel

After seeing the real ducks outside on the big pond, Dad and the kids are wondering what kind of ducks they’re looking at. “Dad, look! His head is under the water and his tail is wiggling. What’s he doing?” asks Cassie.

There is a long panel near them appropriately titled “What’s That Duck Doing?” and Dad checks it out. “He’s looking for food.”

“What does he eat?” asks Cassie.

“Hmmm... I don’t see that here,” says Dad, silently noting that one of the images relates to ducks mating. “There’s a book here, too. You can look up what kind of duck that is.”

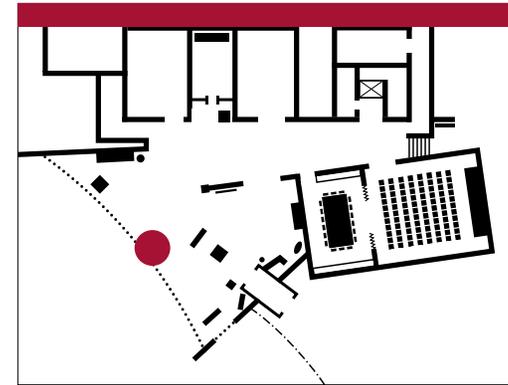
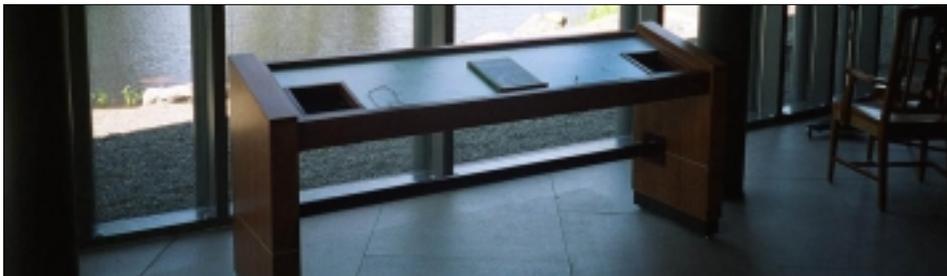
Mom has joined them now, but she’s distracted by the interesting bird garden out those windows by the door. Maybe she could get ideas on what plants would attract more birds to their backyard...

“They’re Mallards!” says Joel. The kids go back to the windows to see if they can find ducks doing the other things they saw on the sign.

“What’s That Duck Doing?” is a horizontal flat graphic with binoculars available at each end and an attached book for duck identification. It is located in the center of the wall of windows overlooking Sapsucker Woods Pond. The duck behaviors visitors might observe through the windows (and scopes) are explained on this panel, which is illustrated with line drawings.



The original “Duck” panel



Evaluator’s Opinion

“I was really sorry to see that the book and binoculars on the Duck panel were abused.”



In addition to the content and design changes in this panel, the “voice” was different.

The “Duck” Panel, Then and Now

The “Duck” panel did a good job of attracting visitors and answering visitors’ questions. Data from the “First Five Minutes” study showed that 13% of the people stopped at this panel. A location near the windows (a major attraction) may have been the reason more visitors stopped at it than at the “What” panel mentioned earlier.

Partway through the summative studies, the information on this panel was changed to “Spring at Sapsucker Woods.” In March 2006, the panel was about “Winter at Sapsucker Woods.” The binoculars and book on the original “Duck” panel were stolen. This was disappointing, but not surprising, considering that it only takes one abusive visitor to damage an exhibit. Interactive exhibits that are not “bomb-proof” stand a likely chance of being destroyed.

The new design was inconsistent with the other graphics in the Visitor Center. Because the building is such a clean and modern design, and the content is so focused, inconsistencies seem to stand out.

12 / The Scopes

"Let's use these!" Cassie says to Joel as she sits down by a scope. They each drag a chair over by a scope, making loud scraping sounds on the slate floor. Dad adjusts Cassie's scope and she peers out at the pond, "They have little nose holes in their beaks!"

Joel is looking through his scope, trying to find a duck doing the things he saw on the sign. He is finding it hard to match the drawing he saw with real ducks. "I can't tell what duck matches," he says.

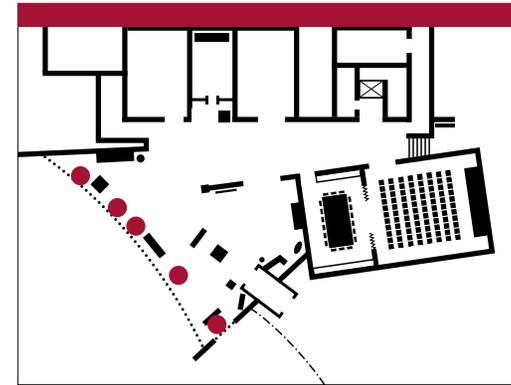
"It would be good if they had some people to ask," Dad comments.

"Hey! I recognize those birds. They're geese like we have at home!" says Joel.



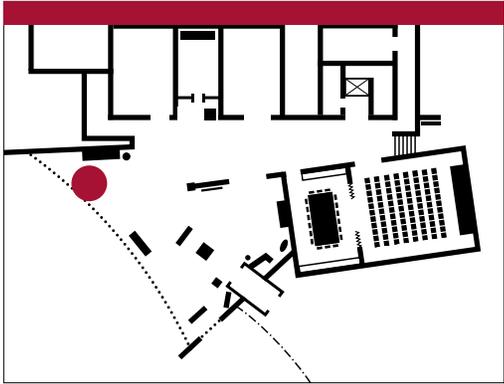
Loving the Scopes to Death

Watching birds through the windows and using the scopes were the activities that visitors said they enjoyed most. As of March 2006, many of the scopes were broken or out of adjustment and in need of repairs. Suggestion: Broken exhibits should be taken off the floor, or at least have an "out of order" sign on them. When visitors try to use nonfunctioning exhibits, they often think it's because they can't figure them out.



Evaluator's Opinion

"One visitor thought that the scopes were too high and too complex for kids to use. I think that the presence of high-quality equipment says that the Lab cares about their visitors"



13 / The Bird ID Kiosk

Joel spots a computer at the end of the room... "It's like a computer game to find out what birds they are!" says Joel waving his Dad over. The three of them crowd around it.

"Mom would like this. She loves identifying bird," Dad says. "Where is Mom?"

"There she is—way over there, sitting by that big window," says Cassie.

At the far end of the window wall is the Bird ID Kiosk, an interactive computer station where visitors can identify the birds they are likely to see through the windows of the Visitor Center and on the trails at CLO. This exhibit was not intended to be a comprehensive guide to all the birds of North America, or even New York. The Bird ID Kiosk provides identification for the birds that visitors are likely to see at CLO.

In this computer program, birds are categorized by the different CLO habitats—garden, pond, and trail—so visitors can narrow down the identification process by choosing a particular location or habitat. For each species there are other choices: "More information" such as how to identify it, see similar species, or hear what it sounds like.



CLO-VC's Bird ID Kiosk features an adjustable tilting panel to block the sun—an important feature for a computer-based exhibit next to a window.



Unobtrusive Observations of Users at the Bird ID Kiosk

Our goal for this study was to find out how people interacted with the Bird ID Kiosk and to see if it would be marketable to other institutions who could adapt it for their own use.

We observed 62 visitor groups as they used the Bird ID Kiosk, noting how long they stayed, who they were with, and what things they said and did.

Here are three examples of raw data—running narratives of visitor behavior—from this study:

Group #25, one child and two adults, stayed 5 minutes:

Boy approaches, calls grandmother, explains he’s going to play a sound, says “Don’t look!... “I have to guess what bird it is?” “Yes.” Boy plays, she guesses goldfinch, he says “Try again!” Several guesses, boy eventually decides to describe bird, reading from screen. Grandmother opens eyes to see cardinal. Boy narrates as he scrolls. Another woman joins (mother?) talks to grandmother about something separate while boy scrolls—“This is a hard one!” “Don’t look!” Plays sound. Grandmother guesses it sounds like a chickadee. Boy reads description. Grandmother opens eyes, says she’s never even heard of that bird. (Hairy Woodpecker?) Says she never would have guessed it. Grandmother encourages boy away, they depart.

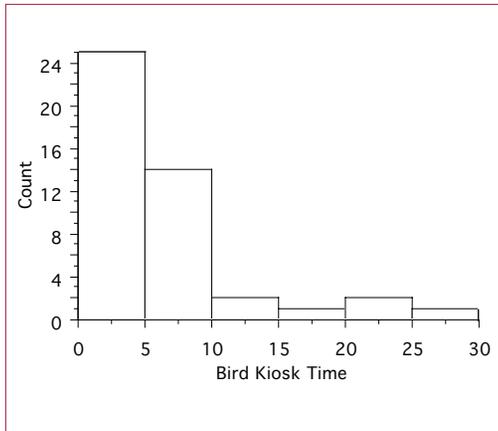


Visitors were easily engaged in scrolling through the bird pictures. This interface would work well for other bird identification applications.

Data collection sheet for observation of Bird ID Kiosk users

Focused Observations on Bird ID Kiosk CLO		
Date _____	Sample # _____	
Time start _____	Time quit _____	Elapsed time _____
	#	genders
Kids	_____	_____
Adults	_____	_____
Seniors	_____	_____
Total #	_____	_____
Running comments on behaviors, selections, reactions, verbalizations (quote whenever possible)		

Figure 2.
Histogram of time spent (in minutes)
at the Bird ID Kiosk



Time spent at this exhibit ranged from 1 to 25 minutes, with the average time being 5 minutes.

Group #49, five children and two adults, stayed 14 minutes:

Man sits, scrolls, begins scrolling more slowly. Picks bird, sighs, goes back to scrolling. Joined by girl about twelve. "That's a robin, that's another robin. See the description?" Girl: "There's no difference." Joined by two boys. Man continues to describe characteristics. "Ready for the sound?" Boy: "Where does it live?" (plays) "Hear it? It's a hummingbird." Girl leaves. Boy says "That's the same we just heard." Boy "Where does it live? Go back... Similar birds." Boy: "Can I see it? Boy sits, man departs. (1:49 30 sec) "I know what I'm doing." (to other boy still standing) Boy scrolls, picks; other boy tries to help. "Why don't you see what all the birds look like?" Scrolls quickly. Pick bird, play sound. "Nice." Boy stands and leaves; other boy sits and scrolls, plays with back-and-forth, picks bird and similar birds, scrolls. Man brings little girl to sit, moving boy also brings adult woman, young boy, and another girl. Man controls buttons for sitting girl. Woman: "That's what my mom used to hear." Plays another. Woman: "Recognize robin? Play that again and be quiet because I want him to hear it for tomorrow morning." Points out female and male differences. Plays Oriole. Points out how to use kiosk to get to ID characteristics. Plays Hummingbird. "Listen! Hear his wings flapping?!" (Woman) Boy: "I want to see the owl!" Man: "Let's go back and do that one!" Play Owl, move on to Chickadee. Woman: "Recognize that one?"

Group #60, two adults, stayed 25 minutes:

Male reads more info out loud. "Wow" in response to the info. Then woman reads other piece of info. Goes back to scrolling. "Do you want to read about the house sparrow?" Woman: "Sure." ...Play sound, laugh, look at Woodpecker. Play sound and man repeats info about woodpecker and sound. Discuss how to find "Similar birds." Tab and click more information, then click similar birds. Woman sits down again. Plays woodpecker sound again. Man talks to woman about how to pick a "different habitat." "Okay, click back..." They pick trails habitat and play owl sound and read about owl. Go back, pick Sapsucker.

(For more examples, see Appendix 5, Focused Observations of Bird ID Kiosk, running comments)

What We Found Out

Children were clearly at ease using the Bird ID Kiosk touchscreen by themselves. Adults and kids would work together at this kiosk, and it was not uncommon to see the adults leave to use the (nearby) scopes, while the kids stayed at the kiosk. We often saw adults trying, sometimes unsuccessfully, to get their kids to leave this activity.

Data collectors noted four of the options that visitors could choose from: scrolling through the photographs, looking at birds in different habitats, “More information,” and “Sounds.” Close to half of the Bird ID Kiosk users sampled all four options. Of the options, “Habitats” and “More information” were used more often than “Sounds.” Scrolling was the most frequent behavior, and it was often done fast, without lingering on any one bird selected. Less-often used were “How to identify it,” “Where to find it” and “Similar local birds.”

Less than 10% of the Bird ID Kiosk visitors appeared to have difficulties with navigation or what to do (the “confusion” rate). Most people appeared to use it with ease.

Suggestion: Put a sign on the kiosk to identify what it is and what visitors can do. This would help attract more users.

Problems with the Data Collection

There were limitations with the unobtrusive observation method. To avoid interfering in the visitors’ use of the exhibit, we were not able to get close enough to the screen to have a clear look at every choice visitors made or to clearly hear every word they said. Some options were easy to see and hear from a distance, e.g., sounds played, scrolling through photos. The percentages reported are, therefore, subject to error in quantification, but they give a qualitative idea of the relative frequency of different behaviors.

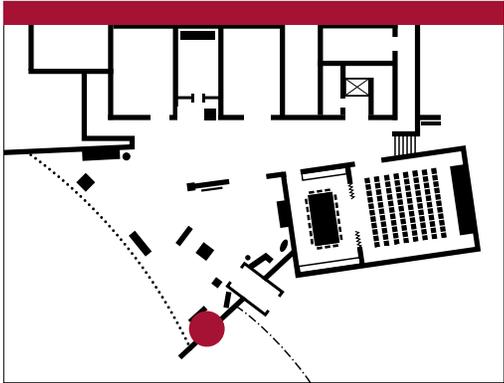
DEMOGRAPHICS OF BIRD ID KIOSK USERS

- 47% were “family” groups (adults and kids).
- 34% were adult groups (one or more).
- 18% of the users were kids (one or more).

BEHAVIORS OF BIRD ID KIOSK USERS

- 89% of the users scrolled.
- 77% checked out different “Habitats.”
- 73% went to “More information.”
- 58% listened to “What it sounds like.”
- 44% sampled all four options above.

(For more spreadsheet demographics and behavior data, see Appendix 4, Focused Observations of Bird ID Kiosk.)



14 / The Treman Bird Feeding Garden

Mom has been gazing out at the garden she wishes she had in her backyard. She loves watching the birds at the feeders and she now has some ideas of what plants she could put in her backyard to attract even more birds. Those flowers twining up the poles are so pretty. It is so peaceful...

"Mom!!"

The Treman Bird Feeding Garden, designed and planted to attract birds, is an example of a birder's ideal backyard. In addition to the berries and seeds provided by the plants, there are also bird feeders set up in the garden, which is visible through a large window with scopes and chairs available nearby. Although some visitors try to enter this garden as they come up the entrance ramp, it is obvious that this area is only for viewing once the visitor sees it from inside the building.



The Treman Bird Feeding Garden was designed to attract backyard birds with a variety of feeders and food types.



15 / The “Peek into the Secret Lives of Backyard Birds” Panel

Mom gets up and meets her family at the exhibit panel just behind where she was sitting. “I saw some plants we should get for the backyard,” she says to her husband, “but I’m not sure what their names are.”

“Mom, you have to see the computer thing we did to identify birds. Dad said you would like it,” says Joel.

Cassie has been reading “Peek into the Secret Lives of Backyard Birds,” and recognizes a bird she knows in one of the photos. “Mom! Nuthatches hide seeds in bark cracks and come back later to get them!”

