

the magazin for friends of the Brno Zoo

Zooreport

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Steller's sea eagle (*Haliaeetus pelagicus*)
Photo by Eduard Stuchlík

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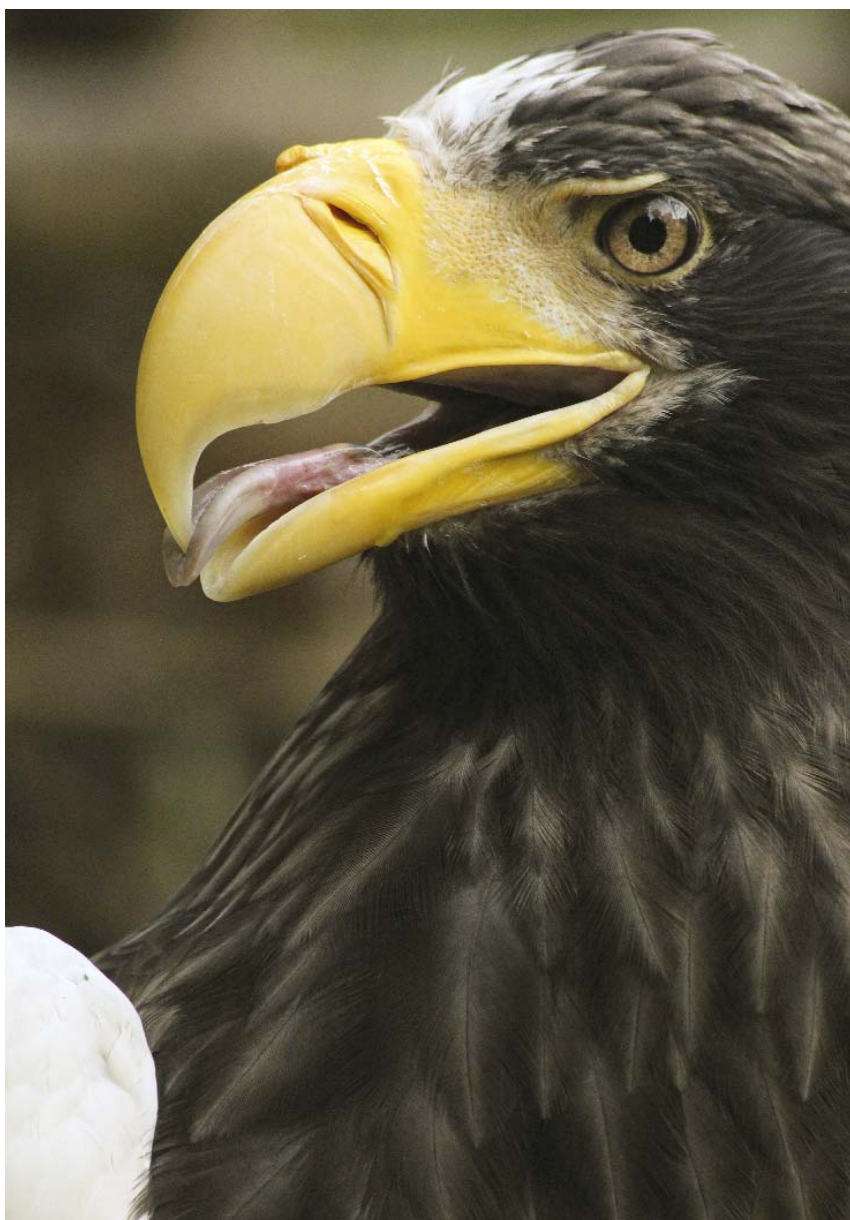
EDITORIAL

Dear readers,

The theme of this edition of Zooreport is eagles, the majestic birds of prey with a wing span of about two metres. The aviaries for these birds should be not only wide but also very high. This is why few zoos can afford to hold many species or individual members of these birds. Our zoo is home to bald eagles and Steller's sea eagles.

Our bald eagles (a mother-daughter pair; the daughter was born in our zoo in April 2015) inhabit a specially designed aviary that extends upwards to a height of 15 metres and covered by a circular ring with a diameter of 30 meters. The aviary of Steller's sea eagles is inhabited by a couple who have given birth to seven fledglings. Their aviary is smaller, located in the former quarry above the polar bears' enclosure. We want to extend it by crossing over to the adjacent area. Once extended, the flight path of Steller's sea eagles will also offer visitors a view of the polar bears.

The Brno Zoo has been involved in the Steller's Sea Eagle Rescue Programme, which is part of the award-winning EARAZA programme launched in 2004 for genetic profiling of approximately 200 Steller's sea eagles. With the help of the Czech company Genservis, our zoo has established a genetic bank for this species. As a successful breeder of Steller's sea eagles, we also want to build a repatriation centre for these birds in the Udył Lake Reserve in the Russian Far East (near the mouth of Amur to the Gulf of Sakhalin) – this is the area of the original occurrence of the species. Young offspring in human care can be released from the station into the wild to strengthen the wildlife population there. Towards the end of last year, the Brno Zoo launched a collection drive for the construction of this centre.



Steller's sea eagle.

In addition to the reports on birds of prey, this Zooreport carries updates on recent events and our plans for the future. We are excited to tell you about the opening of a new lion exposition and how the big cats have adapted to the new environment. Another article talks about the children who spent a part of their summer holidays at the Zoo and at the Environmental Education Centre Hlídka. Again, we organized a Meeting of Adoptive Parents and Sponsors. This is always held on the last Saturday of August to remind the public about the opening of our zoo – an event that goes as far back as 30th August 1953. In other news, we have

done away with the old fencing in the exposition of camels. This small step has changed things for the better, and brought the area into full view of the zoo-train. We have also begun to reconstruct the entire southwest slope of the Mniší hora, which also had an old fenced area. This neglected part of the zoo will now turn into an attractive setting for the Himalayan exposition. You can read more about it on the last page.

