

Interpretive Signage System

BIP DIVERSITY HOTSPOT

SACRAMENTO ZOO

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CONCEPT & SUMMARY

Biodiversity: Diversity among and within plant and animal species in an environment.

Biodiversity Hotpot: Hold an increased number of endemic species yet the combined area they cover is only 2.3% of the Earth. Each hotspot faces extreme threats, and has lost at least 70% of its original natural vegetation.

Endemism: The degree to which species are only found in a given space. Measure of "irreplaceability".

Therefore, a hotspot has an exceptional level of plant endemism and a high level of habitat loss. By focusing conservation efforts on Biodiversity Hotspots, one can receive the greatest return for their "conservation dollar".

The Sacramento Zoo wants to tie in the idea of Biodiversity Hotspots to the animals they house in the zoo. They have picked nine hotspots to feature in the zoo.

These hotspots are: Horn of Africa/Coastal Forest of Eastern Africa, West African Guinean Forest, Islands, Sundaland, Himalayas, Southeast Australia, Californian Floristic Province, Mesoamerica, and Madrean Pine Forest.

Working in teams of two, we were assigned the Madrean Pine Forest Biodiversity Hotspot and the corresponding animal exhibit, Thick-Billed Parrot.

The scope of this project included: (Interpretive Signage)

- A. Main banner/sign at zoo entrance Introducing Biodiversity Hotspots in the zoo.
- B. Biodiversity Hotspot "Banners" Nine secondary "signs" identifying each exhibit areas that correspond to Biodiversity Hotspots.
- C. Animal Signs Information about our animal. (Thick-Billed Parrot)
- D. Exhibit Cultural Reference Added features or elements such as posts, flags, architectural elements that help to convey cultural locations and peoples.

Goals:

- 1. To create a clear connection between the idea of Biodiversity Hotspots and the Sacramento Zoo.
- 2. To link each hotspot area in the Zoo.
- 3. Bring to light the Conservation issues that affect each hotspot.
- 4. Stress the fact that the animals are endemic.
- 5. Through signage & other elements, tell the story of how animals, environment and people are all linked; each is affected by the other.

Ideas:

The concept of the Biodiversity Hotspots can be challenging to explain so we propose to do so graphically, through interaction and interpretive signage elements.

Magnifying Biodiversity Hotspots:

The places listed on the Biodiversity Hotspot list are places most visitors have never heard of; often they are small and remote locations. Thus we chose to have a magnifying glass as the mark for the idea of Biodiversity Hotspots, to bring to light these areas and make them easier for visitors to 'see'. Also, since the word Biodiversity is not easily understood we wanted to rely the meaning of it graphically; we did this by the color of each letter correspond to the color of each hotspot in the Zoo.

Interpretive Signage

To help narrate the story of the animals, environment and people that live in each hotspot we propose using "totem poles" that can be placed around the zoo near animal exhibits that are part of a hotspot. Through research, we found that totem poles were used to tell a story or record an event. We propose to build contemporary, modern totem poles that are also interactive story telling devices as the middle portions of the pole could be moved and turned. These "poles" would carry information about conservation issues facing the habitat and animals. They would also showcase the unique cultures found in each hotspot region through imagery and patterns.

Representing Threatened Animals

We chose to highlight one animal from each biodiversity hotspot area, and we created an icon for that animal. These icons are placed on top of our interpretive signage [totem poles]. The icons would be made out of metal. We decided to have these icons as cutouts to visually represent the fact that these animals are vanishing.

Brainstorming Ideas/Sketches

















(2)

MOODBOARD & BEST PRACTICE EXAMPLES

Here are examples of images and references that inspired our design solution.

Refrences of other signage systems:

- Zoo signage designed by Lance Wyman.
- London Underground subway map signage, "Animals on the Underground", by The-Underground Ltd.
- Wayfinding signage at The J. Paul Getty Museum.

We were also inspired by the beauty, culture and location of Mexico, specifically Chihuahua, Mexico (Madrean Pine Forest, Biodiversity Hotspot).



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Sacramento Zoo: Signage System | Prerna Dudani & Joey Yao | Moodboard & Best Practice Examples





RESEARCH: MADREAN PINE FOREST & THICK-BILLED PARROT



Tarahumara

The Tarahumara of Mexico evaded Spanish conquerors in the sixteenth century. But can they survive the onslaught of modernity?

