

Zoo Ostrava

The Annual Report 2010



OSTRAVA!!!



UCSZOO

UNIE ČESKÝCH A SLOVENSKÝCH
ZOOLOGICKÝCH ZÁHRAD



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Dear supporter,

Ostrava Zoo comes up to you with our new Annual Report for 2010, a period that was full of rush and efforts. It can be rated as exceptional be it only because of the fact that the team managed to open for visitors the largest number of new exhibits and facilities behind the scene in zoo's history.

While dubbing 2008 a „year of development of projects“ and 2009 a „year of the most extensive works“, I can call 2010 a „year of new large exhibits being opened“. Recalling the last year just in terms of new displays would be however far from truth, thanks to the extensive construction activities and development of new large projects being underway at the same time. On the other hand, 2010 was a very challenging year, especially when it comes to finances. Stating that it was the most difficult period in terms of funding ever since I have been working here as director, which is now 6.5 years, would be no exaggeration. Even Ostrava Zoo could not avoid the general decline in economy. The funding support received in 2010 from zoo's founder - the Statutory City of Ostrava, decreased by 10%. Adding other factors, like the reduction in real purchasing power and economic power of the population and the very bad weather during April and May, which is typically zoo's top period as regards attendance, I find the fact that the team managed to close the year in the black to be almost a miracle. The number of visitors dropped by more than 8%, which is 30 thousand less than in the previous year. The zoo was visited by a total of 328,621 persons.

Two new and very well done extensive complexes were made available to the public throughout the year: they feature domestic animals and a mixed-species exhibit with bears, langurs and other animals and are called At the Farm and Chitwan, respectively. In addition, a spacious sea eagle aviary was successfully completed and stocked. Intense work was underway on other exhibits as well, be it new or renovated buildings. They included full reconstruction of the hippo house and construction of a display called The Papua. Thanks to all of the operations listed above, as well as the much-needed expansion of facilities behind the scenes, the team managed to increase the diversity of Ostrava's collection structure, with new species or even whole groups of animals being added in 2010. Completed the year before, the block of glasshouses with extensive technical background for horticulture was already operating to a full extent throughout the year. The zoo grounds gasification project was launched after having been postponed for a long time, and heat insulation of the education centre got underway, although only to a part extent for the time being, both operations being absolutely critical in light of energy management and future financial savings. Thermal insulation design was developed for most of facilities with challenging demand of energy. In addition, energy management master plan was produced that covers the entire zoo grounds, which is an important achievement for the future. In terms of environmental protection, the fact that the team managed to commence another series of wastewater treatment plants is greatly appreciated. Besides the big works mentioned above, a number of repairs, alterations and reconstructions of minor extent were underway despite the cruel economic conditions. As these cannot be detailed in full in this introductory text, please refer to the next chapters of this report. Several interactive and learn&play elements for kids were installed throughout the zoo grounds and incorporated into both animal and botanical part, and a number of places designed as education spots and featuring the biodiversity of local and world-wide fauna and flora were added thanks to the funding being successfully obtained from the Ministry of Environment.

Against all the economic troubles that the country suffers, Ostrava Zoo was still enjoying the favour of their donors and supporters in 2010, this resulting in raising a very good amount of 2,895 thousand CZK.

The last year can also be entitled a „year of offspring“ and a „year of rare animals being bred and reared“, thus making me to mention at least four Northern Luzon giant cloud rats, two bearded vultures and two golden conures, rather than listing all of a total of 482 animals reared successfully in 81 species and sub-species, which would be really hard for me. You can learn more about these as well as other breeding achievements in the respective sections.

Ostrava Zoo continues to be participant in the in situ schemes dedicated to certain animal species, like those concerning the barn owl, little owl or the fauna of the Sahamalaza region in north-west Madagascar. The Returning the Golden Eagle to the Czech Republic project continues to be one of the highest importance, where the zoo has partnered with the Wildlife Rescue and Conservation Education Centre, Bartosovice na Morave, which is the project managing body. As part of science and research activities, which forms an integral part of work of modern zoos, our organisation published a new volume of the European Studbook for the hippopotamus, the zoo's flagship species.

To conclude, I wish to thank very sincerely all our visitors for their favour, and the zoo's founder and owner, the Statutory City of Ostrava, for their assistance and support. Also, the Ministry of Environment, all sponsors, donors, volunteers and supporters of the zoo, and particularly all of my colleagues deserve my sincere thanks as well.

May reading this report bring a great time and plenty of inspiration.



*Petr Čolas
Director*

Ostrava 10. June 2011

Collection Status and Changes

Jiří Novák, Ivo Firla a Jana Pluháčková

Animal numbers	1. 1. 2010		31. 12. 2010	
	Species	Individuals	Species	Individuals
VERTEBRATES (<i>Vertebrata</i>)	307	2749	319	2701
Mammals (<i>Mammalia</i>)	70	324	76	376
Birds (<i>Aves</i>)	128	526	126	507
Reptiles (<i>Reptilia</i>)	32	178	33	148
Amphibians (<i>Amphibia</i>)	4	20	5	23
Ray-finned fishes (<i>Actinopterygii</i>)	72	1694	77	1639
Cartilaginous fishes (<i>Chondrichthyes</i>)	1	7	2	8
INVERTEBRATES (<i>Invertebrata</i>)	47	170	41	163
Total *)	354	2919	360	2864

Note: *) The animal numbers include all animals on display physically held at Ostrava Zoo as per the respective date, i.e. those held at Ostrava Zoo plus those loaned to Ostrava Zoo from other subjects, excluding those loaned to other entities. The numbers do not and cannot include any farm animals or other individuals held temporarily as feeding animals.

The total number of species, subspecies and forms increased by six, while that of individuals slightly decreased by 55. After having undergone a sharp rise during 2009, which essentially doubled the count of individuals, the last year's numbers roughly maintained the same level. In the course of the year, a total of 482 young were bred and reared from 81 species, subspecies and forms, this including 78 mammals (32 species), 173 birds (40 species), 11 reptiles (3 species) and 220 ray-finned fishes (6 species). While much of the offspring reared with success belonged to those that can be seen quite regularly, among those with a particular importance are 1 red-bellied lemur (*Eulemur rubriventer*), 2 crowned lemurs (*Eulemur coronatus*), 4 Northern Luzon giant cloud rats (*Phloeomys pallidus*), 2 golden conures (*Guaruba guarouba*), 2 Madagascar teals (*Anas bernieri*), 3 blue-winged geese (*Cyanochen cyanoptera*), 2 bearded vultures (*Gypaetus barbatus aureus*) and others. New arrivals representing rare species were added to the stock, such as 1 crowned lemur (*Eulemur coronatus*), 1 northern white-cheeked gibbon (*Nomascus leucogenys*), 2 Andean condors (*Vultur gryphus*), 4 black pond turtles (*Geoclemys hamiltonii*), 4 blind sharks (*Hemiscyllium ocellatum*), several attractive breeds of domestic animals etc. The value of the stock on display was amounting to 7,206,612.28 CZK as of 31 December 2010.

If 2009 was marked by historical rise in Ostrava animal numbers, then 2010 can be dubbed a „year of new buildings“. We believe that certain extent of restrictions towards the visitor was received with understanding – after all, much-needed new facilities to display and breed animals were under construction, with modern exhibits to open in 2011.

By the way, one of these was successfully made available to the public yet in 2010 - a unique complex, the exhibit was named **Chitwan** after the famous national park in Nepal. It was a big change, especially for two species that had been housed for years in facilities of poor quality. The group of entellus langurs (*Semnopithecus entellus*) and the pair of Asiatic black bears (*Ursus thibetanus*) can now not only make use of indoor quarters full of comfort, but also range in a natural enclosure of one hectare, where they can fully develop their mental and physical skills and exercise their means of adaptation. The enclosure is forested to a large extent, while offering the animals grassy areas and hideaways as in the wild, plus there is a natural lake and stream available for the bears. Watching the langurs leaping from branch to branch and bears grazing on the grass near the glass of the main visitor's viewing platform is a real and breath-taking experience. With regard to the size of their area, the group of langur was extended by two more females coming from Usti nad Labem. In addition, the langur family alone contributed to its expansion by producing the first-ever baby born in the Chitwan exhibit - a young female.

In this context, it is certainly worth to mention that the dreams about demolition work concerning the old concrete bear house, a not very nice landmark of the zoo placed along the main visitor route and an inappropriate structure in terms of breeding and aesthetic design, are soon to be made real. In fact, this is something that has been long awaited by many loyal visitors.

The Chitwan exhibit consists of multiple parts, including an outdoor enclosure for Asian small-clawed otters (*Aonyx cinerea*). An area beyond established standards in terms of size, half of it contains a naturalistic pool with crystal clear water that the otters are very happy to enjoy. More than this, visitors enjoy the enclosure as well, since these animals have become stars of Chitwan exhibit almost overnight. As both the male and the female are already grown adults, we can also expect otter offspring. Future plans include establishing a mixed-species exhibit by adding a pair of binturongs (*Arctictis binturong*), who can be watched right now inside the Indian fauna house.

To illustrate the diversity of life in the Nepalese national park, two freshwater aquariums have been added to the Chitwan complex - the first aquariums of its kind at Ostrava Zoo. Of these, one tank (8000 litres) features river rapids, with the Kali Gandaki River being the model and the clown knifefish (*Chitala chitala*) as well as rare and endangered black pond turtles (*Geoclemys hamiltonii*) the dwellers. An adult clown knifefish can grow to one metre, which makes the creatures very noteworthy. The other tank can contain about 6000 litres; it presents a river pool of the Narayani River. This area is really full of living things. Densely overgrown with plants, the tank provides a living environment very similar to that in the wild not only to fish species that are very well known to the public, but also to creatures of every fish breeder's dreams. The latter group includes examples like dwarf barb (*Puntius gelius*), Himalayan glassy perchlets (*Parambassis cf. baculis*) or *Schistura corica*.

In 2010, another new exhibit was opened - an eagerly awaited petting yard, which in its previous conventional form was very well known to many contemporary and loyal Ostrava Zoo guests. Nonetheless, it is believed that enthusiasm of our youngest visitors is to balance any disappointment of friends of „historical monuments“! Currently, this area called At the Farm permits both smaller and bigger children to meet not only the common breeds, i.e. the Cameroon goat and the Cameroon sheep (feeding of these allowed), but also the livestock that

is new on the list - two breeds of cattle (Jersey cattle and Czech pied cattle), two breeds of domestic pig (the Prestice pig and mangalitza), several breeds of rabbit and the Wallachian sheep, now a rare breed of sheep. The premises now also feature an area where children can pet tame guinea pigs or make use of some of the educational elements to learn or just have fun. These include a life-sized model of a cow to test your milking skills, whether you are an adult or a little guest.

Naturally, the new aviaries for sea eagles (*Haliaeetus albicilla*) and golden eagles (*Aquila chrysaetos*) are also worth mentioning. Almost 10 metres tall, they are located in the quiet zones along botanical trails. One of these makes good settings for a sea eagle pair that already settled here in the late 2010. Both species are amongst the large birds of prey that after having been wiped out by humans now return into the wild, which for the golden eagle is underway with major contribution of Ostrava Zoo.

Opening the redesigned house of hippos yet in 2010 was something that was not possible. The facility had to be closed as early as spring onwards and most of the animals relocated. A new home for Natal, a male of the southern white rhino (*Ceratotherium simum simum*), was found at the zoo in Dvur Kralove nad Labem, to which we relocated the animal, thus eventually terminating the Ostrava rhino stock. Rhinos are not planned to return into their former premises that are already obsolete in terms of breeding efforts. The rhino's area now serves for the hippos (*Hippopotamus amphibius*) that were relocated to stay there over the period of redesigning the forefront of the house. Prior to that, these animals could be watched by visitors only when ranging outdoors. As this temporary space is rather small and the female hippo was expected to give birth, the male had to be separated. In July, the female gave birth to a young male, with successful rearing now still underway, which however necessitated closing the area in front of much-sought sea aquariums, as well as two nocturnal exhibits with dwelling fruit bats, gallagos and bushbabies.