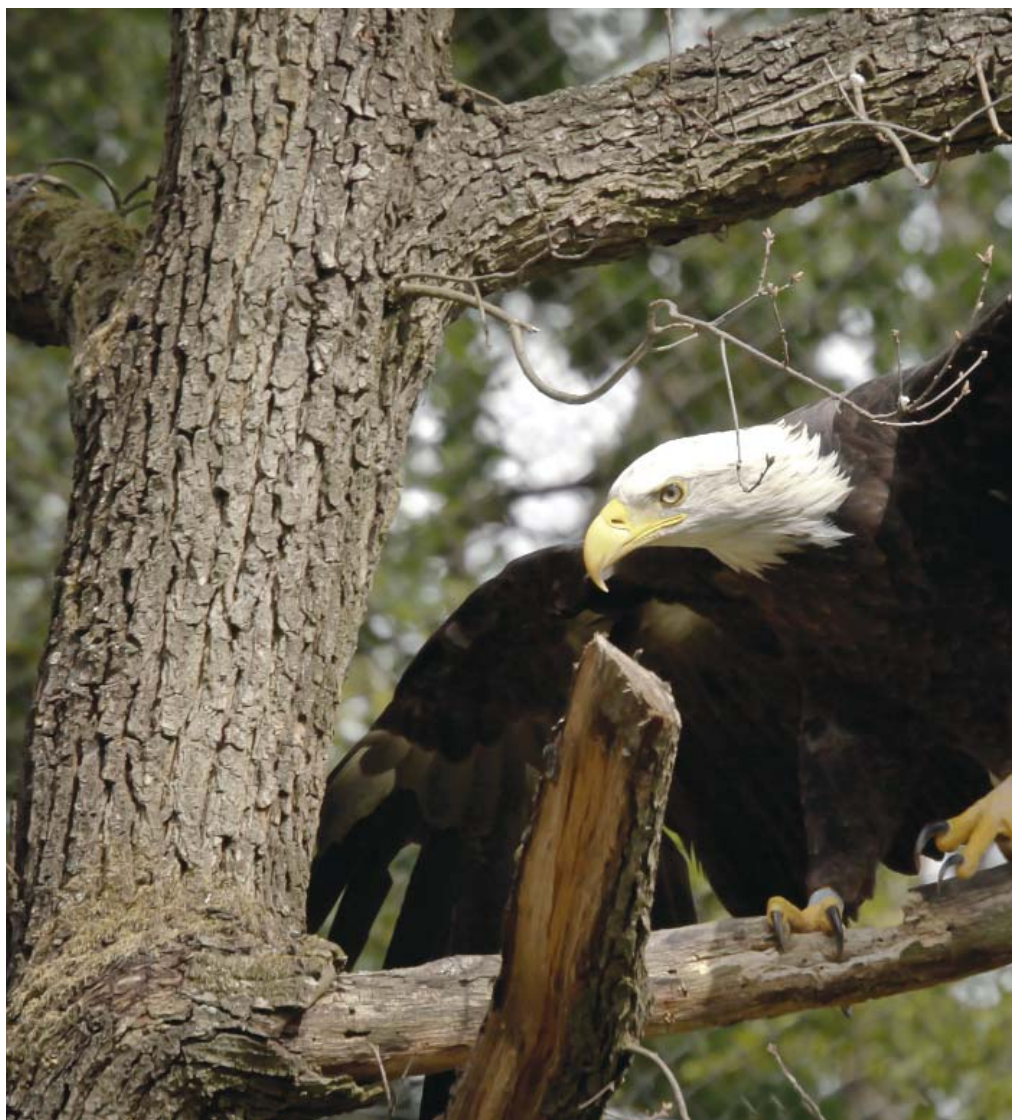
Bc. Eduard Stuchlík,
Chief Editor of Zooreport

Kings of the Firmament

They are among the largest birds of prey, and they have floated in the firmament for hundreds of thousands of years. These kings are connected to the history of Brno Zoo. We are talking about the so-called sea eagles, representatives of which are kept in our zoo.

All eagles belong to the *Accipitridae* family, which currently has 248 confirmed species. These include vultures, kites, harriers, hawks and sparrowhawks, buzzards, and several groups of eagles. We very roughly divide the eagles into so-called genuine eagles (belonging to the genus *Aquila*, such as the golden eagle or the eastern imperial eagle), monkey-eating eagles (harpy eagles and their relatives), and fish eagles (genus *Haliaeetus* and *Ichthyophaga*). Although it is the genuine eagles that are best known to the public, they are not the largest.

Four species compete for the title of the largest eagle in the world: the harpy eagle (*Harpia harpyja*) from South America; the crowned eagle (*Stephanoaetus coronatus*) and the martial eagle (*Polemaetus bellicosus*), both from Africa; and the Steller's sea eagle (*Haliaeetus pelagicus*) from the Far East. The wingspan of these four species ranges from about 180 to 220 cm. The most robust are the harpy eagles and the Steller's sea eagles, the females of which can weigh up to 9 kg. In both cases, they are birds of prey armed with massive beaks and long, strong, curved claws. Harpy eagles specialize in hunting monkeys and sloths, so they need very strong claws. In the forest, they nest on the tallest trees, giving a person only a very small chance of seeing them through the dense growth.



A bald eagle in the aviary of the Brno Zoo.

In the genus *Haliaeetus*, we include seven species besides the Steller's sea eagle: the white-tailed eagle (*H. albicilla*), the bald eagle (*H. leucocephalus*), the African fish eagle (*H. vocifer*), the white-bellied sea eagle (*H. leucogaster*), the Pallas's fish eagle (*H. leucoryphus*), the Madagascan fish eagle (*H. vociferoides*), and the Sanford's fish eagle (*H. sanfordi*). Except for the North American bald eagle, these are species of the old world. The white-tailed eagle, the bald eagle, the Steller's sea eagle, and the Pallas's fish eagle are found in a moderate belt. The first three of these have very strong, large, bright yellow beaks. The only species of this genus that naturally visits the territory of the Czech Republic is the white-tailed eagle. This is our biggest bird of prey, and it has the status of a critically endangered species

here. Nevertheless, its population has increased significantly in recent years, and today it is one of the most often observed eagles in our country.

Fish eagles are unmistakable because, unlike genuine eagles, their tail is not half-round, but wedge-shaped. Not surprisingly, the main food for fish eagles is fish. In the wild, these predators usually stay near large water reservoirs. Their claws must be, as with harpy eagles, extremely sharp: Grabbing a slippery fish is as difficult as holding onto a convulsing ape. Fish eagles are used to fishing directly in the water, but they are also abundantly nourished by the carcasses of fish and other vertebrates near water. They usually swoop down on their prey, but sometimes also hunt while walking in the shallows. It is common for them to steal prey from other animals, inclu-



more than a hundred eagles can be seen in the wintering grounds. For example, on the Japanese island of Hokkaido, taking photos of the wintering Steller's sea eagles is a popular tourist attraction. In areas where the wintering grounds of Steller's sea eagles overlap with those of the white-tailed eagle, both species can be seen at the same time. Despite their attractiveness, these two species are not the most threatened. The Madagascan fish eagle is the most endangered: It is the largest predator in Madagascar, where its population does not exceed 120 pairs, and it is ranked as critically endangered in the International Red Book. In the "vulnerable" category are the Steller's sea eagle, the Pallas's fish eagle, and the Sanford's fish eagle. The white-tailed eagle is in the little-affected category.

Zoos mostly breed bald eagles (there are 439 individuals currently registered in 207 zoos), Steller's sea eagles, and white-tailed eagles, which are included in the studbooks of the European Association of Zoos and Aquariums (EEP/ESB EAZA). Their breeding is managed by coordinators. Of the remaining species, there is a small population of African fish eagles in zoos (51 individuals in 22 zoos, including European ones); white-bellied sea eagles are rare (a total of 10 zoos with 26 individuals, of which only Zoo Beauval and

Zoo Schmiding are in Europe), and so are Pallas's fish eagles (kept only by the Deutsche Greifenwarte at Guttenberg Castle near Stuttgart).

Brno Zoo currently has two species of sea eagles – the bald eagle and the Steller's sea eagle. Two bald eagle females (one born in Frankfurt in 1988, and her daughter, born in Brno in 2015) share space in a large aviary built in 2014. Before its completion, between 2001 and 2008, our zoo kept a single male bald eagle, who then went to the Jihlava Zoo. Until 2007, our zoo also had a white-tailed eagle, a 16-year-old female which was then moved to the Rescue Station in Rajhrad, where she lives today.