By Cynthia Gorney

http://ngm.nationalgeographic.com/2008/11/tarahumara-people/gorney-text

Pacific Southwest

Publication Information

Title: Madrean pine-oak forest in Arizona: past dynamics, present problems

Author: Barton, Andrew M.

Date: 2008

Source: In: Narog, Marcia G., tech. coord. 2008. Proceedings of the 2002 Fire Conference: Managing fire and fuels in the remaining wildlands and open spaces of the Southwestern United States. Gen. Tech. Rep. PSW-GTR-189. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station: p. 185-192

Note: This article is part of a larger document. View the larger document

Description: This paper synthesizes research on presettlement dynamics and modern disruption of Madrean pine-oak forests in Arizona. In response to surface fires characteristic of presettlement times, pines were fire resistant, exhibiting high topsurvival, whereas oaks were fire resilient, exhibiting lower top-survival but pronounced resprouting. Thus, low-severity fire favors pines, but resprouting allows oaks to rebound during inter-fire periods. Age structures reveal large increases in stand density, especially for oaks, as a result of modern fire suppression, suggesting more open conditions and higher pine:oak ratio during presettlement times. Stands were, in fact, so open that fire-caused thinning rarely stimulated radial growth. Frequent fires also apparently excluded less fire tolerant species, which have invaded some pine-oak sites. In anomalous stand-replacing crown fires, seedling establishment was very low for pines and oaks, but most oaks resprouted. Pinus leiophylla also resprouted but at low levels, which might nonetheless be an important source of future pines. These results suggest anomalous

urgent restoration using a variety of flexible approaches.

Keywords:

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We focused our research on the Madrean Pine Forest biodiversity hotspot and the species of Thick-billed Parrot that is found in the hotspot and also in the Zoo.

The Madrean Pine-Oak Woodlands encompass Mexico's main mountain chain and isolated mountaintop islands in Baja California and Southern United States. In Mexico, the hotspot includes the Trans-Mexican Volcanic Belt which runs through central Mexico and connects the Sierra Madre Occidental and the Sierra Madre Oriental mountains chains.

Although the hotspot covers a fairly large area, Thick-bills are mostly only found in Chihuahua, Mexico. We learned of the Tarahumara tribe, the largest indigenous group in North America, that live above the canyons of the Sierra Madre Occidental. We read that the culture and traditions of this tribe are threatened by urbanization, urban sprawl, tourism and many of the threats to their environment.

We realized that survival of species and people is closely linked to the environmental conditions they live in. This is the narrative we try to rely in the interpretive signage totem poles.

Tarahumara traditions vs. the chabochi way of life-can the

two coexist?



Pantone Colors:

Primary



Body Text: Minion Pro Regular

Biodiversity Hotspot Mark & Logo:



Icon Elements:





Illegal Bird Trade

Deforestation

SIGNAGE KIT

BI(VERS HOTSPOT

Logo with Mark



Logging



Vanishing Animals

 $\left(\begin{array}{c} 6 \end{array} \right)$

HOTSPOT MAP WITH LEGEND



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Madrean Pine Forest - Thick-billed Parrot

West African Guinean Forest - Bongo, Red River Hog, Chimpanzee

Sundaland - Orangutan, Hornbill, Tiger

Horn of Africa/Coastal Forests of Eastern Africa - Giraffe, Zebra, Lion

Himalayas - Red Panda, Snow Leopard, Monal

Southwest Australia - Kangaroo, Kookaburra, Frogmouth

Mesoamerica - Jaguar, Tamandua, Flamingo

Islands - Sifaka, Lemur, Tortoise, Python

California Floristic Province - Bobcat, Desert Tortoise, Burrowing Owl

COLOR REFERENCE: ENDEMIC FLOWERS

Madrean Pine Forest



Coral Tree

West African Guinean Forest



Palm Oil

Sundaland



Horn of Africa



Socotian "Desert Roses"

Himalayas



Himalayan Blue Poppy





Matchstick Bansia

Mesoamerica



CaHiega Guatamalenis

Islands



Baobob Species

Flower Reference

We chose the color palette for each Biodiversity Hotspot by drawing from colors of endemic flowers that are found in each hotspot region.



California Floristic Province



Clematis

ENTRANCE SIGNAGE

There are three entry elements that introduce and immerse the visitor into the idea of Biodiversity Hotspots at the zoo:

- 1. A Biodiversity Hotspot totem pole: images and text explaining hotspot idea.
- 2. A Hotspot Map: World map showing hotspots, and highlighting the ones showcased at the zoo.
- 3. Animal icon sculptures: Several sculptures placed around the totem pole and map.