Estimations are to open the house in spring 2011. The main reasons for the reconstruction are primarily to save environment and money, since in terms of the latter, the existing house was a real black hole. Insulating the hippo house and letting more sunlight indoors will not only increase welfare for the iconic animal of Ostrava Zoo, but also help restore breeding and rearing activities in crocodiles.

As regards Indian elephants (*Elephas maximus*), 2010 was marked by gradual preparation of the animal management staff for birth in two females - Johti and Vishesh, Johti's daughter. The animals were systematically getting adapted for blood taking, with Johti (kept in full contact) being additionally trained for restrained movement by chaining, and both of the cows were trained to get accustomed to the presence of keepers during the night etc. As birth in elephants is something new to the Czech zoo community, all the training and systematic work may prove useful, with births expected to take place in the spring 2011.

Several new additions occurred in the hoofed mammal stock as well, of which the male Rothschild's giraffe (*Giraffa camelopardalis rothschildi*) and the pair of Grevy's zebras (*Equus grevyi*) are sure to be amongst the most important achievements. Other species with newborn animals included the eland (*Tragelaphus oryx*) with one male born. Further, four Vietnamese sika deer (*Cervus nippon pseudaxis*), two Pere David's deer (*Elaphurus davidianus*) and two Siberian red deer (*Cervus canadensis sibiricus*) were reared. The Bactrian camel (*Camelus ferus* f. *bactrianus*) stock was not one of success in that the numbers decreased with time to a single

male and three females, with chronic veterinary issues being the cause. Nonetheless, the group is expected to re-expand thanks to loaning a new male in the late 2009. The reason for the above was the failure of the zoo's former male to mate fruitfully, which left the zoo with no offspring over the period of as many as three years.

The primate collection has seen a lot of updates, like twins born in crowned lemurs (*Eulemur coronatus*), a female in red-bellied lemurs (*Eulemur rubriventer*), a male in ring-tailed lemurs (*Lemur catta*) and a male with two females in the lion-tailed macaque (*Macaca silenus*). The group of Diana monkeys (*Cercopithecus diana diana*) is now complete with a new male from Poznan. New to the zoo is a male of the Sclater's lemur (*Eulemur macaco flavifrons*) who arrived from Mulhouse, plus there is a new arrival from Duisburg, a female northern white-cheeked gibbon (*Nomascus leucogenys leucogenys*). Both animals were brought in to complete the stock thanks to enthusiastic efforts. Also, a birth of a chimpanzee (*Pan troglodytes*) should not be omitted from the list, although the animal sadly died in less than four months.

A significant development happened in the large cat section. The zoo imported a pair of clouded leopards (*Neofelis nebulosa*), thus adding a new taxon to the species structure, one that is by the way endangered in the wild and relatively rare in zoos. Although it is another challenge in terms of husbandry, the quite extensive experience of the zoo in breeding felids is making everyone believe in success. The female was brought in from Paris Zoo, while the male came from Prague. Other large cats that rank amongst zoo's established species did not reproduce. As regards the Sri Lankan leopard (*Panthera pardus kotiya*) and the Amur tiger (*Panthera tigris altaica*), the zoo did not obtain coordinator's recommendation to breed in 2010, while for the pair of snow leopards (*Panthera uncia*) the too old age of the animals was the reason. On the other hand, efforts exist to breed the pair of the Asiatic lion (*Panthera leo persica*). As these animals were failing to produce offspring despite several years of mating, the zoo had the lions examined on 30 August by specialists from the IZW (Institut für Zoo- und Wildtierforschung) based in Berlin, which has shed more light on the issue through finding the reproductive tract and sperm of male Sohan to be in good condition. In Asha, ovaries as well as the remainder of the reproductive organs are okay, but cysts were discovered. Unfortunately, location of these prevents the lioness in becoming pregnant; what's worse, the cysts in fact cannot be removed by surgery. The results were mailed to the Asiatic lion breeding programme coordinator and everyone now awaits his recommendations; expected discussions will probably focus on getting another female (a detailed report on examination of the lions can be found on page 45).

From amongst the small felid stock, heart-warming news included breeding and rearing in the caracal (*Caracal caracal*), as well as two European wild cats (*Felis silvestris silvestris*) and two European lynxes (*Lynx lynx carpathicus*) produced. Breeding success in fishing cats (*Prionailurus viverrinus*) was very near, but these shy felids, whose origin is the island of Sri Lanka, have however not coped very well with their new environment. The female was too nervous and did not handle the situation despite all measures, although having been caring for her young for almost 14 days, with the main stressing factors being the high visitor traffic and noise from the renovation of the old hippo house placed nearby.

In 2010, breeding efforts started in several species of birds that were never on stock before. Of these, the red-winged tinamou (*Rhynchotus rufescens*) deserves particular attention as the first member of tinamou in

Ostrava, with one pair housed inside one of the South American aviaries in the company of hyacinth macaws (*Anodorhynchus hyacinthinus*) and sun conures (*Aratinga solstitialis*). Tinamous are members of ratites, thus they are miniature relatives of ostriches, nandus and cassowaries.

The parrot collection has seen two endangered species of amazons to breed routinely, with three females reared successfully in the vinaceous-breasted amazon (*Amazona vinacea*) and one produced in the yellow-headed parrot (*Amazona oratrix oratrix*). As usually, bred and reared parrot species included golden-capped parakeets (*Aratinga auricapillus aurifrons*) - two chicks and grey-headed lovebirds (*Agapornis canus*) - five chicks, while species with first chicks produced in the zoo's history included in particular very rare golden conures (*Guaruba guarouba*) with two chicks being hatched and the Swainson's lorikeet (*Trichoglossus haematodus moluccanus*) with a single bird bred and reared.

First-ever, breeding success arrived in several other bird species, with examples being particularly rare for the team including two Madagascar teals (*Anas bernieri*), one marbled duck (*Marmaronetta angustirostris*), one Tibetan white-eared pheasant (*Crossoptilon crossoptilon drouyni*), one Madagascar partridge (*Margaroperdix madagascariensis*), two Porphyrion poliocephalus swampheens, one *Hypsipetes leucocephalus leucocephalus* bulbul and one hawfinch (*Eophona migratoria*).

Other successful and appreciated breeding events, which also concerns the numbers produced, are those in the American black vulture (*Coragyps atratus*) - two chicks, blue-winged geese (*Cyanochen cyanopterus*) - three chicks, red-legged seriema (*Cariama cristata*) - four chicks, Caribbean flamingo (*Phoenicopterus ruber*) - five chicks and white-faced whistling duck (*Dendrocygna viduata*) - eight birds. Chicks produced in the griffon vulture (*Gyps fulvus*) and the hooded vulture (*Necrosyrtes monachus*) are of extraordinary importance.

Having referred to flamingos, we feel it necessary to highlight cooperating efforts within the zoo community. In the Caribbean flamingo, numbers of pairs that brooded and incubated well were exceeding those of eggs fertilised. Therefore, one fertilised egg of the greater flamingo (*Phoenicopterus roseus*) was brought in from Prague, where they were facing the opposite problems, and placed under a pair of proven breeders who at that time sat on their unfertilised egg and these birds eventually did rear a young greater flamingo. Subsequently, Ostrava got into troubles when one egg of our flamingos remained dispossessed after having rolled out of the nest. The zoo in Zlin offered their assistance, with this egg placed under their pair of greater flamingos. After becoming independent, the two young flamingos are to be returned into the flocks of their particular species.

Among small mammals held out of scenes, Northern Luzon giant cloud rats (*Phloeomys pallidus*) did well. Endemic to the island of Luzon, these animals bred and reared two young animals, which not only allowed the team to establish a second pair, but even diversify a rare species collection in another zoo. Other small mammals new to Ostrava are also the Asia Minor spiny mouse (*Acomys cilicicus*) and the Crete spiny mouse (*Acomys minous*), the latter of which is a creature endemic to the island of the same name. Each of the two is a threatened species with not very much information on numbers in the wild; additionally, the former is known from just a single locality on the southern coast of Turkey.

As results from these lines, the work behind the scenes is highly desirable. Actually, the zoo cannot do without it, as the facilities serve in some animals not just for breeding, quarantining and veterinary treatment, but also for awaiting their new exhibits, which was the case for several species that the zoo brought in, like the giant bluetongue skink (*Tiliqua gigas*), green tree skink (*Lamprolepis smaragdina*), blind shark (*Hemiscyllium ocellatum*), lyre-tail cod (*Variola louti*) and other species for the Papua Exhibit being planned, as well as the giant cichlid (*Boulengerochromis microlepis*). One of the largest cichlid fishes and a dweller of the Tanganyika Lake, this one is to add value to the exhibit of the same name by joining other smaller members of its group. Two species at a time were added to the rare turtles held out of scenes - the black pond turtle (*Geoclemys hamiltonii*) and the yellow-headed temple turtle (*Heosemys annandalii*). The former is to enlarge the stock within Kali Gandaki (a fast-streaming river aquarium included in the Chitwan exhibit), which should not take place before these turtles grow a little bit older.

Ostrava Zoo's focus is not just breeding and rearing rare animal species. Indeed, it is also involved in wildlife reintroduction schemes. This aside from directly supporting the projects involves in particular providing successfully reared offspring for releasing into the wild. This way the zoo staff released 22 barn owls (*Tyto alba guttata*) and seven little owls (*Athene noctua noctua*) in the Czech Republic, when they partnered with the Wildlife Rescue Centre, Bartosovice, plus two bearded vultures (*Gypaetus barbatus aureus*) were reintroduced in the Alps within the French and Swiss territory as part of the European breeding programme. There was also a case of one young bearded vulture being placed under an experienced male that acted as a foster parent for which great assistance was provided by Prague Zoo, since Ostrava's pair is still young and lacks experience to rear chicks in a reliable manner, although already able to incubate eggs.

Financial review

Pavína Konečná a Petr Čolas

The financial operations of the zoo in 2010 produced a profit amounting to 417,70 thousand CZK.

The financial management in 2010 was mostly affected by the following factors:

- Reduced allocation for zoo operations by the founder, i.e. the Statutory City of Ostrava;
- Very cold weather and almost permanent rains in the periods when there are normally the highest visitor numbers;
- Reduced allocation from the Czech Ministry of Environment's budget under the Allocation for zoological gardens in 2010 scheme;
- Total organisation's costs pushed below the previous year's level to achieve balanced operations and to minimise the consequences of the economic crisis and reduced allocations;
- Adjustment in rental fees, especially for long-term leases, and the revival of advertising services in improving and expanding services offered to visitors.

Non-capital allocation

Co-funding from the budget of organisation's **founder**, the **Statutory City of Ostrava** (the SCO), has been the essential and key source of financing, with **30,946 thousand CZK allocated for non-capital operations** in 2010, which is a decrease by 3,470 thousand CZK compared to the previous year. Expressing this in percents, the allocation has been reduced by over 10 points, allowing the zoo to cover 43.6% of costs actually spent. On the side of the founder, 2010 became a year of cost-saving measures, with factors being involved including the situation in economy throughout the country. Thus, after two year of growth, the non-investment allocations for the zoo decreased to the level prior 2008.