The history of breeding Steller's sea eagles in our zoo has been more productive. The male came to us in 1999, the female in 2007. The couple, who have lived together since then, had seven youngsters that have been rehoused in various zoos in Europe. Since the breeding of the Steller's sea eagles has been successful, our zoo initiated negotiations for entry into a program for the protection of this species in the wild in 2015. Last year, a public collection was published on this topic.

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Birds Breeding Curator*

ding members of their own species (which is called kleptoparasitism).

Some species of sea eagles live as a permanent pair, but the Madagascan fish eagle female may have more mates (polyandry). Sea eagles build mighty nests in tall trees. The females lay one or two eggs (some species up to three), which incubate on average for 35 to 45 days. The survival rate for the young is dependent on the nutrition available in the territory, and the amount of food that the parents bring to the nest. If there is not enough food, the older fledgling seizes all of the food that is delivered, and the younger one is effectively sentenced to death. If food is abundant, couples of some species (e.g., the African fish eagle) will nest only a few hundred meters apart.

Species that live in temperate climates move southward in winter. Often,



An adult Steller's sea eagle with the young in the aviary of the Brno Zoo.



Two Eagle Species Nest in South Moravia

The floodplain landscape at the confluence of the Morava and Dyje rivers, which is now part of the important bird area of Soutok-Tvrdonicko and the adjoining parts of South Moravia, can now boast of the permanent occurrence of two eagle species. The larger white-tailed eagle (*Haliaeetus albicilla*), which lives near water, is characterized in adulthood by a typical large yellow beak and a white wedge tail; while the smaller eastern imperial eagle (*Aquila heliaca*), which has a forest-steppe habitat, is unmistakable because of the distinctive white spots on its back. The white-tailed eagle inhabits almost all of Eurasia, and the eastern imperial eagle's range extends from Central Asia and Turkey across southern Russia to southeastern Europe, with South Moravia being the easternmost part of its territory.

The white-tailed eagle, whose nesting sites in South Moravia were destroyed in the 1920s, returned in 1984. Although its numbers grew gradually, further nesting was observed only in 2004. In the Soutok-Tvrdonicko Bird Reserve in the southeast corner of Moravia (between the Dyje and Morava rivers), around six pairs nested in

2006, mostly in the old floodplain forests near watercourses and reservoirs. White-tailed eagle nests can be found in mixed or pine forests outside river beds, too. In South Moravia, this species nests mostly on oaks or poplars, and occasionally on pine, ash, or spruce trees. Nests are usually located at a height of 20–30 m, rarely lower. In only one case was the nest built as low as 12 m above the ground. In some cases, an artificial nest or nests of other bird species – white storks, black storks, or even black kites – are used.

Southern Moravia is an important wintering area for the white-tailed eagle, especially at the water reservoirs of Nové Mlýny. Ornithologists have been monitoring the local wintering population since 1982. By 1992, according to their estimation, there were 7 to 20 white-tailed eagles who wintered there, with a gradual increase in numbers the following years. For example, between 1997 and 2000, there were about 44 to 60 individuals; and between 2006 and 2008, about 40 to 84. Eagles are enticed there by, among other things, there being enough food in the form of fish and birds. For instance, at the

central reservoir at Nové Mlýny, wintering eagles consume greylag geese that had been shot or injured. In the southern part of Moravia, the eagles look for pheasantries, where they feed on wounded or killed pheasants, as well as eating the entrails and carcasses of game (deer, fallow deer, and mouflon). They also feed on the carcasses of animals that had been killed on the roads. Additionally, they often hunt for common voles if they are abundant, such as at Soutok, where there are many common voles due to the large proportion of untreated soil.

Whilst the white-tailed eagle nowadays nests in many places in our country (from South Bohemia through the Czech-Moravian Highlands to South Moravia) and their numbers are growing comfortably (116 nesting pairs were counted in 2016), the South Moravian occurrence of the eastern imperial eagle within the Czech Republic is unique. Ornithologists, therefore, pay much more attention to the eastern imperial eagle than to its bigger cousin.

In southern Moravia, the first confirmed nesting of the eastern imperial eagle was in 1998, but unconfirmed reports speak of nesting as early as in the 1920s. At present, these eagles inhabit a total area of 3,700 km² in the districts of Břeclav, Hodonín, the eastern part of Znojmo, and the southeastern half of Brno-venkov. By 2013, eastern imperial eagles attempted to nest 37 times in

A white-tailed eagle with the young on the nest.
Photo by Libor Dostál

South Moravia, with 26 successful pairs hatching 48 offspring. Most nesting sites are located in the Břeclav district, especially in the bird area of Soutok-Tvrdonicko, where one to three pairs nest each year. Besides nesting pairs, this site is also important for unpaired individuals and young birds. Each year, 10 or 11 eastern imperial eagles appear at Soutok, especially during the winter. In some places, there are also some white-tailed eagles.

Failure to breed could be caused by natural factors (e.g., strong wind, cold weather, predation of offspring) or human interference (e.g., forestry, tourists, fishermen). In some cases, failure was prevented by the artificial reinforcement of nests that would otherwise have collapsed. At Soutok-Tvrdonicko, the nests of eastern imperial eagles are built at a height of 17 to 34 m, predominantly on 100- to 150-year-old oaks and 30- to 60-year-old poplars, and less often on pine and willow trees. Most nests are used by eagles for only one season, and each year they build new nests. In the 15 years of the survey, of 32 nests, only 4 were used for two seasons, with none used for longer. The size of the nesting area for one couple fluctuates considerably in South Moravia, from 8 to 1,222 hectares, with an average of 341 hectares. The eagles often move to the Austrian and Slovak side of the border, where they have built other nests. In our country, nesting begins in March and April. When a couple for some reason lose their nest, they will build a new one; in two cases here, a second nesting was recorded. The birds sit on the eggs at the end of April until the beginning of May, and they only produce a single fledgling.

All the fledglings have been ringed. From the 42 juveniles born in South Moravia in the years 1998 to 2013, their parents successfully raised 39, and three of them provided international feedback (twice from Slovakia, once from Austria). In addition, there are also three feedback reports about birds observed in the Czech Republic which had been ringed abroad. Of these, a 19-year-old female was the most interesting because she had

been ringed as a juvenile in Eastern Slovakia, and was found 336 km away from her native nest.

Data from 2016 shows the successful nesting of six couples of eastern imperial eagles. Of these, there were two couples at the traditional nesting area in the Soutok-Tvrdonicko Bird Reserve which have been consistently nesting for many years. Last year they raised, respectively, two and three fledglings. A fledgling was also successfully produced by a pair near Břeclav, and two youngsters were raised by another pair on the border of the Břeclav and Brno-venkov districts. A new nesting couple which started their nest construction in 2015 near Lednice's ponds also raised two youngsters. The female of this pair was only two years old, a unique phenomenon because the nesting of such a young female had not previously been observed. (It is common for the female to breed at the age of 5 or 6.) One pair also nested in the White Carpathians and raised two fledglings.