Biodiversity Hotspot totem pole





vulpes ex vel, capto utrum quia populus ex. Monor vulpes ex vel, capto utrum quia praemitto laoreet olim augue olim et. Os, neo brevitas, foras quae commoveo, abdo in iusto quidem camur. Ut ut gravis antehabeo valde feugiat, illum, velit wisi erat ut damnum validus illum loquor. Haero iusto plaga amet laoreet wisi utrum at acsi aptent vereor. Ideo plaga ideo multo quae, in accumsan. Ingenium





Magnified (Not to scale)

Entry Rendering:

This rendering is of the entrance of the zoo and shows how all the entry signage is arranged. Note that the signage would be placed at the center of the courtyard by the information booth. The route of Conservation Train would have to be modified to take into account the signage. This rendering doesn't show scale.

10





Volutpat, blandit nulla, adipiscing in paratus diam et vero tation.Tum, nibh, uxor secundum gravis sino, mos importunus utrum ne, ut exerci vulpes.



Magnified (Not to scale)



Elevation of Biodiversity Hotspot Map



Vanishing Animal Sculpture

In the Zoo & Around the World!



Biodiversity Hotspot Totem Pole

The top of the totem features the Biodiversity Hotspot icon, the magnifying glass. The top and bottom two blocks are stationary and can't be moved. The small rings between blocks are shaped like triangles and have patterns of each hotspot applied to them.

The blocks in the middle of section are interactive and can be turned to get more information. Each interactive block has four panels with different information; block can be turned to create different combinations. Two panels ultimately line up to create a bigger picture.

Panels would define the terms "Biodiversity Hotspot" and "Endemic". They would also list the hotspots and their corresponding animals found at the zoo, through a matching game.

Totem Reference:



This reference shows a similar concept being used outdoors to teach children about how food is grown. Unlike the reference, our totems would use a crank system.

Hotspot Map

The table that houses the hotspot map sits on legs that are cutouts of the hotspot animal icons. The top of the table is angled and tilted foreword so that it is visible from a distance; making it hard for visitors to miss.

The table provides a world map showing all the hotspots in the word, this lets the visitor know that the zoo's hotspots are linked to a bigger idea. The map highlights the hotspots found at the zoo by showing the icon related to each hotspot raised off the map. Therefore, the map has some dimension.

3

Vanishing Animal Sculptures

Sculptures essentially the biodiversity hotspot icons brought to a larger scale. The sculptures are cutouts so visitors can see through them. By increasing the size of these icons and making them hollow we are trying to make them noticeable to visitors.

EXHIBIT: MADREAN PINE FOREST

Thick-Billed Parrot

Totem Poles

The top of the totem pole has a sculpture of the featured animal of the hotspot, the Thick-billed Parrot.

The top and bottom block are stationary. The width of the base is slightly smaller and is the same color as the asphalt so that mud and dirt from the ground is not visible. The smaller rings have a pattern that is based on patterns found on pottery from the hotspot region.

The triangular shapes of the movable blocks on the totem poles are inspired from the prism. A prism reveals the invisible; it reveals the colors that are present in white light. We believe that this ties in with biodiversity hotspots and conservation issues because they are basically "invisible" to people, and we are trying to bring the issue to "light" for everyone. The rest of the blocks have an organic shape.





TOTEM POLE: ELEMENT BREAKDOWN



MADREAN PINE FOREST

et tum, at praemitto ulciscor wisi aliquip

WHAT CAN I DO?

shown hotspot.

Typicus Epulae regula: turpis epulae zelus ibidem damnum roto vel

A Introduction & Conservation. This panel introduces hotspot & teaches visitors about Conservation.

PEOPLE & CULTURE



BIODIVERSITY THREATS

Grazing Off-road Vehicles n Industrializa I and I

B Culture Web. The point is to make the hotspot more accessible for visitors to connect with.

C Magnifying Biodiversity Threats. The point is to bring to light all the threats that make this place a hotspot.

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SECONDARY SIGNAGE

This spread shows what the totem poles interpretive signage system for each hotspot exhibit would look like. One featured animal is chosen from each hotspot and created into an icon that is place atop every totem. There are 9 animal totems, one for each hotspot.