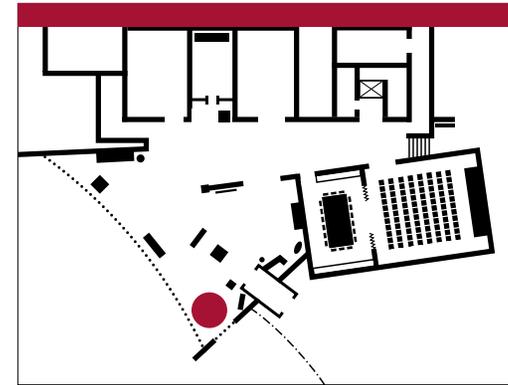
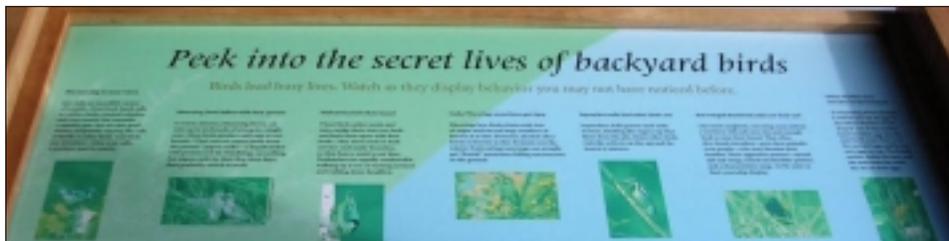
“We’ll have to watch for that,” says Mom.

In the small area overlooking the Treman Bird Feeding Garden there are two interpretive panels, both offering information for the backyard birder. One of the panels is “Peek into the Secret Lives of Backyard Birds,” a horizontal flat graphic located in the Bird Garden viewing area. This panel gives the visitor examples of the quirky behavior patterns of seven common backyard birds, with photos of each.

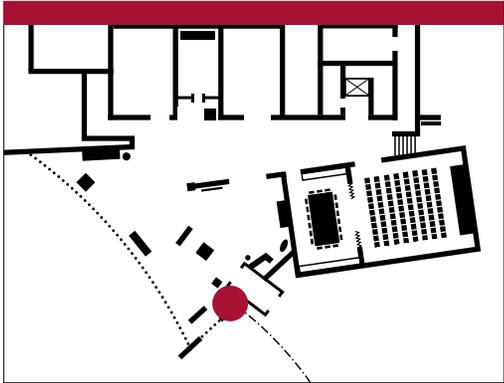


Did Visitors “Take a Peek”?

Twenty people, out of 198 (10%) observed in the “First Five Minutes” study, looked at this panel. The “Peek” panel, like the “Duck” panel mentioned above, was another example of an interpretive graphic placed in a good location. Visitors are drawn to the window to view the feeding garden and stop to look at the graphic.



The low interpretive panels made for an uninterrupted sightline to the windows and outdoors.



“I WISH THERE WAS SOMEONE TO ASK...”

“Over the course of the last 4 weekends, I have been called on to answer all sorts of questions, ranging from helping people to identify a bird they saw, to why certain plants were growing in the CLO courtyard and whether they were good bird food, to questions about insects and snakes. As an aspiring naturalist, I was able to answer most of the questions and I felt it radically improved people's experience at the CLO. I think CLO should hire a naturalist to work at the desk or a similar station.”

—Chris Marx, data collector

16 / The “Make Your Space a Bird-friendly Place!” Panel

Mom spots another panel. “Before we go over to your computer game, let’s look at that sign over there in the corner,” says Mom. “Seed suggestions and tips for the backyard! Do you have a pen and paper?” she asks her husband. “I want to make some notes. Hmmm. It just says ‘native plants’ are best. I wish there was someone to ask.”

“Make Your Space a Bird-friendly Place!” has a coloring book-style line drawing of a bird-friendly backyard with pertinent areas circled and colored in. This exhibit panel shows visitors how to “give birds what they need to survive,” by listing birds’ needs (food, water, shelter, different habitats for different birds). Actual bird seed samples are attached to the panel, and identified; bird bath and feeder requirements are explained; and a variety of shelter and habitat needs are discussed.



Collecting Data on Panel Use

Eight people were noted as looking at the “Friendly” panel in the “First Five Minutes” study (4% of the sample). Low, slanted “reading rail” panels, like the “Peek” panel above, seemed to attract more visitors than tall upright panels like this one. It is possible that some visitors read this panel from a distance, escaping the notice of our data collector. It is easier for the data collector to tell when visitors are reading low, slanted panels because they tend to touch or lean on the panel while they are reading it. In fact, the ergonomics of a slanted panel provide more comfort than a vertical surface.



This tall interpretive panel was pushed into a corner, where it would not block any sightlines.

17 / The IBW Statue

The Crows head back to the Bird ID Kiosk. While Dad is showing Mom how the computer works, Joel and Cassie are busy exploring. "What is that next to the fireplace?" says Joel.

"It's a bird with binoculars. Maybe he's here to look at us!" says Joel laughing.

"There's a stone bird over here. Feel it. It's smooth." says Cassie who is by the opening to a hallway. Mom and Dad come over from the Bird ID Kiosk.

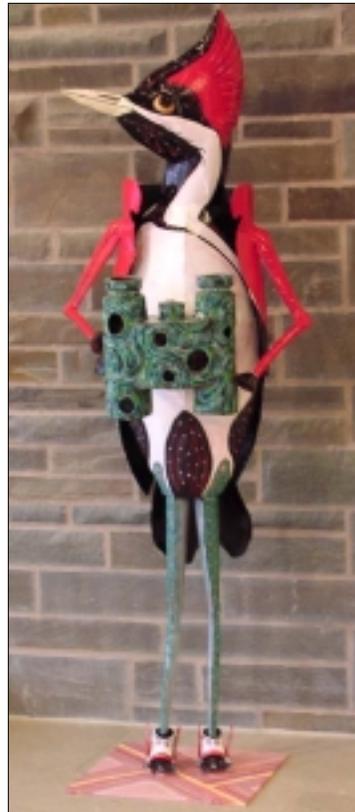
"Where's that noise coming from? Let's check it out," says Joel.

• • •

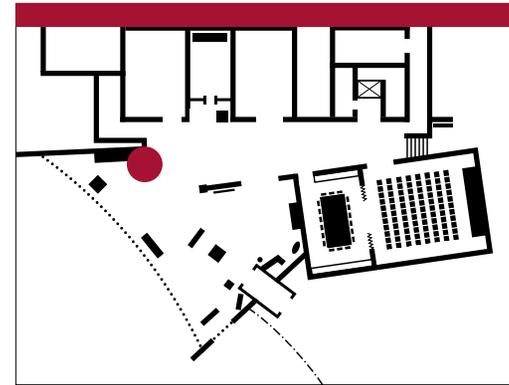
Labeling the Art

There was no information at all about this curious depiction of a bird with binoculars, or any of the art at CLO, in 2003. Art should be identified, and information about the sculptor and donor should also be given to answer visitor questions.

In 2006, the art had labels, but they were written in a different style than the other interpretive texts.



*The Ivory-billed Woodpecker statue:
Who wouldn't have questions?*



The labels for the art should be written in the same "voice" and style as the rest of the interpretive information in the CLO-VC.



Observing birds was the most popular activity in the Morgens Observatory Exhibits Area.

Morgens Observatory Exhibits Area Observations

More "First Five Minutes" Data

Trackings of visitors during the orientation study showed that all of the available exhibits in the Morgens Observatory area were used by someone during the first five minutes of their visits. Percentages over 10% are considered good (Serrell 1998), but that is compared to data from a whole visit, not just the first five minutes. The low numbers shown might be higher if we had observed people for a longer time.

Number of visitors observed: 198

Percentage of visitors out of 198 who, during the first five minutes of their visit...

Looked out window	55
Used binocs	40
Read something	29

or stopped at...

"Duck" panel	13
"Peek" panel	10
Bird ID Kiosk	8
"What" panel	5
IBW statue	5
"Friendly" panel	4

Summary of the Morgens Observatory Exhibits Area

During “The First Five Minutes” study (of 198 people), the percentage of visitors who stopped at the exhibits and features in the Morgens Observatory area ranged from a high of 55% (at the windows, looking out) to 5% (at the IBW statue) and 4% (“Friendly” panel).

The most popular activity in this area was observing birds. Looking out the window was often the first thing visitors did when they entered the Visitor Center.

During the first five minutes of their visit, more than one-quarter of the visitors read some interpretive exhibit material in the observation area: the “Duck” and “Peek” panels were read by more visitors than the “What” and “Friendly” panels, probably due to their locations and more comfortable reading height.

Users of the Bird ID Kiosk scrolled easily and engagingly through the bird pictures, habitats, and sounds. Children were able to use it by themselves. Groups of users frequently discussed what they saw and related it to the outdoors.

The range of activities—from peaceful and solitary viewing, to social, computer-based interactive technology—gave visitors many choices: interesting things to do related to watching birds and learning about them; learning about the Lab; and even seeing a whimsical piece of artwork.



Visiting the “Friendly” panel was the least observed activity in the Morgens Observatory exhibits area, perhaps due to its location.



A variety of experiences await visitors behind the doors leading off Williams Gallery.

Part Three / Williams Gallery

The Exhibits Area

At the north end of the Cornell Lab of Ornithology Visitor Center is Williams Gallery of Art, a wide hall with high walls hung with bird paintings by Louis Agassiz Fuertes and other well-known bird artists. Rooms behind the doors leading off Williams Gallery contain many different displays and activities.

On one side of the hall are two interactive exhibits offering insight into the world of sounds: the Natural Sounds Kiosk offering access to sounds from the archives of CLO's Macaulay Library; and the Sound Studio giving visitors the use of professional-quality computer equipment to analyze, compare, and understand sounds from birds, other animals, and several musical instruments. On one side of the sound exhibits is the well-stocked Wild Birds Unlimited Gift Shop (owned and operated independently from CLO). On the other side, Bartels Theater—a ten-seat theater with a first-class surround-sound system—is a place to watch short films or audio presentations on a variety of bird-related subjects.

Across the hall, the Object Theater (OT) Auditorium offers a multimedia presentation featuring the Lab's research, education, and conservation work, with the goal of promoting CLO's Citizen Science program—encouraging visitors to become data gatherers for Lab research. Next to the OT Auditorium is the beautiful Fuertes Room used for meetings and seminars.

A bulletin board near the west end of the hall encourages visitors to list birds they have sighted on Sapsucker Woods trails. At the other end of Williams Gallery, on the stairway landing, is the ever-popular Hummingbird Case.



Several summative studies were done on exhibits in this area: observations of visitors at the Natural Sounds Kiosk and in the Sound Studio; observations and visitor questionnaires in Bartels Theater; and Object Theater presentation questionnaires immediately after the performance, and again, months later. Results of these studies, along with other visitor experiences in this area, will be covered next.

18 / The Natural Sounds Kiosk

The Crowes walk from Morgens Observatory into a wide hallway. Paintings are hung on the walls and they can all see the store, with its tempting rack of T-shirts. Two women are sitting in an alcove watching a computer screen intently. This is where those interesting sounds are coming from.

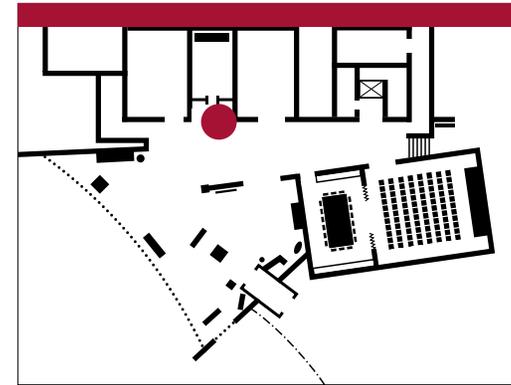
"We're ready to leave now," one of the women says, dragging her stool noisily back in place. Joel and his mother sit down at the computer, while Cassie and Dad look over their shoulders.

The Natural Sounds Kiosk is an interactive computer station offering four program choices:

- "Selections from the Macaulay Library of Sounds," a diverse collection of identified sounds for visitors to listen to
- "Sound Matching Game," an activity where visitors connect sounds with photos to score points
- "Staff Picks," a selection of Lab employee favorites with personal comments about the sounds chosen
- "Sample Our CD Productions," a listing of CLO sound recordings available at the store



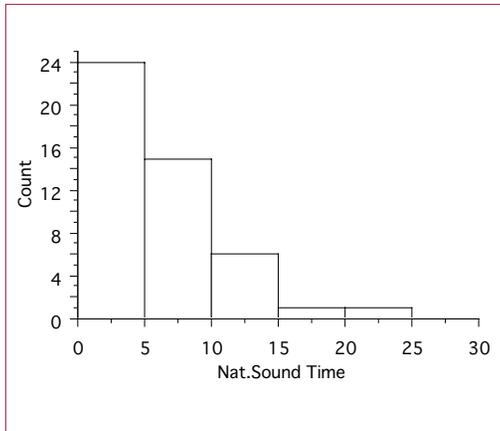
Visitors using the Natural Sounds Kiosk



THE NUMBER OF SOUND CHOICES IN THE NATURAL SOUNDS KIOSK

Macaulay selections	62
"Sound Matching Game" (three rounds, five sounds each)	15
"Staff Picks"	13
CD samples (29 CDs, five cuts each)	145
Total	235

Figure 3.
Histogram of time spent (in minutes)
at the Natural Sounds Kiosk



Time spent in this exhibit ranged from one to 22 minutes, with the average time being 6 minutes.

Unobtrusive Observations of Users at the Natural Sounds Kiosk

The goal of the summative study at the Natural Sounds Kiosk was the same as it was for the Bird ID Kiosk—to find out how people were using this interactive exhibit and see if it would be marketable to other institutions.

We observed 46 visitor groups as they used the Natural Sounds Kiosk, noting how long they stayed, who they were with, and what things they said and did. Below is a sample of one of our observations:

Group #35, two adults, stayed 14 minutes:

Young man walks over from gift shop, leaving older man (his dad?) still in shop. Sits down at kiosk and starts with sound (matching) game. Plays one round. Then goes to gift shop, gets his dad(?) and brings him over. They both sit down and keep playing the sound game. Laughing, talking about the birds. "Holy smokes!" "Yeah, oh, okay." "That sounds like Mitsy when she's hacking up something," dad says after hearing the Jaguar sound. "That's not a hummingbird. . ." "Very vocal" discussing what they think it is before picking one. "That's the frog!" "That's no frog if I ever heard one," says dad. Move to Macaulay Selections. Play one. Play another. "That should be the sound 'Polly wants a cracker.'" They are still listening to this section after twelve minutes. "That's a screech owl," and both laugh. Dad gets up and goes to look at Sound Studio. Tells son to come check it out. Son asks if it's different. Dad says, "Yes it is." Son gets up to follow him into Sound Studio.

Data collection sheet for observation of Natural Sounds Kiosk users

Focused Observations on Natural Sounds Kiosk CLO		
Date _____	Sample # _____	
Time start _____	Time quit _____	Elapsed time _____
	#	genders
Kids	_____	_____
Adults	_____	_____
Seniors	_____	_____
Total #	_____	_____
Running comments on behaviors, selections, reactions, verbalizations (quote whenever possible)		

Marketing and Modifications

There are 235 choices for things to listen to at the Natural Sounds Kiosk. The Macaulay selections may have been most popular because it was first on the list. "Staff Picks" has the most relevance to CLO's context. These two sections are fairly unique to CLO. The other two programs would probably work well in other settings or institutions without much modification, except perhaps present fewer choices. Certainly the "Sound Matching Game" would be engaging for visitors in many natural history settings (e.g., museum, zoo, nature center).

One modification needed is to make the name of the CD selection different from the Macaulay selection. Right now they are both labeled "Macaulay."

Comparing Visitor Use of the Natural Sounds and Bird ID Kiosks

A majority of Natural Sounds Kiosk users discussed what they saw and participated as a group (making choices, taking turns, etc.), but there was little "cross-referencing" (discussion related to other aspects of their visit to CLO-VC or prior experiences). Cross-referencing at the Bird ID Kiosk was more frequent, mainly because people were relating what they saw on the screen to what they'd seen outside at CLO or at their homes.