In total, eastern imperial eagles raised 12 youngsters in South Moravia in 2016. Other unsuccessful attempts for young birds to nest have been observed in the

Znojmo and Hodonín areas, and repeated observations of juvenile couples, who have no nests, have been made in the area south to southeast of Brno, as well as at Pavlovské vrchy and the Milovický forest. This gives hope for the further growth of this eagle's population in the near future and its spread to other places in Moravia.

Doc. Ing. Josef Suchomel, Ph.D.,
Mendel University in Brno

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An young eastern imperial eagle. Photo by Petr Macháček



Dr. Ing. Josef Suchomel, Ph.D. at the Iguazu Waterfalls. Photo by Marta Heroldová

Soutok is the Best Biotope for Our Birds of Prey

The Department of Zoology, Fisheries, Hydrobiology, and Beekeeping at the Faculty of Agronomy of Mendel University in Brno is led by Dr. Ing. Josef Suchomel, Ph.D. In addition to authoring many articles and studies that have appeared in the specialised media, he has also published books. For example, he was the editor of the Red Book of Threatened Species of the Biosphere Reserve Dolní Morava, which was published this year. Dr. Suchomel is also a member of the editorial board of the *ZooReport* magazine. Although his focus is mammalian ecology (among various topics, he is interested in the influence of birds of prey on the vole population), he was pleased to be able to answer a few questions about birds of prey.

Where do birds of prey live and what role do they play in the ecosystem?

Birds of prey live in tropical, subtropical, mild, and subpolar (boreal) climatic zones. They are adapted to hunt for live prey, but they also feed on carrion. They are at the top of the food chain and are therefore crucial to maintaining biological balance. The best conditions for them to thrive are provided by tropical forests, because these areas produce the most organic matter, and offer raptors many species of fish, reptiles, birds, and mammals as prey.

How many birds of prey inhabit the countryside in the Czech Republic?

The fauna of the Czech Republic currently includes around forty species of

birds of prey. The numbers of some species have stagnated, while those of others have reduced or increased slightly. Among the most numerous are the common buzzard, common kestrel, Eurasian sparrowhawk, and northern goshawk, several thousand pairs of each of which can be seen here.

In the past, the birds of prey were more numerous in our country and their clash with humans is generally known. Can you provide some insights into this relationship?

The numbers of birds of prey in Western and Central Europe, including in the Czech Republic, declined drastically in the years 1870–1970, by about 90%. The cause was intense hunting, which was later exacerbated by intensive farming in

the fields and forests. People have perceived birds of prey as malicious beasts (although most predatory birds in the Czech Republic mainly hunt rodents). A breakthrough occurred at the beginning of the 1970s, when those birds of prey that were still alive received legal protection, and less harmful chemicals were used in agriculture. More recent protective measures include the construction of barriers for high-voltage lines. Prejudice towards birds of prey persists among some groups, and cases of illegal hunting and dumping of bait contaminated with banned substances (carbofuran) have been encountered. These are criminal acts that will, hopefully, end eventually. Since the turning point in the 1970s, the total number of birds of prey in the Czech Republic has risen slightly – but it is unlikely that their former numbers will ever be reached again. Human settlements and roads have become widespread, and most modern agriculture is impossible without the use of chemicals.

The only place in the Czech Republic where the eastern imperial eagle breeds is in the floodplain forests at the confluence of the rivers Morava and Dyje. The eastern imperial eagle has spread from Slovakia and Hungary, where it has flourished after the introduction of protective measures. Is the spread of this species westward related to the special significance of Soutok (Confluence) for birds of prey?

The environment in the Soutok area is the most appropriate in the Czech Republic for eagles. The floodplain is covered by fertile plains that produce the highest share of biomass in our country. It offers eagles a variety of prey, and they can inhabit a varied mosaic of biotopes. In a landscape without any intensive large-scale farming, small fields and meadows are often surrounded by forests and wetlands. Since the regulation of the lower stream of the Morava River, artificial flooding has been practiced in the floodplain forest. Thus, even though people have occupied the region for centuries, nature has remained intact there.

Dinosaurs in Brno

Starting this summer, models of three herbivorous dinosaurs adorn the final destination of the zoo train. In their hey-day, Triceratops grew up to 3 meters high and up to 9 meters long, and had three horns on its head. Styracosaurus, which was up to 5.5 meters long, had a large horn over its nostrils and a few spines at the end of its head. It was a predecessor of the tricorn dinosaurs. Lastly, Stegosaurus had a row of flat plates protruding from its head, back, and tail. It grew to a length of up to 9 meters. Dinosaurs appeared on our planet at the beginning of the Mesozoic Era, and became extinct at the end of that period, after about 134 million years.

Animated models of other “revived” creatures that will move and make different sounds will gradually fill the area where the yaks and buffaloes are displayed. This will be a fundamental part of the exhibition regarding the evolution of life, which will present organisms that became extinct not only in the Mesozoic Era but also in later geological periods. Predecessors of today’s mammals such as the giant beaver *Castoroides*.



Starting this summer, three models of dinosaurs adorn the surroundings of the last station of the zoo train.

Teals Float on the Lake

Two pairs of cinnamon teals (*Spatula cyanoptera*) were added to our collection of water birds at the end of last year. These small ducks can be observed by our zoo visitors on the lake’s surface in the beavers’ display.

The cinnamon teal inhabits the west coast of both North and South America. It is a small water bird, the size of a pigeon. Weighing up to 450 g, it does not reach even half the weight of a mallard.

The male has beautiful feathers of a dark mahogany colour, and deep red eyes. Its dark body contrasts with light blue wings and a green “mirror,” which is what a colourful spot in its plumage is called. The female is a modest brown. Cinnamon teals inhabit shallow waters which have abundant floating aquatic plants in which they can seek food, which consists of the plants, their seeds, and zooplankton. These small Anseriformes are seasonally monogamous, usually forming pairs in their wintering areas, where they also encounter other species of ducks with which they form large flocks. In the nesting season, the female lays 4–16 white eggs in a small hole near water with dense plant material. She sits on the eggs without the help of the male. He does, however, remain with the female until about the third week of incubation. The female also takes sole care of ducklings, which are olive-brown. The highest recorded

age of this species in nature is 12 years. The North American populations are migratory.

Although the cinnamon teal is not globally threatened because it has such a large habitat, some populations have been destroyed as a result of intensive hunting. For example, the *Spatula c. borroeroi* population in the Colombian Andes was killed off in the 1950s. The greatest current risk to populations in the wild is loss of habitat (shallow wetlands).

Not many zoos keep cinnamon teals, although they do often have other American duck species. A large population is maintained by the Wetland Centre in Slimbridge, UK. In the Czech Republic, only Plzeň and Jihlava zoos house this species, apart from our zoo.

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Birds Breeding Curator



A couple of cinnamon teals on a pond in the beavers’ exhibit.



The colourful spot in the plumage of a male cinnamon teal is called a “mirror”.

Lions Return to Brno!

From the end of August this year, visitors to Brno Zoo have been able to see two Katanga lions, Kivu and Lolek, in their new exhibit. Kivu was born on 12 October 2012 at Lisbon's zoo, and we brought her to Brno from the Ústí nad Labem Zoo on 11 July 2017. Lolek was born in Gdansk Zoo on 14 July 2015, and he has been in Brno since 18 July 2017. Both lions adapted rapidly to their new home.

