ZooLex GaiaPark Kerkrade Zoo -- Amazonia - Monkey Islands

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KEY WORDS
naturalistic barriers, mixed species, islands, conservation, ESB, EEP, Amazon

ANIMALS
Family - Species (Common Name)-Capacity
Atelidae - *Ateles paniscus (*Red-faced black spider monkey) - 1.4 and offspring
Atelidae - *Lagothrix lagotricha (*Woolly monkey)- 1.2 and offspring
Cebidae - *Callithrix geoffroyi* (White-fronted marmoset)- 0.5
Cebidae - *Cebus capucinus* (White-throated capuchin) - 1.5 and offspring
Hydrochoeridae - *Hydrochaeris hydrochaeris* (Capybara) - 1.3 and offspring

AWARDS
2006 EAZA Education Award (for the whole zoo)

DESCRIPTION
GaiaPark is a zoo where the animals live in spacious naturalistic enclosures. It is also a zoo with one central theme, the Gaia theory, which views the earth as a complex living organism. The name of the zoo also pays homage to Gaia, the Greek goddess of the Earth. One important goal of GaiaPark is the conservation of nature and species. GaiaPark opened its gates in April 2005. After two years of construction, the first part of the master plan was completed. The theme area Amazonia was part of this master plan.

Monkey Islands is part of Amazonia, where animals from the Amazon rainforest are exhibited, such as tapir, nutria, squirrel monkey, collared peccary, green oropendola and others.

Monkey Islands consists of three islands: the capuchins and spider monkeys each inhabit one island, whereas woolly monkeys and white-fronted marmosets share another island. Capybaras have access to the islands of the white-throated capuchins, the woolly monkeys and marmosets and

White-throated Capuchin monkey.
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can move freely in the biggest part of the enclosure along the moats. The woolly monkey/marmoset and the capuchin islands have elevated parts, which the capybaras cannot reach. Part of the moat and the entire spider monkey island are inaccessible for the capybaras due to metal pins.

In the master plan it was originally stated that the capuchins would have access to two islands, but in reality they could not be persuaded to leave the first island and made little use of the second island. GaiaPark therefore decided to exhibit other monkey species on the second island, for which they had to build a new indoor enclosure. This building was completed in summer 2005 and now exhibits woolly monkeys and white-fronted marmosets.

Visitors can walk through the area, cross a bridge and observe the animals from three viewing shelters.

SIZE
The Amazonia region of the zoo measures around 13% (23.451 m²) of the entire zoo.

On Monkey Islands, spider monkeys and capuchin monkeys are kept in the same building. The spider monkeys have four separate indoor enclosures (26, 7, 7 and 6 m²) and the capuchins five (20, 10, 13, 3 and 3 m²) (see picture 3), separated from each other by a visitor pathway. Marmosets and woolly monkeys also share an indoor enclosure (Marmosets: 2 x 6 m²; Woolly monkeys: 12 and 4 m²). The capybaras are housed in the same building (14, 11, 8, 4 and 2 m²), as the collared peccaries, which have their own outdoor enclosure next to the Monkey Islands. The height of the indoor enclosures for the monkeys varies between 3 and 5 meters.

The capybaras have a total outdoor enclosure of 1632 m², plus a water surface of 577 m²). The other outdoor enclosures measure 512 m² for white-throated capuchins, 448 m² for woolly monkeys and marmosets and 824 m² for spider monkeys.

Space allocation in square meters:

Use	Indoors		Outdoors		Total exhibit
	Accessible	Total	Accessible	Total	
Animals	167	176	2,841	3,689	3,865
Visitors	37	37	687	1,258	1,298
Others	42	87	301	368	455
Total	246	300	3,829	5,315	5,615

COSTS: € 320,750
Costs comprise indoor enclosures (including stable equipment) only. Landscaping of the outdoor enclosures was done for the entire area of the current zoo; no exact costs of the outdoor enclosures of Monkey Islands are available.