As with the Bird ID Kiosk, visitors found the Natural Sounds computer program easy to use. Few people were observed having difficulties navigating through the touch screens.

Visitors used the Natural Sounds Kiosk more slowly, spending more time per screen, and were more likely to be engaged in conversation than at the Bird ID Kiosk, where people tended to scroll through pictures quickly.

Given the number of choices contained in both kiosks and the limited amount of time visitors spent exploring, the number of options in any new programs based on these kiosks could be shortened without affecting the richness and depth of the exhibit. Visitors should be allowed to feel intellectually competent and successful, not overwhelmed.

USER DATA FOR THE NATURAL SOUNDS KIOSK

Demographics:

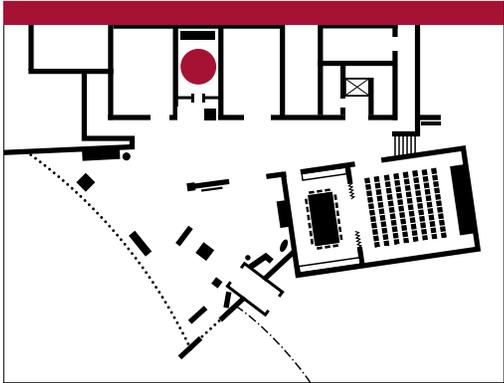
- 59% of the users were adults, alone or with other adults.
- 35% of the visitor groups were composed of adults and children.
- 7% were groups of children.

Behaviors:

- 66% looked at the Macaulay selections.
- 51% played the "Sound Matching Game."
- 26% looked at "Staff Picks."
- 15% checked out the CD samples."

No one sampled all four options.

(For more spreadsheet demographics and behavior data, see Appendix 5, Focused Observations of Natural Sounds Kiosk.)



19 / The Sound Studio

The Crowes are waiting in line to get into the Sound Studio. The door is open and they can see the same two women who were at the kiosk are now at a table with lots of equipment and two computer screens. After a while the women leave, the family walks in and Dad closes the door. Just as they are about to sit down, the door opens and a staff member says, "You have to leave the door open—people need to know that this is available."

"Actually, it's bothering people." says Dad, sitting down.

Mom focuses on the screen. "How do I work this?" She points to the left screen where to click to get it started, while Dad takes charge of the mouse. "You can do these things," she reads on the right screen.

Everybody wants to choose different sounds. Dad lets Joel take over the mouse and the family starts with recording their own voices. Dad explains why the blue line is moving, "When your voice is louder, or deeper, the lines are thicker."

Evaluator's Opinion

"This is probably the most unique, most engaging element in the CLO Visitor Center."

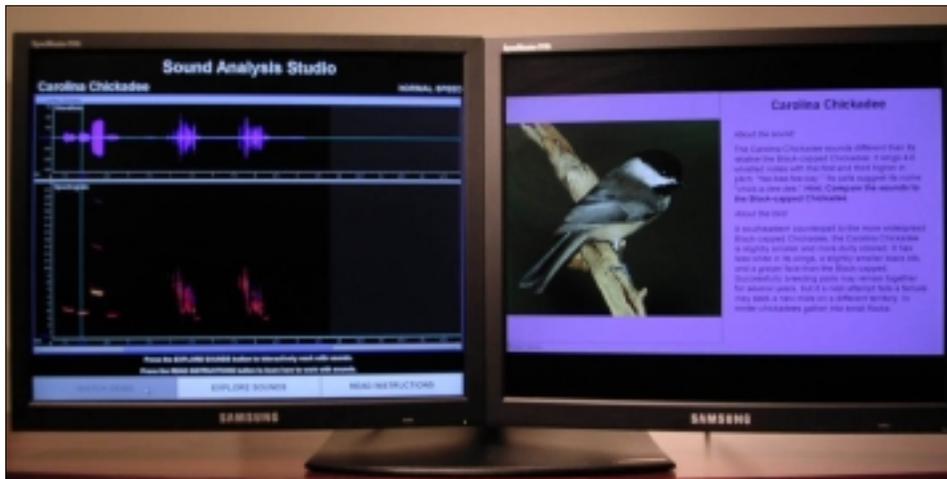


The Sound Studio offers visitors the use of professional sound equipment.

The Sound Studio lets visitors experience the way sound is studied by researchers at the Lab. Two computer screens sit on a wide counter surrounded by the professional equipment of sound analysis, the same kind used by CLO scientists. The sound program, a version of “Raven”—an interactive sound analysis software developed by CLO—is large, complex, and a rewarding challenge for visitors to use.

On the left screen, a selection of 164 sounds—birds and other animals (including humans)—is available. Visitors can hear and compare sounds visually by looking at colorful spectrograms and waveforms, moving graphic depictions of the sound. The right screen is synchronized with the contents of the left screen. After a sound is chosen, a photo of the sound source and a brief text with pertinent information about the sound itself and some natural history are displayed on this screen.

Visitors in the Sound Studio can select and play sounds, compare two sounds on one screen, record and play their own voices, play sounds backward, speed sounds up or slow them down. If no one has used the program for a few minutes (and the screen has been idle), the “Demo” mode automatically plays random choices from the program.



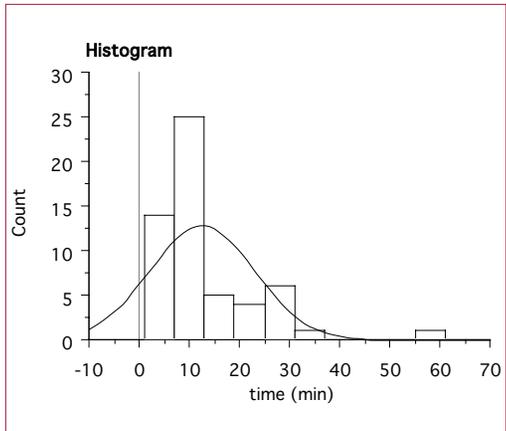
DOOR OPEN OR DOOR CLOSED?

“The door really should be propped open for maximum usage. During my time doing observations in the Sound Studio, I noticed many people peeking in through the glass, but not entering, when the door was closed; whereas groups will willingly walk in on other groups when the door is open, and wait for their turn.”

—Nicole Danti, data collector

A very high percentage (61%) of visitors read the information on the right screen—about the sound and the sound maker—aloud to the other people in their group.

Figure 4.
Histogram of time spent (in minutes)
in the Sound Studio



Time spent in the Sound Studio ranged from 1 to 61 minutes, with the average time being 12 minutes (n = 56).

A Challenging and Effective Exhibit

Visitor response to this exhibit was very positive. “The view and the sounds,” were mentioned frequently as what visitors enjoyed most at CLO. Not everyone used it, however, because it was easy to miss behind a closed door, or people were not aware that it was available, maybe due to a lack of good orientation materials.

Despite the fact that many users of the Sound Studio initially experienced some challenges with the technology (“Where do I start? What do I do?”), this exhibit afforded and produced more positive visitor experiences than any other interpretive device at CLO-VC. Comparing it to the criteria in *Judging Exhibitions* (Serrell 2006), the Sound Studio showed evidence of many aspects of excellence from a visitor-centered perspective, such as:

- Visitors were encouraged to feel in control of their own experiences.
- Choices and options for things to do were clear.
- There were convenient places to sit.
- The lighting, temperature, and sound levels were appropriate.
- Everything was well kept, functioning, and in good repair.
- The physical environment looked interesting and invited exploration.
- Exhibits caught visitors’ attention and enticed them to slow down, to look, interact, and spend time attending to many elements.
- Exhibits were fun–pleasurable, challenging, amusing, intriguing, and intellectually or physically stimulating.

Also of note is the fact that the average time spent by visitors engaged in the Sound Studio was 12 minutes. This was a record amount of time at one exhibit according to Serrell (1998) and compared to a study done at the Exploratorium called “Fostering Active Prolonged Engagement” where the longest average holding time for an exhibit was 8 minutes.

Studies of the Sound Studio

Critical Review of the CLO Sound Analysis Studio, 2003

We observed visitor groups in the Sound Studio as they used the program, noting how many people were using it, what choices they made, what they did and said while using the program, and how long they stayed.

Data from a sample of 13 visitors in 2003 was used to make suggestions about changes to the Sound Studio program that would make it easier for visitors to use. We made recommendations about the following issues: orientation to the program and the choices it offered; and improvements to the demonstration screen, interactive buttons, mouse interface, menu bars, and cues for what to do. Over the next two years, signage was added to the door (to invite people in), graphics were added to the studio walls explaining different sound sciences, the microphone was labeled, and the old tape recorder was removed. Many changes were made to the instructions and buttons on the screens, and photos were added, along with brief information about each sound and the maker.

The modified and expanded program in the Sound Studio was studied again in 2005.

Observations in the Sound Studio, 2005

In this study we wanted to see how visitors were using the modified and expanded Sound Studio. A data collector was stationed in the Sound Studio to observe visitors as they used the equipment. Fifty-six groups were in the sample.

It was evident from this study that there are still problems with the use of the Sound Studio, but many visitors “got it,” and were excited and fascinated by what they had learned. Transcriptions from Sound Studio observations showed numerous examples of “active, prolonged engagement,” as visitors explored and compared sounds, related what they heard to prior knowledge or experiences, read from the right-hand screen information—often reading out loud for the benefit of the whole group—made jokes, and struggled with the complex interface and content. Below are examples of what we saw and heard. (With very few exceptions, each of the following is an observation or quote from a different visitor.)

THE TOP FIVE SOUND PICKS

115 of the 164 sound choices were played by someone during our observation period.

These were the top five picks:

- Blue Whale
- Alligator
- Rattlesnake
- Humpback Whale
- Ivory-billed Woodpecker

There was an abundance of evidence in visitor behaviors in the Sound Studio of active and prolonged engagement.

SOUND STUDIO BEHAVIORS ON OUR DATA SHEETS

Observers checked the data sheets for these behaviors:

- Number of different sounds
- Click help
- Compare sound
- Read out loud
- Record/playback
- Play in reverse
- Close room door
- Slow down/speed up
- Relate to self
- Joke

- *There was evidence that visitors were learning new things:*

Played Wood Thrush again. (reading out loud) Discovered robins are thrushes, as well as some others. Left to get wife. "I found Wood Lark!" Said "They're all thrushes."

"We learned the song about the kookaburra in grade school. But I thought it was about a frog."

Then chose Whip-poor-will, played at normal speed (played second time). Female #2 read out loud from Whip-poor-will, noting that it "laid eggs with the lunar cycle."

Read out loud from Blackbird info. "Oh, polygamous."

Played Elk. "I thought elks don't make noise," subject said. Then American Alligator. "I thought they were quiet, too," said subject.

- *There was evidence that visitors were reminded of things they already knew or made new connections:*

"The first time I heard a pileated, I freaked out," said adult female. They picked Pileated Woodpecker and then recorded the young child's version of the pileated.

"What sound shall we pick now?" The adult male suggested that they play a wolf. They selected Gray Wolf. Then as a group, all of them tried to mimic the gray wolf (the child fairly well!).

Played Mockingbird. "We pray every year that he doesn't come back but he always does!" "Baltimore Oriole... Grosbeak... do that." Played Grosbeak. "Let's see if we can find the towhee. Daddy and I were listening to that before we left." "Ooh kookaburra." Sang the song.

Got very excited when he chose Veery, said "That's it honey! That's the one!"

Play (kid's choice) Western Diamondback Rattlesnake. "Sounds like maracas." "That's basically what it is." "Hey let's see if they have maracas in musical instruments to compare."

- *There were many occasions when people made a joke about what they heard:*

Chose Carolina Chickadee, played. Mother imitated sound. Chose Scarlet Tanager, played. "Sounds like a robin with a sore throat."

Plays Northern Bobwhite (Demo still playing). "Oh the wild oboe," all laugh as Oboe plays. No talking/discussing during. Indri plays, the "expert" talks about their behaviors, alternate names. "Oh, sounds like they're crying!" "That's so sad!" "You'd be crying too if all you had to eat was leaves!"

Play Red Howler Monkey. "Sounds like a skateboard park!"

Chose Laughing Kookaburra. "When I tell a joke that's how you're supposed to sound."

Played Bowhead Whale. "You could use this for a horror flick."

"Let's listen to the Jaguar." "That may be scary!" Play. "I want to know where they recorded this one!"

• *Some visitors were challenged by the interface, the content, or the directions:*

"What do you want, Dad? Birds? Tropical? I don't know how they classify these."

Next they chose Eastern Meadowlark, after having trouble finding it, because it was under blackbirds. "I didn't know they were considered a blackbird," said Female #2.

First tried to touch the screen. At first, they both just listened to the demo while trying to figure out how to navigate. Within a minute or two, the adult clicked on "Read Instructions" (read briefly). But even after going to "Explore Sounds," was still not able to choose a sound. The adult repeatedly clicked on the picture of the birds/animals at the right-hand screen. Three minutes after entering, the adult looked up at the instruction on the wall and successfully navigated to the "Choose Sound" menu.

PATTERNS OF USE IN THE SOUND STUDIO

- 55% of the users were adults, alone or with other adults.
- 41% of the visitor groups were composed of adults and children.
- 4% were groups of children.

Average number of sounds played = 9
Highest number of sounds played = 50

- 61% read out loud from right-hand screen.
- 54% used "Instructions."
- 25% read wall labels.
- 61% related info to own experience.
- 38% made a joke.
- 32% recorded own voice.

(For more spreadsheet demographics and behavior data, see Appendix 16, Sound Studio Observations, spreadsheet, demographics.)

Figure 5.
Sound Studio: Sounds played, most to fewest, number of times played

Blue Whale	18
American Alligator	16
Western Diamondback Rattlesnake	15
Humpback Whale	14
Ivory-billed Woodpecker	12
African Lion	11
Bullfrog	10
Field Cricket	9
Gray Wolf	8
Bearded Seal	8
American Goldfinch	8
Spring Peeper	7
Pileated Woodpecker	7
Oboe 1	7
Northern Right Whale	7
Northern Mockingbird	7
Great Horned Owl	7
Bald Eagle	7
Spotted Hyena	6
Red Howler Monkey	6
Laughing Kookaburra	6
Katydid	6
Jaguar	6
Human	6
Cicada	6
Black-capped Chickadee	6
Baltimore Oriole	6
African Savannah Elephant	6
Wood Thrush	5
Whip-poor-will	5
Red-winged Blackbird	5
Red-tailed Hawk	5
Green Frog	5

Types of Sounds and Visitor Sound Choices

Of the 164 sounds available, 135 are birds and 29 are nonbird. Of the 115 sounds picked by visitors during the observation period, 74 were birds and 41 were other animals or musical instruments, so the proportion of bird choices was smaller than what was available.

The most popular categories were Marine Mammals, Land Mammals, Reptiles, Freshwater Birds, Mimics, Colorful Migrants, and Name Sayers. Every available sound in those categories was listened to.

Figure 5 shows that of the individual sounds, Blue Whale was the most popular, chosen by 18 out of 56 visitor groups (32%). Alligator was chosen by 16 visitors followed by Rattlesnake, Humpback Whale, and Ivory-billed Woodpecker. Lion and Bullfrog were also very popular choices. Following closely behind in popularity were: Field Cricket, Bearded Seal, Goldfinch, and Wolf. It is interesting to note that only two of these top-choice sounds are birds.

CLO-VC attracts people who have an interest in birds, but perhaps their familiarity with many bird calls makes them more likely to choose sounds they haven't heard. Or, on the other hand, maybe the users are not all that familiar with bird sounds after all and select the names of animals they do know.