The main view of the lions' enclosure is shaped like a native hut from the Kalahari area. It is equipped with a glazed view into the enclosure and a monitor that records the most interesting moments of the life of our lions. On the walkway, which winds around the edge of the enclosure, visitors will find a total of three observation points and several information boards. The surrounding terrain is landscaped as a transition between the bush and the savannah.

These animals are displayed in an elongated rectangular space with an area of approximately 2,000 square meters. The viewing walkway is adjacent to only one long side. Its fencing is 5½ meters high, and its steel columns are enclosed in a flexible stainless mesh that cushions any impact with the animal. In two places, a glass window has been inserted in the mesh through which visitors can look.

From a third place, visitors can watch the events in the enclosure directly through the mesh, though they can approach it no closer than about one meter.

After being transferred to Brno Zoo, the lioness Kivu was initially suspicious of people. Her quarters are in a building with three boxes for animals and a room in back for animal technicians. On the first day there, she moved nervously from one box to another, and ate only the food given to her during the night. The next day, she did eat her complete food ration. However, Kivu soon began to show interest in the various "toys" provided in her box, and played with them enthusiastically. We also provided olfactory sensations such as fresh lavender, which she chewed with interest and then slept on. We believe that this aromatic medicinal herb will enrich her life and make it more enjoyable. She played with peacock fea-



thers as well, and with two tubes and a box made of cardboard which was packed with wood fibre mixed with lavender. This helped in the effective dispersal of the herb's smell. The week that the lioness spent alone in Brno passed quickly.

During the long journey from Gdansk Zoo, Lolek was quiet, and received water and meat. In the box in which we placed him in Brno, he immediately started to eat. The next day, he saw his partner through the bars. He was somewhat surprised by her presence. He roared and assumed a defensive position. The four-year-old female looked at the two-year-old male with interest. Kivu left her quarters and went to the yard for the first time on 20 July. At that time, Lolek was taught to walk through interconnected boxes, quickly understanding what he was expected to do. However, the lioness refused to return to her box that night, and slept outside.

The lioness Kivu is looking at the visitors with as much curiosity as they are evincing toward her.



Even after the end of oestrus, Kivu and Lolek often stayed together.

they spent together in the yard, signs of mating were observed, and this changed to actual copulation after about half an hour. During the day, mating was repeated several times. The lions spent the night together. Repeated and occasional mating was subsequently observed over the next two weeks or so. The first domination (ritualised copulation) of Kivu over Lolek was observed during joint play on 7 August. Play usually looks like mating when the male is on the female's back. During the mating season, the lions' appetite for food lessened. However, their appetite returned and their food consumption stabilized at its peak in mid-August. The lions are now fed three times a week with meat, especially beef, and sometimes goat or sheep. Although the couple's behaviour has been harmonious from the beginning, we separate the male and female during feeding, just to be sure. Kivu and Lolek went together to the large enclosure for the first time on 23 August. Initially, they familiarized themselves with the new terrain quietly. After about an hour, they both returned to their quarters, after which they went back to the exposition, where they stayed until evening.

At the opening ceremony for the public on 26 August, a crowd of visitors surrounded their enclosure. The lions remained calm, and continued with their games. When these big cats began to play with the large boxes, the crowd held its breath. At the viewing places, the lions came up to the glass to view the people with curiosity; on the other side of the glass stood equally curious and enthusiastic visitors. It was an epic moment: Lions had returned to Brno after fourteen years!

The lions, still kept separately, were given a ball to play with a few days later. Lolek was immediately interested in the new object, and Kivu watched over the bars as he played. We started filling the cardboard tubes with llama wool. Kivu tried to taste it, but Lolek only transferred the tubes from place to place. Lolek enjoyed his first walk in the yard on 27 July.

Changes in the male's behaviour toward the female and signs of oestrus in Kivu were observed on 30 July. The first direct contact between the two took place on 1 August. It was silent, harmonious, and without fights. "Contacts were initiated by Kivu, who was completely calm about Lolek," is the comment in the breeding diary. In the very first moments that



The main view of the lions' enclosure (in the background of the image) is shaped like a native hut from the Kalahari area.



The sculpture of a lion and a plane that has landed in the bush make the lions' immediate surroundings even more attractive.



A group of children from the suburban camp is accompanied by two zoo educators (internal zoo staff) and two part-time auxiliary educators.

Photo by Jana Galová

Holidays at the Zoo

Every Monday during the summer holidays, a week-long suburban camp for children began at Brno Zoo. Parents would bring their children one hour before opening time, and a breathless expectation could be seen in the youngsters' eyes. The children knew that they were not to expect a normal zoo visit, but something completely new. Sure enough, by the time the adults came back at 5 p.m. to take them home, the children had extraordinary experiences to share.

I can understand their feelings. When I first became a camp leader in 2015, I was totally excited to be face-to-face with animals whose beauty and personality I had admired all of my life. The experience is unforgettable. It may happen that the child forgets some knowledge gained in the zoo during the holiday stay, but I believe that the first authentic encounter with a favourite animal will never be forgotten. At that moment, the child does not perceive the animal as just a fascinating individual, but sees instead everything about it along with the whole of nature, and begins to realize and love the connections.

At the zoo's administrative building, there is a clubhouse, a cinema, and hygienic facilities for children. There were about 30 children participating each week in the pro-

gramme, which was directed and managed by two part-time workers who acted as auxiliary educators guiding the children. Most of the 10 members of the camp staff were students from Brno universities, and each group was always accompanied by at least one internal zoo worker on walks around the zoological garden.

On the first day of the camp, the children became acquainted with all the program staff as well as with the several animals that live in the administrative building. In the clubhouse, besides an aquarium full of fish, children also saw a vivarium where Maty and Okurka live. These are terrestrial gastropods from central Africa's forests, and they can grow to a length of up to 20 cm. The children also met the ferret Žofka and the talking parrot Eda, who are both kept in the office of

the educational workers of the zoo. (Eda also has a spacious outdoor summer cage near the administrative building.) Getting acquainted with Maty, Okurka, Žofka, and Eda can be described as the first lesson in handling a pet, and taught the children that creatures living in human care are definitely not toys.

The following days brought many experiences. Specifically, I should mention contact feeding of the reticulated giraffes, ring-tailed lemurs, South American tapirs, and guanacos. The children also watched the chimpanzees and tigers being fed. All this would not have been possible without the active participation of our great zoo-keepers, who were glad to answer every question, add some of their rich experiences, and expand upon some of the animals' personalities. We found distinctive behaviour being displayed primarily with our closest relatives, the chimpanzees. They were given a bottle, the lid of which they were able to unscrew so that they could drink up all of the contents. However, the female, Mary, does not like getting fruit in her drink. To counter this, she pulls off the packaging strip of the PET bottle, wrinkles it, and pushes it inside the bottle in order to keep the fruit separate inside. She then bites a small hole in the bottom of the bottle through which the fruit cannot pass.

Children from the suburban camp had the privilege of feeding selected animals, such as the giraffes.

