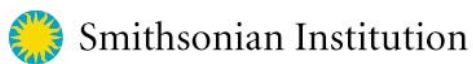


**A Survey of Visitors to**  
*Nature's Jewels: A Living Exhibit of Orchids and Butterflies*



**Office of Policy and Analysis**  
**Smithsonian Institution**  
**May 2003**

## PREFACE

In January, 2003, *Nature's Jewels: A Living Exhibit of Orchids and Butterflies* opened in the Arts and Industries Building. The beauty of the orchids and butterflies resonated with visitors and staff by shifting their orientations from stone buildings, traffic and work to the perfection of the natural world. Obtaining visitors' perceptions of the exhibition was feasible. Capturing the awe of what they saw around them was impossible. Nevertheless, staff from the Office of Policy and Analysis conducted a survey of about 1,000 visitors to determine how the exhibition was received and what improvements could be made to subsequent exhibitions.

My sincere gratitude is extended to the staff who collaborated in this work. Andrew Pekarik designed the study, drafted the questionnaire, analyzed the data, and wrote this report. Noel Kinder and Ioana Munteanu, with the guidance and support of Zahava D. Doering, assisted with design, pretested questions, field-managed data collection, entered and edited data, and constructed the database. David Karns helped with the management of the data and its conversion into useful forms.

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

# A Survey of Visitors to *Nature's Jewels: A Living Exhibit of Orchids and Butterflies*

## INTRODUCTION

### Background

Every year the Smithsonian Institution's orchid collection is displayed together with orchids from the collection of the United States Botanical Garden. On alternate years that exhibition is presented inside a Smithsonian museum and is organized by a distinctive theme. In 2003 the exhibition was held in one of the 5,000 square foot galleries on the first floor of the Arts and Industries Building from January 18 to May 26, 2003 and the theme was the relationship between orchids and butterflies. In addition to the orchid display, the exhibition space included a 1,000 square foot free-flight butterfly conservatory.

Nancy Bechtol, Director, Office of Facilities Management, who supervised the planning and presentation of the exhibition, requested this visitor study. Its purpose is to establish baseline evaluation data and to provide background for planning the next orchid presentation at the Smithsonian in 2005.

### The Survey Study

This survey was administered in late March and early April as a two-page handout to a representative sample of about 1,000 exhibition visitors as they left the exhibition. As part of the planning for the survey, about 15 open-ended interviews were recorded with exhibition visitors and the handout was pre-tested extensively. The survey included questions about visitor characteristics, background interests, activities in the exhibition, evaluation of the exhibition and its elements, satisfying experiences, messages, and suggestions for change. See Appendix A for the complete list of questions and the percentage results.

## KEY RESULTS

**High Satisfaction** *When asked to rate their visit to the exhibition, 44% of visitors indicated that they were more than fully satisfied, and 40% that they were fully satisfied.*

The top category, "more than fully satisfied," indicates an unqualified high level of satisfaction. It is the most sensitive measure of how much visitors enjoyed the exhibition. Comparing other Smithsonian exhibitions that have been similarly measured, the score for *Nature's Jewels* is midway between the National Museum of American History's *September 11, 2003: Bearing Witness to History*, in which 39% of visitors indicated that they were more than fully satisfied, and the Arthur M. Sackler Gallery's 2001 exhibition *Music in the Age of Confucius*, in which 51% of visitors indicated the highest level of satisfaction.

**Butterflies raised satisfaction** *The most important factor influencing visitors' satisfaction was whether or not they entered the butterfly conservatory.*

Among the three in four visitors who entered the conservatory, 55% were more than fully satisfied with the exhibition, but among the one in four visitors who did not enter the conservatory, only 19% were more than fully satisfied with their visit. The percentage of visitors who were more than fully satisfied is especially high among a visitor subgroup consisting of those who entered the butterfly conservatory and also met three additional conditions: 1) felt that there was enough information in the exhibition, 2) were especially interested in butterflies, and 3) indicated that an enriched understanding was one of their satisfying experiences in the exhibition. Among this subgroup (18% of all visitors), 81% were more than fully satisfied.