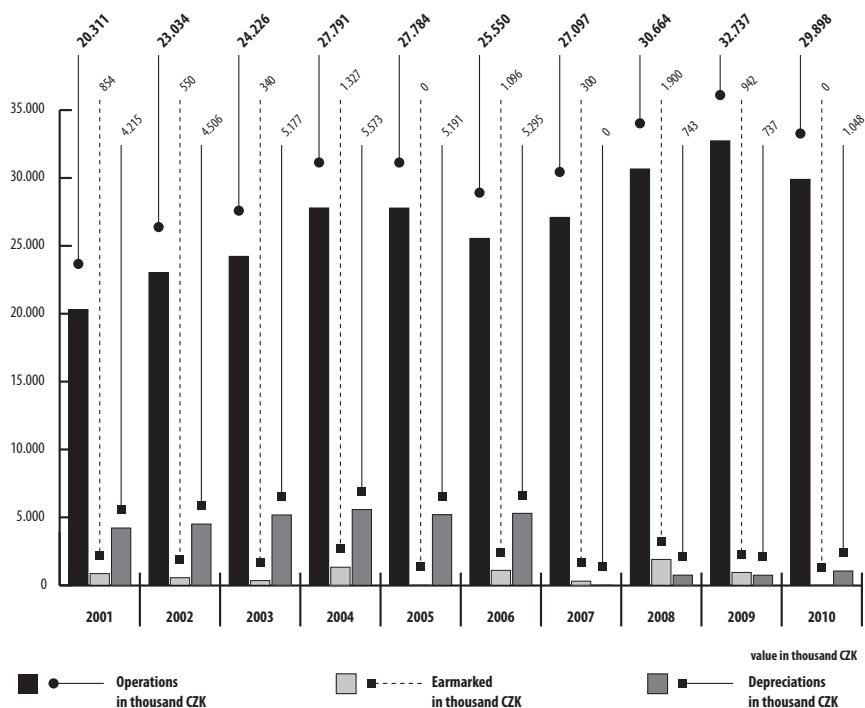
The founder's non-capital funding consisted of the following components in 2010:

1) Co-funding of zoo's operational budget amounting to 29,898 thousand CZK, which has decreased by 8.7% compared to the previous year, i.e. 2,839 thousand CZK in terms of money. This was due to the primary budget being cut (the level of reduction up to 5%), plus increase in personnel costs being not covered, the latter taking place despite the fact that the increase in personnel numbers resulting from putting many new exhibits into operations had been endorsed.

2) Co-funding of accounting depreciations of long-termed assets amounting to 1,048 thousand CZK. As with the year 2008 and 2009, the founder's allocation to cover organisation's accounting depreciations of long-term assets was kept; more specifically, this involved only long-term movable assets. No co-funding was received from the founder to cover the accounting depreciations of immovable assets such as buildings and structures, which is a highly significant item making 13% out of total costs, i.e. 9,088 thousand CZK. In order to cover the zoo's capital fund, these costs were charged to the revenues as instructed by the SCO. This accounting operation caused the organisation's own revenues to increase significantly.

3) As a result of the budget being reduced, no earmarked funding was granted by the founder in 2010 despite the prevailing practice in the previous years, when this was helping the zoo to handle repairs (namely matters of urgency) or cover some extraordinary costs connected with zoo's operations, such like the import of the Indian elephant bull from Leipzig Zoo and the repair of the outdoor and indoor fencing of animal facilities behind the scenes in 2009, when the allocation amounted to 942 thousand CZK.

Figure 1. Analysis of co-funding allocated by the founder, the Statutory City of Ostrava, 2001-2010



Aside from the funding resource in the form of founder's budget, the zoo was successful to raise significant funding from other sources, this being the national budget, more specifically that of the Ministry of Environment and the Ministry for Regional Development, the EU funding resources, namely the European Regional Development Fund, and Ostrava Labour Office. The funding received amounting to a total of 3,910 thousand CZK helped to cover more than 5.5% of real zoo expenses.

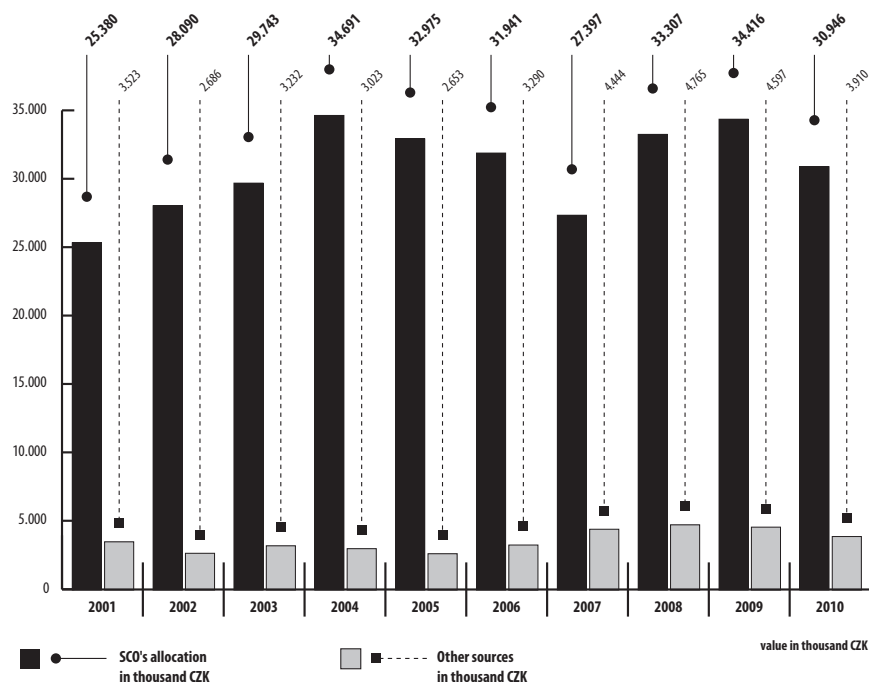
As regards the budget of the **Czech Ministry of Environment**, a grant amounting to **2,210 thousand CZK** was successfully received and properly utilised despite the challenging competition with other licensed zoological gardens of the Czech Republic. Winning such type of grant is possible within the MoE's

funding scheme to support zoological gardens and is earmarked to co-fund costs of **operations in animal management concerning certain endangered species of world and Czech fauna and to ensure the protection of nature**. As a result of recession in economy as well as based on the development of the national budget, the 2010 saw a significant reduction of the funds provided by the MoE that regardless of real amounts needed dropped by 31%, i.e. about 1,006 thousand CZK compared to 2009. Nonetheless, the team managed to make a number of very beneficial activities real despite limited funding, with examples as follows: the fourth issue of the Hippopotamus European Studbook in the row was co-funded, general public made more familiar with the issue of biological diversity as part of the WAZA Year of Biodiversity Campaign 2010 through acquiring information panels and special literature as well as publishing magazines and the fourth annual conservation education conference for teachers and educators throughout the Moravian-Silesian Region organised. In addition, specific members of native fauna were presented, including their threats, by means of education spots. Last but not least, participation on continued efforts of releasing young eagles into the wild was again possible within the project entitled Returning the Golden Eagle to the Mountains of Moravskoslezské Beskydy.

The Operational Programme Cross-Border Cooperation SR-CR 2007-2013 was utilised for co-funding the long-term project called Returning the Golden Eagle to the Czech Republic from the budget of the **Ministry for Regional Development** (5%) and the **European Regional Development Fund** (85%). The activity was launched in the late 2009 with two separate aviaries constructed in the zoo grounds for the sea eagle and the golden eagle and continued in 2010 in form of extensive educational schemes, lectures and publicity efforts. The date of completion has been scheduled for December 2011. In 2010, the **grant amounted to 117 thousand CZK**, which covered 90% of eligible operating expenses incurred within the project to pay salaries and publicity materials, of which 22 thousand CZK was paid during the year on the basis of the approved monitoring report for 2009, while 95 thousand CZK is to be granted only after approval of the monitoring report for 2010. A total of 6 thousand CZK were utilised from the Ministry for Regional Development's grant, while co-funding by the EU amounted to 111 thousand CZK.

Thanks to the long-term cooperation with the **Ostrava Labour Office** as well as owing to proper settlement of all the previous funding, the zoo obtained **co-funding amounting to 1,583 thousand CZK** from the national budget (15%) and from the sources of the European Social Fund (85%). These funds helped the zoo to cover a large portion of **salaries of 9.41 employees (average FTE) including social and health insurance**, this meaning that the amount that the team managed to receive from the labour office's budget increased by 203 thousand CZK against 2009.

Figure 2. Comparison of co-funding allocated by miscellaneous sources with that allocated by the founder, the Statutory City of Ostrava, 2001-2010



Total revenues

In 2010, the **total revenues** of our organisation amounted to **71,441 thousand CZK**. Compared to the previous year, the sum declined by 2,179 thousand CZK, which makes 3%. The aggregated total of revenues needs to be seen as consisting of zoo's **own income** amounting to 36,584 thousand CZK, i.e. 51% out of total revenues, and **non-capital co-funding (i.e. external sources of funding)** amounting to 34,856 thousand CZK, i.e. 49% out of total revenues. The external sources of funding represent co-funding from the budget of the Czech Republic, local governments and EU funds. This type of funding has decreased by about 11% compared to the previous year, i.e. by 4,157 thousand CZK in terms of money. (See comments on the non-capital co-funding.)

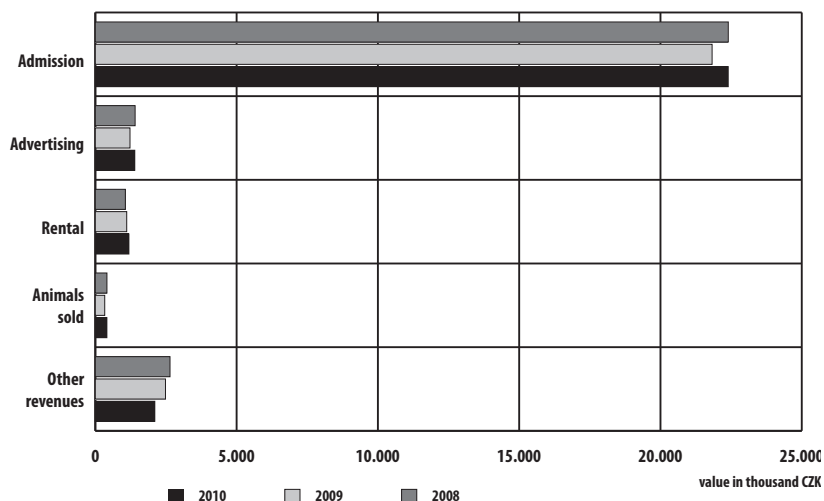
Zoo's own revenues amounting to 36,584 thousand CZK present funds that the organisation raised via its own activities. These namely include revenues from entrance fees, but also other revenues, more specifically those from rental and advertising, sales of merchandise and materials etc. However, deducting an amount that in fact does not contribute to the own revenues of the organisation, as it is just an accounting operation within the account #649 - Accounting depreciations of immovable assets not covered by the

founder, produces **27,496 thousand CZK of total zoo's own revenues actually raised**, which against 2009 represents a **real increase in sales by 515 thousand CZK, i.e. nearly 2%**.

As usual, revenues from entrance fees take the greatest portion (81%) from organisation's net own revenues. By far the most important revenue item, any fluctuation here has a significant impact on the overall result of financial operations. Due to its nature, this component of revenues is directly dependent on favourable weather. The beginning of 2010 was affected by a very rainy and cold weather in the months with traditionally high visitor numbers, i.e. April and May. That period saw a significant drop in numbers at a level of several dozens thousands of visitors and any efforts to balance the reduction until the end of the year failed. The fading economic decline both in the country and in the immediate neighbours was another important factor. Even the zoo's sophisticated and best-quality publicity campaign running not only in the region, but also across the border, miscellaneous education and entertainment events organised and new attractive exhibits developed could not fight the reality: **total visitor numbers** decreased by 30 thousand persons (i.e. 8.4%) compared to the previous year and by over 35 thousand people against 2008, making a total of **328,621 persons** at the end of 2010. Having said that, it is necessary to add that the previous year's numbers are matched against those in 2009 and/or 2008, i.e. the period of the highest attendance in the zoo's history. The drop in sales as a consequence of the reduced visitor numbers was dampened by taking a measure in form of entrance fees being increased by 10 CZK per person, meaning that **revenues from entrance fees** jumped to **22,398 thousand CZK**, (102.6% compared to the previous year), which is growth by 571 thousand CZK in comparison with the preceding year.