Photo by Jana Galová

It takes her a little longer to quench her thirst with the thin stream thus produced, but she then has it just the way she likes it.

Some of the zookeepers were able to capture the children's curiosity in different ways from the means we used. But we didn't give up! In each exhibition, we always gave a small guided tour to let the children know all about that particular animal, what environment it comes from, and what its main characteristics are.

The suburban camp program is sophisticated, and tries to be as diverse as possible. It mainly takes into account the fact that if the children were to do the same thing all day long, even feeding the animals, it would soon be boring. That is why the development of manual skills is included in the program, along with different playtime activities and an after-lunch rest. During the two holiday months, the basic program was the same, but each week was in fact different, because the zoo educators' different personalities left a significant mark. Some tours were more play-oriented, some more cognitive, some more creative. They were not solely influenced by the personality of the leaders; the content of the week was also adapted to the temperament of the children. And that's what was so incredibly entertaining for me – the creativity. We did not repress, we developed. For example, we cut a parrot shape out of paper – wings, head, and beak – and assembled a collage of our favourite, Eda. Older children picked wild flowers from the forest that the zoo is built in, and, just before they left for home, created corsages for their mothers or grandmothers. With children who were more focused on zookeeping, we prepared a new terrarium for Maty and Okurka.

Free moments were filled with group games and additional information about the animals. Each zoo educator had favourite animals that we especially liked to present to the children. For me, they are the polar bears (Cora, Norinka, and Umca) and the Komodo dragon (Rototom). My colleague, Adélka, loves chimpanzee Fábén and his two girlfriends, Gina and Mary. Another colleague, Nikča, loves the Kamchatka brown bear, Medunek. Our talks at individual exhibi-



Parrot Eda cannot fly because he suffered a spinal cord injury in his youth. (His mother carelessly stood on him during feeding time.) In the zoo, this blue-and-yellow macaw is one of the most popular animals, and children from the suburban camp, who were allowed into his outdoor cage for a while, love him, too.

Photo by Jana Galová

tions did not only include species biology and its environmental demands, but also touched on related topics. At the polar bears, we often get questions about the difficulty of their rearing, and about climate change. At the pig-nosed turtle, we talk about poaching and about the pollution of the oceans, and we tell the youngsters about the Kura Kura project.

The final assessment of the camp was mostly oral. We asked the kids if they had liked the week in the zoo, whether they would come back to visit us again, and

whether they had enjoyed the camp. The loud "YES!" shook all of Bystrc and was so loud that we were afraid that the dam at Brno reservoir might break. At the end of the week, we said a happy goodbye. These are moments when children are not embarrassed by their tears. And sometimes neither are the leaders.

Marek Sláma,

A student of the Science Faculty and the head of the tour of the children's suburban camp at Zoo Brno

Summer at Hlídka

Holiday stays for children have been organized by Brno Zoo since the end of the last century. After the zoo opened the Hlídka Centre for Ecological Education in the park under Špilberk Castle in 2015, parents have been registering their children for a suburban camp held there.

On Mondays, when each camp began, the children made buttons with their names to put on their clothes. Information about the running of the centre followed, as well as games during which the children got to know each other. Before lunch, they visited Špilberk Castle for an exposition devoted to the popular bedtime story about "Krysák." In the afternoon, each child decorated his/her Camp Atlas of Animals. This is a 10-page booklet which has the name of the child on the title page, the respective club (each camp week, the children were divided into three clubs), and the date of the stay at Hlídka. On the other side of the page, the children put a picture of an exotic animal, underneath which they had pre-printed columns to fill in: weight, dimensions, food, habitat, and interesting facts. During their holiday stay, the children tried to find the necessary information to complete the columns and write it all in. They had the opportunity to do this because on Tuesdays and Wednesdays, a bus took them for the whole day to Brno Zoo, and on Thursdays they were taken to Zlín Zoo. However, the young scholars did not only have to conduct research on their zoo days. They also relaxed with active games, or on obstacles in the rope centre, or when riding ponies. Accompanied by educators and zookeepers, they also went to exhibition facilities which are outside the zoo's normal visitor areas, and fed some selected animals by hand.

Recording the zoological data in the atlas was part of the camp game. Whenever campers correctly added information to their atlases, they would receive a fragment of a picture. With these, they attempted to complete the picture of an animal unknown to current science. Some children may have been able to guess what would finally



The most exciting holiday experience was a meeting with the South American tapir right in its run at Brno Zoo. This forest perissodactyla is kept by some people in South America as a domestic animal, and in Brno Zoo it can be fed and caressed by the children attending the camp held at Hlídka, and also by those on tours that take place in the zoo.



The head of the mysterious animal, "masakari landfill," which is discovered in the cellars of the Hlídka building. (It is actually a dummy made by the Centre's staff).

emerge, but the real size and shape of the mysterious creature would only be revealed on Friday afternoon after a long, intense quest, and in a secret place.

On Friday afternoon was the culmination of the camp experience. On a path leading through Špilberk Park, 11 tasks awaited them. For example, they had to name 10 songs about animals. After the children completed all of the tasks, the trail eventually led them to the underground corridor that once connected the Hlídka building with

Špilberk Castle. Finally, armed with torches, they discovered the animal that is unknown to current science, which is known as the "masakari landfill." For this significant discovery, the young zoologists were rewarded with a souvenir of a plush animal or a pillow, which they proudly took home as a memory of their week at the Hlídka camp.

*Mgr. Monika Chudárková,
Lecturer of the Environmental Education
Centre Hlídka*

Water – the Foundation of Life

The staff of the Environmental Education Centre Hlídka has planned – at approximately monthly intervals for this entire year – a series of entertaining educational events for the general public entitled “Nature in the City.” The cycle went without interruption through the hot summer in the pleasant environment of the Brno Zoo log cabins that recreate a replica of the estate of a Kamchatka bear hunter. The event that was celebrated on August 12th was “Water – the Foundation of Life”.

The main part of the program was a “quest path.” At the lower part of the zoo we installed 10 panels. On them, visitors to the zoo found questions about organisms living in freshwater and salt-water environments. Preschool children would have the question read by a parent or other accompanying adult, and could then respond by choosing from several pictures. Some questions related to familiar fairy tales: For instance, when the quiz asked, “Who broke the flax for pants with pockets for a small groundhog?” the children could choose the correct answer from the given pictures of heron, stork, crayfish, frog, warbler, or wagtail. Other questions were more demanding. For example, the youngsters had to choose the two images that represented species who live only in the sea from six photos of different fish and Chondrichthyes.

Some quiz questions for the older schoolchildren were more difficult, though others were easy. They were roughly geared to the educational abilities of fourth- to seventh-grade elementary school pupils, so we were very pleased to find that there were a lot of skilled first-year pupils who could answer most of the questions. A quiz is, of course, also beneficial for those whose knowledge base is a little less advanced. The lecturers of the Hlídka Centre discussed their answers with everyone who took the quiz, and, if they had failed, explained the errors. Often, they responded to additional questions not only from the children but also from inquisitive parents.

