Winter in the Zoological Garden

This winter, as every winter, the flock of yellow-legged seagulls that nests here has arrived. Nesting has not yet begun, but occasionally you can see the seagulls' courtship behavior.

When the Persian fallow deer's antlers reach their peak size, the deer's aggression also becomes very high. Consequently, we have to separate them. Now, after shedding their antlers, they are no longer aggressive and can spend their time together in their spacious enclosure.

The rain has arrived and our winter puddle is almost overflowing, as you can see in the photograph on the next page.
In the middle of winter – first signs of spring….

It's the middle of winter and spring is already in the air… The peacocks have begun their courtship even though their tail feathers have not yet reached their full size. At this stage they are courting whoever they meet on the main grass, a seagull for instance! The storks' bill-tapping sounds can be heard all over the Garden; some of the hens already have young chicks; the tortoises in the thicket aviary are energetically courting and copulating; and even the Lebanon lizard has come out of her winter hide and is basking in the sun; for her – spring is here!
New tenants in the Garden – a white stork and a black stork

Two wounded storks arrived at the Zoological Garden – a white stork and a black stork. The two arrived from the Wildlife Hospital at the Safari, after having been treated and rehabilitated. Neither of them can fly due to permanent damage to their wings, and they are now in the water birds' enclosure, in the northern part of the Garden, together with white-eyed gulls, northern bald ibises, spoonbills, and the other enclosure tenants. The water birds' enclosure serves as a temporary habituation station for the storks, which will later be released onto the main grass in the middle of the Garden. From past experience, storks that are released onto the main grass as soon as they arrive in the Garden tend to panic, hide, be afraid to come out to feed, and eventually might even starve to death. Therefore, we now gradually habituate them to their new home: at first they are kept in a closed enclosure, like that of the water birds, where they can't escape or hide from their keeper. The keeper observes their behavior and makes sure that they feed properly. When they are ready, they are released onto the main grass. And how do we know that a stork is ready to be released? When it begins to approach the keeper and waits to be fed by him.

A black stork and a white stork, photos: Ron Elazri-Volcani

Garden news are also available at our website
The thicket aviary: new tenants and blossom

Our Caucasian squirrel, one of the Garden’s most senior tenants, has been moved to a new home – the thicket aviary. The aviary is big and spacious and provides the squirrel with a large and diverse space for his activity. The squirrel arrived at the Garden about 12 years ago, after it got caught up in a smuggling act into Israel. The squirrel enjoys his new and stimuli-rich home and is gradually getting used to the proximity of our visitors.

Another new tenant is a young glossy ibis. It fell out of its nest in the breeding colony in the Garden and Carmel Bilu has devotedly taken care of it. Since it's not able to fly we can't release it onto the main grass, so for the time being it is in the thicket aviary. Unfortunately, it causes a lot of damage to the water plants: it walks on them, plays with them, and shakes them… we hope the ibis will improve its ways; and, if not – it will be transferred to the northern enclosure of the water birds.

The wild plants in the thicket aviary are now in full bloom. Among the flowers, one can clearly see the mallow, which our tortoises like to eat. The mallow flourishes in rich nitrogen soils, like the soil in the aviary. In order to prevent the mallow from growing too much and spreading itself, we trim it and prevent it from flowering.
The Egyptian vulture and the eggs

The Egyptian vulture, a bird of prey that lives in Israel and feeds on carcasses, is one of the few birds that use tools in nature. In its natural habitat, the Egyptian vulture throws stones at the ostrich eggs that it finds, until it breaks their shell, and then eats the contents. When the Egyptian vulture finds smaller eggs, it grasps them in its bill and then throws them down onto the ground or onto rocks in order to break them.

In the Zoological Garden, two geese eggs were abandoned on the grass and were placed to incubate in an incubator, but did not hatch. When we understood that nothing would come of the eggs, they were put into the Egyptian vulture's enclosure in order to diversify his daily routine and diet. When the vulture saw the eggs, he picked them up in his bill and started to throw them onto the ground. When he saw that nothing was happening, this smart creature started to throw the eggs onto the concrete step at the edge of his enclosure, and then broke them easily. We have now provided him with some suitable stones, so he will be able to use them to crack the eggs next time we give him some.

