the magazin for friends of the Brno Zoo

Zooreport

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LIONS ARE BACK

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Lolek, the male Katanga lion *(Panthera leo bleyenberghi)*
Photo by Michal Vaňáč

UNSALEABLE

EDITORIAL

Dear Readers,

Our theme of this edition of ZooReport is the King of the Jungle – the lion. The most important piece of news right now is that the opening date of a new lion enclosure is fast approaching. The 14-year-long break in the breeding of the jungle king at our zoo finally ends. Although the gap may not seem long, there is a world of difference between the way we kept our lions then and the new area for them that we are now building. We'll learn more about this in our interview with the zoo director. He explains why the lions have now returned to Mniší hora, and how the architects have designed and planned the new enclosure.

Katanga lion, illustration photo: Archive of the Ústí nad Labem Zoo.

The King of the Jungle is the topic of the article written by our mammalian breeding curator, who briefly introduces us to the lion's life in nature and to the key features of lion breeding and survival. The growth of the human population has affected the lion's survival along with that of other animal species.

We are also delighted to return to the main theme of our magazine's last issue – tortoises. The rescue station for sea turtles, set up by Brno Zoo on the island of Nusa Penida in Indonesia this year, released the first batch of rescued turtles back into the sea. We were pleased with the positive response from the local people, who participated in the event with enthusiasm.

Also in this issue, the staff of our wildlife rescue station based in Jinačovice report on their experiences in an article that tells us how to deal with deserted youngsters.

You can also read about how Brno Zoo employees are engaged in environmental awareness and public education. Our zoo is participating in the "Let It Grow" campaign, announced by the World Association of Zoos and Aquariums, which highlights the dangers behind the spread of non-native species of plants and animals. For the first time, this year Brno Zoo participated in the event 'Fair Breakfast,' which was organised in more than 160 locations throughout the Czech Republic to support small-scale farmers growing produce in a nature-friendly way. Of the more than twenty educational programmes we conduct for the public, in this issue we focus on two programmes from the Nature in the City section: "Even A Small Garden Is a Garden" and "Forest Animals."

The final pages are devoted to our newborns. Chief among them are the wolverine triplets born to a mother who raised a cub last year. We are the only Czech or Slovak zoo that has succeeded in breeding the wolverine. In fact, the breeding of this species is viewed as a success across the world. After the expansion of our wolf pack in 2014, our wolves continue to breed successfully, with five pups born this year. All our deer (elk, reindeer, wapiti, and Père David's deer), along with takins, camels, and other species have given birth to new babies, as well.

And we have not forgotten our youngest readers: They get to meet the lions again in the last section, which is meant for children.

I hope you enjoy reading this edition and seeing the pictures!

Bc. Eduard Stuchlík,
Chief editor of ZooReport

New Lion Exhibit

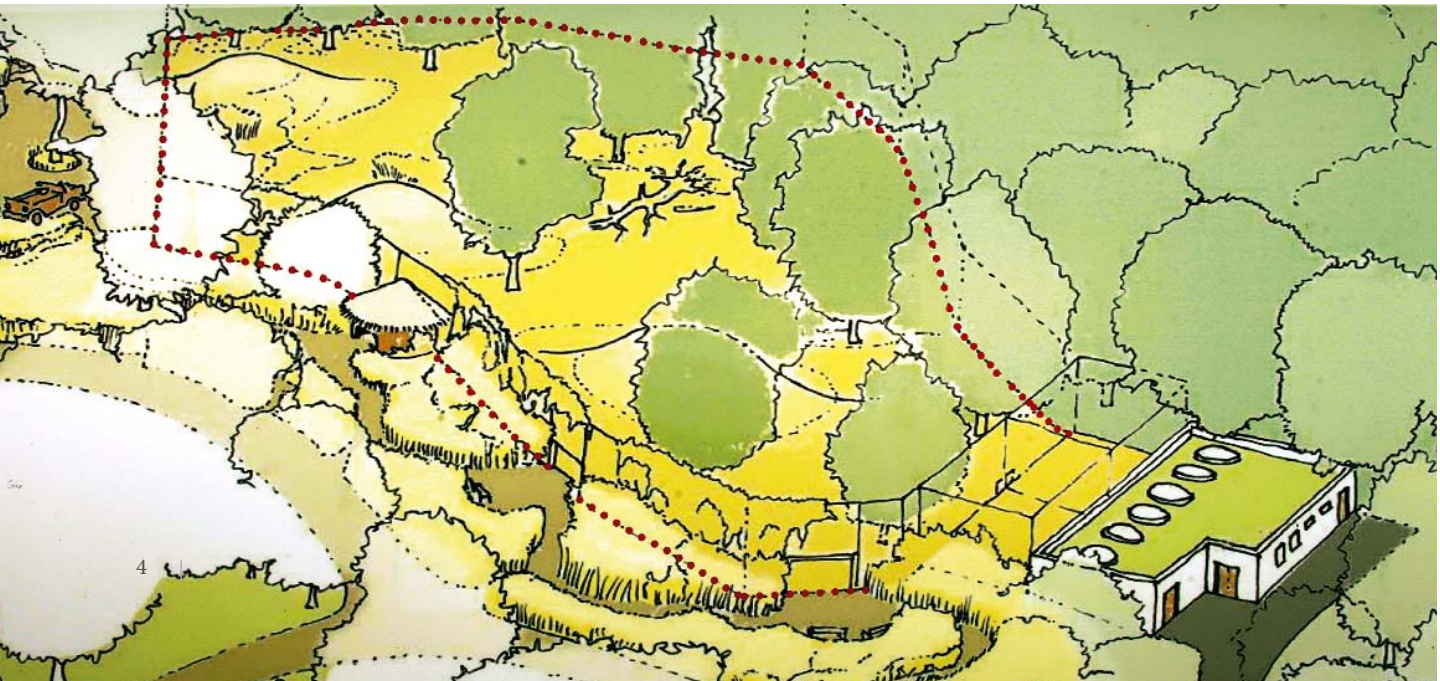
The new lion exhibition in our zoo will be inaugurated on the Day of Adoptive Parents and Sponsors, 26th August 2017. The construction of this large breeding facility, which is near the African village, began on 3rd August 2016, when the Zoo Director (Martin Hovorka), the Mayor of Brno (Martin Ander), and the head of the construction company jointly laid the foundation stone.