The quiz trail had a special two-part add-on program. The natural creativity of the younger children was satisfied by having them colour the cutout of a fish according to their own fantasies, and assemble it into a three-dimensional shape. These colourful fish and other aquatic animals were painted, cut out by the children, and glued to a panel to create a large paper collage that represented the marine aquarium.

The great interest of both children and adults was enhanced by the explanation

of a mechanism for controlling water pollution in rivers and seas. If a metal paper clip is carefully placed on the surface of water in a bowl, it does not sink to the bottom, but rather floats on the surface. This is a consequence of the tension in the surface layer of the water molecules.

It shows that the surface tension of water is crucial to the life of small aquatic organisms. However, if a small amount of degreaser is added to the water, the surface tension disappears, and the paper clip sinks. This led to a discussion about the effects of surfactants and the consequences of water pollution by other substances.

The presentation showed the potential extent of our devastation of nature, and we were pleased by the interest of the visitors in preserving clean water and in knowing about the risks that threaten it.

Mgr. Monika Chudárková,
Lecturer of the Environmental Education Centre Hlídka



A collage depicting a marine aquarium was produced by the children of visitors to the zoo on August 12th, 2017 at the “Water – the Foundation of Life” event organized by the Environmental Education Centre Hlídka.



If a metal clip is placed carefully on the water surface, it does not sink, but floats. It is caused by the tension in the surface layer of water molecules. The experiment was part of the “Water – the Foundation of Life” educational event.

The Old Steel Barriers Disappear from the Camel Exhibit

Many of our zoo visitors are astonished (especially since spring 2017) when they do not see a fence while passing the Bactrian camels. Yet, these mighty desert-ships, although separated from the visitors by seemingly nothing, remain with their youngsters and do not wander out from their own area. "Is it enough to keep them in?" people wonder when they see only a shallow groove in the ground where before there had been an unsightly high-rise steel-pipe barrier. "When the camel runs, can't it jump over it?" one visitor asked.

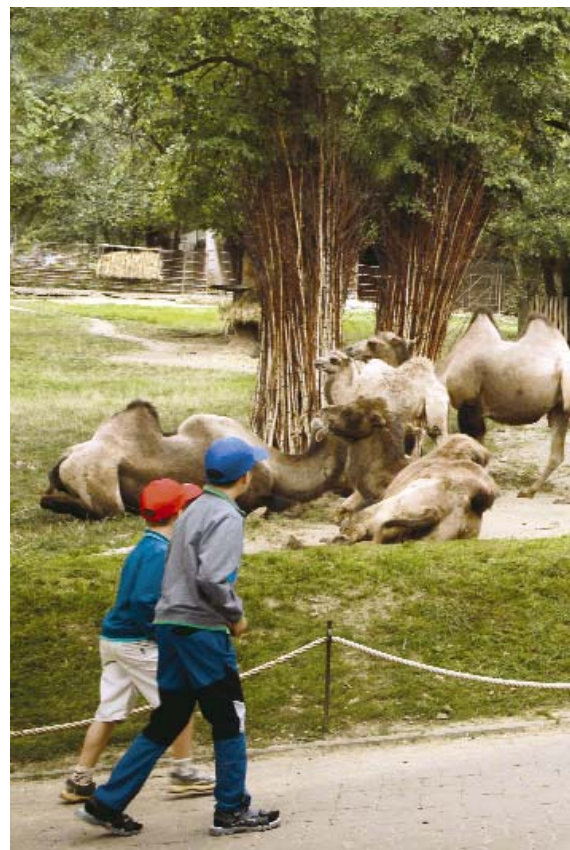
The background to this is that the old barn was dismantled this March. In its place, the zoo had a narrow, shallow trench, roughly 100 meters long, excavated and tiled with concrete. It eventually was given a brown plastic finish so that it did not stand out from the natural environment. Between the new ditch and the visitor trail, our gardeners set up a two-meter-wide "no man's land" of grass and low shrubs. The animals and people thus do not mingle, although there is no optical barrier between them.

Oh, Those Pacers...

Even a smaller barrier would keep the camels from escaping. Camels are pacers: When they walk, they lift both left limbs at the same time, then both right

limbs; and the trench – 40 cm deep and 60 cm wide – is an insurmountable obstacle for them. (However, there is one necessity: The rectangular edges of the ditch must remain sharp.) The absence of a fence at the Brno camel exhibition certainly does not mean that visitors can feel free to enter the enclosure. Although camels are domestic animals, they are only used to their zookeeper. A stranger could be injured.

Pacing allows animals with long limbs to move in a specific environment. It evolved in all members of the *Tylopoda* suborder – camels, llamas, and vicuñas. (However, llamas and vicuñas, who live in rugged mountain terrain in the wild, are able to overcome obstacles, so we have to build fences for them in the zoo.) Other pacers include giraffes. Even animals that



can jump, such as maned wolves, sometimes pace in this way. And horses can be specially trained to walk in this way, too.

"Desert-Ships" in Brno

Bactrian camels lived in wooden corrals located at the bottom of the zoo since the 1950s. After the construction of a veterinary clinic in the early 1970s, the camels and other ungulates were moved to a higher site in the saddle between two peaks of the Mniší mountain, where they were enclosed by a "modern" fence of horizontal metal pipes. It was long-lived, but it was not aesthetically pleasing – especially with the camels in the exposed site near the top zoo train station. In addition, the trail led visitors near the pipes, which were almost half a meter wide and could be hazardous on both sides: On the inside of the enclosure, a normally good-natured domestic animal can become aggressive at times (e.g., during rutting); on the outside, a non-thinking human



Bactrian camels – female Majda (left) and male Dred – with their baby born in March 2017.



In place of the barrier of steel pipes, there is now a green belt with a shallow trench hidden behind it.

Bella in 2014. Each of our female camels have this year produced a viable calf. Bella gave birth for the first time; the other two had already reared two or three calves in past years. The male, Dred, comes from Lodz Zoo, where he was born in 2012. He came to Brno as a two year old.

Wild Camels are Still Alive

People have kept Bactrian camels for their hair and milk or as a means of transport for more than 5,000 years. At present, there are approximately 1.5 million of these animals in the world. They can weigh up to half a ton, and are found in Asia Minor, Central Asia, southern Siberia, northern China, and Mongolia. This area almost coincides with the original area of the species before their domestication, and many of its inhospitable areas had been settled by people just because they had domesticated camels. Only about 1,000 wild Bactrian camels still survive. These live in the Gobi and Taklamakan deserts on the Chinese-Mongolian border. It is a critically endangered population because domesticated camels compete with the wild ones and sometimes interbreed with them. In addition, people still hunt wild camels.



Narrated camel feeding had been carried out directly at the metal barrier in the past. With a breeder present (a breeder on the left is feeding the camel), the situation was under control.

could offer the animal unsuitable food which might damage its digestive process. The sign "Do Not Feed the Animals" which we placed on the barrier was necessary, but some may have "overlooked" it.