OPENING DATE
23 April 2005

DESIGN
Beginning: January 2002
· Design basic master plan: pja architects + landscape architects, p.s., Seattle, USA
· Landscape design: J. Füss, Vollenhove, France
· Design: GaiaPark, Kerkrade
· Technical drawing: Bouwbedrijf Maalderink-Reusken BV, Loenen
· Supportive Design: Ingenieursbureau A. Palte BV, Valkenburg a/d Geul

CONSTRUCTION
Beginning: June 2003
· Indoor enclosures: Weerens Bouwbedrijf bv, Stamproy
· Barn equipment: Vacon bv, Susteren
· Installation gas, water and electricity outdoor: Daniels, Voerendaal
· Heating installation: Breman Maasland Installatie, Haelen
· Electro technique: Insta Zuid, Beek

PLANTS
Plant species that are known to be strong and fast growing were chosen for the monkey exhibits, so that the plants can withstand and survive damage from the animals.

Plants around the exhibits were chosen for their large leaves in order to imitate rainforest plants. Most plants around the enclosures are able to survive near water. Several vines are used to cover objects.

Grass carps (Ctenopharyngodon idella) were released in the moats of the islands to prevent extreme growth of water vegetation.

FEATURES DEDICATED TO ANIMALS
Branches and poles, fire hoses and ropes are used in the indoor enclosures to give the monkeys the opportunity to climb. These can be removed and easily cleaned. With each refurnishing, the animals are stimulated to explore their enclosure.

Sawdust is used for bedding, because it is easy to clean and looks natural. It is also often used by the animals for playing.

Heating and lighting of the indoor enclosure for the woolly monkeys and marmosets is incorporated into the ceiling. In the other monkey building heating panels and lighting hang from the ceiling, but due to damage caused by the monkeys this was changed in the construction of the woolly monkey enclosure. The drinking nipples originally were placed at a height of proximately 80 cm (31 Inch) which is not ideal. In the new enclosure they are situated higher where they are better accessible for the monkeys.

During the night when the animals are inside, they have access to all their indoor enclosures. The walls between the different enclosures are made from durable panels (Trespa). They are not transparent in order to allow the animals to get out of each others view. Each indoor enclosure is connected to the next by at least two slides. This is done to ensure that a dominant animal cannot block the passage to another cage.

The monkeys are fed in the indoor enclosure, where food is spread throughout the whole enclosure to give all animals the opportunity to feed. Only the marmosets are fed on a feeding platform.

When the capybaras are inside they have access to a small pond of 1,3 m³.

The outdoor enclosures provide the monkeys with several large trees and ropes to climb on. The

Bridge and indoor enclosure - The indoor enclosure of capuchin and spider monkeys. ©R.J. van Sluis, 2007

Feeding balls - These feeding balls are filled with food during the day, which stimulates the monkeys to work for their food. ©R.J. van Sluis, 2007

animals can hide in a small shelter and in the undergrowth. On the woolly monkey island, a small mesh box allows the marmosets to retreat from the woolly monkeys. The capybaras have access to parts of the islands and can swim in the spacious moat.

FEATURES DEDICATED TO KEEPERS

Every enclosure has a small kitchen, but in reality not all the kitchens are used. The capuchin monkey and capybara enclosures have small storages for sawdust and straw.

The mesh size between monkeys and keepers is 25 x 25 wide. This protects the keepers from grasping hands and tails when walking in front of the cages.

Tunnels with a removable crush (lowered with a winch) ensure safe capturing of the animals.

Smoke detectors are situated in all buildings.

Special iron underwater bridges close underneath the water surface, enabling keepers to reach the islands.

Shelter at spider monkey island - From this shelter the visitors can view the spider monkey island. ©R.J. van Sluis, 2007

All sliding doors can be operated from the keeper area. Levers of the capybara enclosure require less strength to operate.