**Butterfly-aware visitors** *Exactly half of the visitors have seen a butterfly exhibition elsewhere.*

In 2001 it was estimated that there are 150 permanent butterfly conservatories around the world.<sup>1</sup> We can assume that the visitors who have seen a butterfly exhibition elsewhere are making a comparison, at least implicitly, between their experiences here and elsewhere.

**Too small for everyone** *Nearly all visitors felt that the exhibition should have been larger.*

Altogether 92% of visitors expressed at least one criticism of the size of the exhibition, either in terms of the space, the number of orchids or butterflies, or crowding. Because this opinion is true of nearly everyone, it is not strongly linked to satisfaction. Even the most satisfied visitors felt that the exhibition should have been larger.

**An aesthetic, object-focused experience** *“Being moved by beauty,” “seeing rare things,” and “seeing the real thing” were primary satisfying experiences for visitors.*

Spending time with friends or family and relaxing were also important satisfying experiences for visitors. The one-in-three visitors who reported beauty and object experiences were generally happier about the exhibition (51% of them said that they were more than fully satisfied) as compared to the overall sample.

---

<sup>1</sup> Krakauer, T. “Butterfly houses: A lesson in conservation and sustainable development.” *The Informal Learning Review*, 46, 10-12.

**Messages were perceived** *Two out of three visitors believed that the exhibition had communicated a message to them.*

Although the exhibition was designed to be primarily an aesthetic, immersive experience with limited information, visitors perceived messages about appreciating the beauty of the natural world, as well its diversity and fragility, and the interconnectedness of all life.

**Too little information for some** *One in five visitors felt that there was not enough information in the exhibition.*

Since exhibition visitors arrive with different attitudes and agendas, it often happens that what is important to one group is less important to another. In this case we can identify a subgroup of 20% of visitors whom we call “seekers” because their most satisfying experience in the exhibition was either gaining information, enriching knowledge, seeing the real thing, or thinking what it would be like to own such things. These visitors were more likely to use and value information sources, such as handouts and orchid information boxes, and more likely to feel that there was too little information (27% of them felt that there was too little information). Even so, they rated their overall satisfaction with the exhibition at about the same level as other visitors.

**A social opportunity** *Five in six visitors came to the exhibition with others.*

We can identify a subgroup of 14% of visitors who said that their most satisfying experience was either spending time with friends/family or seeing their children learn. These social-oriented visitors were less likely to find a message in the exhibition and they were more likely to believe that the exhibition space was too small and that there were too few activities for children.

**Engaged visitors** *Visitors were actively involved in the exhibition.*

Half of the visitors or more opened the orchid-information boxes, talked with staff, or smelled an orchid up close. Many had direct contact with the contents: 18% touched an orchid, and 37% had a butterfly land on them.

**Inadequate seating** *A number of visitors wanted more seating.*

About one-third felt that there was too little seating; one-third felt that the amount of seating was just right, and one-third had no opinion.

## SUGGESTIONS

### **Make future orchid exhibitions larger.**

A larger exhibition would allow freer movement for visitors around the objects, permit the installation of more seating, provide space for differentiating between text-intensive information areas and object-intensive immersion areas, and increase the number of items on view.

### **Continue to make use of compelling themes.**

By choosing the theme of the relationship between orchids and butterflies, the exhibition organizers greatly enhanced the likelihood that visitors would perceive meaningful messages, even without the use of extensive text.

### **Provide more for information seekers.**

As noted above, a larger space would allow for text-intensive areas that could be attractive in themselves but would not detract from the aesthetic, immersion experiences appreciated by so many visitors. Interactive stations about orchids, for example, would not only provide more information, but could also provide more child-oriented activities, as well as encouragement to use the Smithsonian website for follow-up.

### **Any future butterfly conservatory should be much larger.**

Although visitors are strongly attracted to butterfly conservatories, they are no longer novelties. Visitor expectations have been shaped in part by large, year-round conservatories, such as Butterfly World in Coconut Creek, Florida, which advertises itself as the largest butterfly conservatory in the world with an 8,000 square foot, 30-foot high tropical rainforest containing 5,000 butterflies.