Other important sources of income for the zoo include rental and advertisement fees, sales of merchandise, revenues from feedstuffs sold through vending machines, this concerning certain animal species, zoo train fees and revenues from miscellaneous secondary services, but even those generated by sales of materials and to some extent also sales of animals. Following the decline in economy, 2010 could see restored advertising services, increased revenues from visitor services, which especially involved zoo train ride and visitor cart rental fees; in addition, there were raised apartment rental fees and higher revenues from rental of specific non-housing sections within the zoo grounds. Revenues from vending machines and sales of animals are also stable types of income to some extent. Other revenues, such as use of funds, VAT settlement, insured events, judicial settlement etc. are fully unpredictable and dependent on the related cases. All of those **miscellaneous activities** helped the zoo to boost their budget with as many as **5,098 thousand CZK** being raised, which is 99% of revenues of the preceding year.

Figure 3. Structure of zoo's own revenues, 2001-2010



Note: own revenues exclude revenues from uncovered accounting depreciations.

The zoo's **self-sustainability percentage**, i.e. total own revenues plus physically received donations related to total operating costs decreased by uncovered accounting depreciations, has seen a re-increase after having fallen the year before. Despite the fact that the record-breaking 2008 figure was not attained, the year-on-year growth of 1.4% a significant achievement, **making the rate of self-sustainability to be 42.7% in 2010.**

Figure 4. Structure of zoo's own revenues, 2001-2010

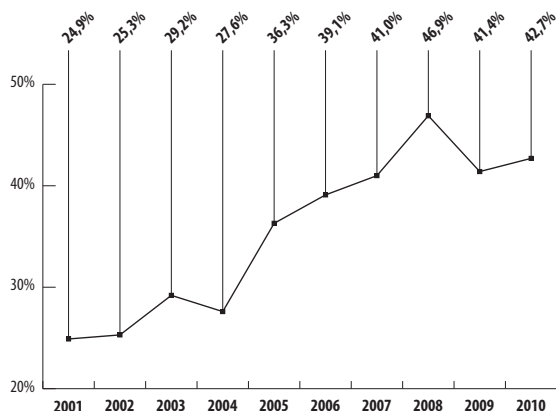
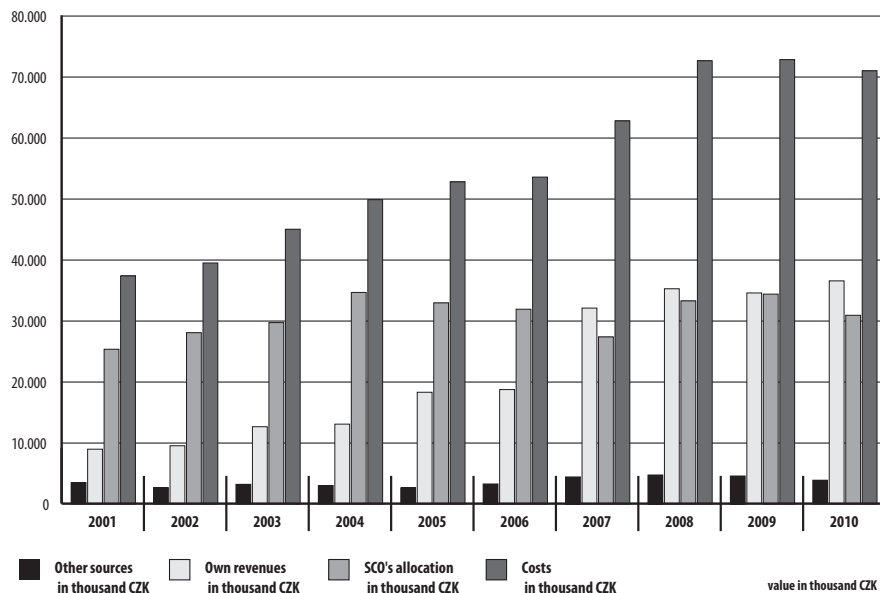


Figure 5. Economic indices in 2001-2010



Note: own revenues exclude uncovered accounting depreciations (as from 2007).

Total costs

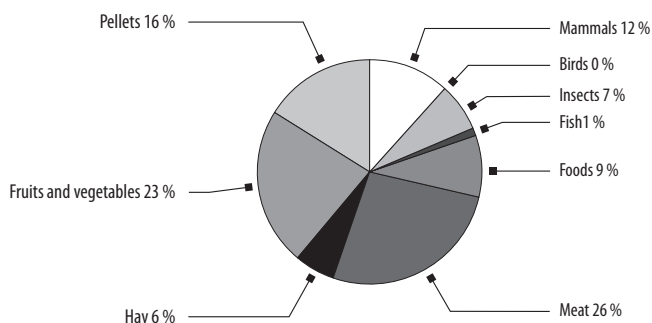
Costs in 2010 compared to the previous year were successfully reduced by 2.5%, which in terms of Czech koruna represents 1,830 thousand CZK. Thus, total **costs** reached **71,023 thousand CZK**.

Given that the zoo is a special institution highly determined by seasonality, the development of costs per item is subject to changes and variations not only year by year but also within individual years. This is due to the new developments or updates in structure of the collection and animal numbers, new displays being opened and visitor services expanded, increased need for personnel or energy demand and even eliminating the consequences of bad weather. All of this must be reflected in the budgets for the specific year and measures must be taken such that will not lead to increased costs and instability of the economy over the long time. Paradoxically, pressure on growth of costs that the zoo is unable to put under control is however clearly caused by new buildings, be it animal houses and enclosures or utilities, as these render accounting depreciation costs to rise in increments, representing in 2010 alone an increase by 1,778 thousand CZK.

The cost of **materials used** decreased by 9.7%, which is 1,153 thousand CZK in comparison to 2009. The team managed to cut the costs of office supplies, purchase of small tangible assets, electrical and construction materials and the cost of purchasing plants and fertilisers. Increases did occur in other items despite the ongoing restrictive measures adopted by the management, whether it was due to higher fuel prices (as

regards the rising costs of fuel), increased number of employees (as regards the rising costs of protective equipment and cleaning agents) or increased costs of animals on display because of new exhibits being stocked. The development of feedstuff costs is proportionally dependent on not only price and quality of rations, but also on the stock structure and number of animals. Although the total number of animals held has decreased by 55 individuals in 2010, that of animal species on display increased by six and most importantly - the number of held mammals has increased by 52 animals. Additionally, year-on-year feed costs increased by 3%, with the greatest amount recorded in items like meat, fruit and vegetables compared to the cost of purchase of farm animals, guinea pigs, rabbits and fish, which has reduced.

Figure 6. Structure of feedstuffs for animals, 2010



Costs of utilities showed a decrease of approximately 218 thousand CZK, which is almost 2.5%, but not significant in the long run. A great change and savings can be expected after implementing the gasification project, an investment operation that is to replace electric energy as a source of heating (which in the case of the elephant house is LPG) by natural gas in another series of major and energy-intensive buildings throughout the zoo grounds (e.g. elephant house, Indian fauna house, houses for primates, hippos and parrots, education centre etc.). Thus, the decrease in rapidly rising costs for energy is to reflect in full only in the 2011 budget.

Maintenance and repair costs reduced compared to the previous year to reach 0.49 of index point, which in terms of Czech koruna represents a decline to unbelievable 2,540 thousand CZK. Reduced costs of repairs could be reflected in maintaining buildings and structures, as well as in servicing transportation machinery and technical equipment. Even when comparing with 2009, which was a year of major but yet necessary repairs extending to 5 million CZK, spending money on repairs and maintenance of such large premises with numerous buildings and structures in poor condition originating from the period between the 1950s and the 1970s continues to be of principal importance. This was something facilitated in previous years through earmarked funding from the budget of the founder, with 700 thousand CZK extended for instance in 2009 and even 1,300 thousand CZK granted in 2008. Despite the fact that every effort to receive such an earmarked funding in 2010 failed, the following major operations were successfully carried out: repair of wiring in animal houses for small felids, primates and elephants, in animal quarantine and in certain facilities behind

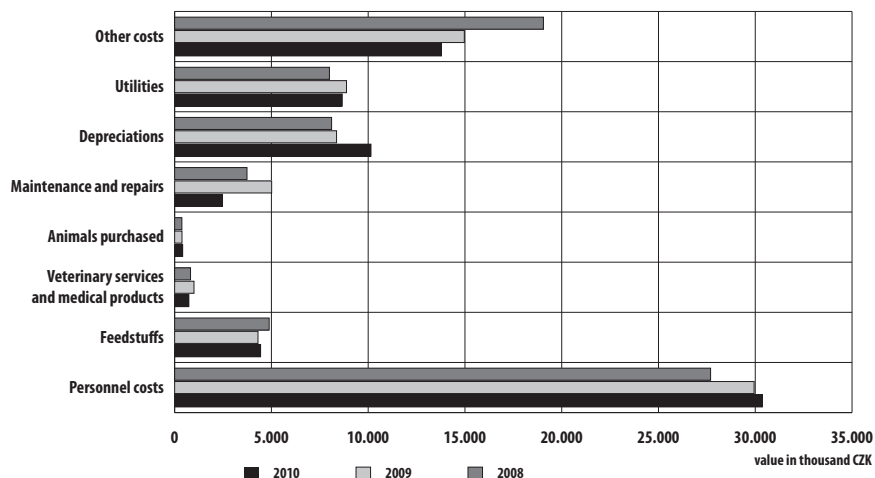
the scenes. The team also managed to repair public lighting along the main visitor route and the sewer in the animal quarantine facility, plus finish was renovated in some parts of connecting roads throughout the botanical trails. Additionally, a few inconvenient electric meters and electricity distributors were renewed, a heating system at the hippo house fixed in connection with relocation of the hippos and a stainless facility to preheat meat in the large carnivore house repaired, aside from other minor emergency servicing operations. In fact, maintenance costs are the only major item where the zoo managers are able to conduct restrictions to successfully prevent loss in the zoo's financial operations. This is however a short-term measure and any budgetary constraint within this section reflects in even greater need of funds for maintenance and repairs in future. The fact that the maintenance costs of cars, machinery and equipment keep high levels due to the aging technology and car fleet continued to be valid in 2010, with the former reaching 709 thousand CZK.

Personnel costs, which involves salaries as such, mandatory social and health insurance, allocation to the social fund (FKSP), employer's co-funding to cover staff boarding and medical examinations, account for some 43% of total costs, representing the most significant part of the budget. In 2010, they amounted to **30,367 thousand CZK**, thus even exceeding those of 2009 by 427 thousand CZK, which represents a 1.4% increase. This increase was marked by cancelled bonuses within the social insurance system and especially rising numbers of newly recruited employees, which however was not covered by founder's co-funding. Because of that, the zoo management was made to carry out a restriction in the area of wages in early 2010, despite the fact that the average wage in the organisation has been permanently far below that in the CR and is among the lowest in comparison with other zoos in the country. Thus, the total amount of wages paid was nearly the same as in the previous year, i.e. 22,092 thousand CZK, of which 327 thousand CZK involved other personal expenses (side employment agreements, severance pay); **the average number of employees (FTE)** climbed in 2010 from 97.35 up to **103.73 persons**. Thus, the **average wage** reached in 2010 a mere **17,485 CZK**, this resulting in the decrease by 1,234 CZK compared to the preceding year. In contrast, the average salary throughout the Moravian-Silesian Region amounted to 22,043 CZK within the same period of monitoring.

