



Transformation of a Traditional Reptile House into RepTopia, a Utopia for Reptiles, Amphibians and Arthropods



Wildlife Reserves Singapore
Conservation Fund

Together, We Protect Wildlife.



1) Project Background / Site Context

2) Design Approach

3) Design Overview

4) Successful Features & Conclusion



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Site Context - Singapore

Area: 719.1 km²
Population: 5.71 million
Climate: Temp 25 - 31 Deg C
Humidity 80%



Singapore is an island 1.5 degrees north of the equator.



Site Context – Singapore Zoo

Area: 264,710 km²

Attendance: 2 million visitors per year

Climate: Temperature: 25 - 31 Deg C
Humidity: 80 - 90%



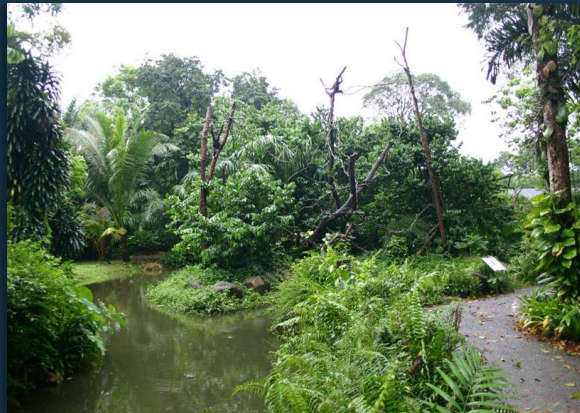
Cheetah Exhibit



Tiger Exhibit



Giraffe Exhibit



Gibbon Exhibit



'Free-ranging' Orang Utan

Snake House (Before conversion into RepTopia)

BACKGROUND

Opened: December 1982

Area: 1,510m²



RepTopia

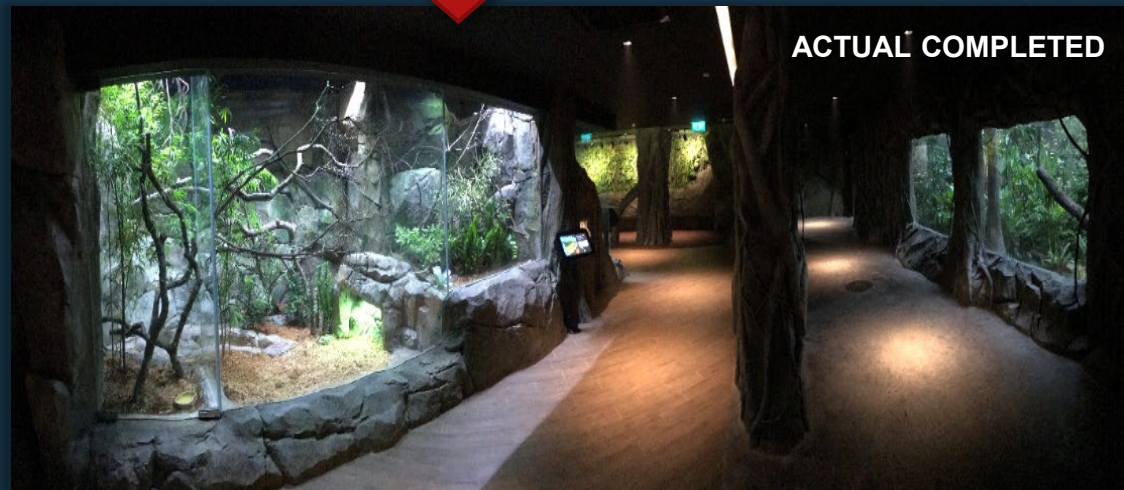
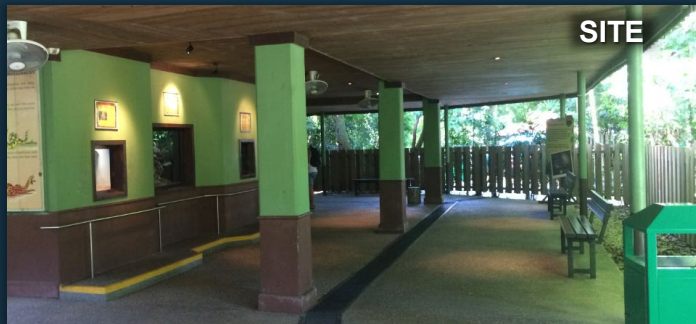
BACKGROUND