The lion complex is at the highest point in the zoo, and is part of the comprehensive Kalahari exhibition, which features the wilderness of southwestern Africa, with the Kalahari Desert in the centre. Like our three other major areas – Beringia, Caribic, and Wallacea – Kalahari is also built according to our zoo's development strategy, which was approved by the founder in 2006.

To find lions for our new exhibition, we looked at zoos that breed Katanga lions (Panthera leo bleyenberghi), a subspecies found in the Kalahari area. We found a suitable female from the zoo in Ústí nad Labem. Born in 2012 in a zoo in Lisbon, her name is Kivu, and she was transferred to Ústí when she was two. The male lion, Lolek, is from a zoo in the Polish city of Gdansk, where he was born in 2015. They will be brought to our zoo at least six weeks before the opening ceremony, the female first so that she gets acquainted with the quarters and the yard, where she will await the male. Young Lolek, who is accustomed to life in a larger group composed of his parents and siblings, would find it difficult to survive alone in a new, unknown environment. Each lion will have a separate enclosure, and will be introduced to one another through the bars. Only after about two weeks will they meet for the first time in the backyard. The first direct contact may be violent. Breeders will stand prepared with water hoses to stop any fight between the beasts.

The lions will begin to familiarise themselves with the main paddock about a month before the opening ceremony. We hope the sight of this new pair of lions will be an unforgettable experience for the adoptive parents, sponsors, and regular visitors of Brno Zoo on 26th August 2017.

Illustration of Katanga lions: Archive of the Ústí nad Labem Zoo. ▸



Lion exhibition at Brno Zoo (axonometric projection) Drawing: AND Studio. ▾

Lions and Humans

The lion, the 'King of the Jungle,' is the most famous animal in literary imagination, where it is thought to possess a whole range of not just human, but also knightly, qualities. The lion has been the central figure of many popular stories, old and new. Nonetheless, lions and humans have not coexisted harmoniously and their bond may not last long.

Lions in Nature

The lion (*Panthera leo* Linnaeus, 1758) is a large feline that occupies a special status amongst cats because of its tendency to live in a group.

Related lionesses, together with their young cubs, form the basis of the pack. They hunt together and give mutual support in the care of the offspring. The young ones stay together in so-called bachelor groups, thus increasing their chances of hunting down prey. Even adult male lions can form alliances that give them an advantage in fights for females. The pack's head is always in a very precarious position, and the leader changes about every two years. These changes are very dramatic, often involving infanticide – the killing of the young male cubs of the ousted male leader by his successor.

Though it may seem cruel to us, from a lion's point of view such behaviour is quite understandable: The leader's time at the head of the pack is very limited, and if he wants to pass on his genes to the next generation, he cannot afford to wait for the females, who are rearing his competitor's youngsters, to be ready to produce more offspring; but if a lioness loses her cubs, she can mate again and devote herself to the upkeep of his descendants.

The reaction of the females to changes in the pack differs depending on the degree of parental investment they have made. Females with very small cubs usually do not defend their offspring against infanticide; but if the cubs are just about to be weaned, the females will reject the new male and fight for their young. Similarly, with females in early stages of pregnancy, resorptions of foetuses or abortions usually occur when a new pack leader arrives. However, females at later stages of gestation are known to engage in conspicuous mating so that they can bear their cubs, which will then be safe from the pack's leader.

Lions are very adaptable. They inhabit a variety of habitats, from the desert to grassy savannas to mountain slopes located up to 4,000 metres above sea level. We find them in the central part of the Sahara and sometimes in dense forests. When hunting, lions prey on medium-sized species of ungulates, especially antelopes, zebras, and wildebeests. The size of the lion's territory varies depending on the availability of prey.

Lions in the wild can be divided into two groups: northern and southern, separated by the tropical rainforest in equatorial Africa. The northern population could be previously found in north Africa (where they probably lived in the High Atlas Mountains until the 1940s), southwestern Asia (from where they disappeared during the past 150 years), western Europe (where lions existed about 2,000 years ago), and eastern India. Today, the only population of 'northern lions' survives in India's Gir Forest National Park. According to the latest data published by the International Conservation Union (IUCN), permanent southern populations are confined to isolated reserves in an area which is only 8 % as large as the one they previously inhabited. The lion as a species has been listed as vulnerable on the red list (IUCN Red List).

Although in some areas lion populations have been destroyed by diseases or changing climatic conditions, the main cause of the steadily declining numbers of these animals is the growth in the human population. Because of human activity, individual lion populations have become isolated, and many of their natural habitats have disappeared. Lions exist in relative safety only in national parks and forest reserves. The greatest threat to animals living outside these protected areas is conflict with the locals. Humans engage in preventive killing of lions for fear of attacks on themselves and their cattle, which are their main source of livelihood. Moreover, hunting for 'game' and the laying of traps and poisoned bait are especially common in areas close to pastures and human dwellings. These practices are especially dangerous for lions, as they prefer food that does not have to be hunted.

Attacks on farm animals are common where there is a dearth of natural prey. Attacks are rare in areas where the species hunted by lions are protected, and therefore plentiful; and where farms and pastures are controlled. Efforts for long-term protection of lions are mostly focused on improving how farm animals

are bred, monitoring the few problematic lions, and introducing a compensation system. However, all the steps mentioned above are financially demanding and require a high degree of involvement from the local authorities and the cooperation of the local farmers. In many sub-Saharan African countries, measures to reduce the pressure on the lion population inside and outside reserves include efforts to control lions and trophy hunting according to established quotas. A proportion of the resources thus obtained is then used to finance conservation activities. Hunting permits with limitations and supervision to ensure that the limits are obeyed help reduce the poaching of wild animals, and encourage more positive attitudes of indigenous peoples towards wild lions.