The increase in 2010's **accounting depreciation costs** (a total of 10,144 thousand CZK) was mainly due to the fact that the newly constructed buildings were included in the organisation's assets and depreciation of these began. This involved structures like aviaries for the sea eagle and the golden eagle, the Chitwan complex (i.e. house of bears, langurs and other animals), buildings within the horticulture department, renovated petting yard etc.

Furthermore, the costs and services were affected by events such like a reduced support from the Ministry of Environment's funding scheme, which caused the costs to decrease by as much as 30%, continued sustaining the two projects focused on zoo's publicity and supported from the SROP scheme, implementing the Returning the Golden Eagle to the Czech Republic project, and creating a reserve of approximately 1.8 million CZK due to the yet unfinished litigation which has been underway since 1994. Factors determining the last year's financial operations included a calamity that affected the zoo area in early spring 2010 in the form of persistent rain, waterlogged and fallen trees, which necessitated closure of the garden for the public and removal of considerable damage.

Figure 7. Structure of zoo's expenditures, 2008-2010



Capital operations

The **Statutory City of Ostrava**, i.e. the organisation's owner and founder, continues to be a major source of capital funding. With funding amounting to 49,675 thousand CZK received in the form of new capital grants and 32,961 thousand CZK received in the previous years but not yet spent, which the zoo was allowed to utilise, the amount of capital funding made available to the zoo in 2010 reached **82,636 thousand CZK**, of which the team managed to invest over CZK 51,559 thousand.

This permitted the organisation to fund the following operations:

- Development of an energy audit and project documentation to carry out thermal insulation of particular buildings and structures and to produce an energy master plan; 706 thousand CZK co-funded, of which 423 thousand CZK were spent;
- Development of additional stages of the project documentation, i.e. building permit documentation, tender dossier and implementation design, for the project entitled Reconstruction and extension of the aquatic bird house and conversion into the House of Evolution ; 4,415 thousand CZK co-funded, of which 0 thousand CZK were spent;
- Implementing the sewerage of three sites with sewers not opening into to the central wastewater treatment plant; 6,747 thousand CZK co-funded, of which 1,854 thousand CZK were spent;
- Implementing the project entitled Reconstructing the hippo house to support alternative sources of energy. The budgets co-funding the project comprise not only the one of the founder, but also the sources of EEA and Norway Grants, which roughly amounts to 17.5 million CZK. The grant awarded by the zoo's founder serves to pre-finance and co-fund eligible costs as well as to fund deductible expenses; implementing the project would be impossible without this support. The capital grant extended by the SCO amounted to a total of 36,500 thousand CZK, of which 26,550 thousand CZK were spent. The good quality achieved in

developing the monitoring reports enabled 120 thousand CZK being returned from the EEA and Norway granting scheme to the SCO's budget still in 2010. Any other refunding is to be based on the subsequent monitoring reports being submitted during 2011;

- Thermal insulation of the education centre, implementation of the first out of three stages; 1,427 thousand CZK co-funded and spent in full.

In addition, unused funds from previous years were invested during the year within the following operations:

- Completion of the second largest capital project in the zoo's history - the Chitwan complex of exhibits for bears, langurs and other animals;
- Completion of an extensive renovation of the At Farm block (petting yard);
- Continued design activities involving four new projects - tiger outdoor enclosures, a new pass-through safari park, zoo office with the main entrance area and penguin & seal exhibit;

After three years from the date of application, the **EEA and Norway grant of 691,307 EUR** was finally awarded, this representing co-funding amounting up to 85% of eligible costs to cover the Reconstructing the hippo house to support alternative sources of energy project, which largely involves capital costs, whilst a part of the budget, i.e. 3,303 EUR, is to cover operating expenditure related to project publicity and mutual cooperation with the selected partner from Norway. Since the funds are paid after approval of the monitoring report for each period, this resulting in quite a considerable time delay in payments, only a small portion of money, more specifically 120 thousand CZK, was refunded during 2010 out of a total of maximum 17.5 million CZK to be granted. The remainder of the eligible project costs is to be refunded in 2011.

As regards the Cross Border Cooperation Scheme Slovak Republic - Czech Republic 2007-2013, where the zoo focused on implementing the Returning the Golden Eagle to the Czech Republic project, capital costs spent the year before to construct two aviaries for endangered native fauna species, i.e. the sea eagle and the golden eagle, were refunded based on approved monitoring report. This was funding received from the budget of the **Ministry for Regional Development** (78 thousand) and the **European Regional Development Fund** (1,347 thousand). Subsequently, the amount was returned to the founder, who had helped to pre-finance and co-fund the project costs.

As regards the budget of **Moravian-Silesian Region**, efforts to get any earmarked investment grant failed compared to previous years.

Please read more on each of the projects in the chapter entitled Design, development and maintenance that can be found in this Annual Report.

In addition to the sources listed above, there are also resources available **in zoo's own capital fund**. These mainly comprise received earmarked donations as well as founder's allocation to cover accounting depreciations of movable assets. These funds are quite essential for the zoo to be able to work in an operative manner. A total of 2,460 thousand CZK invested from this source in 2010 has enabled the zoo to implement urgent measures very promptly and without any complicated and time-consuming paperwork, to which the

organisation would normally be facing with granting schemes; this allowed for instance necessary safety arrangements at the elephant house in connection with expected births in both elephant females, alterations to the old section of the hippo house due to relocation of the animals throughout the period of reconstructing their indoor quarters and the house alone, etc. The same source was used for funding the interactive model of a cow placed in the petting yard and a number of other activities.

The functioning and development of the organisation is something that takes place with a very significant involvement of sponsors and donors. This is not a commonplace and getting new donors is backed by a giant piece of work by many of zoo's staff members. All the donors who have decided, despite the administrative and time-consuming step in the form of written approval of each donation by the City Council, to continue to support the zoo, are greatly appreciated. Their interest in the zoo's activities was outstanding, be it companies, organisations, foundations, but even small donors - individuals or groups of students. The sum of **financial donations** thus eventually reached incredible **2,845 thousand CZK!** Donors focused on supporting animal management operations and additional equipment of children playgrounds, getting educational models (e.g. electric power line poles), and even construction of new displays, like the Papua exhibit in the premises of the education centre and development of design documentation for the new bird aviary, etc. The two public money collection operations have continued in 2010, of which one was focused on getting a project documentation and subsequent construction of an aviary to hold endangered cinereous vultures (this being underway in the form of money collection boxes placed throughout the zoo grounds), while the target of the other was to improve welfare of animals held at the zoo (funds raised via SMS donations).

Besides financial donations, a number of invaluable and much-needed material donations were also obtained, these including a new website, new learn&play components for visitors and the like.

We thank all those listed below as well as the vast number of anonymous donors and supporters for their favour.

Noris Czech Republic, s.r.o.; Nadace OKD; Komerční banka, a.s.; web-evolution; Nadace CEZ; KR Ostrava a.s.; Svatava Siroka; Primary School, Školní St. 862, Orlova; Česko - britská základní škola, školka, Jesle Monty (primary and nursery school); Sandra and Tobias Zapletalovi; CEZ distribuční služby, s.r.o.; Primary School, Dvorského St. 1, Ostrava; Primary and Nursery School, Ostrčilova St. 1, Ostrava; Vitkovické slevárny, s.r.o.; CK Vitkovice Tours, s.r.o.; CS a.s., staff of the pricing policy department 8310 - Management of passive accounts; MUDr. Liana Jasová; Primary and Nursery School, Cs. Armády St. 1026, Bohumín; Pavla and Jan Kurkovi; Vzdělávací centrum Morava, s.r.o.; Foto Morava, s.r.o.; Emil Micovský; Zdravá školka Ostrava; Ludmila Nováková; Primary School, Gorkého St. 1, Havířov; Secondary School, Sykorova St. 1, Havířov; Primary School, Na Nabřeží St., Havířov; Primary School, Zelená St. 2, Havířov; Primary School, Školní St. 1/814, Havířov; Primary School, U Lesa St. 713, Karvina; Secondary and Vocational School of Transport, Moravská St. 2/964, Ostrava; Primary School for Students with Special Educational Needs, Aviatiku St. 462, Ostrava; Primary and Nursery School with Polish as learning language, Nadrazní St. 10, Trinec; Primary School, Dobra St. 860; Primary and Nursery School, Mozartova St. 9, Ostrava; Primary School, Chrástova 24, Ostrava; Secondary School of Chemistry, Akademie Heyrovského St., and Grammar School, Středoskolská St. 1, Ostrava; Primary School, Školská St. 432, Karvina; Wichterlovo gymnázium (grammar school), Cs. exilu St. 669, Ostrava; Primary School, Sokolovská St. 11, Oldřisov; Primary School, Jirího z Poděbrad St. 3109, Frydek - Mistek; Ing. Jirí Zapletal; Primary School, U Krize St. 28, Ostrava; Petr Tureček; staff of the Zverokruh company; Jirí Garnol; JAROS CZ, s.r.o.; Primary School, Ke Studance St. 1050, Orlova; Pavel Novák; EUROTRADE IMPORT - EXPORT, s.r.o.; Katerina Janstová and others.

Table 1. Costs and Revenues 2009-2010 (thousand CZK)

INDICATOR	2010	2009	Difference against 2009 +/-
Materials used	10 784	11 937	-1 153
of which feedstuffs	4 441	4 307	134
medical products, veterinary materials, feeding supplements	269	498	-229
purchased plants, fertilisers and seeds	119	275	-156
small long-term tangible assets (above 3 thousand CZK)	794	1 257	-463
animals purchased	414	380	34
other materials used	4 747	5 220	-473
Utilities	8 662	8 880	-218
of which electricity	5 207	5 697	-490
natural gas and LPG	2 649	2 354	295
water	806	829	-23
Cost of merchandise	137	145	-8
Services purchased	8 602	11 166	-2 564
of which maintenance and repairs	2 473	5 013	-2 540
travel expenses	362	338	24
presentations	34	44	-10
veterinary examination and analysis	466	502	-36
waste disposal	548	515	33
other services	4 719	4 754	-35
Personnel costs	30 367	29 940	427
Of which Salary costs	22 092	22 060	32
Mandatory social and health insurance	7 482	7 129	353
Other personnel costs	793	751	42
Taxes and fees	21	21	0
Depreciation of long-term assets, intangible and tangible	10 144	8 366	1 778
Provisions, adjusting entries	1 776	1 769	7
Other costs	530	629	-99
Total costs	71 023	72 853	-1 830
Service revenue	26 292	25 421	871
of which admission fees	22 398	21 827	571
advertising fees	1 396	1 227	169
rental fees	1 188	1 111	77
other services	1 310	1 256	54
Merchandise revenue	191	197	-6
Revenue from sales of materials and feedstuffs	344	433	-89
Sales of animals	409	333	76
Other revenues	260	597	-337

INDICATOR	2010	2009	Difference against 2009 +/-
Own revenues (excludes revenues from uncovered accounting depreciations)	27 496	26 981	515
Uncovered accounting depreciations	9 088	7 626	1 462
Allocation for operations	34 856	39 013	-4 157
of which founder's allocation	30 946	34 416	-3 470
MoE, Labour Office, EU funds	3 910	4 597	-687
Total revenues	71 441	73 620	-2 179
Profit/loss (profit)	418	767	-349

Table 2. Assets and liabilities, 2010 (thousand CZK)

Total assets	630 154	Total liabilities	630 154
Long-term tangible & intangible assets	644 167	Equity	513 158
Accumulated depreciation and amortisation	-108 443	Financial and monetary funds	40 227
Inventory	7 188	Profit/loss (profit)	418
of which animals	6 769	Provisions	12 416
Receivables	1 091	Short-term liabilities	63 345
Financial assets	57 026	of which interim payments of allocation received	48 248
Temporary accounts of assets	29 125	Temporary accounts of liabilities	590

Zoo developments

Stanislav Derlich, Petr Čolas, Pavlína Konečná

Capital projects completed and launched

Two most important capital operations that were gradually made available to the public in 2010 are the **Bear and Langur Exhibit** called **Chitwan** and the project entitled **Renovating the Children's Zoo**.