Opened: June 2017
Area: 1,910m²
Project Budget: USD 2.58m
EUR 2.3m



RepTopia

BACKGROUND



2 months

2 months

2 months

3.5 months

Concept Design

Detailed Design

Tender & Award

Construction

Scaly surprises await at Singapore Zoo's new exhibit RepTopia with world's most threatened reptiles



1 of 6 RepTopia houses over 60 of the world's most threatened reptiles. PHOTO: WILDLIFE RESERVES SINGAPORE

Singapore Zoo's RepTopia marks first year with hefty haul of herpetological wonders

RepTopia's resident reptiles and amphibians heralded the first year anniversary of Singapore Zoo's state of the art exhibit focused on conservation, mixed-species display, and interactivity with a successful breeding boom of over 80 specimens across eight species.

Singapore Zoo's RepTopia Marks First Successful Year

August 27, 2018



Singapore Zoo's "RepTopia" is marking its first year at the Zoo with the successful breeding of over 80 specimens of reptiles and amphibians.

RepTopia saw 40 successful hatchings of the iconic Panther Chameleon. No larger than the head of a pen, these vulnerable hatchlings require diligent care from RepTopia's keepers.

The amazing success at the Zoo also includes six critically endangered Electric Blue Geckos and endangered Golden Poison Frogs.

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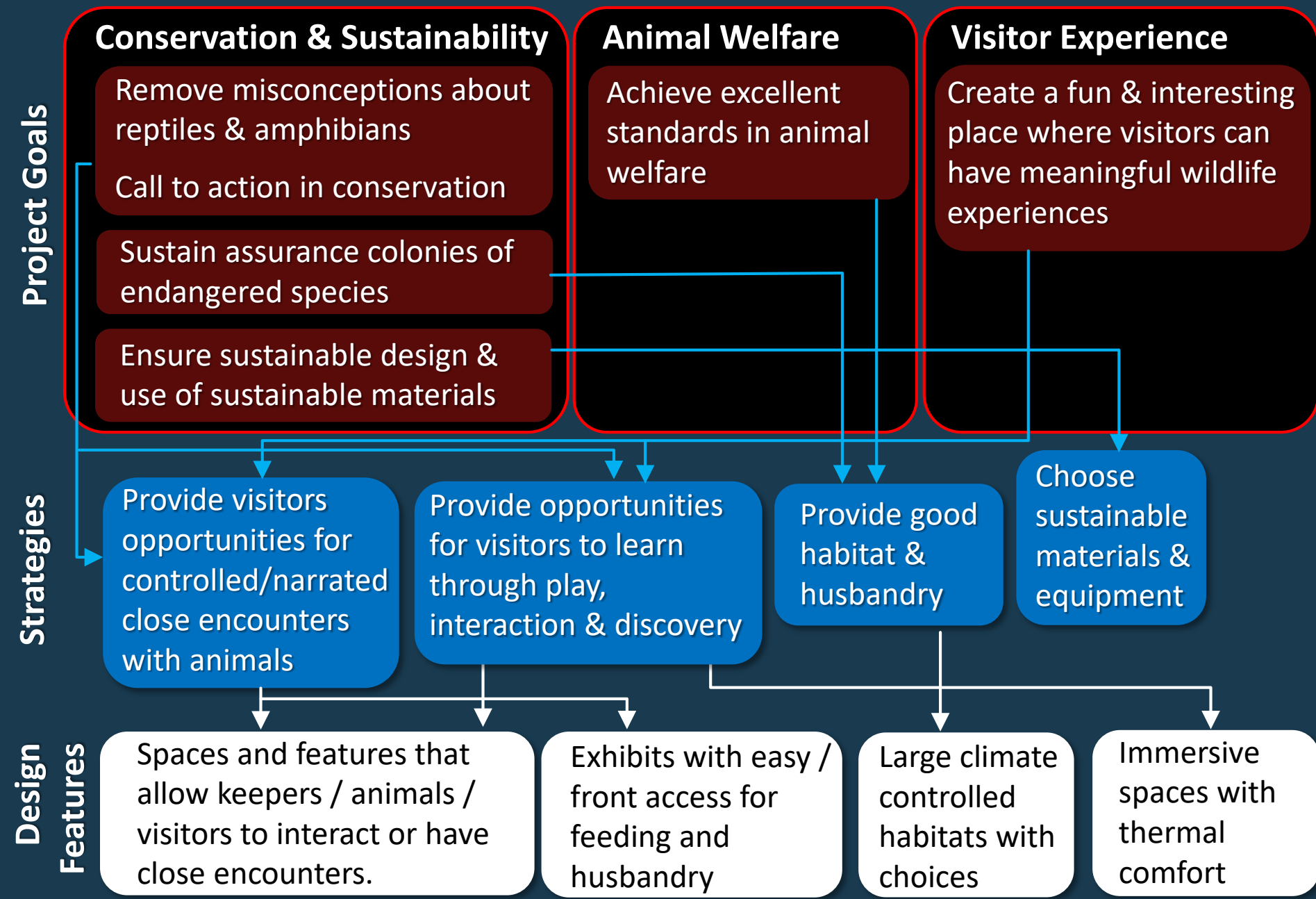
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Design Approach