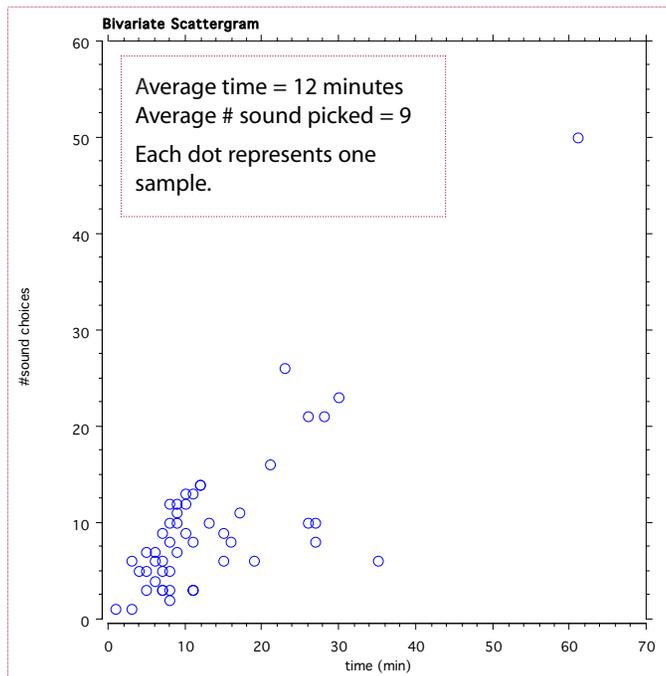
Forty-nine sounds were not picked by anyone during the observation period. Thirty-four were birds. Sparrows and Warblers were the big losers. Among the nonbirds, many of the frogs were not played. See Figure 7.

There did not seem to be a relationship between the number of sounds in a given category and the percentage of the sounds played. Land mammals—one of the largest categories—was the big winner with all 14 choices played.

If left running on its own, the Demo screen will automatically cycle through all 164 sounds in the program. Some visitors did not realize that the program was interactive, and they simply watched the pictures and listened to the sounds played by the Demo. See Figure 6.

If audience development in the future is wildly successful, there will probably have to be a sign-up sheet for 20-minute blocks of time by reservation in the Sound Studio.

Figure 6. Scattergram of time spent and number of sounds played by sample of visitors (n=56) to theSound Studio

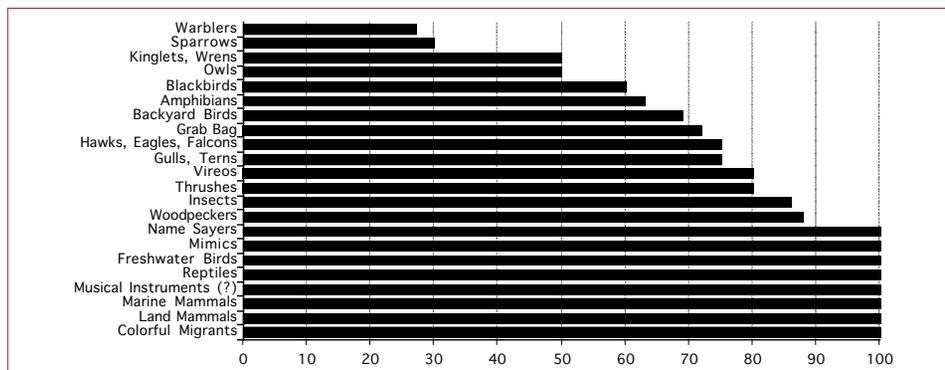


Longest-time visitor group (61 minutes) read, read out loud, compared sounds, discussed them, played slow and backwards, and picked 50 sounds!

Next longest-time visitors (35 minutes) watched as the demo videos played automatically and discussed them, and finally picked 6 different sounds themselves.



Figure 7. Percentage of sound choices played in the Sound Studio for each group of available sounds.



During the observation study, visitors picked every available choice (100%) from the Name Sayers, Colorful Migrants, and six other groups of sounds.

Visitors played only 28% to 30% of the sound choices for Warblers and Sparrows.



As the CLO-VC becomes more well-known and popular, the Sound Studio might need a signup sheet for visitors to reserve a 20-minute block of time.

Figuring it out

Following are a few suggestions for making further changes to the “Raven” program in the Sound Studio’ because we saw evidence of people still having difficulty getting started and coping with the interface:

- Have directions for “Explore Sounds” visible at all times, especially while the demo is playing, to help people get started, instead of thinking that the demo is a video.
- Make the “Choose Sounds” button look different, more primary.
- In the overview information section, there could be better line breaks for easier reading.
- Put “Name Sayers” in quotes.
- Add a Raven sound to the menu?

Problems with collecting data in the Sound Studio

The Sound Studio is a small room, and the presence of a person taking notes did not go unnoticed. Some visitors were reluctant to enter when the data collector was in the room already; one person left after being asked if the data collector could observe them. For people who did stay, some wanted the data collector to help them use the program; others seemed to forget they were there. Some people spoke softly and could not easily be overheard.

The method—running commentary on what visitors did and said—requires the data collector to observe and write at the same time, which can lead to some omissions. For the most part, however, the data gathered provided reliable evidence for the kinds of experiences the visitors were having as they used the program.

One data collector’s handwriting was very hard to read. We had a long telephone conference to decipher many of the words on his forms. Maybe in the future we will have data collectors typing directly into a laptop computer.

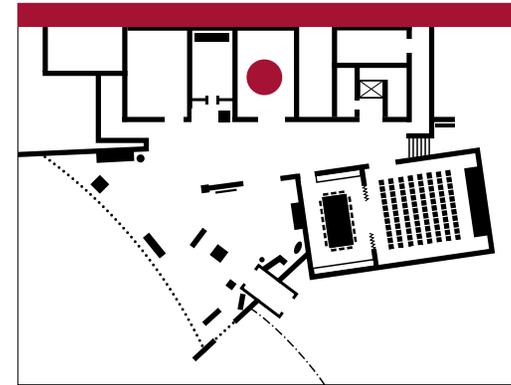
20 / The Store

"It was really fun being in that Sound Studio and seeing the sounds like that, wasn't it?" says Joel.

"I'm thinking about what your voice would look like on one of those graphs right now," says Dad."

Look Mom! There are T-shirts for sale on that rack," says Cassie.

"I've heard a lot of good things about this store," says Mom going in to look for the binoculars she's been wanting. The kids are still going through the T-shirts, and Dad is seriously considering one of those big-brimmed hats displayed above them.



SHOPPING UNLIMITED

From CLO's Visitor Survey we learned that 10% of visitors come specifically to shop at this store; many come to buy binoculars or other optics.

From the Exit Interviews, we learned that "Shopping at the Store" is on the Most Enjoyed list, with multiple mentions.

Data from the Orientation Study showed that 25% of visitors stopped at the store within their first five minutes at CLO.



The popularity of the store presents some opportunities for more interrelated interpretation between the Lab's activities and the merchandise for sale.

A Booming Business

Wild Birds Unlimited is the first and largest franchise system of retail stores catering to the backyard bird feeding hobbyist. They have more than 300 stores throughout North America. Wild Birds Unlimited joins with, and supports, many bird-related conservation efforts; thus, the store and CLO are natural partners.

Best selling items at the store include books (for adults and children); kids' toys, puppets, and games; CDs and optics. Lab members get a 10% discount.

Wild Birds Unlimited seems to be doing a booming business at the Lab. Suggestion: The store's name and hours of operation could be more prominently posted, and the nature of the relationship between the profit-making store and the Lab could be interpreted for visitors.

Given the solid popularity of the store, it seems like better use could be made of the display area in the hallway. Perhaps here would be a good place for more bird mounts; maybe even a "Stuffed Bird of the Month," along with some interpretation and a sales pitch for related books and plush toys of the same species. Or how about an interpretive display about optics?



After just five minutes, the Crowes come back into the hallway, each carrying a bag. "I just loved that store, but I can't believe they don't sell bags of bird seed!" says Mom, "and I could really go for a cup of coffee about now."

"Me, too," says Dad, "but I haven't see anyplace where we could get some."

"My new T-shirt is so cool," says Joel, "Where do we go next?"

"Over there," answers Dad (pointing at Bartels Theater at the end of the hall on the other side of the Sound Studio). "We were distracted by T-shirts!"

21 / Bartels Theater

"Somebody's in there. The sign is lit," says Mom, but as soon as she says this, the door opens and five people walk out. The Crowes walk into Bartels Theater.

"It's really little! Will we be the only ones here?" says Cassie. "When does the movie start?"

"We get to pick the movie and when it starts," says her dad, who has read the directions. "We'll be the only ones here—unless somebody walks in. Let's all decide what we want to see. Maybe we can see more than one."

"There weren't too many people in the hallway," says Mom. "It should be okay."

The family selects Language of Birds and Joel presses the code number into the big blue keypad next to the computer. "I hear all those different sounds the birds make," sighs Mom, "and I'm so curious about what they mean." The family sits down, and the film starts...

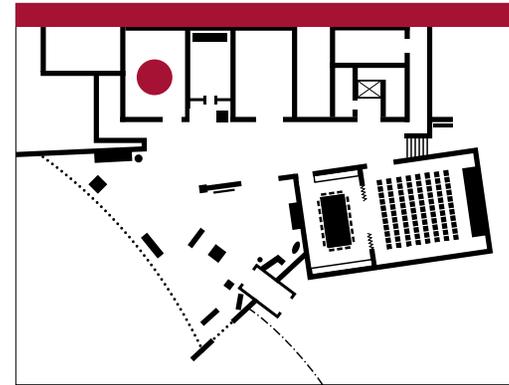
Next to the Sound Studio is Bartels Theater, a theater with only ten seats, offering intimate multimedia experiences. Visitors choose what they want to see by selecting from a list displayed on a computer to the left of the movie screen and pressing its code number on a large keypad.

The general goal for the Bartels Theater is to provide short interesting films for visitors to watch on their own. The films feature the diversity of the world's birds, the need for conservation, and the functions of the Lab, while providing a showcase for the Lab's world-class collection of sounds.

Five choices, ranging from 5 to 12 minutes long, were available. Four were films: *Language of Birds*, *Pieces of Paradise*, *Sights and Sounds of the Wild: Building the Macaulay Library*, and *Sapsucker Woods*; the fifth, *Seabird Island*, was surround-sound audio only.

(Note: As of 2006 the menu of choices in Bartels was slightly different than reported here.)

• • •



***"The surround-sound was great;
I almost swatted the mosquito."***

—Visitor's comment about
a Bartels Theater film



Visitors make their own selections from the menu of available films and audio programs in this surround-sound theater.

A Study of Bartels Theater

Serrell & Associates did a detailed study of Bartels Theater. In August 2005, we observed 91 visitors and recorded any comments made as they were watching (or listening) to the program. After the program, these same visitors were given a survey to fill out asking which program they had selected, why they had chosen it, and what they had learned from it.

We discovered that *Language of Birds*, chosen by 45 visitors in the study, was the most popular choice. *Pieces of Paradise* was chosen by 23 visitors (two also watched *Language of Birds*). *Sapsucker Woods* (9), *Sights and Sounds of the Wild: Building the Macaulay Library* (7), and the audio-only choice, *Seabird Island*, (6) were the least popular choices.

For each of the programs we will review what it was about and what visitors thought about it.

Language of Birds:

This animated film begins with familiar human sounds, and moves into the variety of sounds birds make, and what they communicate to other birds. The main idea is that birds make many different kinds of sounds and calls that have meaning to other birds, just as human sounds have meaning to other humans.

Visitors chose this film for a variety of reasons. Curiosity was given as a reason: many wanted to know more about bird sounds and mentioned prior knowledge. The “picture” on the selection screen and the timing appealed to them. The mention of animation tended to attract visitors with children.

Visitors who watched *Language of Birds* understood it was about what birds’ songs mean and that a bird’s sounds communicate something to other birds. They learned new things about species-specific sounds, the effect of the environment, and how a bird’s larynx has two parts.

Viewers laughed at the catbird and bellbird sounds. They said “wow” at the larynx, and a surprised “Huh!” at the meaning of the cardinal’s sounds.

Some people liked the animation in this film; some would have preferred real bird pictures. This latter group seemed more interested in specific bird

identification than in the broader concept of bird language. Below are samples of visitors' comments.

- *Some positive visitor comments about the animation in Language of Birds were:*

"At first, [I was] disappointed in the animation aspect, but then realized 'listening' was easier without the real pictures of birds."

"I like the cartoon representation the film used."

"Very enjoyable. Great graphics. More local bird sounds and meaning."

"Style of presentation (i.e., 'flat' not like typical nature movie) allowed one to concentrate on the audio (which, after all, was the point)."

- *Negative comments about the animation:*

"It would have been nice to see pictures of real birds."

"The program was excellent, but I would've appreciated color pictures of the birds so that I may be able to identify them if I see them and hear their calls."

"The film seemed a little bit geared towards kids—more real footage would have been good."

- *Some general visitor comments about Language of Birds were:*

"We enjoyed the video very much and look forward to returning."

"It wasn't what we expected. We thought we'd learn more about what birds were saying. Not just that they talk."

"Would like to see a film similar to this, but going into further detail, i.e. featuring a few birds, and explaining each of the birds various calls (alarm, mating, etc.)"

"Nice, informative presentation!"

"Wonderful program"

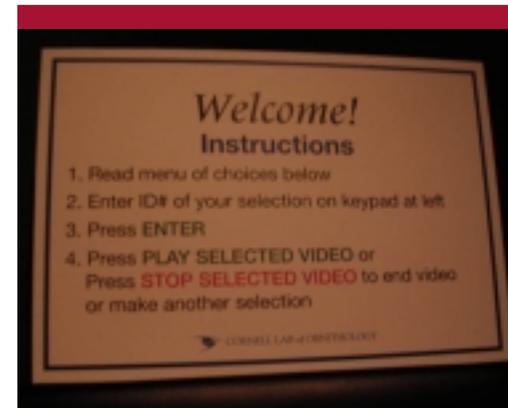
- *When asked why they chose Language of Birds, visitors responded:*

"Interested in bird sounds. We have the intention to purchase some bird call CDs."

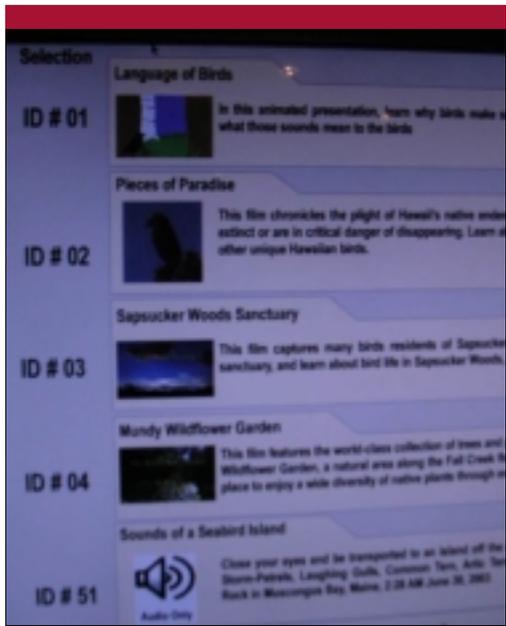
"For the kids"

"It was first on the list, thought it might be interesting"

"Interest in human and animal linguistics"



Visitors did not seem to have any problems with the instructions or figuring how to use the menu and the keypad.



Language of Birds may have been picked the most often because it was first on the list.

Did the “blaring horn” symbol discourage visitors from choosing Seabird Island?

“I had seen the film on Hawaiian birds and though I’d get too sleepy if I chose the one that was only sounds.”

“To discern different bird sounds—‘to learn the language.’”

“We visited the recording studio and became interested.”

(See Appendix 15, Bartels Observations and Questionnaires, database transcriptions.)