Chitwan Exhibit with costs totalling 66,619 thousand CZK was funded thanks to the earmarked grant of the Statutory City of Ostrava (SCO). It is a world rarity in that it features primates, i.e. the entellus langur, and Asian black bears in a mixed-species exhibit. A state-of-the-art display and breeding complex, it particularly encompasses an extensive outdoor enclosure employing natural forest settings, plus there is an indoor facility. The new premises have essentially improved housing conditions of the animals. Staying in the vast outdoor enclosure gives the animals a habitat that is very similar to that in the wild. The existing natural grounds in the enclosure have been maintained, including streaming water and a small lake. There is a forest with fully grown trees stretching almost throughout the enclosure, and the highly rugged ground provides to the animals a wealth of opportunities to exercise their moving skills. The zoo visitor has the opportunity of watching the animals in a natural habitat as they range in the forest vegetation and in trees as well as in the lake. To make this even more comfortable, the amenities include five viewing platforms with different types of architectural design, some of which add value to the sightseeing experience by employing a wooden access bridge. Water areas were mostly integrated into the cascade of lakes with streaming water forming rapids and waterfalls, which makes another refreshing component. In addition, the central viewing platform contains two large freshwater aquariums. Before one enters the area, there is an outdoor enclosure for Asian small-clawed otters with a pool and a sophisticated filtering system, thanks to which the animals can be watched as they dive under the water level. The facility is complete with a children's playground containing elements for the kids to play and have fun, as well as the much-needed social facility including toilets for physically challenged persons. Obviously, this extensive project includes not only the sections listed above, but also necessary mains and service lines including drinking and service water supply, power and communication installations, sewerage system, wastewater plant and water management system, vast landscaping and gardening work and even outdoor lighting that this part of the zoo had been lacking. Thanks to the development of this modern housing and display facility, the attractiveness of the zoo has increased, plus the visitor is now offered the opportunity of watching the animals in a natural habitat.

The **Renovating the Children's Zoo** project aimed to enhance attractiveness of the central part of the zoo grounds. The long-term state of disrepair of many parts throughout the existing area required an immediate action. The extensive process of redesigning provided a good starting point for adding new attractive forms to the collection of domestic animals, enabling the zoo to bring in several breeds of cattle, domestic pigs, diverse rabbit breeds and the like during the year. The project further incorporated a farm building - a large stable with visitor access, as well as water and power supply and sewerage mains, elements for kids to play with, park furniture and extensive landscaping and gardening work. As this section of the zoo had been lacking social facilities for visitors, they now form part of the exhibit as well, which of course is again complete with toilets for disabled persons, the fourth addition of this kind in the row. By the way, this type of

toilets counted zero throughout the zoo grounds by 2004. Total costs to complete the operation amounted to 14,521 thousand CZK, with funding provided from earmarked grants of the SCO.

Trial operation of the boiler plant burning wood chips was underway in 2010. The plant is part of the project entitled **Botanical Park development, phase 2: Technical background for horticulture**, where final acceptance is scheduled to take place once the 2010/2011 heating season has been over, i.e. anywhere in March or April 2011, whilst the glasshouses and other parts of the horticultural background have been serving their purposes since the late 2009. Total costs of the construction including designing and preparatory work, this incorporating procurement of essential technology equipment such as a wood-chipping machine, hydraulic crane, tractor (the Zetor brand) and a wagon, amounted to 44,609 thousand CZK. Funding for the development was provided from earmarked grants of the SCO. The completed works have replaced the old glasshouse from the late 1950s with two state-of-the-art planting glasshouses used for plant propagation and for subtropical plants and other facilities required for the function of botanical part of the zoo, like a shaded glasshouse, seed-bed, container facility and boxes or shelters for machinery. The constructed technical background for horticulture will allow the very promising process of development of the Ostrava Zoo's botanical part to continue, with establishing the Zoological and Botanical Gardens of Ostrava being obviously the clear and ultimate aim. Inevitable parts of the project include the already mentioned biomass-fuelled boiler plant and a chipping facility including a store with the capacity of 920 m³, the former being the very means to help cut the ever-increasing costs of fossil fuels and facilitate the desirable increase in the percentage of renewable sources of energy. In addition, the project is in line with the principles of sustainable development. The design work within the project includes roads, water and power supply mains, heating system mains, sewerage, a large rainfall pit and a fence. Located behind the scenes, this set of buildings is to be essential for zoo's operations.

The **Hippopotamus House** underwent an extensive and challenging redesign process in 2010, with the aim to improve thermal conditions for the animals housed, provide better environment for visitors by reducing the excessive smell indoors and cut the extreme energy demand of the existing house and its operations. So far the most complex project in the zoo's history in terms of technology, logistics (relocating the animals into another zoo was impossible) and funding (EEA and Norway funds combined with allocation from founder's budget), the work comprised items like replacement of the roof (state of emergency), the entrance gate that lacked any insulation and a part of the building envelope, plus insulation of the house was renewed, etc. Key sections of the works included changing the heating system within the entire facility through replacing electricity as the source of heating by renewable sources of energy, namely wooden pellets, and implementing at least a simple water filtering system in the hippo pool. All of the measures above are to make the operation of this animal and visitor complex providing housing for Ostrava Zoo's flagship species much more reasonable and efficient, thus contributing to saving water, energy and human work to a great extent. The project is also to improve the overall aesthetic design of the house, including creating a large crocodile exhibit and an aquarium. A project dossier was acquired as early as 2009 and an application for funding submitted to the EEA and Norway grants, with capital costs amounting to a total of 1.2 million CZK spent in the same period. To be able to implement this project of which energy saving and sources of renewable energy are the main business, with total costs estimated at 36.5 million CZK, Ostrava Zoo managed to receive an amount of roughly 17.5 million CZK from the financial scheme mentioned above, with the remainder making 19 million CZK to be covered from the SCO's

capital grant. Actually, the house redesign process already started in 2010, when the total construction costs for that year reached 35.5 million CZK. Given the need to get the animals settled in their new environment, the expected deadline for opening the new exhibit for visitors is during April 2011.

In November 2010, the zoo launched an investment project entitled **Sewerage of sites with sewers not opening into to the central wastewater treatment plant**. A long-awaited and much-needed investment for the zoo operations, the project covers sewerage and treatment of wastewater from facilities, from which fouled water had been discharged directly into water courses. This involves the places nearby the area of the zoo entrance including zoo office and the lower part of the zoo with safari and aquatic bird houses, plus it partly covers the central part of the zoo grounds. Total costs minus design work are covered from the capital grant amounting to 5.7 million CZK awarded by the SCO. A total of 2,397 thousand CZK were spent in 2010 and the estimated deadline for completion is spring 2011.

An important event of the last year was also the construction and completion of a new exhibit called Papua New Guinea, with total costs including development of a project dossier amounting to 2,571 thousand CZK. This project was funded by organisation's funds and donations, of which the most significant achievements included 810 thousand CZK from the foundation Nadace OKD, 150 thousand CZK granted by the foundation Nadace CEZ and 175 thousand CZK provided by Komerční banka, plus there were sums accumulated from donors giving minor amounts, for example the public collection announced raised 559.8 thousand CZK. Papua Exhibit is to present visitors the tropical biodiversity of this less-known remote island, adding creatures to the range of zoo schemes that the collection had been lacking - in particular members of reptiles and fish.

The list of large 2010's capital projects that were completely managed by the zoo personnel is complete with the phase 1 of the thermal insulation work at the Education Centre (i.e. public relations department). Launched in autumn, this included replacement of windows. Funded in full by an SCO's grant, it is the largest-ever heat insulation project in the zoo's history aiming of course in reducing the cost of increasingly expensive energy. The total capital costs paid amounted to 1,520 thousand CZK.

In August 2010, the project of **gasification of the zoo grounds** was started, with a total cost of approximately 10 million CZK. The funds are covered directly from the SCO's budget, with the City Office's Department of Investment being the investor of the operation. Connecting specific buildings and structures, which includes houses for carnivores, primates, hippos, parrots and the house for education, to a gas heating system will bring significant savings of funds in the years to come, as the existing facilities are now heated by highly expensive electric energy. The replacement of electricity by natural gas will also reduce CO₂ emissions. Estimated deadline for completion is spring 2011.

Other worth-mentioning updates throughout the zoo grounds or behind the scenes namely include the following:

- Improving the overall aesthetic design of the Indian fauna house (a former house for large carnivores) by creating a naturalistic floor cover resembling a ground in primary forests and installing interactive elements; funded by donors, such as from a 100,000 CZK grant successfully awarded by the foundation of Nadace CEZ, of which a total of 58.5 thousand CZK was used for the purpose), and co-funded from own

organisation's resources;

- Adjusting the rhino exhibit to a temporary facility for hippos due to the ongoing reconstruction of the hippopotamus house; covered by zoo's capital funds amounting to a total of 124 thousand CZK;
- Alterations to the elephant house due to expected births of two elephant calves; covered by zoo's capital funds amounting to a total of 381 thousand CZK;
- Repairing specific roads within the botanical trails, including the partial stabilisation of the slope in some places against water erosion; covered by own funds amounting to a total of 232 thousand CZK;
- Repairing electrical installations at the quarantine facility; covered by own funds amounting to a total of 64 thousand CZK;
- Totally refitting electrical installations at the Indian fauna house; covered by own funds amounting to a total of 199 thousand CZK.

In addition to the above, a considerable number of other operations were underway, with however any detailed description being beyond the scope of this annual report.

Capital projects expected to commence in 2011

- A capital operation entitled **Fishing lake #1: Mud removal and lake alterations** will be underway in 2011 and 2012, with total project costs amounting to CZK 16,045 thousand, when 2,070 thousand CZK will be provided by the Operational Programme Environment (OPE), while the remainder amounting to 13,975 thousand CZK will be covered by an SCO's grant. The project activities involve removing mud from the lake, extending the water area with a littoral zone added and treating eroded parts of the lake sides and dykes. To enlarge the lake water surface area by adding littoral zones, the main drainage sewer of the lake, which corresponds to the bed of the former stream, will be extended and deepened. The sediment removed will be used for setting up new islands and expanding the existing ones. . Additionally, creating new islands will help implement favourable measures in terms of landscape and ecosystem diversity; it will also increase the retaining capacity of the landscape, plus it will preserve and restore natural runoff conditions. Two existing islands will be enlarged and interconnected by footbridges, with lemur exhibits to be set up in the area as part of visitor route, plus there will be a new island created and separated from the existing island areas; this third island will be reserved for gibbons and stocked once the newly planted vegetation has reached sufficient size. Another pair of new little islands will be interconnected with the adjacent banks and with each other by three footbridges, enabling the visitor to access directly and view the entire habitat. The islands are also placed to form a natural barrier between the sika deer enclosure and surrounding unfenced part of the lake. The works will include new fencing for future crane and sika deer enclosures, with a wooden hay-barn to be constructed for the Vietnamese sika deer, a critically endangered species.
- An extensive and challenging capital operation will be underway during the period 2011-2012. Called **Visitor and Conservation Education Centre**, this will add a new environmental education facility and a restaurant to the existing zoo grounds. The project will make use of the area of former restaurant, a facility that had served the public before it was destroyed in 2007, leaving Ostrava Zoo to be the last remaining animal park in the country that lacks a catering facility operated all the year long. Visitors can now use for eating only fast food kiosks that however cannot serve as a base for rest and shelter from rain and cold in bad weather, which is an awkward fact that has been giving grounds for complaints of zoo guests over

the long time. The development of the Visitor Centre facility will be implemented in accordance with the principles of sustainable development. Constructed from environmentally friendly materials, it will use renewable energy sources in its operations. The output will be a low-energy building, the running of which will make use of solar energy, both passive and active, with renewable wooden biomass serving as fuel for heating. These elements will also be used for educational purposes. Storm and foul sewers are designed to connect to the existing sewerage and wastewater treatment plant in the zoo grounds. Once finished, the Visitor Centre will allow extending the existing education area, complete with a rest zone including places for playing and interactive elements for children dedicated on topics related to water protection. On 28 June 2010, Notice of the project selection to execute a contract was issued, meaning that the project was approved and received funding from ROP NUTS 2 Moravia-Silesia, the area of support 2.2 Development of tourism, the sub-area 2.2.1 Construction, restoration and modernisation of tourist infrastructure, services and tourism attractions. Total project costs amount to 79,821 thousand CZK, of which Regional Operating Programme's grant is 67,570 thousand CZK, while co-funding by the SCO makes 12,251 thousand CZK.