DESIGN APPROACH



1) Project Background / Site Context

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Climate Control / Thermal Comfort Strategy

The visitor area is air-conditioned to ensure thermal comfort. To minimize reflections on viewing windows, the lighting level of the visitor area was lowered by enclosing the space with walls.

 Air-conditioned Space



Exhibit Arrangement & Theme

DESIGN OVERVIEW

25 Exhibits

120 New Reptiles and amphibians

54 Species on display

Walk-through
Aviary

**Neotropical
Forest**

**African
Jungle**

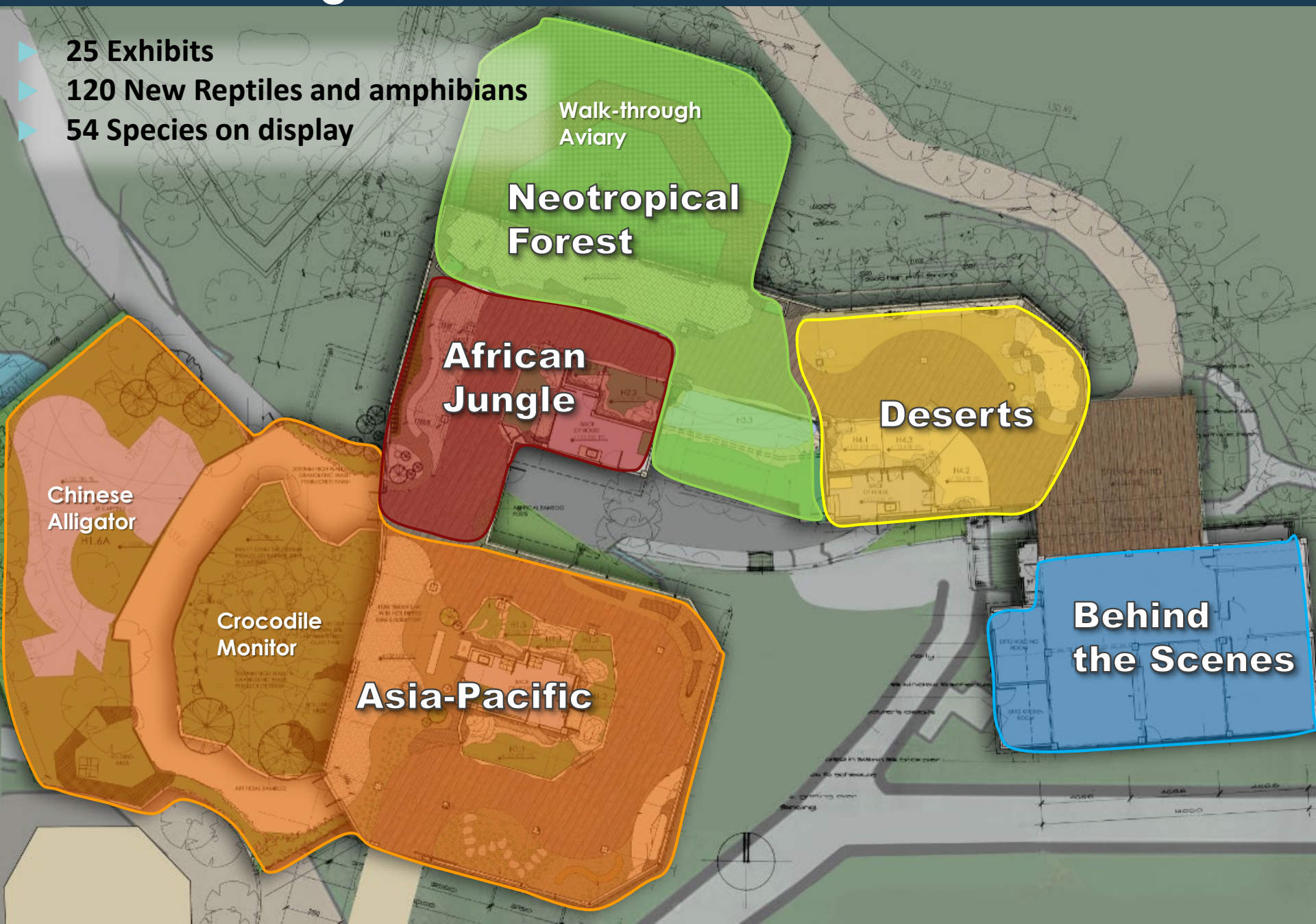
Deserts

Chinese
Alligator

Crocodile
Monitor

Asia-Pacific

**Behind
the Scenes**



Entrance