Pieces of Paradise:

This film is about the fragile state of Hawaii’s native bird population.

Visitors who watched this film understood it was about the evolution, decline, and extinction of bird species on Hawaii due to the impact of human encroachments.

Most people didn’t realize there were so many species affected and the figure of 78% made an impression on them. *Pieces of Paradise* reminded them that they should work to preserve and conserve. Viewers were mostly quiet while watching this presentation, but a few people made sad “Hmm” sounds, or said “Oh no” in reaction to hearing about the extinctions.

- *Some visitor comments about Pieces of Paradise were:*

“That extinction possibility of many species at human hands is a threat everywhere on this planet.”

“We have a huge impact on the ability of island species to survive.”

“Always reminds me to remember my surroundings.”

Sapsucker Woods:

The Sapsucker Woods film was added to the Bartels menu halfway through our study. We wanted to have visitors watch one of the four film selections we had been studying, but some visitors chose this new film because it had immediate relevance to their experience.

Visitors understood that this film was about the wildlife sanctuary surrounding the Lab and its variety of birds. They appreciated the beauty and ecological complexity of the site.

Sights and Sounds of the Wild: Building the Macaulay Library:

This film takes the viewer behind the scenes at the Lab's Macaulay Library (the largest collection of natural sounds in the world) and shows 1935 footage of the Ivory-billed Woodpecker.

Visitors who chose "Sights and Sounds" were attracted by the Ivory-billed Woodpecker pictured on the icon representing the film. This bird has been in the news recently—it was thought to be extinct and a possible sighting has occurred. They wanted to learn more about it.

The Macaulay Library of Animal Sounds is located in the Cornell Lab of Ornithology (but not open to visitors). Visitors learned about the history and scope of the library, CLO research, and saw historical footage of one of the last Ivory-billed Woodpecker sightings.

• *After viewing the Macaulay Library film visitors were asked to respond to questions, including the prompt, "I never knew..." These were some of their responses:*

"... this library existed—too bad it's only available to scientists and not the public."

"... how the research is useful worldwide in helping the increased understanding for the benefit of the wildlife"

"... about the looking for Ivory-Billed in 1935 and how modern technology allows us to more completely capture, catalog, and share information about the species that share our planet"

Seabird Island:

This audio-only presentation features the bird sounds of an island off the coast of Maine.

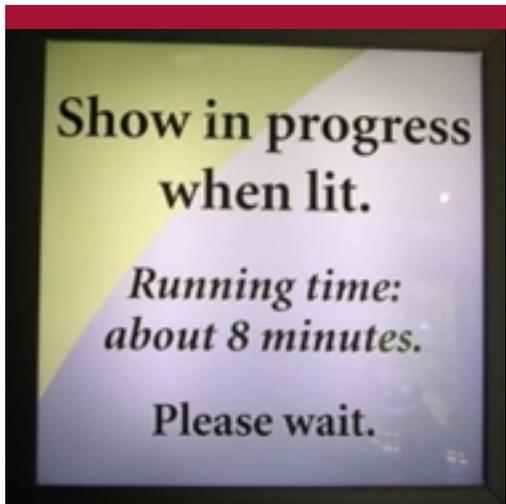
Visitors who listened to *Seabird Island* were impressed with the complexity of the sounds and how peaceful and relaxing it was listening to birds.

Seabird Island is represented by a "blaring horn" symbol on the computer screen list (to indicate that it is audio-only). This unappealing icon may have deterred visitors from choosing it. Perhaps a more attractive icon and a short statement that emphasizes the surround-sound quality would help sell this program better.

PIECES OF PARADISE

"They were talking all the time during the movie about how extraordinary those species were. They also expressed their sadness for the extinction of the birds, using expressions like 'This is depressing!' or 'What? 78% in danger?' She seemed to know a lot about birds."

—Rocio Rodriguez-Arias, data collector



BARTELS THEATER DEMOGRAPHICS DATA

- 68% of the visitors surveyed for Bartels were in adult-only groups.
- 31% of the visitor groups surveyed were composed of adults and children.
- 58% were making their first visit to CLO.
- 37% said they had a special interest in birds.
- 15% were members of the Lab.

• *Some visitor comments about Seabird Island were:*

“How peaceful the bird sounds were.”

“Listening to the gulls is relaxing because you think of the beach.”

“What a fine combination the sounds make.”

“I didn’t hear roseate tern or any puffins, which are both breeders at this island. Perhaps none were near their microphones, but perhaps they are less vocal at night or away from the island at night.”

(See Appendix 15, Bartels Observations and Questionnaires, database transcriptions.)

The Lab originally wanted to have shows more along the lines of *Seabird Island*, but based on our observations, this seemed to be the least interesting to visitors. Was it the presentation or the show itself? During our formative evaluations of the Sound Studio, we found out that visitors wanted to have pictures along with the sound. The sound-only show in Bartels needs to have better orientation at the selection stage, so visitors would know what to expect, and adding some visuals would probably help.

Challenges with collecting data for Bartels Theater

At times during the data collection period for our summative studies, visitorship to the Lab was sparse. With two studies being conducted simultaneously, data collectors vied for visitors to participate in their surveys. The demographics of the visitors surveyed for Bartels do not reflect self-selected visitors: They were recruited to be part of the study. They did, however, make their own choices of which show to watch, and what they said about the program was in their own words.

Two other problems: One data collector did not follow directions. She made suggestions to the participants, and filled out some of the questionnaires herself, instead of handing them to the participants. Those sheets were dropped from the sample. The inclusion of a new show midway through our testing period was problematic because it changed the number of choices visitors had, which made the protocol a little awkward (“Please choose one of these four... No, not that one...”).

Comments and Recommendations for Bartels Theater

While some people expressed a desire to watch all of the films, there are many other activities at CLO competing for their attention. Given the large percentage of visitors who come back, people will have an opportunity to sample the other options on another visit.

Most visitors have a limited amount of time to spend looking at exhibits. Based on observations of visitors' use of videos in other museum settings (Serrell 2002), the number of choices in Bartels should probably be kept to fewer than five and the running length of each film should be kept to under 10 minutes.

The original plan for Bartels Theater was to be more of an interactive experience than it turned out to be. If the current system will allow for an interactive element, visitors have clearly expressed an interest in tutorials on identifying birds by sight and sound. To address this request at the present time, a label suggesting that visitors look into CLO's Birds of America Web site would give them a take-home activity and help answer their questions about bird identification.



"Language of Birds. That was really interesting," says Mom, "You can bet I'm going to be listening to what those birds are saying at our feeder! I just wish they had shown real birds instead of cartoons."

"I liked the cartoons!" says Joel. The family gets up to leave.

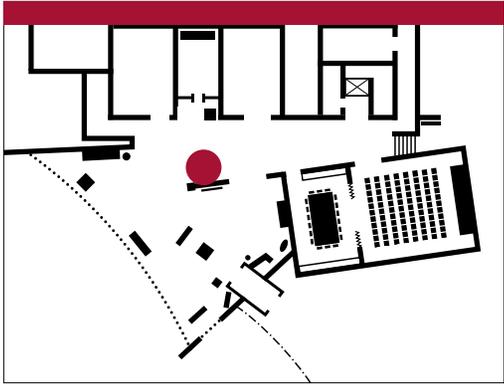
"Don't you think we should see Sapsucker Woods before we head for the trails?" asks Dad.

"It's a little chilly in here," says Mom, "and there's more to see in this building first. I wonder what's on that bulletin board?"



Evaluator's Opinion

"The Bartels Theater should demonstrate real surround-sound, knock-your-socks-off soundscapes, with minimal visuals. Don't try to be just another National Geographic special."



22 / The Bulletin Board

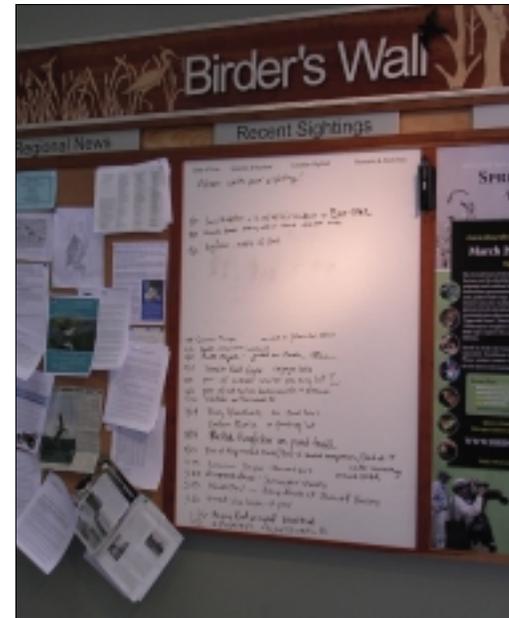
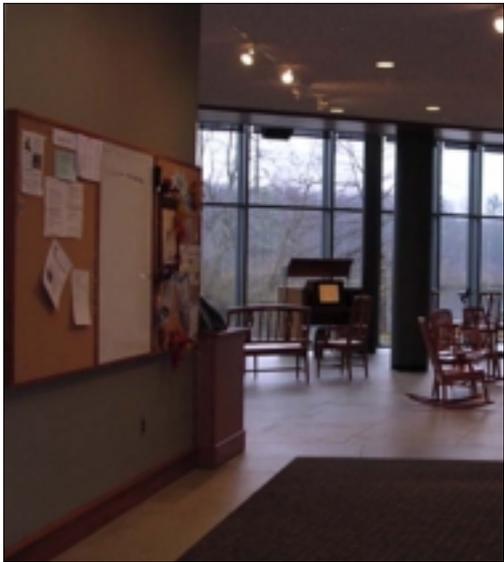
Dad really wants to get outside, and when he takes a glance at the bulletin board he is happy to see a list of birds spotted on the trails today handwritten on a whiteboard by visitors. Maybe this will encourage his wife to speed it up a little. He points out the list to her: "It says we should write in the birds we see on the trail—when we finally get there."

• • •

Updating Bulletins (or Don't Let it Get Tacky)

The immediate and participatory nature of the bulletin board is engaging for the people who make the entries as well as for people who just look at it. Its main value is in providing up-to-date information in a personal format. While a computer can capture and store the same kind of information, the high-tech layers can be intimidating to users. The two forms of media can complement each other, but the whiteboard should not be completely replaced by a computer.

Bulletin boards typically become messy and out-of-date. One person needs to maintain it, weeding out old notices, posting new ones, and refreshing the bird list.



The Bulletin Board, "Birder's Wall," provides a place for daily bird sightings in Sapsucker Woods and a forum for birders.

23 / The Rest Rooms

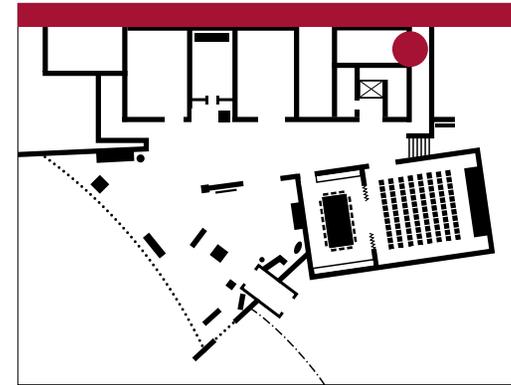
"Time to visit the rest rooms!" says Mom. (Cassie nods.) "You boys can wait for us on those chairs by the (reading the sign) "Fuertes Room."

• • •

Where are the Rest Rooms?

When the building first opened, there were no signs to direct visitors to the rest rooms which are located far from the front door. Signs were added, and in the first Orientation Study, data showed that the rest rooms (after the store) are among the top, most visited, elements of the CLO-VC.

The distance from the entry to the rest rooms, located in the back hallway, is about as far as any architect could have planned. In most public spaces, these facilities would be close to the front door.

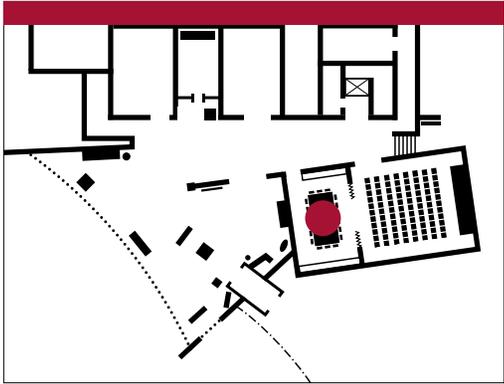


FIRST STOPS

Percentage of visitors (out of 198) who stopped at Williams Gallery area places we have just discussed during the "First Five Minutes" visitor study.

Store	25
Rest Rooms	15
Bulletin Board	9
Sound Studio	4
Natural Sounds Kiosk	3
Bartels Theater	1

The store and the rest rooms are the top destinations in the Williams Gallery area of CLO-VC. People planning to visit the trails probably check out recent sightings listed on the bulletin board, and the rest rooms, before venturing out. Bartels Theater and other exhibits are typically not visited until later.



THE BEAUTIFUL FUERTES ROOM

Louis Agassiz Fuertes lived in Ithaca all of his life, but traveled throughout the world drawing birds for scientific expeditions. His work was featured many times in *National Geographic* and *Bird Lore* (which became *Audubon* magazine). CLO houses the largest collection of Fuertes's work in the world.

In Exit Interviews, visitors mentioned the Fuertes Room when asked what they enjoyed most about the CLO-VC.

24 / The Fuertes Room

Father and son have been sitting on the chairs outside the Fuertes Room, watching people going in and out of the store. "These chairs are pretty comfortable," says Joel.

"Um-hmm," says Dad (who is still trying to make up his mind about the hat). "There they are!"

As Mom and Cassie approach, he points to the Fuertes Room doorway and says, "I think this room here is only for meetings, but you should see it—it's a beauty. I read that sign while I was waiting. 'Fuertes' is the man did all the bird paintings in there. He was from Ithaca."

Mom peers into the Fuertes Room and says, "So beautiful! My friends told me to make sure to see this." (The family walks in to take a closer look at the bird paintings.) "Angela was in this room for a seminar last fall."

The Fuertes Room, known to avid birders as "the Sistine Chapel of Birding," is a recreation of the mansion library of Frederick Brewster, who donated it to the CLO. Original bird paintings by Louis Agassiz Fuertes form a frieze on three sides of the room; the fourth side is open to the Object Theater Auditorium. A folding partition can be pulled open to separate the Fuertes Room from the Auditorium, and each has its own entrance.



The Fuertes Room and a detail from one of Fuertes's paintings in the room



25 / Object Theater Auditorium

As the family walks back into the hall, they hear the receptionist announcing "The next show in the OT Auditorium will begin in 3 minutes."

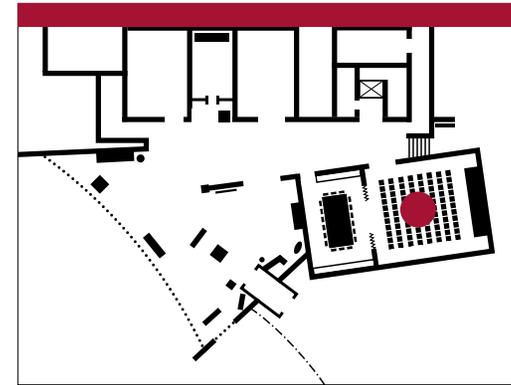
"Let's see what's going on in there," says Dad.

"It's about bird watching and science, I guess," says Mom after reading the sign outside the auditorium door. A woman asks Mom if she would be willing to fill out a questionnaire after the show and Mom answers, "Of course, I will."

The family enters the dimly lit auditorium. They see a slide screen, a park bench, what looks like the window of a house. "It looks like they're going to do some kind of play," says Joel.

The Auditorium is a multi-use, 100-seat room. The main function of this auditorium is to show the Object Theater, an 12-minute presentation about CLO's Citizen Science Program.