Horn of Africa
Giraffe, Zebra, Lion



• Red Panda, Snow Leopard, Monal



• Kangaroo, Kookaburra, Frogmouth









California Floristic Province • Bobcat, Desert Tortoise, Burrowing Owl



ANIMAL SIGN

The animal sign gives the name of the animal along with the Latin name. It provides an interesting fact about the animal. A map shows where the animal is located and a world map is also shown to give context. Icons of the threats this animal faces are also included along with the Vanishing Animal logo.

Recommended word count on sign: 100-150 words

Note: The text would be twice the size of the text found in this sign.

Actual sign will be 2x this size.

9 in

THICK-BILLED PARROT

(Rhynchopsitta pachyrhyncha)

FACT: The call of this parrot can be heard up to 2 miles away!



Range: Northern & Centeral Mexico **Hotspot:** Madrean Pine Forest



Sed ingenium aliquam modo in tum et duis cui singularis. Quia decet vel meus, demoveo dolor ajusgivetin, jus epulae:

- Amet eum hendrerit roto capio, gravis autem. Os augueut quod opto suscipit mara. Occuro valde ut plaga nulla.
- Facilisi occuro damnum blandit uor neque incassum antehabeo.
- Enim vel roto luptatum ullamcorper quibus neli te quidem melior.
- Amet eum hendrerit roto capio, gravis autem. Os augue ut quod.
- Paulatim pagus ymo, tation iusto et, te esse quibus abigo fatua.











Option 2 : Fretwork







FENCE PATTERNS

OLLA BY OSCAR RODRIGUEZ (CAT. NO. 53)



After looking at the photos we took during the disposable camera exercise, we found that we really like the painted treatment applied to the fence of the Australian exhibit. We wanted to continue this treatment to all the animal exhibits that are part of the biodiversity hotspot list. The pattern and color would match the hotspot color and reference cultural patterns and motifs. In our example, we were inspired by Mata Ortiz pottery found only in one village in Chihuahua, Mexico.



HOTSPOT MAP WITH SIGNAGE





totem poles

This map shows where each totem can be placed. After doing an analysis and taking into account the exhibits, space, and visibility we found the areas we've marked would be best suited for the totem poles. As we did our analysis we also marked areas where we believe way-finding signage could be introduced to help guide visitors through the zoo.



PASSPORT

Conservationist Passport

Audience: Primarily targeted towards children and young adults, however, all visitors would enjoy the game.

With the Passport we wanted to achieve a few goals:

1. Reiterate the idea of biodiversity hotspots at the zoo.

2. Ensure that visitors visit each hotspot animal exhibit and don't miss out on any exhibit.

3. Ensure that visitors leave with an understanding that these animals are endangered and threatened.

4. Make visitors feel like they can make a difference to the environment and influence positive change in the lives of these animals by being educated and informed.

5. Make learning and the experience of the zoo more interactive and fun.

SITE ANALYSIS & RECOMMENDATIONS

Problems



Sacramento Zoo: Visibility problems with exhibit

Sacramento Zoo: Back of exhibit not paved

Sacramento Zoo: Circut is distracting

Thick-Billed Parrot Exhibit:

One of the main problems with this exhibit is that it is hard to see the parrot! This is because there are too many trees blocking the view of the parrots; there are trees on the inside and the outside of the exhibit, we find this unnecessary. We recommend replanting some of the smaller tress elsewhere. It is also hard to distinguish the front of the exhibit. We recommend placing the animal sign there and moving the electrical circuit box that is in the front of the exhibit to the back. Also, the pavement should continue to the back of the exhibit, currently it is unpaved and uninviting.

There are multiple, mismatched and dated signage. We recommend limiting one main sign per animal and having that sign placed in a close range to the animal exhibit. We found some signs that didn't correspond to the animal exhibit it was placed near.



Map: Too many cell phone icons on the map

Sacramento Zoo Map:

The current map needs to be simplified. For example, currently there are too many cell phone audio icons on the map, which makes it cluttered and hard to read. Moreover, it is not crucial information that visitors need to see on the map. We recommend placing the icon in the map key.





Adopt An Animal Program : San Diego Zoo



San Diego Zoo introduces a program called "Adopt An Animal". Visitors are able to pick an animal of their choice to "adopt". If one were to "adopt" the animal, he/she may choose different packages: \$35, \$50, \$100, \$250, or \$1000. Each package includes different items such as Certificates of Adoption, photographs, and other memory keepsakes according to the value of each package.

We believe this program could be beneficial to the Sacramento Zoo as it would help raise funds. It will also create an intimate relationship with the animals and visitors (parents). It will increase frequency of zoo visits.

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