**Appendix A**  
**Results from the Survey of Visitors to**  
*Nature's Jewels: A Living Exhibit of Orchids and Butterflies*

**Activities in the exhibition**

*"Which of the following did you do in this exhibition of orchids and butterflies?"*

**Orchid Activities**

- 63% Looked at the prints and paintings
- 56% Smelled an orchid up close
- 49% Looked at the orchid sculptures in cases
- 48% Opened an orchid information-box
- 18% Touched an orchid

**Butterfly Activities**

- 78% Looked at the butterfly incubator
- 73% Entered the butterfly room
- 61% Stood in line to enter the butterfly room
- 53% Read the butterfly information-fan
- 37% Had a butterfly land on me

**General Activities**

- 50% Talked with museum staff
- 39% Took photographs
- 36% Read a handout sheet
- 21% Sat down in the exhibition

**Opinions**

*"How would you rate your visit to this exhibition?"*

- 44% More than fully satisfied
- 40% Fully satisfied
- 14% Satisfied
- 2% Somewhat dissatisfied

*"How did the following affect your visit to this exhibition?"*

	enhanced	detracted	no effect	didn't see/do
The natural setting of the orchids	92%	2%	5%	1%
Living things in an exhibition	91%	2%	4%	3%
Butterflies and orchids together	86%	1%	9%	4%
The butterfly incubator	73%	2%	8%	17%
Museum staff in the exhibition	68%	3%	20%	9%
Smells of different kinds	61%	4%	25%	10%
Butterfly information-fan	59%	3%	16%	22%
Orchid information-boxes	59%	1%	21%	19%
The white walls in the butterfly room	33%	12%	38%	17%

*“How would you rate the following features of the exhibition?”*

Orchids	81% Just right	1% Too many	14% Too few	4% No opinion
Butterflies	75% Just right	2% Too many	9% Too few	24% No opinion
Amount of information	74% Just right	1% Too much	19% Too little	6% No opinion
Number of visitors	65% Just right	27% Too crowded	0% Too empty	8% No opinion
Size	55% Just right	0% Too large	41% Too small	3% No opinion
Paintings and prints	37% Just right	1% Too many	8% Too few	54% No opinion
Seating	32% Just right	1% Too much	29% Too little	38% No opinion
Orchid sculptures	29% Just right	1% Too many	5% Too few	65% No opinion
Activities for children	19% Just right	1% Too many	9% Too few	72% No opinion

*“If you could make one change to the exhibition, what would it be?”*

45% of visitors recommended a change

Recommended changes:

- 18% More space
- 5% More information
- 4% Improved design
- 3% More orchids
- 3% Less crowding
- 2% More seating
- 9% Other

Sample recommendations:

More space (18% of visitors)

- A bigger butterfly house
- Bigger space - keep on bumping into people
- Bigger! Take us to Malaysia, Thailand, etc. home of orchid
- Enlarge it
- Enlarge the butterfly room so you could fit more people
- Have a larger butterfly house!
- Increase size of exhibition area
- Increasing the kind of insects
- Large building size Niagara Falls exhibit size
- Larger butterfly room
- Larger glass viewing area for butterflies if one did not want to enter the hot room (or maybe a video hook-up to the room)
- Larger, like the traveling one at San Diego Wild Animal Park
- Make the butterfly house bigger so there could be more butterflies
- Maybe add to the butterfly house section larger with a few seats.
- More of it! I wish it were larger/bigger
- More space - more places to pause and look
- Twice the size



More information (5% of visitors)

- A slightly better explanation of each butterfly species (maybe photos/info IN the exhibit)
- Add more information about orchids, particularly about what makes each specimen interesting or unique
- All such exhibits should include info on co-evolution, criteria for separating species and genera, may references to URLs with more complete explanatory material
- Have a science video about what orchids are or sell a nice one or two page summary pamphlet at modest cost
- Have more info on the butterflies themselves: common name, country, habits, etc.
- Incorporate more learning - make it more "led" than freeform
- Information about environmental dangers to the natural habitat - i.e., humans destroying rainforests
- More explanation! What makes an orchid an orchid?
- Put the information on orchid function directly in front of the relevant plant instead of in front of models.