A new phenomenon that exacerbates the lions' situation is a growing interest in the trade of their organs, especially the skin and bones. Instead of the traditionally used tiger organs, those of lions are increasingly made use of in Asian folk medicine.

Lions in human care

The first mention of lion breeding dates back to 9th century B. C. in the court of the Assyrian king. Lions were also kept in ancient India. The Romans captured and raised lions to perform in their arenas, and medieval nobles showed them off in their courts. During colonisation in the nineteenth century, trade in exotic animals grew, and lions became part of menageries and travelling circuses. Later, in the 20th century, they became an integral part of collections in zoos. Today, more than 900 lions are held in institutions associated with the European Zoo and Aquarium Association (EAZA).

Despite the long history of attempts to breed and rear lions and the seemingly high numbers of animals in zoos, it is difficult from the perspective of either a breeder or a conservationist to identify a well-managed and successful breeding project. Lions, which in the wild have large home territories, complex social relationships, and the cooperation of multiple individuals to hunt for food, are a typical example of a species susceptible to abnormal and stereotypical behaviour in human care. Common problems include overweight and associated reproductive disorders.

The main complication in managing the lion population in zoos is the high number of so-called 'zoo-lions,' animals without any subspecies or known genetic profile or zoogeographic origin. If the purpose of breeding is to create a sustainable population that can eventually support a diminishing population in the wild, or replace an extinct one, experts in the field of animal introduction and reintroduction believe that the conservation population should be made up of individuals whose ancestors and areas of origin are well known. For example, it is not acceptable to strengthen the lion population in the Indian National Park using animals originating in the Serengeti plains of Africa. It is clear, therefore, that animals that have ancestral roots from several different parts of the world can never be directly involved in conservation programs, and their role in species conservation should be restricted to the fields of education and promotion.

◂ *The original habitat area of the lion, and its current location.* Map: IUCN Red List.

EAZA therefore supports breeds of rarer but more valuable animal groups. For example, European zoos are home to: the last 54 Barbary lions (*Panthera leo leo*), which are extinct in the wild but are successfully bred in the zoo in Olomouc; 152 Asiatic lions (*P. l. persica*), some of which are kept in the zoo in Prague (which has managed to obtain the animals directly from India); 69 Transvaal lions (*P. l. krugeri*), a white mutation of which can be seen in the Hodonín zoo; and 68 Katanga lions (*P. l. bleyenberghi*) that survived the inhospitable conditions of the Namib and Kalahari deserts and will, this year, enrich the collection of animals in Brno Zoo.

Two Katanga lions will arrive at Brno Zoo in late July and early August. Kivu, the female, was born in Lisbon, Portugal, and has been living in the zoo at Ústí nad Labem since 2014. Because the planned mating between Kivu and the other two lions in Lisbon was not successful, the zoo had decided to pass her on to a new breeder. Kivu is easily recognisable because the last segment of her tail is missing, probably the result of too rough playing with her siblings. The young male, Lolek, has not yet left his native pack in Gdansk, Poland. Together with his parents, aunt, brother, and three sisters, Lolek lives in a large, rugged range that allows for the co-existence of such a numerous group of animals. While their future breeders prepare for their arrival in Brno, the animals themselves are also being prepared. The breeders are learning about the equipment and breeding conditions at the home institutions of both the lions to ensure that the transfer is as smooth as possible; and Kivu and Lolek are getting used to transport boxes so that they can get to Brno without tranquilizers.

We hope that their journeys are not too stressful. We hope that they will live well with us, and perhaps their wild relatives will continue to survive, too. In a world of imaginary fairy tale creatures – dragons, hydras, and unicorns – it is nice to know that, at least, the last of the mythical heroes, the royal lions, are still alive somewhere.

Ing. Dorota Gremlicová,
Curator of Mammalian Breeding

Illustration photo:
Archive of the Ústí n. L. Zoo

The Kalahari in Our Zoo

The Director of Brno Zoo, Dr Martin Hovorka, PhD, was interviewed by ZooReport's editorial team about the latest piece of news: a new lion exposure. His answers shed light on the lesser-known circumstances of this important stage in our zoo's development.

The new lion's exposition has been built at the highest point in the zoo, adjacent to the African village. Why there exactly?

According to our development strategy, most of Brno Zoo will be divided into four exposure complexes (Beringia, Kalahari, Caribic, and Wallacea), which will bring select parts of the world closer and illustrate their specific role in the development of new forms of life. Our Kalahari exhibition complex, which represents the savannah and semi-deserts of southern and southwestern Africa, includes an African village with a safari range, and the new lion enclosure. In addition, we intend to set up other breeding centres in the near future. The Kalahari will make the youngest biome of the Earth, hot waste, more familiar.

At the peak of the Ice Age (about 18,000 years ago), vast amounts of water was frozen as ice in the polar regions of both hemispheres. World ocean levels fell, air humidity decreased, and the area of tropical forests shrank to a minimum. Animals which had been acclimatised to warm and humid environments found themselves confined to small areas, pushed there by the deserts. Very few species could withstand the rough conditions. Some of the survivors will be presented in our comprehensive Kalahari exhibition.

The complex will consist of three main areas: the African village with a safari range for ostriches, ungulates (which will be expanded later to include rhinoceroses and hippopotamuses), cheetahs, and a lion exposure. A substantial part of the Kalahari can be viewed from the main deck on the elevated site at the northern edge of the lion run. Further north, a view of cheetahs, hippopotamuses, and rhinos will open up to the far part of the safari, where giraffes, zebras, and antelopes will graze. Visitors can see the lions further south. Beyond that, at the southern edge of the complex, after rebuilding the bison and yak runs, additional exposures of species inhabiting the Kalahari area will be introduced.

Could you tell us more about the technical parameters of the new lion complex?

The new lion exposure is built on an area of approximately 2,500 m^2. It is designed to house three adults and two to four youngsters. It consists of three functional sections: an exposure range, an enclosure, and a dormitory.