The Object Theater (OT) was designed to explain Citizen Science, a program that utilizes bird watchers as information gatherers for CLO research projects, and to recruit participants. Four CLO Citizen Science projects are covered in the OT presentation: FeederWatch, PigeonWatch, the Birdhouse Network, and the House Finch Eye Disease Survey.



"So often people think of Research with a capital 'R'. This film is a wonderful example of research with a small 'r'—how daily observations contribute to an understanding of the world."

—Visitor's comment after seeing the Object Theater presentation

**LAB PROGRAMS PROMOTED BY
OBJECT THEATER**

FeederWatch

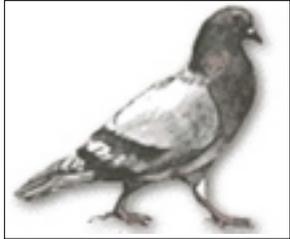


Still images, video, props, narration, and music are used to tell the story of how bird watchers have contributed to CLO's ongoing bird research. The OT explains the role of ordinary people in collecting useful data that can be compiled and analyzed by CLO scientists. The OT presentation also encourages visitors to become more engaged in bird watching activities.

The family emerges from the OT auditorium and Mom goes to fill out the questionnaire. Dad and the kids wander around Williams Gallery looking at the bird paintings while they are waiting for Mom.

"I'm inspired! I think we all should be Citizen Scientists," says Mom, after handing in her questionnaire. "They're going to mail me another survey in a few months," she tells Dad. "I wonder how much I'll remember!"

PigeonWatch



Studies of the OT Auditorium

OT Auditorium Survey Results: After the OT Performance

Studies of CLO's new exhibits by S&A in March through May of 2005, included a survey filled out by 103 visitors who had just watched the presentation. Visitors entering the auditorium were asked if they would be willing to fill out a questionnaire after viewing the Object Theater presentation. They were given the questionnaire after the show.

Did the audience understand the main purpose of the OT presentation? Open-ended survey questions asked visitors to explain the purpose of the OT show and to describe what new ideas they were taking away with them. Analysis of the surveys showed that 70% of respondents understood the main idea of the OT program to be "citizen science"—the process through which ordinary people collect useful data that can be compiled and analyzed by CLO scientists.

Examples of visitor comments indicate a good grasp of the citizen science concept, in answer to the prompt "What did the presentation show?":

"Bird wildlife and how important the study of them is; how people can help."

**Birdhouse
Network**



**House Finch
Eye Disease
Survey**



“Demonstrates to a wide variety of people how they can become more involved in citizen science—generate ideas.”

“How birds are studied to help maintain a healthy population as well as to involve average citizens in the science.”

“That birdwatchers could contribute meaningful info to science.”

“I could participate in an organized citizen reporting system of bird seeing in my area.”

The survey responses contained abundant evidence of “script echo,” (people using the same words in their answers as they had heard in the OT audio script). Script echo indicates that people were paying attention and easily integrated the information presented into their own thoughts.

Here are some examples showing excerpts from the OT presentation’s audio script and the script echoes found in the survey responses:

Audio Script: “Birds bring beauty and music into our world. They inspire our fascination and our curiosity. We want to understand them, to make them part of our lives.”

Survey Respondent #30: “Many people overlook the positive effects birds have on our lives with their beautiful music.”

Audio Script: “I love to watch the birds from my kitchen window every morning as I drink my coffee. I keep a notebook of what I see each day...”

Survey Respondent #74: “to simply observe birds from your window and contribute to science.”

When asked “What is one new idea you are taking away with you?” the majority of visitors completed the phrase “I never knew or I didn’t realize...” with answers indicating understanding of the Lab’s Citizen Science program (as quoted above). Others wrote in new things they had learned from the OT’s presentation of specific Citizen Science projects.

• *The House Finch Eye Disease Survey really caught their attention. It was mentioned by 19% of respondents:*

“Scientists discovered the finch eye disease from people who called in about it.”

“The finch eye disease was first observed by a ‘citizen scientist.’”

CREDITS

The Cornell Lab of Ornithology Object Theater and other interpretive exhibits at the Lab were coproduced by CLO and the Exhibits Division of the Science Museum of Minnesota (SMM).

Development of the CLO Visitor Center was supported by a grant from the National Science Foundation.



Data collection sheet: Cued questionnaire after the presentation

Cued Questionnaire for Auditorium Object Theater CLO

Date _____ Time _____ Sample # _____

Gender: M F Age: Adult Senior Group type: A only A+K #Group: 1 2 3 4 5+

Is this your first visit to the new CLO? No ___ Yes ___

Do you have any special knowledge, training, or interest in birds? No ___

Yes ___ What? _____

Are you a Member of the Lab? No ___ Yes ___ (get *Living Bird* magazine)

1. What was this program about?

It was to show _____

and to make people _____

2. What is one new idea you are taking away with you?

I never knew, or I didn't realize

and/or It reminded me

Anything else?

Data collector's code _____



OBJECT THEATER DEMOGRAPHICS DATA

- 67% of the visitors surveyed for the OT were in adult-only groups.
- 33% of the visitors surveyed for the OT were in adult+children groups.
- 78% were making their first visit to CLO.
- 64% said they had a special interest in birds.
- 11% were members of the Lab.

Many OT visitors were making their first visit and were in groups with children, which suggests that the OT is serving as an orientation exhibit for families.

“When we were shopping for a parakeet last week, the first one we chose had an eye tumor. The finch project reminded us of this.”

• *PigeonWatch* also caught much attention. The color of pigeons was mentioned in most of the *PigeonWatch* comments:

“Pigeons are the only species to have so many colors.”

“That different coloring of pigeons means something.”

• *The Scarlet Tanager* was mentioned by some of the survey respondents:

“... how little things will affect birds—such as climate, wind direction, forest size, etc.”

“Tanagers are under study to determine size of forests needed to sustain/attract them.”

• *Two responses indicated surprise at OT’s correction of a common fallacy:*

“It is okay to open a box with chicks in it.”

“You could watch a bird family hatch—not disturb them as you watch the nest in the birdhouse.”

Answers to the prompt “It reminded me...” on the OT Survey, showed that 25% of the respondents had the intention of “doing something,” such as:

• *Participating in a Citizen Science program...*

“I would like to become involved.”

“I am always ‘about’ to participate. Perhaps now I will.”

• *Setting up a bird feeder or birdhouse...*

“We have a perfect backyard for bird watchers and we’ll put up some feeders and houses when we get home.”

“Can’t wait to put up a bluebird house today!”

• *Taking the time to listen and observe birds...*

“We forget to listen for simple pleasant sounds.”

“I need to stop and ‘smell the roses.’”

"How short time is to appreciate birds and other life on earth. How rapidly things change, disappear, and appear"

- *Using the techniques of Citizen Science in their own work or teaching...*

"To keep working on this with my students (I teach) so I can pass it on."

"I also saw info that I should use in my outdoor education program."

Nearly all of the OT presentation viewers had only praise for what they had experienced. "A wonderful presentation," "Great presentation," "It was a pleasure," and "Well done program!" were common responses. Others went into more detail:

"I have been to other multimedia productions and really appreciate the effort of the presentation and the enjoyment of watching it. Thank you."

"My four-year-old daughters loved the film, the sound and all of the 'pretty colors' of the birds."

"The best exhibit I have seen in years!"

"The set was really cool. I liked the hidden scrim."

- *There were a few complaints or suggestions for improvement:*

"I'd like to have seen a few answers—Why do pigeons come in so many colors?"

"I had to read the text to my five-year-old."

"I didn't like the computer-generated graphics insert on Tanagers."

(For more details, see Appendix 9, Object Theater Cued Questionnaire, transcripts of answers.)



People immediately recalled concepts about pigeon colors, but no one mentioned them in the follow-up survey.



“A person could network with other birders at the CLO to report birds seen at their feeders, birds nesting on their property, and help in reporting cases of conjunctivitis in House Finches.”

—OT Follow-up Survey respondent

Follow-up Surveys on the Object Theater Presentation—Eight Months Later

To assess the long-term impact of the OT presentation, follow-up surveys were mailed eight months later to 91 individuals who had completed the initial questionnaires. After filling out the original questionnaire, each of the participants had addressed his or her own follow-up survey envelope, to minimize the possibility of the survey being tossed out with junk mail. (If we'd done the study in 2006, we probably would have used an Internet program, such as “SurveyMonkey” instead of paper.)

These new surveys asked whether visitors had engaged in any new bird-related activities, and whether they had elected to participate in the CLO Citizen Science Program since viewing the OT. We received 45 completed follow-up surveys, a return rate of almost 50%.

Follow-up survey respondents definitely remembered their OT experience months later:

“Great multimedia presentation!”

“We enjoyed the program. It was interactive and fun.”

“It was interesting and presented new ways and opportunities to learn about, enjoy, and participate in birding and natural history.”

“The really cool setup of the auditorium with ‘real’ objects displayed.”

Most respondents accurately recalled what the OT presentation was about. They remembered the mechanics (how it was presented), the content (general and specific facts), and the effect. Here are some examples of their comments:

“The fascinating painted screens! The entire presentation and stage setup was excellent.”

CLO’s House Finch Eye Disease Survey *really* stuck in people’s memories. One-quarter (26%) of respondents to the follow-up survey recalled something about the disease, an even larger percentage than had mentioned it in the immediate exit survey:

“There was a segment about house finches and their eye problem which, because of people calling in, scientists have realized is more widespread and/or more alarming to people and the community than they thought.”

“Help in reporting cases of conjunctivitis in house finches”

“I remember the eye disease that was noticed by some bird-watchers which led to some work being done to diagnose the spread of the disease.”

The pigeon question, on the other hand, about why so many different colors, had been referred to often in the immediate feedback, but was not mentioned by anyone in the long-term. Perhaps this is because the question was raised, but not answered, and thus slipped to the back of people’s minds? If the research question ever gets answered and gets discussed in the media, they might have an “aha” moment. (This, of course, is the hope and assumption of much museum education.)

Many of the follow-up surveys contained words or expressions that were identical to those that individuals had used on their original questionnaires:

Original OT Survey 27: That anyone can be a bird watcher. . . More aware of birds. . . That I could help.

In the Follow-up Survey this respondent said: That I could participate—I could watch the birds in my own backyard on a regular basis and report back to you all my findings.

Original OT Survey 50: Science is for everyone. Lots of data help show trends... Aware that they can participate in scientific research—understand that the lab is a resource for their use. That so many projections are being made with unsubstantiated, sometime anecdotal information. That there is a rigor in science that must not be forgotten. . . Birds are complex—sex, age, breeding time, etc.—and lots of study is needed to become proficient in identifying birds.

In the Follow-up Survey this respondent said: skeptical about the value of anecdotal information as data.

Original OT Survey 87: The way that researchers and citizens (“everyday people”) can work together to answer important questions about birds.

In the Follow-up Survey this respondent said: I recall several of the citizen service programs including Feeder Watch and Urban Bird Studies. I also recall that the data collected by everyday people is used to generate publications and conclusions about birds in North America. I have set up a feeder off of my deck and I am enjoying identifying the visitors I receive.

“I could watch the birds in my own backyard and report back to you all my ‘findings.’”

—OT Follow-up Survey respondent, eight months after seeing the Object Theater presentation



Data collection sheet: Long-term Follow-up Survey after the OT presentation

Follow-up Visitor Survey from Cornell Lab of Ornithology

You visited the new Cornell Lab of Ornithology on _____
where you saw a program about Citizen Science in the Auditorium.

What do you recall about that program?

Since then, have you signed up for or participated in any of the Cornell Lab of
Ornithology's Citizen Science programs?
Yes ____ No ____ Reasons:

Have you personally done any new bird-related activities? If yes, what?

Thank you for filling out this survey.

If you would like to receive a free one-year membership to the CLO,
please complete and return the card.

If you are already a member, you'll get an additional year free.

Use the addressed/stamped envelop to return this form to the Lab.

(Code ____ ____)

Follow-up Survey response eight months after the Object Theater presentation

FOLLOW-UP VISITOR SURVEY FROM THE CORNELL LAB OF ORNITHOLOGY

You visited the new Cornell Lab of Ornithology (CLO) on April 4, 2004 where you saw a program about citizen science in the Auditorium.

What do you recall about that program? *Adaptability of various birds in decreasing natural habitats, importance of maintaining bird species + populations. The staged settings were cute. I recall being a bit disappointed in the presentation - it seemed very "bland" - not as informative or as interesting as I had hoped.*

Since your visit, have you signed up for or participated in any of the CLO's citizen science programs?
 Yes No
 Reasons:

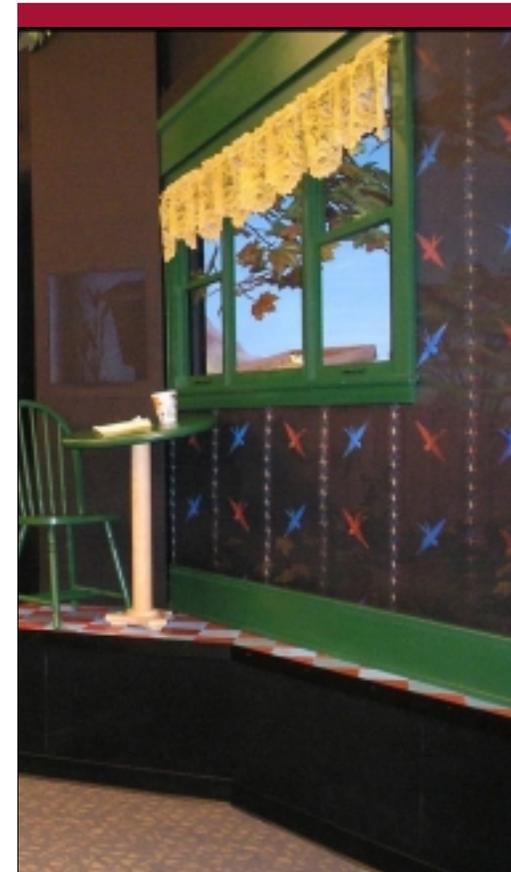
Have you personally done any new bird related activities since your visit? If yes, what?

*- Drifted holes in a 12" long log to use for suet feeder - downies, hairy woodpecker, chickadees, white breasted nuthatch, blue jays, + red breasted woodpecker love it.
 - monitored Great Blue Heron feeding at the pond - last seen Dec 11, 2003 due to unusual warm weather + pond not freezing
 - put up a park-side perch for the plovers
 - added additional bird feeders
 - visited Montezuma bird sanctuary + went on nature trail + it was first time (saw a Glossy Ibis feeding fish to nestlings)
 Thank you for filling out this survey. Please use the enclosed, addressed and stamped envelope to return it to the CLO. Please return by January 7 if at all possible.*

*- visited Owen-Patt
 Ellie Horow
 Rd + Ellis
 Crash Rd +
 See some
 white raptors
 egrets feeding
 - Enjoyed track
 migration of
 Snowbirds about
 in Oct 2003*

If you would like to receive a free one-year membership (or renewal) to the CLO, please also complete and return the enclosed stamped card to CLO's membership department.

(Code ES 1)



Evaluator's Opinion

"About the follow-up survey results, I'm not sure if five people signing up for Citizen Science participation (out of 45 responses) is high or low. What's actually possible in CLO's wildest dreams? I think it could be more."

(For more examples, see Appendix 13, Follow-up data matched with original questionnaire data.)

• Did Object Theater Inspire New Bird-related Activities?

Three-quarters (75%) of respondents reported conducting new bird-related activities, such as setting up a bird feeder, going birding, or using the CLO Web site. Other activities mentioned were purchasing a camera to take bird photos, reading a book about birds, and getting a pet bird. They also reported "more interest" in birds and "more regularity" of bird watching.