FEATURES DEDICATED TO VISITORS

Three viewing shelters around the exhibit give the visitors a good view of the exhibit and protect them from rain and sun. Pathways go around the entire enclosure, so it can be viewed from all sides. Visitors can cross a bridge between the islands to get close to the animals. The capybaras can swim underneath that bridge.

When the monkeys are inside due to bad weather, the visitors can view them from a shelter through a glass window. In total, five monkey exhibits are visible for the public. When visiting the marmoset and the capuchin monkey indoor enclosures, the visitors can view part of the keepers' hallway. In general, visitors react positively to this behind the scenes view.

Barriers around the exhibits are integrated into the landscape. Visitor safety on the bridge is ensured by nets along the sides of the bridge.

INTERPRETATION

Information about the animals is provided in places where visitors have a good view of the exhibits. Furthermore, large panels informing about the capuchin monkey, the capybaras and the spider monkeys are placed next to the indoor and the outdoor enclosures. These large panels provide some interesting facts about the animals. All signs and panels are written in Dutch, English and German.

Next to the indoor enclosure of the woolly monkeys and marmosets a photo presentation is given about inhabitants of the Amazon rainforest. It shows how the inhabitants of the rainforest live in harmony with nature.

Three other information panels provide information about the Amazon rainforest, one with information about the different layers of vegetation, their climatological relevance and the animals inhabiting the different layers. The second panel covers the Indian Banyan (Ficus benghalensis). A 6m high real trunk of the Indian Banyan is shown. The last panel informs about the project of the APCT for woolly monkeys in Peru which GaiaPark supports (more under Conservation).

MANAGEMENT

Three different keeper departments care for the animal species on Monkey Islands. The capybara indoor enclosure is cleaned daily. In the monkey enclosures faeces is removed daily, while the entire bedding is removed once a week during winter and once every two weeks in summer.

Enrichment is done mostly through feeding. The

animals have to manipulate boxes and barrels to reach their food. Sometimes bags or cardboard boxes are provided for enrichment. When the animals are in their indoor enclosures they can freely use all the separate spaces. However, if necessary, animals can be separated in one of the smaller pens.

RESEARCH

At this point, no research has been conducted relating to the enclosures.

CONSERVATION

GaiaPark is a partner of Apenheul Primate Park in Apeldoorn and supports a project of the APCT (Apenheul Primate Conservation Trust) to protect an area of 500.000 hectare cloud forest in Peru, where the rare yellow-tailed woolly monkey and other endangered animals live.

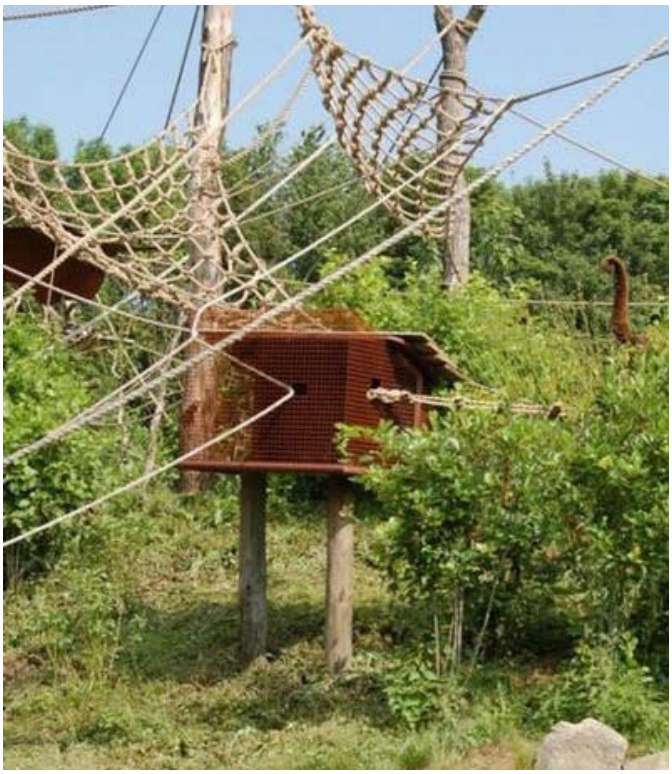
From the five species kept in the enclosure, three species are managed with an EEP (spider monkeys, woolly monkeys and marmosets). The capuchin monkeys are part of an ESB. GaiaPark strives to breed all the species exhibited in this enclosure, except for the white-fronted marmosets, in order to ensure a viable and healthy population in zoos around the world.