The building structure is concealed by plants.





- ▶ Mangrove Snake *Boiga dendrophila*
- ▶ Reticulated Python *Python reticulatus*

Exhibit 1

- ▶ Mangrove Snake *Boiga dendrophila*
- ▶ Reticulated Python *Python reticulatus*

Exhibit 2

- ▶ King Cobra (*Ophiophagus hannah*)

Exhibit 3

- ▶ Fiji Banded Iguana (*Brachylophus fasciatus*) **Exhibit 4**
- ▶ New Caledonian Giant Gecko (*Rhacodactylus leachianus*)

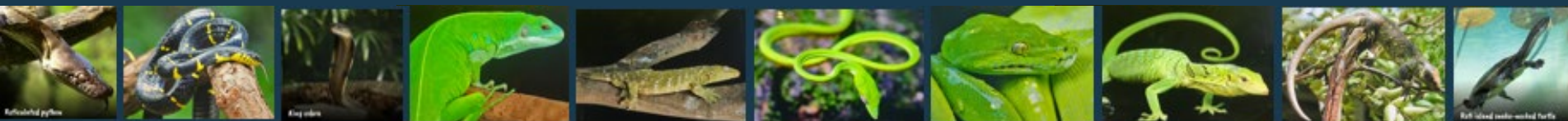
Exhibit 4

- ▶ Oriental Whipsnake (*Ahaetulla prasina*)
- ▶ Green tree python (*Morelia viridis*)

Exhibit 5

- ▶ Emerald tree monitor (*Varanus prasinus*)
- ▶ Solomon Island monkey skink (*Corucia zebrata*)
- ▶ Roti Island Snake-necked Turtle (*Chelodina mccordi*)