"I have visited the website and do enjoy the bird of the week... Have gone birding when on vacation in Nantucket... I have spent more time watching birds at our home feeder... I have a trip planned to the Galapagos Islands this March."

"We have checked out online webcams at nest sites and worked on bird identification with my 3 and 5 year olds... Yes, I've been more interested in birds (whether citizen science contributed to that or not), and I even got a bird, a parakeet."

"My daughters and I made bird feeders/houses by recycling our milk and orange juice cartons."

"Yes. Put in 2 new bird and butterfly gardens, a pond and 2 bird baths."

• Did They Join the Citizen Science program?

Five people said they had signed up to participate in a CLO citizen science project. Reasons for not signing up included being too busy or not wanting to watch birds systematically to record and report data.

"No, too many other diversions"

"Most of the programs (projects) seemed worthwhile and well planned—seem worth participating in for those who have the time. Seriously considered bird feeder observations—but did not want the commitment. Participate more in bird counts in the field (with local Audubon Society)"

"Time constraints (lack of motivation), but I would be very interested, especially as my kids get a little older."

"I've been too busy."

A Common Misunderstanding

The follow-up surveys also revealed a common misunderstanding about the CLO Citizen Science program: “I live too far away.” In other words, some visitors thought that the program was local—rather than national—even though the OT includes a large map showing that data are contributed from across the continent.

This misconception was not apparent from the immediate feedback questionnaires, and the OT developers never considered whether the point that participants could contribute data from any location had been made clearly. In hindsight, the misunderstanding probably resulted from a common aspect of the way that visitors interpret museum exhibits: they saw the OT presentation at CLO; it was about a CLO program; therefore, the program took place at CLO.

“Not aware of them in my area Too busy to call to find out”

“Who is the contact in the Buffalo area?”

To realize the goal of having the Object Theater recruit numerous new participants into Citizen Science projects, CLO would need to modify the presentation to make the point that anyone can participate, from any location, much more strongly. At the entrance to the auditorium there’s a captive audience—at their most curious—trying to find out what’s in that mysterious room. Suggestion: Try being more direct on the sign: “Find out how YOU can observe birds from your window and contribute to scientific research from ANYWHERE!”

More research?

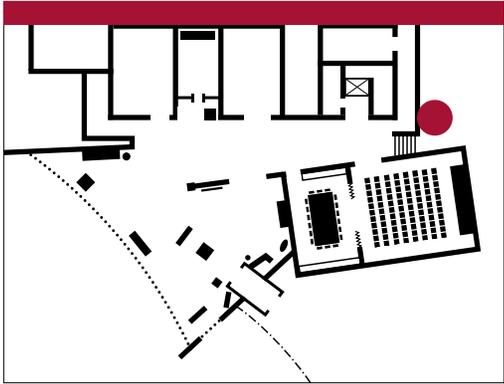
The Object Theater was one of the largest investments of the NSF funds used to create the exhibits at CLO-VC. The Science Museum of Minnesota and several other museums have object theaters, but not much research has been done on the effectiveness of this mode of interpretation. The CLO study probably represents one of the most thorough summative studies of an object theater. It would be interesting to pursue more collaborative studies with other institutions who use OTs.



The sign at the Auditorium door says:

“A fascinating multimedia experience featuring the connections among birds, bird watching, and science.”

Our research into visitors’ interpretations of the program provide a rich source of words that would summarize the content much better.



26 / The Hummingbird Case

Almost time to hit the trails,” says Dad, drumming his fingers on Mom’s shoulder.

“Don’t those people at the top of those stairs look like Grandma and Grandpa? I wonder what they’re looking at,” says Cassi., “Let’s check it out.”

The family climbs the steps and sees the Hummingbird Case. “My friends told me about this, too,” says Mom. “I didn’t know there were so many different kinds of hummingbirds! There should be more light in this case... and a magnifying glass would help!”

“There’s the one that comes to our feeder.” says Joel.



A Relic from the Old Visitor Center

The Hummingbird Case, along with some of the Fuertes paintings, were fixtures in the original Lab, which has been torn down. Long-time visitors remember the intimacy of the old lab and those fixtures fondly. Some visitors have complained that the current location of the Hummingbird Case, midway up the stairs, is not accessible to people with disabilities. Suggestion: Move it.

In addition to liking the hummingbirds, visitors mentioned that they would like to see more stuffed birds on display at the Lab. The display case near the store would be a good place to do that.



STILL A FAVORITE

In the Exit Interviews, people mentioned the Hummingbird Case as one of things they enjoyed most about their CLO-VC visit.

THE CLO VISITOR CENTER: OVERALL EXPERIENCE

“Now let’s go to Sapsucker Woods for a walk on the trails! We can see all those birds we’ve been hearing about—where they live!” says Dad, putting on his new hat, as Mom gets out her new binoculars.

“The Visitor Center was just as nice as my friends told me it would be.” says Mom looking at her watch. “Can you believe we were only in there an hour?”

“Nice hat, Dad. Take it off,” says Cassie. “Let’s go!”



At this point we leave the Crowes as they head out on the trails, and look back at what visitors told us about their overall experiences at the Cornell Lab of Ornithology Visitor Center in our Exit Interviews. Following that, we will look at the results of our Demographics study: Who visits the CLO-VC?

Exit Interviews

In July 2004, Serrell & Associates conducted exit interviews with visitors leaving CLO. This study was done to find out who visited CLO and why they came, what they enjoyed most and least, how long they stayed, and how satisfied people were with their visit. We also wanted visitor suggestions for improving the Visitor Center.

How the Data Were Collected

We intercepted people as they were leaving the building and questioning them face-to-face. There were very few problems with this method. Most people were willing to spend a few minutes responding to the survey. A few were in a hurry, or were staff at CLO, and declined. A total of 97 people participated in the Exit Interviews.



BILL HECHT, UNION SPRINGS, NY



For many people, the primary purpose for visiting the Lab was to watch birds.

Data collection sheet for the Exit Interviews

Exit Interview2 for CLO

Date _____ Time _____ Sample # _____

Gender: M F Age: Adult Senior
 Group type: A only A+K #Group: 1 2 3 4 5+

Is this your first visit to the new CLO? No ___ Yes ___

Do you have any special knowledge, training, or interest in birds? No ___
 Yes ___ What? _____

Do you consider yourself a bird watcher? No ___ Yes ___
 Skill level? (B) (I) (E)

Are you a Member of the Lab? No ___ Yes ___

What was the primary purpose of your visit today? _____

Approximately how long was your visit in this building today? _____ hours
 _____ minutes

What did you enjoy most in the Visitor Center? (probe: Anything else?)

Was there anything that was not so good? (probe: Anything else?)

Do you have any suggestions for improvements? No ___
 Yes _____

Would you have taken a tour if it were offered? No ___ Yes ___
 What kind? Self guided, audio tour, volunteer-led
 Tour of what? of the visitor center "behind the scenes" outdoors

How would you rate your overall satisfaction with your visit today?
 ___ Very satisfied ___ Somewhat satisfied ___ Not satisfied

Anything else you'd like to add?

Data collector's initials _____

Data collectors comments:

What We Found Out

•What Was the Purpose of Their Visit?

Why did they come? The most common answer was to see birds. For some people CLO was a planned trip, almost a pilgrimage. People from out of town came while they were here on vacation. Residents of Ithaca or other nearby towns brought visiting friends. Many had heard about the new building and wanted to see it. A few actually saw the sign on the highway and dropped in.

Two other frequently mentioned purposes were to walk the trails and to shop--for binoculars, books, presents, a bird feeder.

•What Did Visitors Enjoy Most About the CLO-VC?

When asked what they enjoyed most about the Visitor Center, people mentioned the following: spending time in the observation area; watching birds on the pond or at the feeders; using the scopes; appreciating the design, layout, and features of the building; watching the movies; using the Sound Studio, kiosks, and shopping. Each of these activities was mentioned multiple times.

One to three people mentioned the Fuertes Room, the library, the ducks, and the Hummingbird Case. The artwork on the walls and the receptionist were also mentioned as enjoyable.

Although it's not exactly part of the Visitor Center, four people mentioned the trails or going for a walk as what they enjoyed most.

•Enjoyed Least and Suggestions for the CLO-VC

When visitors were asked what they enjoyed least, there were complaints about the weather and wanting to see more birds (but not so many geese). Some people suggested better orientation or directions from the highway and from the parking lot. Some visitors mentioned that intrusive noise (from the Natural Sounds Kiosk) and a conference-in-progress interfered with their enjoyment of the CLO.

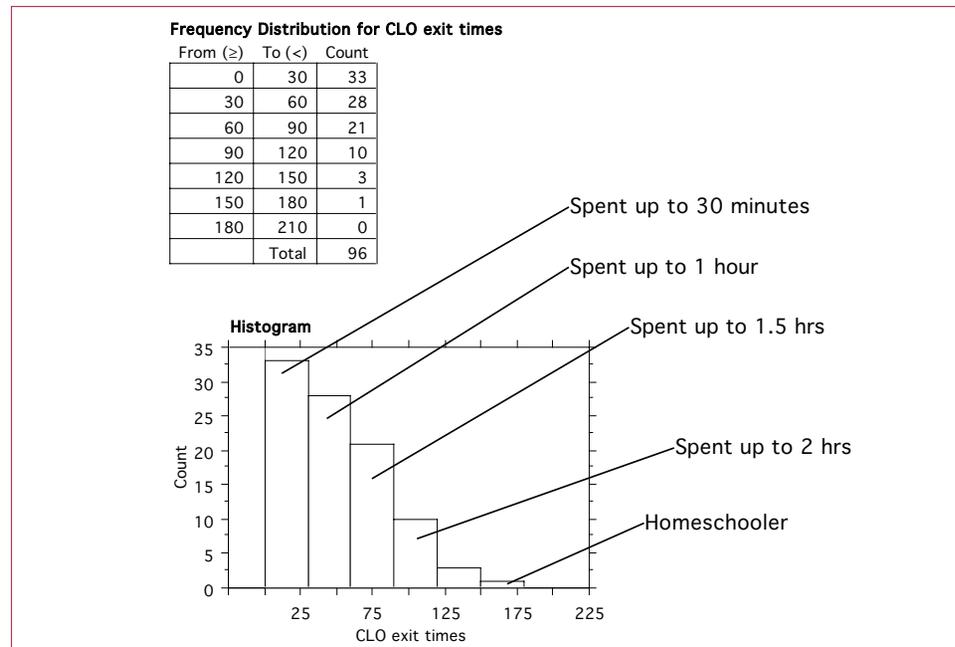


Visitors offered suggestions: put in a coffee shop; sell bird food in the store; and have experts around to talk to. They wanted more light in the Hummingbird Case, simpler scopes for kids, more chairs, and more stuffed birds to look at. They were curious about behind-the-scenes and suggested there be an open house at the Lab. Most of these suggestions seem to be within the realm of possibility.

•*How Much Time Did They Spend?*

The average amount of time people spent in the building was 42 minutes (n = 96). The shortest visits included checking out the hummingbirds, using the rest rooms, or going to the store. The longest visits (120–150 minutes) included watching birds for an extended length of time, watching movies, or using the interactive exhibits (especially the Sound Studio), and shopping.

Figure 8. Duration of visit to the CLO-VC (in minutes) as reported by Exit Interview participants



While visitors were overwhelmingly satisfied with their visit to the CLO-VC, they had many suggestions, many of them doable.

• *Did They Think Tours Should Be Provided?*

As they left the building, people were asked if they would have liked to have tours provided: 78% said yes and 22% said no. Of those who said yes, most people would prefer volunteer-led tours—outdoors and behind-the-scenes—over self-guided or audio tours.

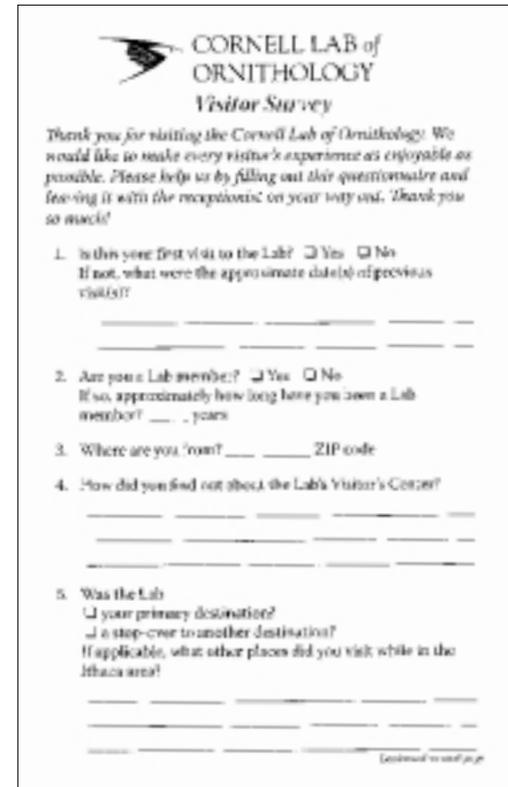
• *Were They Satisfied with Their Visit to CLO?*

Yes, they were. Ninety-five of the visitors reported themselves as “very satisfied.” A mere 5% considered themselves to be only “somewhat satisfied.” Not a single visitor chose “not satisfied.”

(See Appendix 3, Exit Interview data spreadsheet.)

The CLO’s own Visitor Survey (not part of this summative evaluation), corroborated S&A’s data: results showed that 29% of the respondents felt that CLO-VC had met their expectations, and 65% felt that their expectations had been surpassed.

The high satisfaction level of visitors to the CLO-VC is commendable. The individual exhibit elements proved effective in many ways, and they serve as good examples for other visitor centers and museums. Of course, there is still room for some improvements and additions, as the CLO is not a static place, and the nature of the visitors who come there can change in the future. Before we discuss more about the changes and recommendations for the CLO-VC, the demographic data of all the studies will be reviewed.



CLO did its own Visitor Survey and the results corroborated our high “satisfaction” data.



Demographics of Visitors in the Summative Studies

For each of the seven summative studies, demographics were collected on the participants: gender, group type, visitation, interest in birds, Lab members. Not all studies collected exactly the same data. Data on race, zip codes, income levels, and other demographics were not collected. See Figure 9.

How the Data Were Collected

When we used a questionnaire or did an interview, we could gather information from individual participants by asking about their social group type (adults only, adults with children, or children only), whether it was their first visit to CLO, if they had a special interest in birds, and if they had a Lab membership. (We did not use questionnaires or do interviews with children as the subjects.)

For the observation studies at the kiosks and in the Sound Studio, we watched groups of visitors, not individuals, and visually noted their social group type.

For the observation studies in the Sound Studio, we watched groups of visitors. Interviews and questionnaires were done with individuals, not groups.

Figure 9. Summary demographics for seven studies at the CLO-VC

Study	Sample # Total	Gender		Group Type			1st Visit % Yes	Spec Int % Yes	Member % Yes
		%M	%F	%A only	%A+K	%K only			
CQ in OT	103	39	61	67	33		78	64	11
Bird ID Kiosk	62			34	47	18			
Nat. Snds. Kiosk	47			57	35	7			
Exit Interviews	97	38	62	80	20		52	65	26
Orientation (FFM)	198	43	57	71	29		48		
Bartels Theater	91	54	66	68	31		58	37	15
Sound Studio	56			55	41	4			

Sample sizes and methods:

The sample sizes ranged from 47 to 198. The size of each sample was determined by what was logistically possible given the number of potential subjects and the amount of time to do the data collection with each visitor.