The housing, with three breeding boxes and breeder facilities, occupies an area of 156 m2. The boxes are equipped with electric floor heating and a bunk bed for the animals to rest on, under which there is a corridor leading to a weaning section. The boxes are separated by walls, and are interconnected by doors. Grids about one metre wide have been added at two places so that the animals can establish visual contact. The architects designed the quarters so that they would blend in with the surrounding natural environment. The enclosure is located on a slight slope to the south. The northern end is mostly below ground level, and the southern part is accessible for supplies. The flat roof, embedded with skylights, is planted with greens.

From the lions' boxes, they can pass through sliding doors to the main run or

Brno Zoo Director Martin Hovorka speaks with a Czech TV editor at a press conference held on 29th June 2017 at the new lion exhibition site.

Bali, the last of our Barbary lions, who left our zoo in 2003. Currently, we have a different subspecies, Katanga lions. Photo by Jan Hrdlička.

through an exit corridor into a 132 m² non-exposition stretch. This smaller range, which is not on the visitor route, serves as a back-up or as a temporary zone when the main run is closed. The weaning run can be used for a long period of time by a mother with her cubs, for example, or by individuals who are not yet part of the pack. They will have maximum peace there.

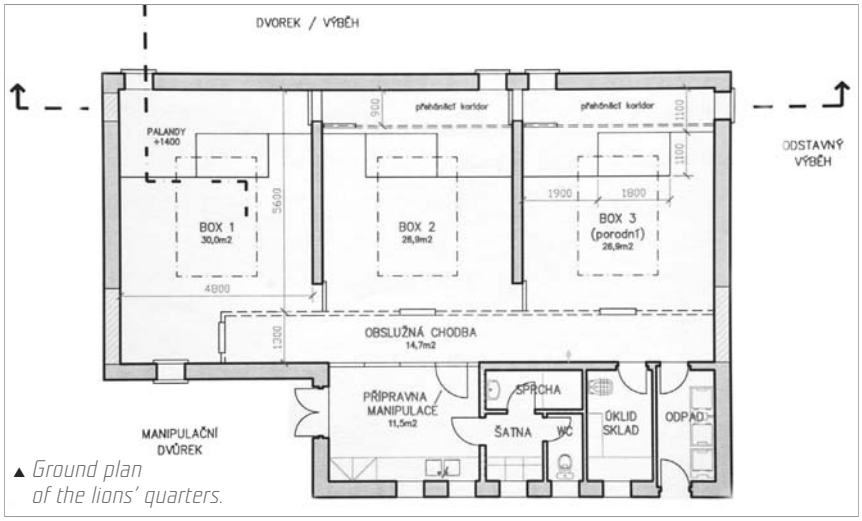
The main run area of 2,165 m² is shaped like a slightly elongated rectangle. This may, in the future, allow for a temporary division into two roughly equal parts that can be used, for example, when an adult male poses a threat to the cubs.

Our zoo bred lions shortly after its opening in 1953. The last lion in Brno, a male named Bali, left for Les Sables d'Olonne in France in 2003. Why have lions returned to Brno now?

When I was hired by Brno Zoo in 1997, the zoo was in a period of stagnation. No new exposures were created; only the existing ones were maintained. When setting up new breeding facilities, we have to consider many different animal species, but we try to focus mainly on those whose exposures are popular among visitors, such as lions, tigers, leopards, cheetahs, jaguars, mountain lions, bears, or wolves. None of these had an exclusive exposition. We are not a particularly rich zoo, so we have to upgrade gradually. We started with tigers and leopards. Their Tiger Rock exhibition was completed in 2000. We built a new enclosure for wolves in 2004, and we completed the new exhibition area for Kamchatka brown bears in 2010. Lions will come back to our zoo this year. In the near future, the run for cheetahs will be built close to that of the lions. We also plan to add jaguars and mountain lions.

What was the state of lion breeding at the time of Bali's departure?

The lion exposition at that time served as a quarantined enclosure connected to the veterinary clinic. Lions like to rest in elevated places and observe their surroundings, but there they were at the bottom of a big pit surrounded by a high wall that did not offer them any view. Basic living conditions were fulfilled, but it was insufficient for breeding. Bali's one-year-old partner, Sheila, had no room to rear her cubs, especially because the quarters were adjacent to the seal shelters, and the lions could smell and hear them. Sheila gave birth at least four times, but only a litter from 1993 – one female and one male – survived. The female did not survive the transport to another zoo, but the male successfully strengthened the breeding of the Barbary lion subspecies at Pilsen Zoo. When Sheila died, it was a reasonable decision to move the lone surviving male to a new group. Our French colleagues at Les Sables were very happy with Bali. As soon as he arrived, they wanted to know what he liked best, and if they could feed him chickens. Bali really enjoyed it. He left for France at the age of 14, and did not produce any offspring there.



▲ *Ground plan of the lions' quarters.*

Originally, our zoo bred Barbary lions. What subspecies will live in the new enclosure?

Of course, we could not get lions from north Africa for the Kalahari exposition. Instead, we brought a pair of Katanga lions, whose original homeland is southwest Africa. They inhabit savannas, shrubby areas, and semi-deserts in the south of the Congo, Angola, Namibia, Botswana, and parts of Zimbabwe and Zambia. However, we cannot be sure of the origin of lions which have been kept for years in European zoos. In future, we would like to bring Katanga lions directly from southwest Africa. From a conservation point of view, the genetic purity of the subspecies is of great importance.

Kura Kura Rescue

Station Set the First Four Rescued Turtles Free

The first four hawksbill sea turtles *(Eretmochelys imbricata)* were launched into Toyapakeh Bay from the Kura Kura Rescue Station on the Indonesian island of Nusa Penida on 14 June 2017. As reported in the previous edition of ZooReport, this remote station was set up – after many years of effort – by Brno Zoo.