Exhibit 6



Neotropical Zone



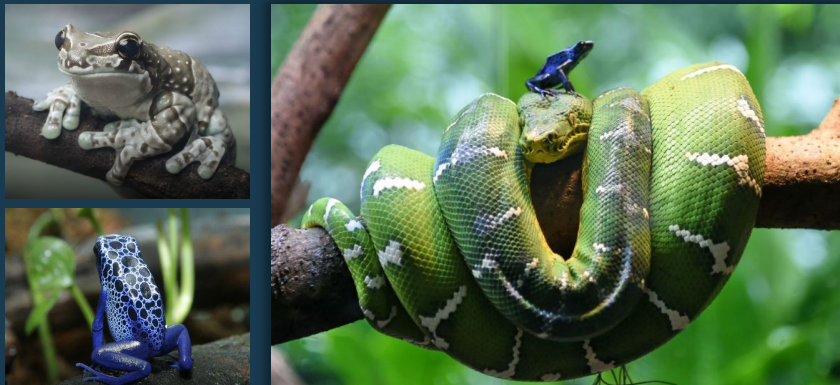
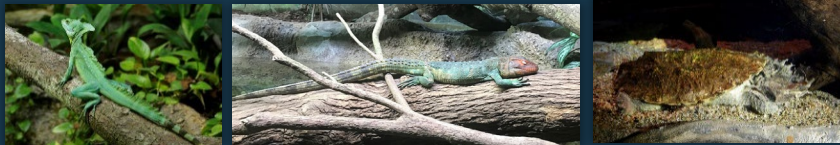
Species:

- ▶ Caiman Lizard *Dracaena guianensis*
- ▶ Crested Basilisk *Basiliscus plumifrons*
- ▶ Mata-mata *Chelus fimbriatus*

Exhibit 1

- ▶ Emerald Tree Boa *Corallus caninus*
- ▶ Amazon Milk Frog *Trachycephalus resinifictrix*
- ▶ Blue Poison Drat Frog *Dendrobates tinctorius*

Exhibit 2



African Forest Zone (Madagascar)



Species:

- ▶ Panthers Chameleon *Furcifer paardalis*
- ▶ Leaf-tailed Gecko *Uroplatus henkelii*

Exhibit 1

- ▶ Panthers Chameleon *Furcifer paardalis*
- ▶ Flat-backed Tortoise *Pyxys planicauda*

Exhibit 2

- ▶ Panthers Chameleon *Furcifer paardalis*
- ▶ Madagascar Day Gecko *Phelsuma madagascariensis*

Exhibit 3



African Forest Zone



Species:

▶ Parsons Chameleon *Calumma parsonii*

Exhibit 1

▶ Gabon Viper *Bitis rhinoceros*

▶ Royal Python *Python regius*

Exhibit 2

▶ Electric-blue Gecko *Lygodactylus williamsii*

▶ Emperor Scorpion *Pandinus imperator*

Exhibit 3



Deserts Zone



Species:

Arabian Desert

- ▶ Veiled Chameleon *Chamaeleo calyptratus*
- ▶ Spiny-tailed Lizard *Uromastyx ornata*
- ▶ Egyptian Tortoise *Testudo kleinmanni*

Exhibit 1

- ▶ Knob-tailed Gecko *Nephurus amya*

Exhibit 2

Australian Desert

- ▶ Shingleback *Tiliqua rugosa*
- ▶ Bearded Dragon *Pogona vitticeps*
- ▶ Frilled-necked Lizard *Chlamydosaurus kingie*

Exhibit 3

Sonoran Desert

- ▶ Gila Monster *Heloderma suspectum*
- ▶ WDB Rattlesnake *Crotalus atrox*

Exhibit 4

- ▶ Red-legged Tarantula *Brachypelma emilia*

Exhibit 5

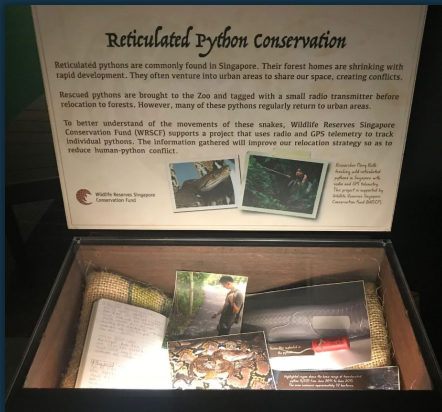
- ▶ Regal Horned Lizard *Phrynosoma solare*

Exhibit 6





Sculptural elements added through the visitor area.



Ranger station displays some artefacts and interpretives on in-situ python and king cobra research.