LOCAL RESOURCES

Almost all of the companies involved in design and construction are situated near Kerkrade. Most of the companies not situated around Kerkrade have been recommended through GaiaPark's partner, Apenheul, and are located near Apeldoorn, where Apenheul is situated.

Indian Banyan - A 6m high, real trunk of the Indian Banyan (*Ficus benghalensis*) is placed in the area together with an information panel and a section of the Bayan. ©R.J. van Sluis, 2007

Monkey species - All monkey species exhibited on Monkey Islands. ©R.J. van Sluis, 2007



Hiding cage - In this cage the white-fronted marmosets can hide from the woolly monkeys. ©R.J. van Sluis, 2007

Fig 1. Overview - Red circle highlights the Monkey Islands. ©GaiaPark Kerkrade Zoo, 2007

Fig 3. Picture view - The numbers show where the pictures were taken. ©GaiaPark Kerkrade Zoo, edited by R.J. van Sluis, 2007

Fig 2. Site Plan. ©GaiaPark Kerkrade Zoo, 2007

Fig 4. White-throated Capuchin monkey. ©R.J. van Sluis, 2007

Fig 5. Monkey species - All monkey species exhibited on Monkey Islands. ©R.J. van Sluis, 2007

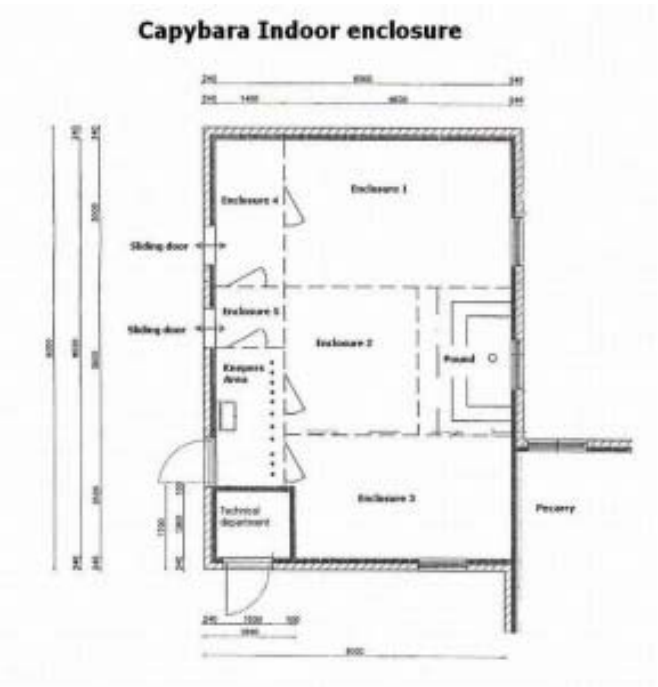


Fig 7. Capybara indoor enclosure. ©GaiaPark Kerkrade Zoo

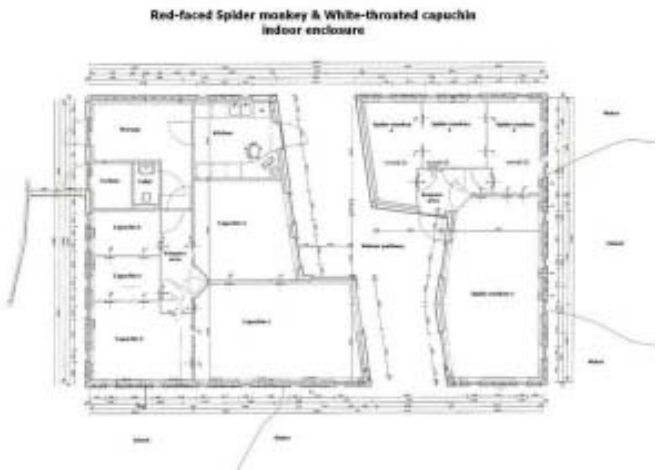


Fig 6. Spider monkey/capuchin monkey indoor enclosure - Indoor enclosure of red-faced spider monkeys and white-throated capuchins. The tunnels with removable crush are not shown in the drawing, but are situated above the keeper's area.. ©GaiaPark Kerkrade Zoo

Fig 8. Area view - View of Monkey Islands from the aviary bridge. The island of the woolly monkeys is situated in the picture front. ©R.J. van Sluis, 2007

Fig 9. Area view. View of the island for woolly monkeys and white-fronted marmosets and the island for spider monkeys. The shelter on the right protects visitors from bad weather. ©R.J. van Sluis, 2007

Fig 12. Spider Monkey outdoor enclosure. ©R.J. van Sluis, 2007

Fig 10. Bridge and indoor enclosure - The indoor enclosure of capuchin and spider monkeys. ©R.J. van Sluis, 2007

Fig 13. Shelter at spider monkey island - From this shelter the visitors can view the spider monkey island. ©R.J. van Sluis, 2007

Fig 11. Spider Monkey enclosure - This building exhibits spider monkeys and capuchin monkeys. ©R.J. van Sluis, 2007