Improved design (4% of visitors)

- Ask the curators at the National Gallery how to better light an exhibit.
- Better integration of butterfly house structure
- Better spacing of orchids
- Easier/quicker access to butterfly exhibit
- Orchids should have been staged correctly as they grow in nature.
- Less plants in front of butterfly room; you could still see it if you didn't want to wait in line.
- More environment (walls, lighting) in the butterfly exhibition. More natural.
- Perhaps a wider walking space with more benches
- The layout - a circular layout for the orchids would have been pleasing
- Use something other than rough plastic sheeting at ends of butterfly house (over stone wall to roof)
- White walls- another light shade might be good - but do the butterflies need white? Or is it for us to see them better?
- More than one path in butterfly area so everyone would not be so clumped together

More orchids (3% of visitors)

- Add a U.S. section of orchids
- Add orchids higher up in the room
- More fragrance orchids - maybe a way to see how white orchids function at night
- More orchids and more orchids close enough to the exhibit edge so smelling them would be easier
- More variety of original species
- Need some "barheria" orchids

Less crowding (3% of visitors)

- Butterfly line too long
- Let fewer people in at a time

More seating (2% of visitors)

- Add a couple more benches in the orchid area
- More benches in butterfly room
- More seating to better observe the butterfly room
- Need place to sit and meditate

Other changes (9% of visitors)

- Better air circulation in butterfly room
- Cooler but I know that's impossible
- More butterfly species
- Relaxing "nature" music in the orchid exhibit
- Advertise it more
- Make it permanent
- Could you provide one photo-op area for family pictures?
- Have pictures of the jungles where the butterflies are from
- Feeding the butterflies (let guests do it)
- Label orchids that have scent
- More fountains inside the exhibit
- No hybrids - just naturally occurring species
- More kid friendly
- Comfortable seat and no time limit in the butterfly room
- Let attendees hold something so butterflies would land on them
- Cleaner chrysalis chamber
- I had also the concern of some of the butterflies in the incubator and outside being injured.

**Experiences**

*“Which of the following experiences did you find satisfying in this exhibition?”*

- 87% Being moved by beauty
- 78% Spending time with friends/family
- 74% Seeing the real thing
- 73% Seeing rare, valuable things
- 67% Relaxing
- 59% Gaining information or knowledge
- 55% Enriching my understanding
- 47% Seeing my children learn
- 42% Feeling inspired
- 30% Imagining other times or places
- 26% Reflecting on the meaning of what I was looking at
- 25% Thinking what it would be like to own such things
- 24% Feeling a spiritual connection
- 15% Feeling a sense of belonging
- 6% Other experiences

*“Which experience did you find most satisfying?”*

- 41% Being moved by beauty
- 11% Spending time with friends/family
- 9% Seeing the real thing
- 9% Seeing rare, valuable things
- 5% Relaxing
- 5% Gaining information or knowledge
- 4% Enriching my understanding
- 4% Seeing my children learn
- 4% Feeling a spiritual connection
- 3% Other experiences
- 3% Feeling inspired
- 2% Imagining other times or places
- 1% Reflecting on the meaning of what I was looking at
- 1% Thinking what it would be like to own such things
- 1% Feeling a sense of belonging

*“Does this exhibition communicate a message to you?”*

- 66% Yes
- 21% Perhaps it might later
- 10% No
- 3% Does not apply

#### Messages

- 33% Appreciation
- 32% Beauty
- 7% Diversity
- 7% Interconnectedness
- 3% Preservation
- 3% Fragility
- 3% Knowledge
- 3% Peace
- 6% Other messages

#### Sample messages

##### Appreciation (32% of visitors)

- Appreciate all God's living things
- Appreciation of nature and its delicate beauty
- Beauty and love are the joys of life
- Butterflies are cool and orchids are interesting
- Enjoy nature
- Have living nature surround you, happiness
- How beautiful nature and simple pleasures can be and we need to realize this more
- How often we overlook the beauty of nature
- How stunning nature is and what the world offers