Asia Pacific

Species:

Papua

- ▶ Crocodile Monitor *Varanus salvadorii*
- ▶ Fly-river Turtle *Carettochelys insculpta*

China

- ▶ Chinese Alligator *Alligator sinensis*
- ▶ Striped-necked Turtle *Mauremys sinensis*
- ▶ Chinese Box Turtle *Cuora flavomarginata*





View from Outside



Interior View

Spacious back-of-house facility for behind-the-scenes tours

1) Project Background / Site Context

2) Design Approach



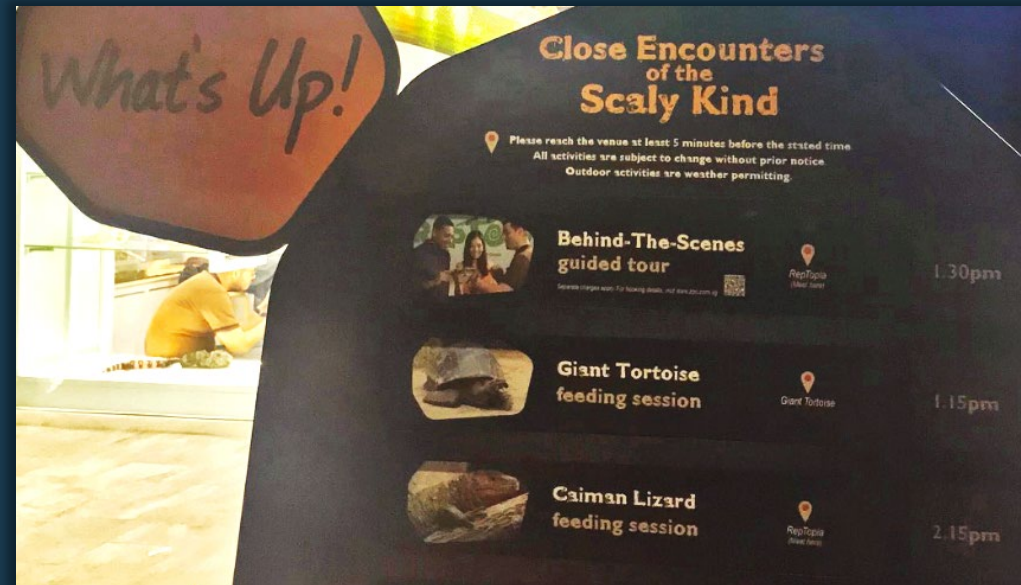
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4) Successful Features & Conclusion

Successful Design Features

- Visitor Engagement and Activities

- ▶ Training and Enrichment
- ▶ Feeding Sessions
- ▶ Photo opportunities
- ▶ Contact sessions
- ▶ Keeper Talks



Throughout the day, there are activities and opportunities for visitors to be engaged and have close encounters with the animals.



Successful Design Features

- Features that Facilitate Showcasing of Keeper /Animal Activities

- ▶ Allocation of Spaces
- ▶ Easy Access



Feeding of animals in clear view of visitors



(Screen capture of video by Borja Reh)



Spacious back-of-house facility for behind-the-scenes tours

Successful Design Features

- Front Opening Windows

- ▶ Ease of husbandry
- ▶ Feeding Activities
- ▶ Opportunities for close encounters between animals and visitors