Fig 14. Spider Monkey outdoor enclosure - Various climbing structures enable the monkeys to climb and move around the exhibit. ©R.J. van Sluis, 2007

Fig 15. Woolly monkey/white-fronted marmoset exhibit - The indoor and a part of the outdoor enclosure for woolly monkeys and white-fronted marmosets. ©R.J. van Sluis, 2007

Fig 16. Capuchin Island - The island of the capuchin monkeys is situated in the back of the picture, the island of the woolly monkeys in the front and on the right. ©R.J. van Sluis, 2007

Fig 17. Shelter - From this shelter visitors can watch the capybaras, capuchin monkeys and collared peccaries (exhibited in another enclosure). The building behind the shelter is the indoor enclosure for capybaras and collared peccaries. ©R.J. van Sluis, 2007

Fig 18. Indian Panyan - A 6m high, real trunk of the Indian Banyan (Ficus benghalensis) is placed in the area together with an information panel and a section of the Bayan. ©R.J. van Sluis, 2007

Fig 19. Visitor view - Visitors can view the animals up close from the bridge. ©R.J. van Sluis, 2007

Fig 20. Visitor safety - The nets on the bridge prevent children from falling into the water. ©R.J. van Sluis, 2007

Fig 23. Animal Shelter - All monkey species have access to shelters, where they can hide from rain and sun. ©R.J. van Sluis, 2007

Fig 21. Indoor enclosure view - Visitors viewing white-fronted marmoset in their indoor enclosure. ©R.J. van Sluis, 2007

Fig 22. Feeding ball - These feeding balls are filled with food during the day, which stimulates the monkeys to work for their food. ©R.J. van Sluis, 2007

Fig 24. Hiding cage - In this cage the white-fronted marmosets can hide from the woolly monkeys. ©R.J. van Sluis, 2007

Fig 25. Elevation - These elevations separate the capybaras from the monkeys. The monkeys can go down, but the capybaras cannot go up. ©R.J. van Sluis, 2007

Fig 26. Separation area - The capybaras can stay in this outdoor pen when they cannot go on exhibit. ©R.J. van Sluis, 2007

Fig 27. Capybara indoor enclosure. ©R.J. van Sluis, 2007

Fig 28. Levers - These levers make it easier for the keepers to move the sliding doors of the capybara enclosure. ©R.J. van Sluis, 2007