How wonderfully creative God is  
It made me happy to see the butterflies. I felt like a kid again. The orchids are so beautiful, I felt calm and joyful just to see them. Though this isn't a message really, but its gift. Thank you.  
It's a wonderful world  
Life continues to amaze  
Life is a beautiful and precious thing. Take every opportunity to appreciate it.  
Natural life is valuable  
Nature is amazing  
Respect the environment, pay attention to nature - it is truly magical  
Slowdown long enough to "see"  
The beauty is all around us  
The world is a good and happy place; hope; beauty; life  
To appreciate living things  
To notice, love, and take care of natural beauty and to try growing orchids at home and provide garden environments for butterflies  
We can appreciate beauty in the natural world  
We live in a living beautiful planet  
Wow

#### Beauty (32% of visitors)

Beautiful nature  
Beauty and love are the joys of life  
Beauty and nature combined  
Beauty and variety of orchids  
Beauty comes in many forms  
Beauty is all around us  
Beauty is delicate but rejuvenates itself.  
Beauty of natural world - need to preserve it  
Beauty of nature, symbiotic relationship  
Beauty of watching plants and animals interact in their natural environment  
Beauty on earth - sometimes unnoticed  
Butterflies are beautiful  
God's world is so beautiful  
In a world of strife there is still much beauty  
Orchids and butterflies are more beautiful than self-aggrandizing cubist art.  
The beauty of nature brings deep peace from God  
The beauty of such an exhibition especially in these trying times  
What beautiful intricate things we have in our environment  
Yes, beauty and nature are one

#### Diversity (7% of visitors)

Amazing diversity of living things  
Beauty and variety of nature and the importance to preserve it  
Biodiversity depends on many significant, but hidden, connections"  
Biodiversity is important

Butterflies are interesting and there are so many kinds  
There are so many types of orchids. Wow!  
Did not realize that there were so many species of orchids  
Diversity, pollination strategies  
The immense variety of life  
Variety in nature is awesome

Interconnectedness (7% of visitors)

All life is interconnected. Everything we do affects other life.  
All things are living beings - we are all connected  
Biodiversity depends on many significant, but hidden, connections  
Co-evolution of butterflies and orchids  
How butterflies are related to orchids  
How plants and insects interact  
Importance of interactions and interdependence of plants and animals and  
significance of man's impact on nature  
Insight into what can cohabit with orchids  
Living things depend on each other  
Nature in harmony  
Nature means a reliance on others  
Plants require butterflies  
Relationship between nature, humans, and the intricate dynamics one "requires" in  
order to successfully live, by itself and with one another

Preservation (3% of visitors)

Appreciate and preserve environment  
Hope for continuation of beautiful things  
Importance of preserving natural habitats  
Living things are beautiful and should be protected and enjoyed  
Nature is beautiful and needs to be protected  
Preservation of wild places  
Protect environment  
Save the environment that holds butterflies and birds  
The importance of keeping natural habitats  
We must do everything to preserve nature's jewels

Fragility (3% of visitors)

Beauty and fragility of nature  
Butterflies are delicate, rare, and worth preserving  
Earth is fragile  
Fragility of nature and beauty  
Frailty and strength come in many forms  
How delicate nature is  
How fragile yet enduring the orchids are in their many varied native settings on earth!  
Life is interdependent and fragile/tenacious at the same time  
Nature is delicate and strong at the same time

Knowledge (3% of visitors)

Broadened my knowledge of orchids  
Butterflies live in hot temp  
How hard it is to find camouflage butterflies  
How little I really know  
Information about nature  
Insight into what can cohabit with orchids  
It improved by knowledge of orchids and butterflies  
Orchids are far more commonly found than I thought  
That flowers need pollination for insects. That the wind patterns account for locations  
of certain species. Maybe there is order and design.  
That living things can survive indoors

Peace (3% of visitors)

An unintended message perhaps - I found moment of peace and tranquility during  
very turbulent time in our country.  
Beauty and peace  
Calm of nature  
Peace, very uplifting

Other messages (6% of visitors)

