

An African Tropical Forest in Boston

Matthew A. Thurlow

The newest indoor exhibit at Franklin Park Zoo in Boston is the centerpiece for revitalization.

The "African Tropical Forest" is the newest exhibit at the Franklin Park Zoo in Boston. The object of this three-acre indoor-outdoor exhibit is to take the zoo visitor on a safari through a West African tropical forest. Each turn in the path offers a new chance to sight African wildlife in naturalistic habitats. No bars or cages separate the visitors from the animals. Moats disguised as stream beds permit unobstructed views of the animals, and strategically placed glass allows visitors to come face to face with some of the forest's more impressive animals.

The African Tropical Forest is housed in the largest free-standing building of its kind in the United States, measuring 45,000 square feet, with over 28,000 square feet of general exhibit area. The tripod support beams rise 75 feet at the apex supporting the coated white cloth roof. Artificial rockwork throughout the building was designed to provide over 75 planting beds, which hold the largest collection of tropical plants in New England. The planters are placed so that the flora will develop into a lush canopy of vegetation above the public walkways. The 150 animals may be the centerpiece of the African Tropical Forest, but it is the 3,000 plants that create the tropical-forest setting that makes the gorillas, hornbills, and bongos feel at home.

The upper level of this indoor forest is supported by fiddleleaf ficus (*Ficus lyrata*), rubber trees (*Ficus elastica*), banyan trees (*Ficus retusa*), schefflera (*Brassaia actinophylla*), fishtail palms (*Caryota mitis*), and kapoks

(*Ceiba pentandra*). Many of the hundred birds flying freely through the forest have found that the upper reaches are fine places to perch. The Hadada ibis roost throughout the upper story.

To exhibit some animals, such as the pygmy hippos and yellow-backed duikers, a forest-clearing effect was required. Medium-growth plants were installed to create this effect: banana plants, bird-of-paradise, Australian tree ferns, dracaenas, and philodendrons surround these cleared areas. The giant white bird-of-paradise plants (*Strelitzia alba*) have been a great success and bloom repeatedly to the delight of zoo visitors.

Throughout the entire building, a lush understory planting features elephant ears (*Alocasia sandersoniana*), ginger (*Zingiber officinale*), heliconias, and many fern species. Where streams from the waterfalls flow, umbrella plants (*Cyperus alternifolius*), Egyptian paper plants (*Cyperus papyrus*), walking iris, and bamboos were planted. Epiphytes, or air plants, hang from the rock faces and trees. Creeping figs (*Ficus pumila*) are rapidly growing out of any crack or crevice in which they can get a foothold.

A Developing Ecosystem

The plants in the African Tropical Forest were installed in 1989, one year ago. Since that time many interesting changes have been noticed. Most rewarding is the tropical forest ecosystem that is developing. With the thickening of the forest canopy, light to the under-



A lowland gorilla in its tropical habitat at Metro-parks' Franklin Park Zoo.

story is being reduced, creating a mosaic of microclimates. Just as in an actual tropical forest, the plants compete for access to the light. In open areas where light is more intense, the plants grow and spread at their own rate. In the shaded areas, shade-tolerant plants have overtaken other species. The vines (*Tetrastigma voinieranum* and *Clerodendrum thomsoniae*) planted in the forest floor are beginning to creep up the stalks and trunks of other plants to fill in the gaps in the canopy.

Certain trees partially defoliate in response to the reduced levels of light. Part of the routine maintenance inside the pavilion is the selective pruning of the trees to allow more light to reach the lower areas. Care is taken in the pruning to make sure that the trees maintain their natural appearance. The birds in the forest help in this endeavor. In landing on perches that will not support their weight, the birds break off branches in a random pattern.

Pest control presents special problems in the controlled environment of the African

Tropical Forest. Normal means of control, such as contact pesticides, systemics, or injections, are not used because of their toxicity to the animals. In general, infested plant material is cut off and removed immediately. Insecticidal soaps are used widely because they are nontoxic to the animals.

Predatory insects are also being used on an experimental basis, with some noteworthy surprises. To combat the spread of aphids, 150,000 ladybird beetles were released within the pavilion. The aphids, which are deleterious to the plants, produce a honeydew on which ants feed. The forest's resident ant population has begun to protect the aphids from the beetles. The symbiotic relationship that has developed between the ants and the aphids is yet another reminder that the forest is a living, evolving ecosystem that humans cannot always control.

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