A representative of the Indonesian state-owned nature conservation organization, BKSDA, cuts the tape at the opening ceremony of the sea turtle rescue station on the island of Nusa Penida. Photo by Vladislav Jiroušek.

The release of the turtles was accompanied by a ceremony attended by crowds of enthusiastic and solemnly dressed islanders. The interest of the local people in turtles is certainly conditioned by their Hindu faith and mythology, in which the turtle acts as the donor of life. Hindus depict this turtle, with its huge carapace, as supporting four elephants which are carrying the whole world on their backs.

The inhabitants of Nusa Penida are known for their generally positive attitude towards nature. For example, *Bali myna*, one of the most endangered birds in the world, was introduced to Nusa Penida by conservationists and is prospering thanks to the local people. On the other hand, on neighbouring Bali, people are still catching these birds to the detriment of the avian population.

On 9 May 2017, at the inauguration ceremony of the Nusa Penida Kura Kura Station, representatives of the Indonesian State Nature Conservation Authority (BKSDA) gave the Director of Brno Zoo official permission to receive, treat, and then relocate sea turtles at the Station.

Apart from a performance by dancers in traditional clothing, this inauguration event was mostly modest because there was nothing yet at the station to heal and save, as BKSDA had not yet delivered the first consignment of seized turtles. In the following days, the situation was reversed by the locally active organization Panitia Pemilihan Kecamatan (PPK) Nusa Penida, which handed over fifteen turtles with varying degrees of injury. Two died after a few

Dr. Olivieri takes a cured hawksbill sea turtle from the rehabilitation pool for eventual release into the sea. Photo by Jan Hrdlička.

The festive release of the rescued turtles into Toyapakeh Bay. Photo by Jan Hrdlička.

Inhabitants of Nusa Penida view the release of the rescued turtles into the wild as a great holiday. Photo by Jan Hrdlička.

days, nine are being kept temporarily in rehabilitation pools, and four recovered enough to be set free into the sea. People from PKK Nusa Penida and probably the overwhelming majority of the islanders perceived the release of these rescued turtles as a major event.

Veterinary care at Kura Kura is organized by the Veterinary and Pharmaceutical University of Brno and the University of Denpasar in Bali. At the time of the first turtles' release, Prof. MVDr. Zdeněk Knotek, CSc., and MVDr. Matteo Olivieri, both from Brno University, were serving on Nusa Penida, and technical support for the station's important functions was being carried out by Jan Hrdlička, a technician from Brno Zoo.

The project called "Kura Kura – Rescue Turtles" was started by our zoo in 2004, when the European Zoo and Aquarium Association launched a campaign named Shellshock, which disseminated information about the world turtle crisis. Since the beginning, Brno Zoo has co-operated with Mr. and Mrs. Jeglík, managers of the Czech-Indonesian non-profit foundation, Yayasan Kura Kura Nusa Penida, which was established to set up and build an educational centre and a rescue station for sea turtles in Indonesia. The cooperation agreement of this foundation with the Union of Czech and Slovak Zoos was signed in 2007.

Of the institutions associated with this union, only Brno Zoo started to set up a station. Other, more pessimistic voices doubted that such an institution could be built in such a distant location. Two years later, the first phase of the Kura Kura project was completed when we opened a training centre at Nusa Penida to draw local residents' and tourists' attention to the importance of protecting turtles. Negotiations with the Indonesian authorities on permission to run a rehabilitation centre have been conducted since 2009, and Brno Zoo eventually got its license in 2014. In the following year, the Regional Authority of the South Moravian Region issued a certificate for Brno Zoo to hold a public collection for the completion and commencement of the rehabilitation centre activities for sea turtles that had been seized from illegal traders, along with necessary equipment. The rehabilitation centre was completed in 2015, and was refurbished in the spring of this year. Since the end of May 2017, qualified staff have been treating the seized turtles, culminating in the release of the first four in June.

Construction of the Kura Kura Education and Rehabilitation Centre took ten years. The money for its construction and equipment was provided by the statutory city of Brno, with part of the funds donated by the public.

Please Do Not Take Chicks from Their Parents

When we find a visibly injured young animal somewhere in the garden or in the wild, we should notify the closest rescue station, or take it there. But we must not be hot-headed. It is better to stop for a moment, look around, not hurt the young animal, and answer a few questions: What species is it? How is it behaving? Are its parents around? We must not steal young animals from care-giving parents by taking them if it is not necessary. When finding any injured animal, it is advisable to assess the situation and, in case of ambiguity, to call the appropriate rescue station for advice on further action.

No Learner Flyer Falls Out of the Sky

Chicks of song birds start leaving the nest when they are feathered, but before they can fly well. They often end up on the ground while they are learning. They bounce, look for food, and continue to practice flight while they are near the nest. It's their natural phase of ontogeny. We can recognize these young birds by their short tail and a feather residue on their head. Although they may look vulnerable and abandoned, their parents are always nearby to feed or defend their chicks.

It is only a somewhat exaggerated human imagination that tells us that there is danger, and that these chicks have no chance to survive in streets and residential areas. For many birds, it is natural to nest in the vicinity of human dwellings, and they are unexpectedly adaptable. If a chick is not visibly injured, it is enough to put it a couple of meters out of the way of passing cars or dogs, or next to a tree or shrub.

We should be alert when we find a nestling or a young bird with white fluff that probably fell out of its nest. In addition to being subject to hypothermia and attack by predators, it needs frequent feeding and care from its parents, without which it will not survive. It should ideally be returned to the nest: Human smell does not matter to birds! If it is not possible to return it to the nest, keep the juvenile warm and call the closest rescue station.

When we find young birds of prey, we should proceed similarly. Kestrels nest mainly in towns (on buildings and balconies). People are often afraid of the chicks of birds of prey which they might find on their window sill. If the bird is feathered, without white fluff, it is not necessary to interfere with it. If you find one on the ground, just reposition it on any elevated position.

Owl chicks can normally be seen outside the nest even when they still have their fine gray plumage, which will gradually turn into cover feathers. They move along the branches and try their first flight. They, too, can inadvertently end up on the ground. Look around, and you will surely see the parents nearby, so it is enough to sit a young owl on a branch in a tree or shrub.