How can so much beauty coexist in a society and culture that endorses violence?  
I like live museums.  
I should make use of aesthetic enhancers more.  
I should plant some orchids.  
I want to go outside to real nature.  
I want to grow orchids at home.  
It is a shame that we have to go to a museum in a metropolitan area to view natural  
phenomena. This is no substitute for the "real thing."  
It's great to see living creatures in their element even if it was man-made. You get a  
little better understanding of what condition they survive in.  
Living things can be a museum.  
Nice - Great to be an American.  
Relaxing  
Springtime  
Summer is coming.  
The playfulness of nature is limitless.  
There is a "Spring" variety of orchids.  
To see live butterfly upfront and look close at the orchids  
Tropical butterflies are different from the ones I normally see.  
We don't grow enough flowers.  
We should spend more national money on domestic projects that celebrate the beauty  
of our natural world.  
Yes, more nature and science, less security and fear.

## **Background Questions**

*“Did you see anything about this exhibition on a Web site?”*

9% Yes

*“Is this your first visit to the Smithsonian?”*

19% Yes

*“Did you come to the Smithsonian primarily to see this exhibition?”*

45% Yes

*“Have you visited this exhibition more than once?”*

16% Yes

*“Have you ever grown orchids?”*

29% Yes

*“Are you a gardener?”*

51% Yes

*“Are you especially interested in butterflies?”*

50% Yes

*“Have you seen a live butterfly exhibition elsewhere?”*

50% Yes

## **Demographic characteristics**

*“Where do you live?”*

15% Washington, DC

32% Maryland/Virginia suburbs

47% Other US states

6% Other countries

*“With whom are you visiting today?”*

16% Alone

41% One other adult

19% Group of adults

20% Adult(s) with child(ren)

2% Group of teens

2% Tour/school group

*“Your age”*

21% ages 12 to 26 (born 1977-1991)

22% ages 27 to 37 (born 1966-1976)  
20% ages 38 to 48 (born 1955-1965)  
20% ages 49 to 57 (born 1946-1954)  
16% ages 58 or older (born 1928-1945)

*“Your gender”*  
69% Female  
31% Male

### **Analysis Variable<sup>2</sup>**

*Attitude*      A division based on the visitors’ most satisfying experience  
20% “Seeker”—Seeing the real thing, Gaining information or knowledge, Enriching my understanding, Thinking what it would be like to own such things  
14% Social—Spending time with friends/family, Seeing my children learn  
17% “Dreamer”—Feeling inspired, Relaxing, Imagining other times or places, Reflecting on the meaning of what I was looking at, Feeling a spiritual connection, Feeling a sense of belonging  
48% “Aesthete”—Being moved by beauty, Seeing rare/valuable things

---

<sup>2</sup> Categories constructed out of other variables that explain behavior or opinion better than any individual variable.



A unique nature reserve is to be found inland on Rhodes Island, "Butterfly Valley" or in Greek "Petaloudes Valley". It sounds like a dreamy place and truly is! It is one of the most famous attractions of Rhodes that is certainly worth a visit. Only 10 km from the airport and 25 km from the town of Rhodes, you can visit the famous Valley of the Butterflies. This is a habitat with dense flora, breathtaking natural beauty, harmonious structures of bridges with the environment, paved paths, ponds, small inexhaustible waterfalls, serene atmosphere and a unique experience for the visitors. The only In January, 2003, Nature's Jewels: A Living Exhibit of Orchids and Butterflies opened in the Arts and Industries Building. The beauty of the orchids and butterflies resonated with visitors and staff by shifting their orientations from stone buildings, traffic and work to the perfection of the natural world. Obtaining visitors' perceptions of the exhibition was feasible. Capturing the awe of what they saw around them was impossible. Nevertheless, staff from the Office of Policy and Analysis conducted a survey of about 1,000 visitors to determine how the exhibition was received and what improvements to do near Bai Orchid and Butterfly Farm. Orchid and Butterfly Farm. 333 Shooting Range Mae Rim. Elephant POOPOOPAPER Park. A Wonderful experience and definitely worth the time. We spent a magical noon here for a tasty and lovely lunch and visited the amazing and colorful orchid farm and were enchanted by the beautiful butterflies. Don't miss out on this place! Read more.