In 2010, a project preparatory phase was launched, underway or completed for the following operations:

- Work continued on development of the building permit documentation for the works entitled **House of Evolution**, with costs of development of all dossier sections for this new house covered from capital grants that were awarded from the SCO's budget, which totalled 5,224 thousand CZK; by the way, the site planning dossier was produced back in 2009 thanks to funding that was made available, so another 810 thousand CZK could be spent. The project covers converting the old aquatic bird house into a state-of-the-art exhibit for chimpanzees and some other African species; the new house will be designed as a combined interactive learning exhibit and animal breeding facility. During 2008, this operation was included into the Integrated Development Plan of Ostrava City (IDPOC). In 2010, a major portion of the building permit documentation was developed, with project implementation documentation and a tender dossier to be finished by the mid 2011.
- A project preparatory phase completed for the capital operation entitled **Education centre: thermal insulation and energy savings**; the same continued for the follow-up project entitled **Papua Aviary** to be adjoining the existing education centre based in the central part of the zoo next to the primate house. Designed as a walk-through exhibit, the aviary is to introduce medium-sized parrot species to the visitor, bringing the animals and the public into immediate contacts. The other project involves the zoo's existing education and training facility, which also serves as a place of contact with the general public.
- The process of updating the dossier for the project entitled **Exhibit and a wetland ecosystem - treatment of the fishing lake #5** was underway, with amended requirements of AOPK being the grounds for changes to the initial design, one already completed; the institution mentioned earlier is a receiving and assessing body for funding applications within the given operating programme (i.e. Environment). This project modification may subsequently increase the chances of success of the application. The project aims at improvement of the existing area by converting it into a system of lakes, small ponds, marshes and wetlands, this resulting in increased biodiversity of the landscape and subsequent opening of the territory

thus created in form of a nature trail with interactive boards (and other elements) familiarising visitors with the need to protect biologically valuable areas. The trail will also be used within education programmes for schools.

Project documentation was developed for thermal insulation and energy saving at seven particular facilities throughout the zoo, including alternative solutions in relation to the financial costs and rate of return. At the same time, work on a comprehensive institution's energy-saving master plan commenced, with expected deadline in early 2011. Total costs to complete both operations amount to 703 thousand CZK, with funding provided from an earmarked SCO's grant.

In 2008, the zoo managed to get a capital grant from the SCO's budget to develop several important projects. This financial support exceeding 11,343 thousand CZK enabled opening subsequent project preparatory phases for each of the four projects mentioned below. The current status of these projects can be outlined as follows:

The Safari Park Project development costs based on the public tender amount to 2,356 thousand CZK. The project intends to develop a safari exhibit, a fenced outdoor enclosure with animals ranging free throughout a large territory. Visitors will be riding through the enclosure using mobile means of transport, which will allow them to watch the wildlife running around while staying in close contacts with the creatures, thus imitating feelings of moving through wild areas amidst exotic animals that can be watched in their natural habitat and very near to the people. This kind of presenting the animals in zoos is highly attractive, making the visitor able to move throughout the open grounds and eliminating the negative feelings caused by fenced exhibits. During 2008, this project was included into the IDPOC scheme, Particular stages of processing the project dossier have been underway since 2009, with the site planning documentation amounting to 357 thousand CZK developed earlier in 2009 and the building permit documentation as well as a tender dossier completed subsequently in 2010, thus achieving a total of 1,344 thousand CZK invested successfully so far.

The Penguin and Seal Exhibit Project development costs based on the public tender amount to 3,511 thousand CZK. Particular stages of development of the project dossier have been in progress since 2009. The new exhibit is to replace the existing old bear facility, which is a concrete structure made in 1960 and resembling a military bunker. Located in the central part of the zoo, this facility has failed to comply with any of the recent animal husbandry standards a long time ago. The planned penguin and seal exhibit will present a mixed-species exhibit of these spectacular animals that owing to their behaviour and activity have always attracted zoo visitors' attention regardless of age and social background. These animals can be seen in most of zoos over long periods of time, and their exhibits are amongst much-sought attractions.

The Tiger Exhibit Project development costs based on the public tender amount to 1,216 thousand CZK. The existing tiger enclosure is a small iron cage. Designed in the spirit of the 1960s, this facility is not only dilapidated and far below any aesthetic standards, but even fails to comply with the recent animal housing concepts in terms of husbandry and welfare. The structure has even failed to meet basic tiger housing standards. What's more, with increasingly stricter requirements for keeping animals in captivity, Ostrava Zoo is sure to terminate its tiger collection within several years without developing an up-to-date breeding facility, as no established

zoo institution would permit relocating its animals to sub-standard housing conditions. Therefore, clearing this old facility and constructing a new one will be the only option. Compared to the existing status, the new tiger exhibit has been designed to be fully integrated into the natural landscape, with minimum requirements to build anything above the ground. Such solution brings the visitor the alternative of viewing the animals in their normal habitat: a broad-leaved forest with fully mature trees. Particular stages of processing the project dossier have been in progress since 2009, with the site planning documentation amounting to 438 thousand CZK developed earlier in 2009 and another phase completed subsequently in early 2010, which was building permit documentation amounting to 355 thousand CZK. During the process of development, the project was extended with a walk-through aviary called The Ussuri.

The zoo office and main entrance Project development costs based on the public tender amount to 3,192 thousand CZK. The existing main entrance and the zoo office had failed to comply with the recent needs of the zoo operations a long ago. The technical conditions and spatial arrangement of the main entrance are insufficient for handling the recent visitor numbers in a cultivated manner. The zoo's office - a system of interconnected portable building site cabins was built as a temporary facility in the 1960s, and has almost reached the limits of its service life. It is unsatisfactory in terms of space; in addition, the energy demand of the facility is enormous. The shortage of places in the visitor car park is another critical issue. There are no facilities for holding presentations and lectures. In order to address operational issues and save money, both facilities will be erected on the site of the existing main entrance structures and interconnected in terms of operations. The project also covers a car park in front of the entrance area, with 136 visitor parking spaces to be set up in the adjoining territory, some of which had been in use as a temporary car park. The service building will be a two-storey facility to contain offices, service entrance, ticket offices, social facilities for the horticulture department members, i.e. gardeners, and offices for other departments of the zoo. The project also incorporates a staff meeting room, presentation room with background premises, a large zoo shop and visitor toilets including those for physically challenged, and even a facility for mothers with small children. Particular stages of processing the project dossier have been in progress since 2009, with all phases of the project documentation, i.e. site planning and building permit documents, tender dossier and implementation design, completed in 2010. Capital costs spent in the period amounted to a total of 3.133 thousand CZK. The team also managed to get a building permit, so the work can start once funding has been secured.

Education and publicity

Šárka Kalousková a Jan Pluháček

Education at the zoo

In 2010, Ostrava Zoo education centre staff members performed 227 education lessons attended by 5197 children, including 26 sessions for 629 children from nursery schools and 201 lectures for 4568 students from diverse schools throughout the Moravian-Silesian Region.

In the school-year 2010/2011, five new education schemes were added to the existing range:

- Playing with eagles - a programme for nursery schools and primary schools, grade 1;
- Like a fish in the water and Elephant life - two programmes for primary schools, grade 2;
- Eagle speaking! - A programme for secondary schools.

The series of specialist lectures for the public called The News from the World of Zoology continued the fifth year in the row under the management of Ostrava Zoo's scientific officer, with a number of invited experts from the zoo and other institutions throughout the country and a total of 11 presentations attracting 371 persons.

On the summer holidays, there were three stays within the summer school scheme that focused on top predators - carnivores and birds of prey.

On 11 November, a Czech premiere of the Slovak documentary entitled Return of the lynx took place at the Education Centre. The film is part of the Carpathian lynx reintroduction project, which is now underway in the wild in the territory of Velka Fatra, Slovakia. The document serves within a targeted media campaign to draw attention to the declining numbers of these rare carnivores in the wild by providing insight into their way of life in that it features two young Carpathian lynxes Liza and Muro as the main characters. Born at Ostrava Zoo in May 2008, these animals were donated to the Slovak colleagues for the filming purposes.

Education outside the zoo grounds

2010 was for the Ostrava Zoo team members another year of covering in full the teaching part of the Behavioural Ecology subject at the Natural Science College of the Ostrava University (12 lectures). A full-day field class was also organised at Ostrava Zoo on 6 May 2010 within the subject above, with 27 students participating. Upon request, the lecture on research in hippos and rhinos was presented in November at the Natural Science Faculty of Masaryk University in Brno. In addition, there was ongoing work as primary supervisors within three bachelor's and master's theses of candidates studying at the natural science faculties in Ostrava and Ceske Budejovice as well as at Institute of Tropics and Subtropics of the Czech Life Science University, Prague.

Lectures and presentations outside the zoo grounds were held in public libraries, senior homes and children departments of hospitals in the cities of Ostrava, Opava, Havířov and Nový Jičín. There were a total of 33 events attended by 628 persons.

The zoo presented themselves at the celebration of the Earth's Day organised by the Statutory City of Ostrava held on the street of Hlavní trida in Ostrava-Poruba.

Conference for school teachers

In December, the conference entitled Involvement of Zoological Parks in Conservation Education took place at the zoo already for the fourth time. Designed for directors of schools and educational institutions, conservation education coordinators, natural science teachers, managers of natural science clubs for children and youth and other persons interested, this event was co-funded by the Ministry of Environment of the Czech Republic as in the previous periods. In addition to the local zoo personnel, papers were presented by the representatives of the City Office of Ostrava, Regional Office of the Moravian-Silesian Region, the Ministry of Environment and other experts. 69 region's professionals in education participated in the conference.

Competitions

In April and November, two traditional learning contests for primary and grammar schools were organised in cooperation with Kruh přátel zoo (Friends of the Zoo). The spring cycle with 1510 children participants focused on woody plants of the Czech Republic, while the autumn part was entitled Songbirds of the Czech Republic and attracted 2765 children. Over 100 schools throughout Moravian-Silesian Region became involved in each of the contests. In September, the zoo held a new competition for younger primary school students. Entitled Grand Prix for small zoologists, the preliminary year of the contest focused on forests and attracted 250 children from 17 schools throughout the region.

Friends of the Zoo

The society had 48 members in 2010, with a number of them participating on the development and organisation of the events for the public held by the zoo throughout the year.