We Are Not Lonely!

Young European roe deer and field hares are among the so-called hidden sucklings. Their mothers hide them shortly after birth in the hope that predators will not

Hedgehogs are born blind and with soft, light spines. They are vulnerable, and need our help when they lose their mother. The animal in the picture is more mature. We should only remove them from the wild if we see a dead female hedgehog nearby. Photo by Pavel Karas

find them, and stay nearby, watching, and returning to their offspring only to nurse them. Such young are fully developed. When in danger, they press themselves to the ground. A youngster lying in the forest may seem abandoned, but it is exactly the opposite! By trying to save the orphan out of good will, you may take it from its mother and maybe condemn it to death. Artificial rearing of hares is very demanding, and a relatively small number of them can be saved and released back into nature. It is difficult for hares to accept milk substitutes, and weaning them is burdensome. The rearing of male European roe deer is very problematic. If they get used to people in their youth, at the time of rutting they will view them as competitors and become aggressive. Their relocation in game parks or similar facilities is not easy, and returning them to the wild is prohibited by law. For these species, it is praiseworthy to help only when the young animal is visibly injured or demonstrably abandoned. Lonely young European roe deer and hares can get confused (the European roe deer whistles loudly) and follow people. Whatever the situation, however, it is advisable to consult with the rescue station.

How Should We Handle a Small Squirrel, Hedgehog, Marten, or Fox?

Some mammalian offspring are born blind, hairless, or scarcely covered by hair. A young squirrel, marten, or fox abandoned by its mother becomes vulnerable and needs to be helped.

Young squirrels that fall out of the nest are at risk from dehydration, hypothermia, and predators. We often find them on the ground after a strong wind or thunderstorm, or after the death of the mother. Alternatively, when the litter moves to another nest, the mother can inadvertently drop her offspring. As soon as the baby cools down, the mother considers it to be dead and no longer pays it any attention.

House gardens in villages and larger cities are often inhabited by European hedgehogs or northern white-breasted hedgehogs. Their nests are often damaged by dogs or are inadvertently destroyed by people who farm the land. During the weeks of breastfeeding, the mother must leave the small hedgehogs for a few hours at a time to feed herself. If she finds the nest damaged when she returns, she will move her cubs to a more suitable place. So, it is better to wait for the female and not move the hedgehogs immediately.

This young European roe deer is resting in low vegetation, and its mother is hiding somewhere in the bushes. She goes to her offspring only to nurse. Photo by Rescue Station for Wildlife, Jinačovice.

A sparrow chick which fell out of the nest when still unfeathered did not find its way back and lost contact with its parents. It is not able to live independently, and will not survive without human help. Photo by Rescue Station for Wildlife, Jinačovice.

An Animal Found in Nature Cannot Be Taken Home

For employees of the rescue station, the biggest reward is setting cured individuals free into the wild. This is preceded by professional care, feeding, and, above all, keeping them from people as much as possible. Before releasing them from the station, we place chicks in a remote outdoor aviary, mostly in one-species groups, and feed them once a day.

We do not recommend taking home cubs found in the wild and raising them without expertise because, for example, feeding inadequate food to a weakened individual can be lethal. Tamed cubs, without preparation for an independent life, cannot be released into the wild, and the possession of any wild animal is prohibited by law. Every youngster is best with its parents, and has a right to a life in the wild.

Mgr. Tereza Karasová,
Rescue Station for Wildlife, Jinačovice

Our Contribution to the "Let It Grow" Campaign

Ten places on the educational trail named "Let Them Live" were set out by Brno Zoo educators. These were designed mainly for elementary school pupils, highlighting the dangers of relocating plants and animals to areas where they did not live before. The trail was opened this April and will continue to be in use until the end of this year.

Questions and tasks that can be answered and solved on the garden driving-path concern plants and animals living mainly in our natural areas, or even directly on Mniší hora's zoo area. Children are shown how to recognize species native to our country and distinguish them from organisms that were intentionally or unintentionally introduced from other habitats which, in many ways, severely suppress natural indigenous populations of plants or animals.

Before getting on the trail, visitors can pick up a worksheet at the front desk. This has a map of the locations, along with questions and answers for the "researchers." For example, in the Kamchatka bear hunter's farmhouse, one must choose which one of the animal tracks moulded into concrete is a bear print. At the stacks of logs next to the furnace in the cottage, the type of wood must be identified. The trail continues down the zoo to the raccoon exhibit. This North American animal, now very abundant in our country, is an invasive species beyond its naturally occurring area, and greatly modifies the biological balance. In the Native American log cabin, children discover the contents of a mysterious box containing a hidden object – a sheepskin. The trail continues around the owl aviary, and along the exhibits of the Canada lynx, polar bear, reindeer, and elk, all the way up to the polar wolves. While walking along the trail you can see, for example, the residue of the owls' unprocessed food, or our biggest stag beetle.

The thorny issue of preserving the present biodiversity was also addressed at Brno Zoo this year in a children's literary art contest which our zoo organized with students of the Mendel University School of Business. It was also a theme at our zoo's Earth Day, as well as at a public event named "The Fifth Day of Science," which was organized by students of the Industrial Chemistry School in Brno.

Kindergarteners, as well as pupils in the first two grades of primary school had the task of painting a picture of an animal from our natural habitats in the "Fauna of the Czech Republic" competition. Pupils of the 3rd to 5th grades wrote a fairy tale based in our natural environment; and pupils from the higher elementary school grades addressed the same topic in other types of stories. There were 128 works in the competition, with the prize being awarded at the zoo on 23 April, at our Earth Day celebration.

