Innovations and renovations in the Garden

Over the last few months many innovations and renovations have taken place in the Zoological Garden. Below are several of the projects with which we are currently engaged:

Construction of a new exhibition area for the beech martens, on the external western wall of the vulture and white-tail sea-eagle exhibition. This new area – between an existing exhibition and the path behind it – will be long, quite narrow and high. In nature beech martens spend a significant part of their time on trees, and they will be able to do so in the new exhibition, which will be built in a way that will enable them to exploit its full height. For the new exhibition we are using a plan that was developed by a group of students who participated in the course "Research, Nature Conservation and Education in Zoos", and whose project in the course was to design an exhibition for the beech martens.
Because the new exhibition is being built on the external wall of the vulture and sea-eagle exhibition, we understood that the construction works would create a significant disturbance. Therefore, the vultures and the sea-eagles have been transferred temporarily to the Israel Nature and Parks Authority and will be back with us once more when all the construction will be over. Meanwhile, we are taking the opportunity to renovate their exhibitions. We are dismantling the high nesting platforms and building nesting areas in the corners, thus enlarging the potential flight area.

As part of improving the visibility of the Garden we are replacing the cacti gardens with local plant gardens.

New faces and changes in the Garden's staff
Jacob Zlait has recently retired after working diligently and devotedly in the Zoological Garden for many years. In celebration of his retirement the Zoological Garden staff took a trip to Jerusalem, which included a tour of the Gazelle Valley and a visit to the Jerusalem bird observatory.
Two new animal keepers have joined our staff: Juan Velasquez, who is in charge of the Garden's visibility and assists in technical needs; and Lior Twig, who has replaced Jacob in taking care of the predators and in other tasks.

**Sara Blutinger's visit to the Garden**

On November 21 we were happy to host Sara Blutinger, a generous supporter of animal welfare at the Zoological Garden, for a private tour of the gardens. The tour included an update on the activities in the Garden, as well as showing Sara how her support had contributed to the establishment of the thicket aviary and its population. In the coming year, funding by Sara will be used to support student projects in the “Research, Nature Conservation and Education in Zoos” course.

**News from the open grass**

Winter will be here soon, and the yellow-legged gull flock has returned to the Garden, as every year. They aren't nesting yet, but they are already here: you can see them flying above the Garden and hear their loud calls, echoing far into the distance.
Our two grown-up greylag geese, which Hadar has raised devotedly, have been released onto the open grass. The two have integrated well into the flock and it's already quite difficult to distinguish them from the other flock members.

Also on the open grass you can see the black swans that we received from the Jerusalem Biblical Zoo, and the white storks that arrived at our Garden after having been treated in the Wildlife Hospital in the Safari and cannot be released back into nature. The storks can not only be seen, but their beak clapping can be heard all over the Garden.

And if you are really lucky, you may see two black goats strolling in the Garden – a male and a pregnant female. The two are released every morning and are returned to their home every evening, and in between are active and receive better nutrition.

"Patients" in the Garden's clinic
The Garden clinic is currently hosting a white stork that was operated on by Ron Elazari-Volcani, following a request from the Wildlife Hospital; and a young hedgehog that was

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discovered by Noga Kronfeld-Schor's daughter, walking along a road, hungry and without its mother, and which is staying with us until it recovers.

Two short and happy news items from the thicket aviary

On one of the citrus trees in the thicket aviary, in a magnificent nest of twigs, Eurasian collared-dove nestlings have hatched!

It looks as if winter is already here since the winter saffron (Crocus hyemalis) is blooming in all its splendour.
Curious to find out what a mosaic of a Darwin-orchid or of an umbrella thorn (*Acacia tortilis*) looks like?

In mid-October a unique and original art work was assembled by the mosaic artist Dalia Grossman. The work comprises a circle, 3 meters in diameter, offering a modern, rich and colourful representation of the garden's plant collection. It was prepared in sections in the artist's studio and, when complete, was assembled into the finished mosaic at the entrance to the Garden. The mosaic is part of the new entrance area, which connects the Botanical Garden with the campus of Tel Aviv University and the Steinhardt Museum of Natural History. It was created thanks to the generous donation of the Peyser family and the Foundation for Development and Progress.
Naaman salt marsh - conservation of endangered plants

In mid-September we were informed that part of the Naaman salt marsh was to undergo intensive agricultural development. Israel's Nature and Parks Authority asked the staff of the Botanical Garden to collect rare plant species from the area that is expected to be affected.

Tal Levanony, the Garden's curator, and Samuel Ratta from the gardening team, collected numerous plants of five species, which were laboriously pulled out from the dry, clayish soil typical of this habitat. The plants were brought back along with local soil collected on site, which was used as a potting medium and a source for any additional seeds that may sprout later on. The collection of Israeli plants in the Garden includes a salt marsh plot, which so far has represented mostly desert salt marshes. Now this area also features plants from the Naaman salt marsh, which is a wet, coastal-plain saltmarsh (the salinity is caused by flooding and evaporation), characterized by clayish, heavy, muddy soil. In preparation for planting, part of the area was dug to a depth of 30-50 cm, a PVC sheet was used to line the bottom, and soil collected from the Naaman salt marsh was spread on top of it.

We have thus created an area that resembles the original habitat, minimizes infiltration and enables us to display the plants while also conserving and cultivating their original genetic

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material. The rare species of the Naaman salt marsh, such as *Salsola soda* and *Suaeda splendens*, join approximately 270 plants known as "red species" – threatened plants on the verge of extinction – and constitute part of Tel Aviv University's refuge plant collection.

* A salt marsh is an area in which the soil contains high concentrations of soluble salts. Such areas support unique ecological systems composed of plants and animals that are adapted to living under harsh saline conditions.

**Stanhopea - hanging in the air**

*Stanhopea ruckeri* is a tropical orchid native to Central America. This is an epiphyte – a plant that grows on top of trees and other plants but is not a parasite. This is a common phenomenon in tropical rainforests because plants growing in higher locations enjoy more of the sunlight that is essential for their growth, and which is a scarce resource in the dark, dense forest. Growing on top of other plants, epiphytes can reach higher places without investing time and energy in developing a supporting stem. Therefore, this epiphyte grows "upside down" – with inflorescences hanging downwards from the bottom of the plant pot. As in many other orchids, *Stanhopea* species do not produce nectar and are uniquely pollinated by males of "orchid bees" (Euglossini). The male bees actively collect scent substances from the flowers using special brushes on their legs, and it is assumed that these substances serve them in courting female bees. We were recently glad to see *Stanhopea ruckeri* flowering in the tropical greenhouse at the botanical garden.

*Stanhopea ruckeri, Photo: Moshe Peri*
Ecological games

Imagine that you are a unique solitary wild bee landing on a giant flower…

Now imagine that you are a bark beetle, boring into a cypress stem…

During October, four unique exhibits were installed in the Botanical Garden, constituting scientific displays that illustrate ecological and botanical principles in a fun and experiential way. The exhibits were placed near our open classroom, among the pine trees in the Gymnosperm collection, and are open to the general public. These unique exhibits were planned by the Sandbox Company, which designs and builds playground and scientific installations, together with the staff of the Botanical Garden and especially for its visitors. The exhibits are located in a place that is used as a gathering area, as well as an area for learning and leisure activities for groups and families, and is an attraction for everyone. Now stop imagining - come and experience!

We want to thank Dr. Netta Dorchin for her great help in translating the news.