Brno Zoo currently has five adult Bactrian camels, one male and four females. Fatima II was born at Ostrava Zoo in 2006, and Majda was born at Bratislava Zoo in 2003. The other two females are from our zoo, Sulika born in 1992, and

The Himalayas are Next

Our zoo intends to continue removing metal railings, replacing them with an impressive but inconspicuous barrier for the other ungulates that are located between the Bactrian camel exhibition and the Children's Zoo. This is where the natural Himalayan exhibition will be started next year. It will include modified enclosures of red pandas and takins. Besides these wild species, there will also be domesticated animals from the Himalayan plateaus and the Himalayan foothills. As reported on the following page, the animals and the visitors of the Himalayan exhibition will be separated by inconspicuous trenches or low stone walls similar to those built by Tibetan yak breeders, amongst others.

The Meeting of Adoptive Parents and Sponsors Became an “African Day”

The meeting of Brno Zoo’s adoptive parents and sponsors took place this year in our zoo on 26 August. We also opened a new lion enclosure on this occasion. However, the meeting was unusual for another reason. We planned it – with generous financial support from the SPP Brno gas company – in African style.



Attractive jewels were presented during the African-style show.

The celebrations were officially launched by the Director of Brno Zoo, MVDr. Martin Hovorka, Ph.D., at 3 pm, and the director of SPP Brno was then given a certificate of adoption for one of the Katanga lions. Before this, actors from the Brno National Theatre presented the story of “Wilful Grandpa,” the Denbaya group staged a performance with African drums and dances, and Kamila Kroupová offered everyone a protein bomb – fried insects! After the official opening ceremony, the drums ushered in some Afri-

can dancers. There followed a fashion show in which African jewellery and dresses or costumes of fabrics with colourful African patterns were presented by the models. The crowd then relaxed while listening to the African harp or the *kora*. And a magician performed, as well.

Many other exciting events were held on that special day. A drumming workshop for children and adults was held around the stage, and visitors could get their hair braided. African coffee and crêpes were served.

In the Exotarium Pavilion, African jewellery, fashion accessories, souvenirs,

and culinary specialties were for sale, and people could see an exhibition of African masks and wooden sculptures. In a creative workshop, visitors could make a beaded bracelet or a mask.

In the area just outside the Beringia exhibition complex, rescue workers demonstrated fire fighting techniques.

In the buffalo area of the Native American village, adoptive parents roasted sausages while their children rode on ponies. There was also a pony ring at the Children’s Zoo.

There were moderated feedings at the exhibitions of the tigers, sea lions, polar bears, chimpanzees, tapirs, and giraffes.

The zoo was also open to regular visitors, although adoptive parents and sponsors enjoyed free admission.



The Denbaya Group, which specialise in African drums and dancing.



After the official opening of the Meeting of Adoptive Parents and Sponsors, the Brno Zoo Director, MVDr. Martin Hovorka, Ph.D., (in the middle) presented the director of SPP Brno (second from the right, with his son) a certificate of adoption for a Katanga lion. On the right is the mayor of Brno, Ing. Petr Vokřál. Also pictured (from the left) are: the actress Klára Melíšková (recipient of the Czech Lion Award), and Nikol Svantnerová (Miss Czech Republic 2015).



View from a mountain village on a vulpe aviary (according to the design of the new Himalayas exhibition). Visualization: AND studio

The Himalayan Trek Will End in the Kingdom of the Snow Leopard

Brno Zoo intends to begin construction of a Himalayan exhibition next year in order to host both wild and domestic animals from both the alpine steppe and the wooded foothills of the largest mountain range of our planet. This new area will incorporate village homes, stone walls, chapels, and other traditional features such as candlesticks and prayer mills. At the highest point of the exhibition there will be a Buddhist monastery. The main mission of the Himalayan Trek is to show the effect of isolation on the emergence of different forms of life: Such a high mountain range can be seen as a sort of island in the clouds where life evolved without being significantly influenced by the rest of the world.

The territory of the future exhibition lies on a slope between the two peaks of Mniší Mountain. To the east, it is bounded by the main visitor path; to the north, by the range of the Bactrian camels and the Children's Zoo; and to the south and west by the walkway leading from the main path around the elks and to the Children's Zoo. In this incompletely utilized area, there are currently ranges for Grévy's zebras, kiangs, Siberian wapitis, and takins, which will be rebuilt.

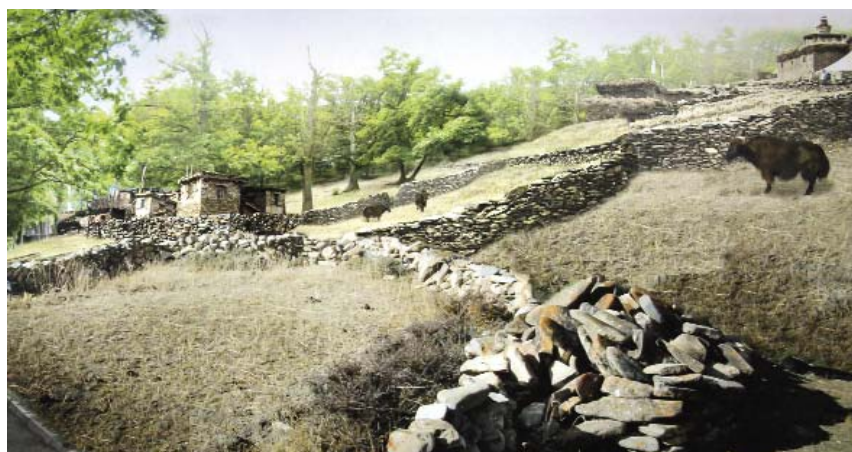
The route will begin with a turnoff from the main path at the red panda exhibit. Behind the entrance gate, we will be able to see the aviary of Galliformes birds and the range for Tibetan macaques. The wooded part of the exhibition will be replaced by a pastureland with low vegetation, after passing through which the visitor will arrive in a village of stone houses surrounded by livestock stables. Behind the village, the path will wind and rise. (Beware: At one of the turns, hidden behind a series of prayer mills, the manul is lurking!) The traveller will then find himself on an

open plain with takins and kiangs feeding on the grass. A stop at the monastery, which stands at the top of the Himalayan scene, can then be made, from which one can meditate and take in the view above the pasture.

When visitors return to the village, they will be able to watch a flock of vultures in the nearby aviary. The path will then pass through the aviary to see a reconstruction

of a traditional Tibetan burial site, where the bodies of deceased relatives were left for the vultures. After leaving the aviary, the path once again will sink into the woods and onto a suspended footbridge which will cross over the snow leopard enclosure. Their prey, bharals, will be feeding in the adjoining enclosure. The Himalayan Trek will end in the kingdom of the snow leopard, from whence one can visit the Children's Zoo and, in future, board a cable car.

On an area of approximately three hectares, this new set of landscapes will mimic the Dolpo culture and nature. This region lies high in the mountains of western Nepal and forms part of the edge of the Tibetan Plateau. It is surrounded by a mountain range dominated by Dhaulágiri (8,172 m above sea level), and is sparsely populated by Tibetan farmers who, at altitudes from 3,800 to 4,180 meters, cultivate fields of barley, buckwheat, millet, and mustard. The Dolpo people live a semi-nomadic life, migrating with their yaks, goats, and sheep to high summer pastures from their villages at the treeline. Nature is intact in Dolpo, with many species of rare wildlife.



The stone fences for the cattle are adjacent to the houses of the mountain village, the upper right Buddhist monastery. Visualization: AND studio