The same students also prepared three fun-filled areas that were available for all zoo visitors on Earth Day. At the first site, graphic sorting of waste was demonstrated; at the second, children could make origami animals; and, at the third, they checked their knowledge of

Students of the Chemical Industry School at the Zoo's Natural Science Day demonstrate processes accompanied by colour changes.
Photo by Jana Galová

Our zoo has kept raccoons since 2016. Their exhibit is in the Beringia complex, where they represent typical animals of the North American forests. (Their original area ranges from Canada to Central America.) The raccoon is an example of one of the most dangerous invasive species that people have introduced into many countries in Europe and Asia. Since it does not have natural enemies there, its population grows and displaces original species.

the length of decomposition for different types of waste. The Wildlife Rescue Station, operated by Brno Zoo in Jinačovice, also participated at Earth Day in the zoo. Children tried to pick the right answer to ten quiz questions about Czech fauna; they could also match pictures of young animals to their parents, and "feed" bat and squirrel dummies. There was a lot of new information. Even some adults were surprised to learn that hedgehogs do not eat apples! It is evident that a great deal of work in the field awaits zoo educators in order to eliminate superstitions.

It was very cold on Earth Day, but one hundred brave children crossed the path and got bonbons and cards with pictures of native Czech plants and animals.

Natural Science Day took place in the zoo on 1 May. This year's theme was "Colours and Shapes." At eight visual education locations, visitors found herbs that were blooming at Mniší hora, and identified species of insects or native wild birds' nests. They could also admire the beauty of our minerals. At a site specially prepared for children, little scholars donned white cloaks, wore goggles, and conducted simple experiments. For example, they found out whether a peeled or unpeeled tangerine floats, or whether they could mix water with oil.

Leaflets passed out at Natural Science Day attractively provided information about important natural biotopes in our country. For instance, the interactive part of the leaflet contained drawings of caterpillars that could be matched to the corresponding butterfly species.

Our zoo's educators have been engaged in the conservation of biodiversity for a long time. For example, we organized a children's competition on this topic back in 2015 with the "Biodiversity Is Us" campaign. This campaign was launched by the World Association of Zoos and Aquariums (WAZA) to support the UN Decade of Biodiversity 2011-2020. Presently in zoos, there is a "Let It Grow" campaign, which encourages the preservation of ecosystems of indigenous animal and plant populations and the protection of biotopes from invasive species. Campaigners are the European Association of Zoos and Aquariums (EAZA), the International Association of Botanical Gardens for Protection (BGCI), and the Network of European Science Centres and Museums (Ecsite).

Mgr. Jana Galová,
Head of Education

Adam Kozel (8 years old): Squirrel (colour drawing from the "Let It Grow" contest).

"Fair Breakfast" in the Grass

The Hlídka Ecological Centre tries to increase awareness of the importance of nature conservation in several ways: It offers different types of educational programs, organizes children's camps for spring and summer holidays, and also holds one-day educational events for the general public. The 2017 schedule lists the twenty-two most recent events. Some take place directly at Hlídka and its surroundings (that is, in the park under Špilberk Castle), and others are held at the zoo. A "fair breakfast" was offered on the second Saturday of May (World Fair Trade Day). It was the first time Hlídka joined the event using this name, which has been coordinated by the non-profit organization NaZemi since 2011. Picnics held to support local and fair-trade growers this year took place in more than 160 places throughout the Czech Republic.

More than fifty people gathered on the garden terrace at the Hlídka building. They enjoyed fair-trade coffee or tea and home-baked fair-trade sugar and cocoa buns on benches or blankets spread out on the grass. They also ate cheeses, milk, eggs, and honey from local farmers. They made it clear that they were interested in who cultivated their crops, and under what conditions. They decorated a large board during breakfast with their own handprints, demonstrating their support for organic farmers and fair trade.

Fairtrade® brand products have been on the world market since the end of World War II, and their popularity is growing. According to opinion polls, about half of the population of our country already know the concept of fair trade. It's a partnership-based business. This system guarantees fair prices for small farmers or craftsmen in Africa, Asia, and Latin America who work on their own land or in their own workshop, which allows them to lead a dignified life. This means, for example, that their children, unlike in many other regions, can go to school. Small landowners engaging in Fair Trade partner trade grow their crops with respect for the environment, whereas workers at plantations owned by large companies are made to use hazardous chemicals in their food production. Even though they work 12 hours a day at the plantation, wages for farmers who are not allowed to enter trade unions are not sufficient for basic family expenses. Small farmers outside Fair Trade are struggling with low purchase prices.

The "fair breakfast" at Hlídka was complemented by an entertaining educational program for parents and children called "A Small Garden Is a Garden, Too." This program showed that a valuable corner with living greenery can be created even in a small space. Several variants of small flower beds were seen on the garden terrace. Participants could also produce a self-watering flower pot from recycled materials, and take with them a tomato or pepper plant, or parsley or other herbs. The children made delightful reeds with beetle motifs for the ready-made flower pots.

A "fair breakfast" is the largest show of fair trade support in the Czech Republic. Its participants say they prefer local farm products; and, as for food such as coffee, cocoa, or bananas from exotic countries, they only want those with Fairtrade® certification.

Mgr. Vladimíra Dolejšová,
Lecturer of the Hlídka Environmental Education Centre

Brno Zoo commemorated the World Fair Trade Day this year by organizing an event entitled "Fair Breakfast" at the Hlídka Environmental Education Centre. Photo by Milan Okrajek ▼

Antlers Left on the Ground are Eaten by Mice!

The "Nature in the City" cycle, which was prepared by educators at the Hlídka Environmental Education Centre for 2017, contains twelve educational events for parents and children. These events are held once a month, and each is on a different topic. For example, the event entitled "A Small Garden Is a Garden, Too" took place in May (see the article on the previous page). At the "Forest Animals" event, which took place on 10 June, Hlídka lecturers invited the public to the zoo.

A big green arrow with the legend "Animals in the Forest" led the children to one of the cottages which complement Brno Zoo's Kamchatka brown bear exhibit. There were horns, antlers, jigsaw puzzles, and colouring books with pictures of wildlife spread out on the table waiting for them, in addition to blank quiz sheets. A supply of sweets was also waiting for those who could answer the quiz correctly.