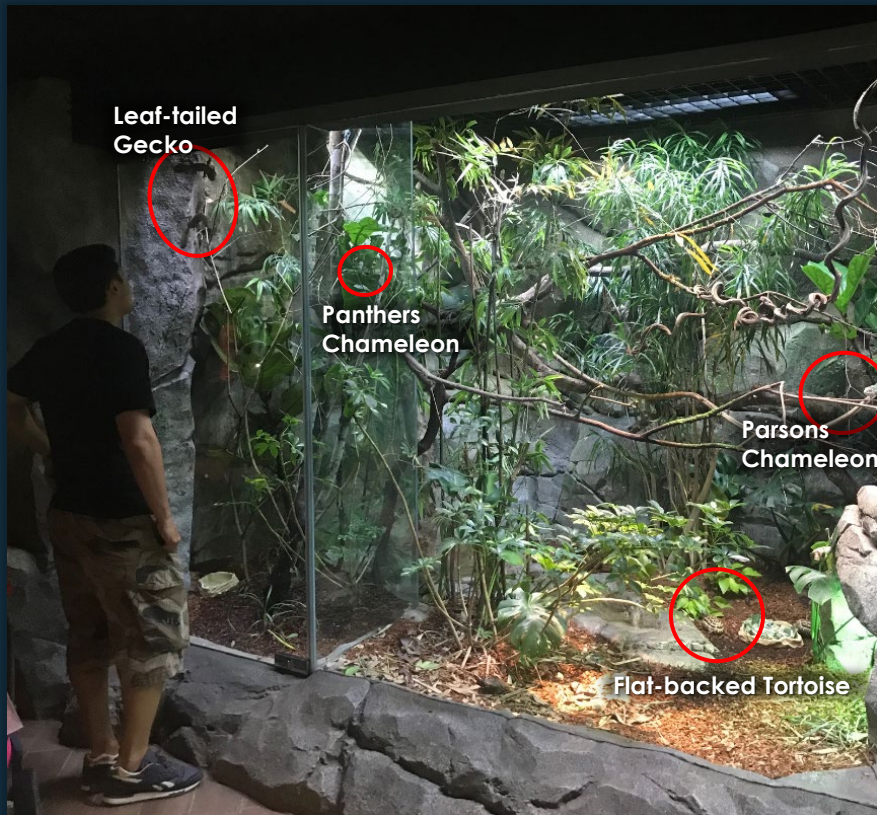


Feeding of animals in clear view of visitors (Screen capture of video by Borja Reh)

Successful Design Features

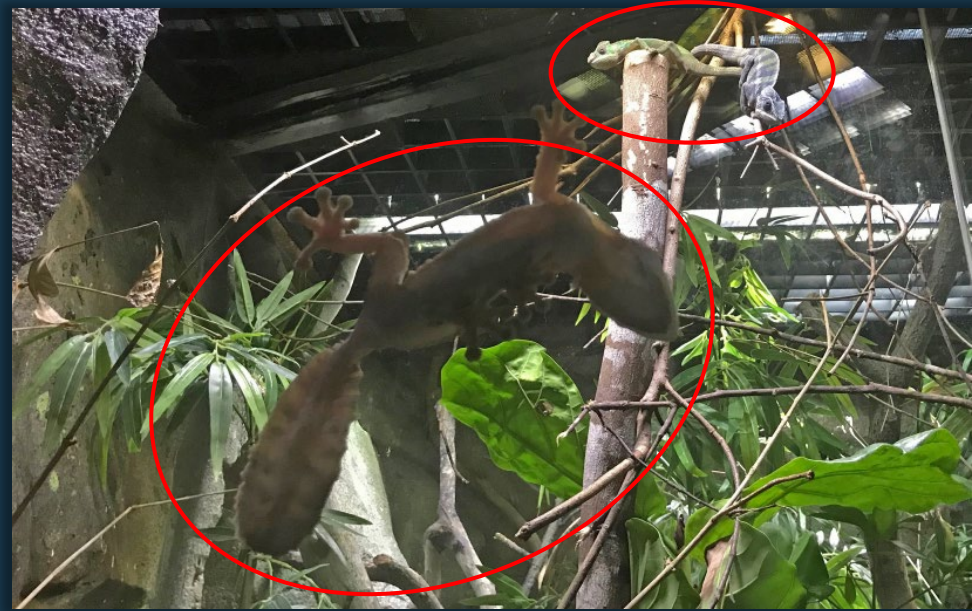
- Large Exhibits for Multiple Compatible Species

- Large spaces with variety & options for animals.
- Multi-species allow more animals to be housed together (using different levels of spaces) and higher probability of sighting by visitors.