Left – the Egyptian vulture throws an egg onto the ground; Right – the vulture eats the broken egg. The place where the egg had broken can be seen on the concrete step.
Photos: Ron Elazari-Volcani
A parasitic wasp threatened to destroy the crickets' breeding

In the warm and cozy cricket breeding room, thousands of crickets hatch every month. Those crickets serve as food for a variety of animals in the Zoological Garden, including many animals in research systems. The animal keeper, Barak Levi, tends to the crickets professionally, meticulously, and with dedication, and closely follows the crickets' laying, hatching, and growing. In mid-December Barak noticed that the number of hatching crickets was dropping. A check revealed that a parasitic wasp that lays its eggs in cricket eggs had penetrated the cricket containers. The wasp's larvae develop faster than the young crickets, and therefore hatch before the infected crickets' eggs hatch. Most of infected crickets' eggs do not hatch at all. Within a short period the number of wasps had increased significantly and the crickets' growth began to be affected. Despite the drastic reduction in the number of hatching crickets, none of the researches or animals in the Garden were affected, thanks to our large reserves kept for such occasions. After consulting wasp experts from abroad, and Dr. Zoya Yefremova who works in the parasitic wasp collection in the Steinhardt Museum of Natural History, things did not look good. The turning point occurred when Dr. Yefremova told Barak that these wasps are active only by night. Armed with this knowledge, Barak deployed uncontaminated cricket containers in a separate room. In these containers Barak placed only cricket eggs that had been laid during day light hours; in other words, during the hours in which the wasps are not active. In other new containers he placed only sub-adult crickets that had not yet laid eggs and therefore were uninfected. In addition, Barak noticed that the wasps in the

Garden news are also available at our website
infected containers live 10-12 days and then disappear; so, he threw away all the eggs that had been supposed to hatch during the days in which the wasps had been active and might have infected them. Barak also changed the sand that serves as bedding for the laying crickets and started to use more dense and compacted sand, in which the wasps find it difficult to reach the cricket eggs. He also covered the containers with a very dense mesh that prevented the wasps from penetrating them. After long days of careful and meticulous care the parasitic wasps have disappeared and the crickets' colony is clean once more.

**Zoological Garden newsflash**

In November, a yellow-legged seagull landed in the Zoological Garden, his bill and legs entangled in wires and hooks. Apparently, when the seagull was searching for food at sea, he had become trapped in a type of fishing gear called a longline – a long wire with many hooks and baits attached. We patiently released the seagull from the wire, treated it, and released it.

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*The seagull is freed from the wire, photo: Ron Michlin*
Our Rüppell’s fox has been moved to the exhibition section of the Garden and now lives in the late honey badger’s enclosure.

The pair of Bonelli’s eagles that had laid unfertile eggs has been transferred to the Israel Nature and Parks Authority. Their new home is in Hai-Bar Carmel, and we hope that the new environment will enhance their fertility.

As part of our intent to enlarge all the animal enclosures in the Garden, we have opened the gate between the goats and the deer. The goats can now roam freely in the deer enclosure.

We have placed some natural eolianite (kurkar) stones in the nesting area in the white-eyed gull enclosure, in order to provide the seagulls with a more natural environment.

Garden news are also available at our website
The Botanical Garden Newsletter

“Land of Wheat” – special project in cooperation with the Israel Plant Gene Bank

We decided to take part in a unique project led by the Israeli Plant Gene Bank. The aim of this project is to conserve Israel’s traditional ancient wheat varieties (land races). Wheat has been a fundamental component in the human diet for thousands of years, ever since the domestication of wild emmer (mother-of-wheat, rediscovered by Aaron Aaronsohn in 1906 near Rosh-Pina) and the beginning of human agriculture. Over the years the large genetic diversity that once characterized traditional agriculture has become eroded. Israel’s land races have been replaced by directed selection for high-yielding varieties that are more adapted to modern cultivation.
In an attempt to restore some of these land races back to Israel’s landscape, it was decided to grow them in educational institutes such as botanical gardens, thus enabling us to observe more closely the wheat variants and to learn about the history of agricultural development. Seven wheat land races were sown in the “Seven species” plot, divided into durum or hard wheat and common or bread wheat. The seeds that were sown in December germinated very well and are now growing taller than the familiar modern wheat. At the beginning of spring we expect the spikes to appear and harvesting should be possible after the reaping of wheat in late May or June.