Children could hold the horns and antlers, and learned that horns are lighter because they are hollow. They were able to see and touch tracks left on antlers by blood vessels that had nourished this male adornment while the animal was growing, before the antlers ossified. Among other things, children learned that horns, which are derived from skin, are typical of cloven-hoofed bovine animals; while antlers, which are made of bone tissue, are typical of mammals in the deer family. When asked why we can rarely find antlers lying in the forest, children mostly responded that someone else must have found them first. (It should be noted that any such finding must be submitted to a forest gamekeeper.) But the real reason is that mice gnaw on the antlers until there is virtually nothing left.

At the "Forest Animals" educational entertainment event organized at the zoo by the Hlídka Environmental Education Centre staff, the children learned, among other things, that horns are hollow and are typical of cloven-hoofed bovine animals. ▲

Children were allowed to use their parents' help to solve the quiz. Questions were posted on ten sites in the adjacent part of the zoo. Enclosed with the quiz was a map showing where these sites were. Two multiple-choice questions were asked at each station, each one having six options. Preschoolers could also participate and check their knowledge because, for them, the choices were illustrated with pictures. For example, at Station 1, one question was: "Which animal can enjoy honey?" Pictures of six different mammals were shown, from which the child could choose. Another question was: "Who can destroy the spruce forest?" The options given were: starling, woodpecker, ants, mole, European spruce bark beetle, or slug.

Although the "Forest Animals" event was prepared for parents and children, many adults who came to the zoo without children were also interested in the exhibitions of natural objects, and stopped for a chat at the Kamchatka cottage.

Petra Packová, Ph.D.,
Lecturer at the Hlídka Environmental Education Centre

The event "Forest Animals" was held at a shelter overlooking the Kamchatka brown bear exhibit. ▸

The female wolverine, Nataša (left), with her triplets.

Another Succes in the Breeding of Wolverines

Vasil, the first wolverine *(Gulo gulo)* born in any Czech or Slovak zoo, came into the world on 2 March 2016 at our own Brno Zoo. During the 2016 White Elephant competition, which is organized by the Česká Zoo Civic Association, our zoo received first prize in the Litter of the Year category for Vasil. He went to another zoo last year, after which his mother, Nataša, became pregnant again – and gave birth to triplets (two males and a female) on 6 February 2017. At first, she raised them in her quarters, and then moved into the yard. Since mid-April, visitors have been able to observe them in their regular exhibit enclosure. The father of the family, Ivan, remains in the breeding area.

"Touch Evolution" in English!

Almost two hundred teams of visitors to our zoo tried a crypto game called "Touch Evolution" during the last year. We launched it on 24 April 2016, becoming the first “gamified” zoo in the Czech Republic.

The game was developed with the help of the company Cryptomania and the financial support of the city of Brno and Brno-Bystrc. It is free of charge for visitors to the zoo. Players need only a brochure (which is available at the entrance and at the "U Tygra" souvenir shop), a smart phone or tablet with Internet access, and a pencil. The game is designed for two- to five-member teams of adults who may use the help of older children. Players move along a virtual path that consists of ten ciphers. When they unravel them, the players find unexpected tasks, such as the art of origami or the llama song. It is easy to get wrapped up in the game and completely forget time. The game system allows us to instantly evaluate the performance of each team, and we intend to use it in the future to organize encryption tournaments.

A version of an "encryption game" suitable for children aged 5 to 10 (accompanied by parents or grandparents) has been in existence since May of 2016. More versions were added in the middle of this year, this time in English. This was not a simple translation. It was necessary to create similar ciphers to make sense, even when working with English concepts and phrases. The English version also includes a brand-new song, other quality sound recordings in English and, of course, labels at individual expositions and a brochure in English.

Rare Blood Continues to Circulate in the Veins of Our Takins

Young kids of our Mishmi takin *(Budorcas taxicolor taxicolor)*, which are native to the foothills of the Himalayas were born in our exhibit for this species as early as February this year, with female Chica coming into the world on 26 February, and male Hugo on 7 March. We brought their father, Cotton, from Berlin in 2010 to genetically support our breeding program. He is the son of a male born in the wild in Myanmar, which was not related to any Mishmi takin in Europe or the United States. The arrival of this male in Berlin in 2004 was of great importance because, at that time, all Mishmi takins in European zoos were descendants of the first couple in Europe, which were imported in 1974 and 1976 from the Rangoon Zoo in Myanmar to Tierpark Berlin.

Mishmi takins (female with kid).

On 27 April, the female elk, Raiija, gave birth to a female named Ronja. ▲

Several Cervids were Born This Year

Our exhibits of cervids are definitely more appealing this summer because of their newly born youngsters. Our female elk, Raiija, gave birth to a female on 27 April, five reindeer and four Père David's deer were also born, and a calf appeared on 10 June in the Siberian wapiti enclosure.

Wolf Breeding Continues to be Successful

Five Arctic wolf *(Canis lupus arctos)* pups were spotted by breeders in mid-May when their mother first brought them out into the daylight after hiding them underground in a remote corner of their spacious enclosure. When the pups began to appear more often in the enclosure, visitors soon noticed them. Later, during vaccination, the vet and breeders found that four females and one male had been born.

Our zoo has been breeding Arctic wolves since 2008. The current pack is made up of a male, Luděk, who was born in 2012 at the Danish Ebeltoft Zoo; the mother of the pups, Velká, who was born that same year in Brno; and four males who were born last year.

Velká is the daughter of Atilla, the leader of the original pack, who died in 2013. After his demise, hierarchy within the large group fell apart. In nature in such a situation, the wolves join other packs or live alone. Since they cannot do so at the zoo, when Atilla died, we relocated some of our wolves in various places away from the visitor route, others were put in a divided enclosure, and the rest were sent to other zoos. We also imported a new male and set up a new breeding pair.

Two of the five Arctic wolf pups born this year. ▼

Luděk, the Arctic wolf male, with a pupp were born this year. ▼

LVI SE VRACEJÍ

Od 26. srpna 2017 v Zoo Brno

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