Successful Design Features

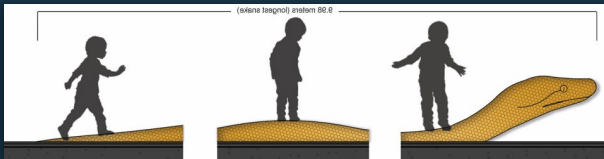
- Large Exhibits for Mixed-Species



Successful Design Features

- Play Elements

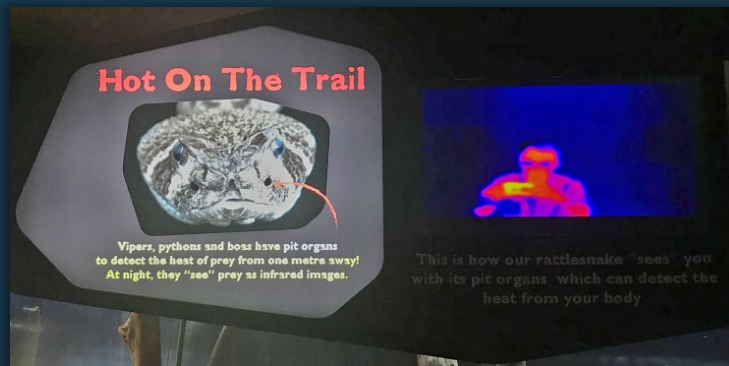
- Addition of play and discovery elements to enhance visitor experience



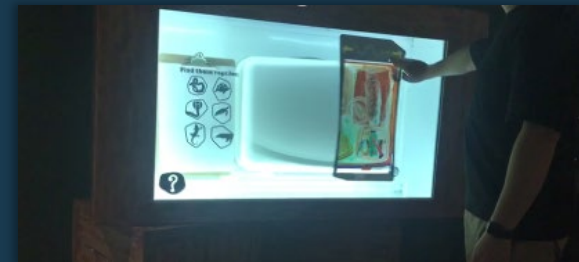
Successful Design Features

- Digital Elements

- Addition of digital elements to enhance exhibits & visitor experience



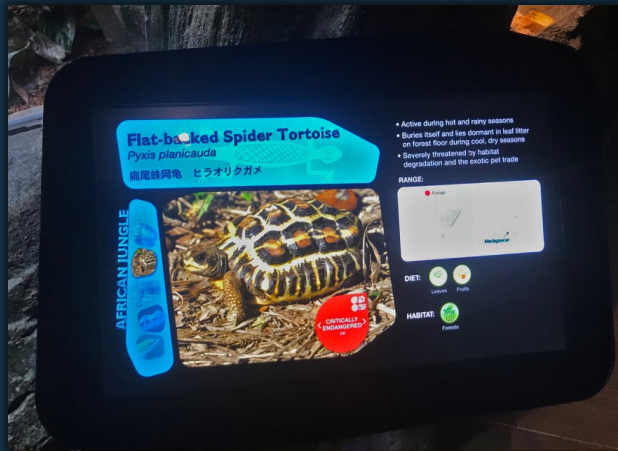
The installation here allows visitors to see themselves as thermal images and learn how rattlesnake hunt in the dark.



Interactive digital installation that allows visitors to have an X-ray view of the luggage.. search for smuggled reptile products and learn about illegal wildlife trade.

Successful Design Features

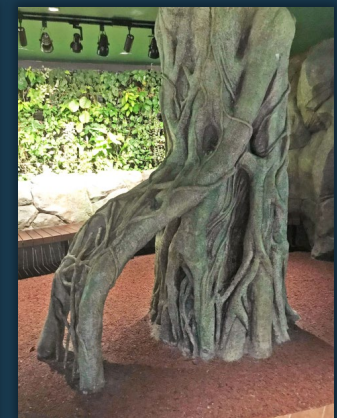
- Interpretive, Digital Signs and Videos



Digital screens can showcase behaviour of the animals in videos. There is also greater flexibility in changing of contents to align with species changes in mixed exhibits.

Successful Design Features

- Immersive Theme Features



Walls and partitions were themed differently for each zone.

Conclusion

Recommendation for Herp Exhibits:

- 1) Introduce lots of visitor engagement opportunities.
Create:
 - Spaces and features that allow keeper/animal/visitor interaction
 - Features that facilitate the showcasing of keeper and animal activities
- 2) Where possible, create large habitats with choices (in terms of micro-climate, substrate & lighting levels) for multiple compatible species.
- 3) Potential to enhance exhibits & visitor experience through addition of play and digital elements.



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THANK YOU



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