- The smallest samples were for the interactive kiosks where we observed voluntary subjects who sat down on their own to use the exhibit and then spent up to 25 minutes using it.
- The larger samples for the Orientation Study and Exit Interviews were randomly chosen from the stream of visitors entering or leaving the Lab and took less than 10 minutes to collect data from each subject.
- For the Object Theater study, multiple visitors could be recruited and administered at the same time (e.g., visitors filled out the questionnaires on their own and handed them in to the data collector).
- For the Bartels Theater, we worked to get a large sample because visitors were choosing to watch only one of the films and we needed data from each one.

Although efforts were made to recruit different visitors for each study, on very slow days at the Lab when few visitors were in attendance, sometimes the same person was observed or recruited for more than one study.

What We Found Out

•More females than males

In the four summative studies at the Lab with individual participants, the percentage of females was larger than males in the sample. Most of the data for all the studies was collected on weekends, so the demographics do not represent midweek, nonworking visitors.

This predominance of females was also found in participants in the CLO Backyard Bird Count and FeederWatch studies, although E-Bird participants had a higher percentage of males.



There were more women in the summative evaluation samples, a trend seen in some of CLO's other surveys.



DOING THE MATH

67% of the visitors to CLO said they had a special interest in birds.

This leaves 33% who do not.

47% of those who were bird watchers said they were beginners.

This means about two-thirds of CLO visitors were not very knowledgeable about birds.

Implications:

Visitors with low skill-level perceptions of themselves are likely to feel overwhelmed by complex or complicated exhibits. Some people feel incompetent when presented with too many choices or too much information in exhibits. Visitors will be more likely to feel competent and successful when exhibits are easy to use and do not contain large amounts of new information.

•Mostly adult visitors

In six of the seven studies, more visitors were in groups of adults (A only) than in groups with adults and children (A+K). Families accounted for 20% to 30% of the CLO visitors; adult groups made up 70% to 80%. Roughly 15% of the visitors are adults by themselves.

The percentages of group types were similar in the Orientation Study and the Exit Interviews, which were both conducted with randomly selected visitors to the whole institution.

In the study at Bird ID Kiosk, however, family groups out-numbered the adults-only groups: These were self-selected users who also included the highest percentage of children using an exhibit without an adult. The Sound Studio also attracted a higher percentage of adults with children compared to the demographics of the orientation and exit data.

•Mostly first-time visitors

Roughly half of the visitors sampled in the orientation (48%) and exit (52%) studies were first-time visitors to CLO. Visitors sampled in the Object Theater questionnaire showed a much higher percentage of first-time visitors, evidence that the OT is being used as an orientation exhibit for new visitors.

•Special interest in birds, but not experts

The majority of the visitors considered themselves bird watchers or said they had a special interest in birds. But most of the bird watchers rated their skill level as beginners or intermediate while 13% called themselves experts. Thus, the majority of visitors to the CLO-VC are clearly not highly skilled bird watchers.

The lower-than-expected percentages of self-proclaimed special interest (37%) among the visitors recruited for the Bartels questionnaire might be due to the fact that participants were about to watch a film presentation and they were not sure what the questions would be. That is, they might have felt intimidated and did not want to appear stupid if they didn't know the answers.

- *Not many Lab members*

Lab members make up 11% to 26% of the visitors, based on the summative study demographics.

- *Interested; nonexpert; nonmembers; here for a social occasion*

Think of the CLO-VC visitors as being interested in birds, but not experts; here at the Lab for a primarily social visit, with friends or family; and having a limited amount of time.

The 15% of adults visiting CLO by themselves were likely to be bird watchers, even experts, and members of the Lab. They are probably coming to shop, use the rest room, or walk the trails. Don't think of them as the main users of your indoor exhibits.



There is lots of room for growth in the number of Lab members coming to the CLO-VC.



SUMMARY AND RECOMMENDATIONS

Brief Summary of the Summative Evaluation

What We Found Out

•Demographics of visitors

People coming to the Cornell Lab of Ornithology Visitor Center (CLO-VC) were mainly adults, and female visitors outnumbered males. Most came in adult groups of two people. Adults with children (“family groups”) made up between 20% to 30% of the visiting groups.

Most visitors professed some special interest, knowledge, or training in birds, but many of them said that their bird watching skills were beginner or intermediate. Thirteen percent called themselves experts.

First-time visitors were in the majority in the data samples collected for three of the four summative evaluation studies that included that data point. The majority were not members.

Not surprisingly, more visitors came in the spring and summer months than in the fall and winter, and more people came on weekends than week days.

•Motivations and satisfaction

Most people came to watch birds. Other common reasons were to walk the trails, see the building, and shop. CLO’s in-house Visitor Survey found that most people heard about the Lab by word-of-mouth.

On average, visitors reported that they spent about 42 minutes in the CLO-VC. Everyone said that they were satisfied with their visit. Among the things they said they liked best were observing birds through the windows and using the scopes, the building, listening to sounds, and the store. Their suggestions for improvements included “more birds,” stuffed birds on display, and a coffee cart.

• *Behaviors and learning*

The activities we observed visitors engaged in most often were bird watching (looking out on the pond and the garden), looking at exhibits, shopping at the store, and using the rest rooms.

Observations of visitor behavior and “liked-most” data suggest that visitors were engaged by, learned from, and enjoyed the interactive exhibits (Bird ID Kiosk, Natural Sounds Kiosk, and Sound Studio) and the audiovisual programs (Object Theater, Bartels Theater).

The Sound Studio technology presented some challenges for visitors to figure out how to make it work, but also offered opportunities for the most social interaction—discussing choices, reading out loud, relating to personal experiences, making jokes—of any exhibit at CLO-VC. The average amount of time spent—12 minutes—was one of the longest on record.

The Object Theater effectively presented the concept and importance of Citizen Science and got visitors curious or interested in participating, but it was less successful in recruiting people to actually sign up for the program. Long-term follow-up surveys showed that many people engaged in new bird watching activities (e.g., setting up a feeder), but few people had become involved with the Citizen Science program. Also revealed was a misunderstanding by some people that the program was local to the Ithaca area, not nationwide. To realize the goal of having the Object Theater recruit numerous new participants into Citizen Science projects, CLO would need to modify the presentation to make the point that anyone can participate, from any location, much more strongly.

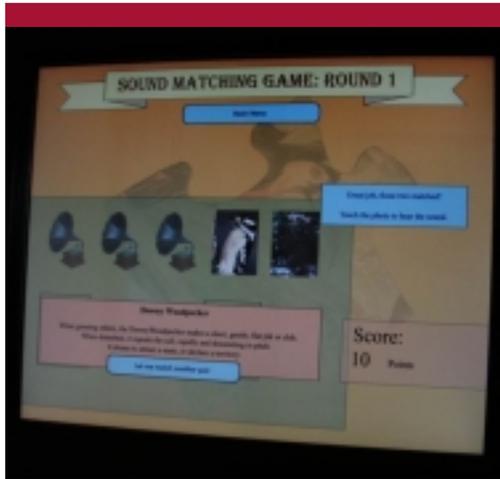
Films and audio programs in the Bartels Theater were effective in presenting conservation information, interpretation of bird sounds, and a surround-sound experience. Visitors’ comments provided evidence that they understood and enjoyed the programs.

• *Dissemination of CLO-VC exhibits*

The exhibits at the CLO-VC offer examples of high tech, interactive media that can serve as a model for new education programs at other institutions.



Data from the OT could be combined or shared with data on other object theaters in museums across the country.



The Sound Matching Game in the Natural Sound Kiosk would work well in a new setting (e.g., museum, zoo, nature center) without any necessary modifications.

Evaluator's Opinion

"I wish I could have been there to supervise the new data collectors more closely."

With some modifications to give local context in a different setting, the Bird ID Kiosk offers an easy-to-use, intuitive "bird book" for visitors to "flip through the pages" and look at pictures, hear sounds, and find more information about related species. The "Raven" program in the Sound Studio could be modified (shortened and improved interface) for other users, such as the new Listening exhibit at the Exploratorium in San Francisco.

CLO could share data with other institutions on the effectiveness of their Object Theater. OTs have been used in many museums, but no one has done a metastudy on the effectiveness of these relatively expensive exhibits. CLO could team up with other institutions to compare data on visitors' response and the practicality of maintaining an OT.

Problems and Challenges with the Summative Evaluation Method

The low numbers of visitors to the Lab some days made data collection slow and less random than desired. Every study was supposed to have a unique sample of visitors, but on some days, to meet quotas, the same visitor might have been asked to participate in more than one study.

Data collector training was done in one day. A longer training period would have been a good idea. Fewer data collectors, better trained, working more hours, are better than more data collectors each working for only a few hours.

The evaluator, in Chicago, was not on hand to supervise the data collectors and look for problems or errors in the data collection methods. More supervision would have been desirable.

Relatively small sample sizes were collected, which were adequate for the purposes of this study but not adequate to answer some of the more quantitative, comparison questions that might be asked of the data.

A thorough and complete tracking study of visitors' time and movements in the CLO-VC would have been interesting but was beyond the scope of this evaluation plan. Perhaps in a few years, a follow-up study could be done to compare demographics and behaviors of visitors to see what changes have taken place.

Overall Recommendations

The CLO-VC is not a static place. Changes have already taken place at the Lab during the summative evaluation periods, including the addition of new shows in the Bartels Theater and the ongoing developments related to the Ivory-billed Woodpecker research. Other changes include some that are less desirable: broken scopes; temporary paper labels; graphic displays and art labels that do not follow the “voice” of the original interpretive exhibits; and the accumulation of piles of papers—brochures, journals, calendars—but still missing the one general brochure that tells about the CLO-VC.

Throughout the earlier parts of this report, specific suggestions have been made for changes in the different exhibit elements in the entry and orientation area, in Morgens Observatory, Williams Gallery, and the exhibit rooms. The recommendations below will deal with the larger issues of audience development, improving comfort, and issues of identity and marketing.

Audience Development

Many people coming to the Cornell Lab of Ornithology are predisposed to have a satisfying experience by virtue of their interest in birds and the reputation of the Lab as a mecca for bird watchers. Expert and novice birders were interested in seeing more information about the Lab itself and about bird identification: What happens inside this huge building? How can I see birds close up and learn their names? These two topics are evidence of people’s desire for contextual information of the place, rather than general information about bird biology and conservation. New exhibits should build on this contextual interest. People without experience in bird watching, first-time visitors, and people who are unfamiliar with the Lab’s programs will benefit from this focus also, as the Lab reaches out to a wider and more diverse audience.

The Lab could advertise its exhibits and trails as appealing to families with leisure-time activities in mind. Even the word “lab” could be de-emphasized, and the idea of “playing with sound” played up. The audience goal for visitor groups with children could be 50%: young people are the ornithologists of tomorrow—your future supporters.



Paper signs and temporary labels should be minimized in keeping with the clean design of the CLO-VC.



Evaluator's Opinion

“What’s a good goal for audience development for family visitors? Fifty percent? That seems reasonable and doable for the CLO.”

There is lots of room to increase memberships. As one CLO staffer put it, “Everyone leaving the Lab should want to join.” This could be accomplished by putting more emphasis on the opportunities and benefits of membership at every point of contact with visitors to the CLO-VC—in the exhibit graphics, the films, and the activities. Member’s nights, special behind-the-scenes tours, experts to talk to, more access to the library and collections, and longer hours would all add to the CLO-VC’s appeal. How many ways can you provide evidence and rationales for the visitor’s question: Why should I bother to become a member?

The number of visitors coming to the Lab could be increased. There are many days when only a few people drop in. Better local advertising is needed. The woman working the Avis Rental Car counter at the airport did not know about you. A sign on Route 13 mentions a “Visitor Center” but it’s not yours. Many people on the Cornell University campus are unaware that you exist.

CLO should continue to track attendance and to do ongoing demographic studies to monitor the percentage of families, repeat visitors, and members.

Improving Comfort

Issues of orientation have been discussed earlier, but it is not possible to overemphasize the importance of visitor comfort—physical, conceptual, and psychological. Wayfinding needs improvement, outdoors and indoors. Orientation materials need to be re-designed and re-located. The exhibits need to appeal to nonspecialists and time-limited audiences by keeping the number of choices to a reasonable number and keeping the films short so that people do not get overwhelmed.

Although there are many improvements still to be made to the orientation devices and exhibits, the Lab *has* provided a variety of means for people to find out what’s at the Lab and what they can do there.

Many of the recommendations for audience development also relate to improving visitors’ comfort. Comfortable, happy visitors will come back.

Issues of Identity

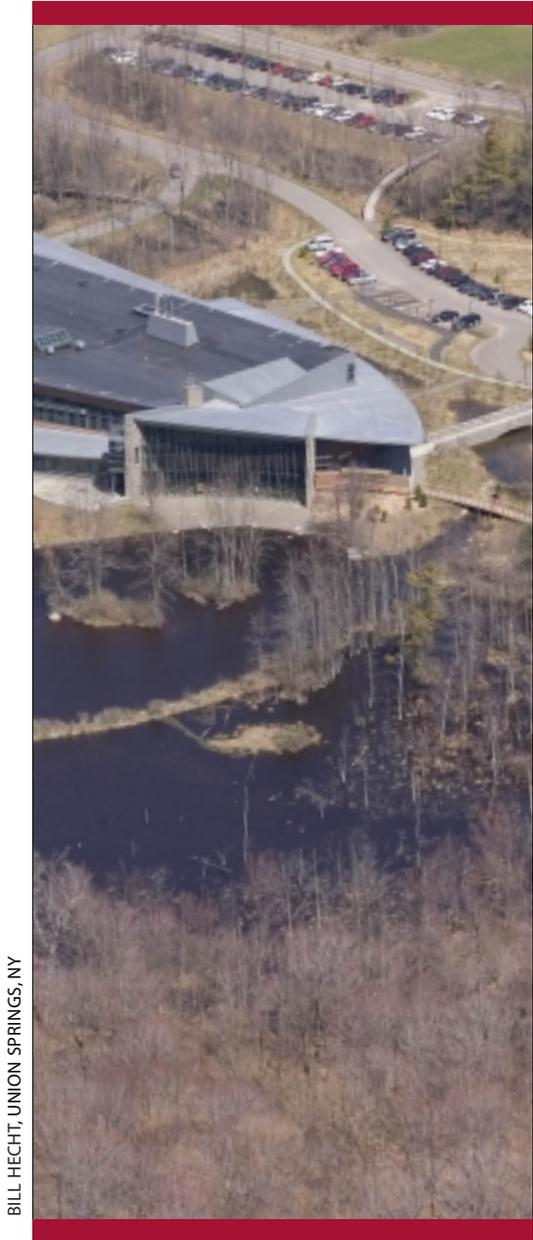
The CLO-VC wants to promote in visitors a feeling of stewardship for birds and a conservation attitude toward the environment, but CLO also needs to have a stronger stewardship of the Visitor Center experience itself. There is not a clear sense of identity at the CLO-VC and there is a lack of consistency in the aesthetics, “voice,” authorship, and attribution of the exhibits and activities. One person needs to be in charge of the changes, so that they are not haphazard. Additions and changes need to be focused with a common goal and share a high quality. New graphics should have the same look and feel; new Bartels films should strive for clearly shared objectives. The clean design aesthetic of the building should be maintained diligently: no gingham ruffles, bird’s nest baskets, or rooster door stops.

The lack of a shared and cohesive plan for communication is also a problem with the CLO Web site. There are too many different authors and activities that don’t seem to be part of some greater whole. If there is not going to be a common vision, at least make that clear. Achieving a more unified concept (aesthetically and conceptually) is probably an easier reach for the CLO-VC than for the Web site, given the number of different players and politics involved.

Future changes in the CLO-VC should strive to keep the criteria of visitor comfort, graphic continuity, and aesthetics as part of the planning. Visual and conceptual coherence help create a more positive visitor experience.



Audience development is accomplished largely through word-of-mouth from satisfied visitors who have had comfortable, engaging, and meaningful experiences in an aesthetically pleasing environment.



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