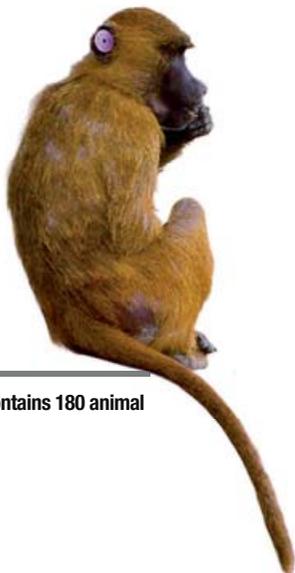


A revolution
at the
ZOO



The Paris zoo reopened its doors in April after two and a half years of work. Here we discover how Bouygues Construction has totally revamped it.



The zoo contains 180 animal species.

A few weeks before the reopening, the staff is busy putting the final touches on the Paris zoo. At the seal pool, workers are touching up the paint on the fake rocks made of concrete before the imminent arrival of its residents. A majestic lion lounges in its den¹, resting up from its trip back and getting accustomed to its new environment before being turned loose in its enclosure. Virtually all that remains of the zoo familiar to Parisians, which was created in 1934, is the iconic rock. Everything else has been totally redesigned and renovated by Bouygues Bâtiment Ile-de-France (see inset, p. 73) in a public-private partnership (PPP) with the Muséum national d'Histoire naturelle. One particularity of the contract was that Bouygues Bâtiment Ile-de-France-Délégations & Partenariats Publics would redesign the zoo (working with architects and landscape gardeners) as well as serve as the contracting authority and do the construction and financing. Now, maintenance at the zoo for the next twenty-five years is in the hands of Bouygues Energies & Services.

Monkey business

The zoo occupies a vast, 14.5-hectare park that had to be totally transformed to accommodate the 180 species represented there. "Staff from the Muséum told us which animals they

¹/ Where animals spend the night.



absolutely wanted included and which ones were optional," explains Alexia Fakiri, the project's manager at the contracting authority, Délégations & Partenariats Publics. "So we worked with the landscape architect to plan the surface areas needed for the animals and the various types of traffic. The first task was to modify the topography of the site, which was initially very flat. Mounds and varying levels were created to plunge visitors into the animals' environment as they walk along. "We planted over 170,000 trees and other vegetation," says Thibaut Vieillard, construction manager at Bouygues Bâtiment Ile-de-France – Ouvrages Publics. "We spent a lot of time selecting them. We even went to Florida to find the right kinds of plants for the tropical greenhouse!" The new zoo is structured in five biozones (see diagram, p. 72) so that each animal is living in a space as similar as possible to its natural habitat. "After a lot of discussion with the Muséum, we also worked on the animals' quality of life," points out Vieillard. A multitude of unusual criteria had to be taken into account, since each enclosure and each den is specially designed for a particular species. For example, the woolly monkeys need a forest of wood, cords and vines to get their exercise; for the wolves, there are rocks with multiple levels so they can place themselves according to the hierarchy of the pack.

"The dialogue with the [cont. p. 72]





Opposite left: It took Bouygues Bâtiment Ile-de-France two months to erect the framework for the big glass roof (4,000 sq. meters).

Below left: The Bouygues Energies & Services teams work continually with the zoo veterinarians and caretakers.

Below: The seal pool before its residents' arrival.

Bottom left: A Bouygues Energies & Services employee checks to see that the entrance gates are working properly.

Bottom right: Under the glass roof at the mangrove-bordered pool, a caretaker gets ready to feed lettuce to the manatee.



Five biozones

Guiana:
equatorial forest, creek
(jaguar, caimans, manatees, etc.)

Madagascar:
moist tropical forest
(lemurs, turtles, etc.)

Europe:
evergreen forest,
marshland, scrubland
(vultures, wolves, wolverines, etc.)

Sahel-Sudan:
grassland savannah
(lions, rhinoceros, zebras,
giraffes, etc.)

Patagonia:
pampas, rocky coast, Andean forest
(seals, penguins, pumas, etc.)