**Have you ever seen a flowering stone?**

At the beginning of this winter a single white flower appeared on a Lithops plant. Lithopses are small unique succulents that resemble stones. They are distributed in southern Africa in a rocky environment where they are well camouflaged. The plant’s requirements for growth are demanding and flowering is rare. Mitiku Teshale, the gardener of the succulent & cacti collection, nurtures these special plants along with many other species of succulents in the largest collection of its kind in Israel.
What is the connection between Herod the Great, the Florentine painter Bronzino, and plant ecology?

The Plant Ecology 2018 conference took place at the end of January in the Steinhardt Museum of Natural History at Tel-Aviv University. In the conference, which draws researchers from academic institutes around the world, studies combining several areas of knowledge were presented; such as engineering, archeology, and even art. Participants in the conference were invited on a special night tour of the newly-established Natural History Museum and a stimulating winter tour to the Botanical Garden.

Follow-up

(Tree) The travelling oak

The travelling oak which was transferred six months ago, has settled in nicely. Once again carried by a tractor, the oak was transplanted in a flowerbed constructed as part of the new entrance plaza. May it live long and prosper!
Ornamentals from the wild

The ornamental flowerbeds around the Garden office building are flowering. Ephemeral seeds of Israeli native plants are sown each year to demonstrate the possibilities of gardening with wild plants.*

The first to bloom are the blue lupine (*Lupinus pilosus*) and *Cerinthe palaestina*. We expect the blossom to continue till spring, with the appearance of the yellowish *Lomelosia prolifera* flowers, several *Centaurea* species and, at the end of this season, the beautiful purple peregrinating bellflower (*Campanula peregrina*), a hemicryptophyte with a tall inflorescence.

*Wild plants in Israel are protected by law and must not be picked!* Plants and seeds can be purchased from authorized nurseries.

Our vigorous volunteers have returned

CAARI (Canadian-American Active Retirees in Israel) volunteers returned to work in the Garden, during the winter, for the fifth time! Eyar Cohen, a national service volunteer working in the garden, led this group while they were weeding invasive plants around the Garden. The results of their hard work are evident, especially in the plots already treated in previous years, where the concentration of invasive species has declined dramatically. We are grateful to them for their hard work and look forward to seeing them again next year.

Geophyte season

The Garden is in flower!

Above the kurkar (calcareous sandstone) hills of the Garden large flowers of Iris atropurpurea welcome the visitors. Dozens of Persian cyclamen create patches of color on the pine grove floor. The eye-catching color of the tulips (Tulipa systole) in the desert plot and multiple Persian fritillary (Fritillaria persica) inflorescences can be seen all around the garden. This is the high season for geophytes and you are welcome to wander around and look for them.
Ongoing relocation – the story of *Leontice leontopetalum*

New leaves of *Leontice leontopetalum*, a geophyte with a large and deep tuber, appeared on a trail in the desert plot. The Leontice is common in deep soils and therefore also appears in agricultural fields, where it is able to survive shallow plowing. In order to extract the deeply buried tuber our gardeners were forced to dig deep into the trail. The plant was re-planted in a neighboring plot, but after a few weeks new leaves emerged from the same spot on the trail! The trail was dug out again and this time a fairly large tuber was extracted. It was planted in the semi-arid batha plot beneath the new entrance plaza. In a different location leaves from another *Leontice leontopetalum* have started to emerge and suddenly the Botanical Garden abounds with this strong plant. All we have to do now is wait patiently for the flowering, which should take place at the end of winter.