The zoo in figures

14.5 hectares

2.5 years of renovation
work

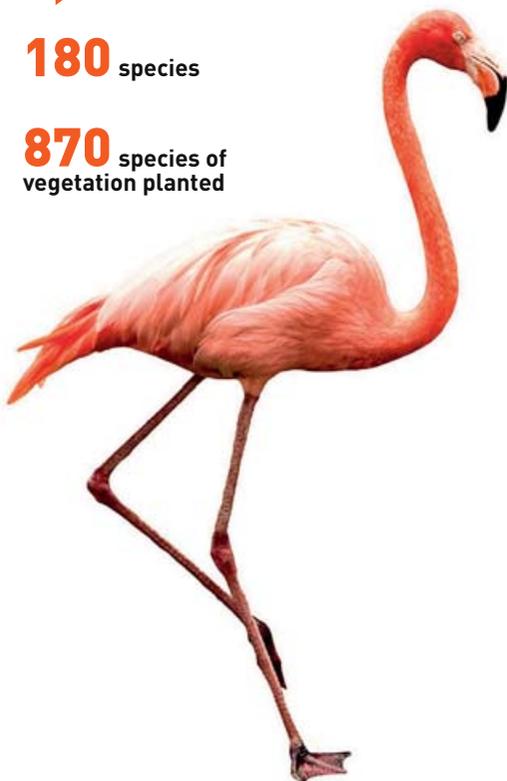
157 million euros
– the value of the contract

3 million euros for the zoo's
operation and maintenance
for 25 years

1,000 animals

180 species

870 species of
vegetation planted



scientific team from the Muséum was extremely informative. We learned a lot about the various species," recalls Fakiri. The preparation of the twenty-odd vivaria for the reptiles and insects was a long and painstaking task. "Each vivarium was a mini-worksite in itself, with its own particular requirements," notes Vieillard. "It was matter of creating a decor with vegetation and, in some cases, water that would be just right for a tortoise, a bat or some frogs. The animals' world had to be recreated with the suitable heating, lighting, and biological milieu." Some new buildings called for lengthy studies and more complex work, like the large greenhouse. Along with the huge rock, this greenhouse is now one of the main attractions in the park. More than two months were needed to erect the structure. Beneath the immense, 4,000-sq.-meter glass roof, blue parrots and blood-red ibis live in complete liberty in the midst of lush vegetation, with the temperature maintained at 25°C and the humidity at 75 percent the year round. In the center of the greenhouse, a manatee over four meters long swims gracefully in its mangrove-fringed pool.

Of Giraffes and Men

In the technical rooms under the greenhouse, Ludovic Morlet, a

technician at Bouygues Energies & Services, checks the settings of the equipment that treats the water for the manatee pool. This Bouygues Construction subsidiary will be providing maintenance and cleaning the zoo for 25 years in the PPP – another unusual feature of this contract. "We have a maintenance plan geared to the animals, all of which have different temperature, ventilation and lighting needs," explains operations manager Didier Rabasté. Every day, a dozen workers from Bouygues Energies & Services attend a briefing with the zoo caretakers and veterinarians to review the maintenance schedule. "The program is adjusted according to what is happening with the animals, since we must never be in contact with them unless we are accompanied by the personnel who care for them." Bouygues Energies & Services began providing its services as soon as the first building, the one for the giraffes, was completed in late 2012. They are the only animals that remained at the zoo throughout the entire period of the work, since it would have been too difficult to rehouse this close-knit group elsewhere. This makes these majestic mammals the mascots of a park designed entirely for its denizens and the pleasure of its visitors.



The partners in the project

Bouygues Bâtiment Ile-de-France Délégations & Partenariats Publics is the contracting authority and manager of the project company Chrysalis (shareholders: FIDEPP, Caisse des Dépôts et Consignations, Icade, Bouygues Bâtiment Ile-de-France and Bouygues Energies & Services). Construction: Bouygues Bâtiment Ile-de-France; Ouvrages Publics and Brézillon. Earthworks and utility networks: DTP Terrassement in a consortium with Colas. Project consortium: Atelier Jacqueline Osty et Associés, urban

landscape architects (the design of the park); Bernard Tschumi, urban architects, with Véronique Descharrières (the architectural design of the new buildings); Synthèse Architecture with Bernard Hemery (technical and renovated buildings); El Hassani and Keller (scenography of the vivaria and the educational and functional signage in the park); Setec Bâtiment (fluid systems, excluding water treatment for the pools); Bouygues Bâtiment Ile-de-France (the other technical contract lots).