Promotion and publicity

- Circulating media releases at least weekly to over 50 regional/national media, and on a periodical basis to some 3000 subscribers within the News from Ostrava Zoo mailings, which incorporates editors of bulletins of cities and communes throughout Moravian-Silesian Region, regional celebrities and private persons;
- Routine TV reports in the Good Morning show in the partnership with the Czech National TV;
- Routine reports in the We Like Animals show in the partnership with the Czech Radio Ostrava
- Posters entitled Winter at the Zoo, Spring at the Zoo, Summer at the Zoo and Autumn at the Zoo placed at much-frequented sites within Ostrava and distributed to public libraries, information centres and other organisations and institutions in Moravian-Silesian Region;
- Large-area advertisements in cities and communes throughout the region: seven billboards placed on the main arrival routes to Ostrava (installed from April to July), 18 advertisement boards installed on metal supports, 10 boards and 3 advertisement sheets located on gable walls;
- Information panel at the zoo promoting all member zoos of the Union of Czech and Slovak Zoological Gardens (UCSZ), the same panel is placed in other member zoos as well;
- Advertising campaign in Futurum Shopping Centre - large-size sheets with animal photos dislocated, a botanical showroom and boxes for transport of felines displayed and three lectures given to the shopping centre visitors;
- Advertising campaign in the regional media along the Polish side of border (June to August) - spots in Polish radios and TV, impact on 4.5 million residents;
- Processing materials for the 2010 Annual Report of the Union of Czech and Slovak Zoos;

- Processing materials for the zoo's 2010 annual report;
- Presenting Ostrava Zoo at the 7th TUR Ostrava 2010 (a conservation and environmental film festival) on 28 April;
- Distributing promotional materials of Ostrava Zoo to town information and tourist offices throughout the region.

New website

In August 2010, Ostrava launched their new Internet site. Found at www.zoo-ostrava.cz, it boasts a fully new layout, plus new sections were added. For example, there is „The Elephant Diary“ dedicated to the zoo's elephant stock, which not only provides more details on their daily routine, but also keeps track of the progress in two pregnant females, Johti and Vishesh. Also new is the opportunity to download a free zoo guide for cell phones, join a poll, browse an image gallery and become attracted by the fresh news as highlighted by eye-catching graphical banners. The site has been produced by web-evolution, an Ostrava-based company. The work is greatly appreciated as it was supplied free of any charge.

Displays

Outside the zoo grounds

- Ostrava Culture Centre, Akord Culture Centre Ostrava, Ostrava Town Library - the departments in Fifejdy and Vyskovice districts;

The house of African hoofed mammals at the zoo:

- A display dedicated to the Returning the Golden Eagle to the Czech Republic project.

Inside the Indian fauna house, there was the permanent display entitled Coexisting with Large Carnivores and produced under financial support of the Czech Ministry of Environment.

Public events

A total of 23 events for the public were organised by the zoo's public relations department alone or in collaboration with other parties in 2010, each taking place on the occasion of some important day; most of them were arranged in cooperation with the group of zoo volunteers. A list of featured events:

- 14 February: St Valentine's day at the zoo - entrance fee discount for couples in love;
- 5 April: The Day of Birdlife - competitions for children, display of eggs and bird taxidermy specimens, a tour of the zoo guided by an ornithologist, installation of nest-boxes;
- 18 April: The Earth's Day - a day for biodiversity;
- 4 July: Start Your Holidays at the Zoo and Take Your Veteran Too - everybody bringing an old used electric appliance could get a special discount on the entrance fee;
- 25 July: When Animals Are at Play - a day of environmental enrichment at the zoo;
- 3 September: European Bat Night;
- 19 September: The Seniors Day - cinema for contemporaries;
- 4 October: The Animals' Day - an event focused on conservation of large birds of prey;
- 11 October: Harvesting the fishing lake
- 31 October: Halloween and a paper lantern parade at the zoo;

- 5 December: Santa at the Zoo
- 19 December: Decorating a Christmas tree and performing a live Nativity Scene at the zoo - a traditional event involving hanging goodies for the wildlife ranging free at the zoo combined with carol singing.

Narrated animal feeding shows for visitors featuring particular species were underway on weekends from March to October and on a daily basis from May until the end of August.

Evening guided tours at the zoo

Every Saturday throughout the summer holidays, evening guided tours were available for visitors after closing hours. As these reached a good rate of visitor interest, the scheme was extended until mid-September. Since November, the zoo launched guided tours on specific themes, which was taking place on a monthly basis except for the Christmas period (two events organised).

Winter at the zoo

In the winter, visitors were allowed to give supplemental feeding to the birds ranging free throughout the zoo grounds. Good snow conditions permitted reopening the cross-country ski trail, which was used by 240 skiers.

Updates within the zoo's information system

A total of 21 new information boards were erected at the zoo in 2010, plus three new interactive areas were installed, these being called Owl Tree, Owl's Corner (presentation of Ostrava barn owl and little owl conservation projects) and High voltage pylons and bird protection. The elements that came into being thanks to the financial support of the Czech Ministry of Environment are designed to provide means of discovery through entertaining and interactive approach, encouraging the kids and adult ones in being more susceptible to the world around. Other elements funded by the foundation Nadace CEZ included the play corner called Xylophone and featuring sounds of wood, where visitors can try out sounds of different woody plants, and floor finish at the Indian fauna house designed as a kind of dried up river bed with footprints of the animals kept inside the house as well as other Indian species.

Other zoo-based events

- Participating in the Year of Biodiversity campaign of the World Association of Zoos and Aquariums (WAZA);
20 February: Meeting of members of Slezska ornitologicka spolecnost (Silesian Ornithological Society) at the zoo's education centre;
- Involvement in the project to save the Derbyeland, in cooperation with the Derbianus CSAW civic association to the Czech Life Science University, Prague;
- 9 June: Dreamnight at the Zoo - fourth annual night dedicated to disabled children after the closing hours;
- 15 June: The zoo visited by members of the base organisation of the 1st Slezska kocici Ostrava (a society of friends of the domestic cat); guided tour incl. a visit behind the scenes;
- 31 July: An event at the zoo held as part of the LETO!!! project;
- 20 and 21 October: A Day with Donors - traditional meeting of donors including presenting new exhibits and other updates throughout the zoo grounds.

Pony riding club for children

Meetings of the pony riding club took place bi-weekly all the year round, with 13 children members.

The Rose Hips Autumn

The second year of competition for the public in collecting hips, rowanberries and acorns to be used for enrichment of animal diets.

Partnership with Czech Railways

Ostrava Zoo has partnered with the Czech Railways and became involved in their project entitled Across Moravian-Silesian region by train for the second year; the project was underway from 1 June to 30 September.

Company volunteering

In 2010, Ostrava Zoo continued in the company volunteering scheme in cooperation with Forum darcu (a Czech philanthropic organisation). A total of 175 employees of diverse companies were assisting within the zoo operations throughout the year, which namely involved coating, cleaning and tidying work.

To conclude, the authors wish to thank all of their colleagues, who significantly contributed to the organising and performing all zoos' events. Also, the help of the group of volunteers must be appreciated as the majority of events would be impossible to take place to such an extent.

Research in the Ostrava Zoo in 2010

Jan Pluháček

In terms of research activities, the 2010 was obviously the most successful year in the history of Ostrava Zoo. The main reason for stating this is the success involving the key outcomes of research, which is publishing the results in international scientific journals, with as many as three publications released in 2010 after two less fruitful years, each of them stating Ostrava Zoo as an affiliation of the first author. All the papers involve suckling behaviour of captive plains zebra, *Equus burchellii*. One of these papers was published in Journal of Animal Science and two other in Applied Animal Behaviour Science.

During 2010 the data collection was finished in both projects that were underway in the previous years, i.e. matters of suckling behaviour in equids and in the hippopotamus. Everyone hopes that the results of these will also see publication in the following years. On the other hand, the zoo launched a new project called Marking behaviour in equids. This project is carried out in close cooperation with the Department of Ethology of the Institute of Animal Science, Praha-Uhřetěves. Project is being implemented not only in Ostrava, but also in additional four zoos in the Czech Republic - Dvůr Králové, Liberec, Ústí nad Labem and Brno.

As in the previous years, a new edition of the European Studbook for the hippopotamus (*Hippopotamus amphibius*) was released by Ostrava Zoo in spring 2010. Tracking back events within the European hippopotamus stock in 2009, it reports 11 animals being born, however seven of these died in the same period. In addition to that, seven more individuals died. Therefore, the population decreased resulting in the end-year total number of 192 animals in 70 cooperating institutions.

The participation of zoo staff in international conferences in 2010 was somewhat less intense than in the previous years. Ostrava Zoo staff visited three international conferences, presenting their results at two of them (Table 1). Despite this reduction, the active participation of Ostrava Zoo in international conferences represents the forefront within the Czech zoo community. As in previous years, results were presented in Czech specialised journals such as Živa and Fauna.

Table 1. Reports and participation of Ostrava Zoo staff members at scientific conferences in 2010

Conference	Venue and date	Název příspěvku
International Primatological Congress	Kyoto, Japan, 12 to 18 September	
27. Annual Conference, European Association of Zoos and Aquaria	Verona, Italy, 21 to 29 September	Common hippopotamus (<i>Hippopotamus amphibius</i>) European Studbook 2010
13 th International Behavioral Ecology Congress	Perth, Australia 26 September - 2 October	Effect of social organization and ecological adaptation on mother-infant behaviour in three zebra species

The amount of research projects relating to the local collection slightly decreased in 2010 compared with the previous years (Table 2). On the other hand, the number of species investigated increased due to the collaboration with a team of Prof. Ivan Literák and Dr. Jiří Klimeš.

In 2001 the second scientific publication related to animals kept at Ostrava Zoo was ever published. This paper includes research on entodiniomorph protozoa in captive chimpanzees and bonobos (Pomajbíková *et al.* 2010).

Table 2. Monitoring and data collection in 2010 - Ostrava Zoo stock

Research staff	Institution	Project	Species under monitoring	Data collection period
José A Godoy and Mireia Casas Marcé	Estación Biológica de Doñana - CSIC Sevilla, Spain	<i>Lynx</i> whole mitochondrial genome sequencing	Canadian lynx <i>Lynx canadensis</i>	January
Jitka Stehlíková	Life Science Faculty, University of South Bohemia	Dominance hierarchy among ruffed lemur	Black-and-white ruffed lemur <i>Varecia variegata</i>	February, March, August
Jan Pluháček	Ostrava Zoo; Institute of Animal Science, Prague	Marking in equids	Grevy's zebra <i>Equus grevyi</i>	August to September
Jan Robovský	Life Science Faculty, University of South Bohemia	The skulls of African rhinoceroses: wild and captive	White rhino <i>Ceratotherium simum</i>	September
Radka Černínová	Institute of Tropics and Subtropics, Czech Life Science University, Prague	Behaviour of African ungulates in a mixed-species enclosure	Rothschild's giraffes, elands and African ostriches	September
Karolína Sládková	Faculty of Agrobiology, Food and Natural Resources, Czech Life Science University, Prague	Comparison of communication among three prosimian species <i>Galago senegalensis</i> , <i>Otolemur garnettii</i> and <i>Cheirogaleus medius</i>	Senegal bushbaby (<i>Galago senegalensis</i>), northern greater gallago (<i>Otolemur garnettii</i>)	November
Ivan Literák Jiří Klimeš	University of Veterinary and Pharmaceutical Sciences, Brno	Veterinary aspects of food safety and quality	118 species	January to November
Ivan Literák Jiří Klimeš	University of Veterinary and Pharmaceutical Sciences, Brno	Antibiotic resistance in <i>Escherichia coli</i> strains colonising gastrointestinal tract of dogs, cats and ZOO animals	118 species	January to November

In addition to the above activities listed above, other professional activities of Ostrava zoo staff continued. These activities involved coordinator's work within as many as six Union of Czech and Slovak Zoos' specialist groups, i.e. greater apes and gibbons, Old World primates, small felines, fish, parrots and deer. This number

is the highest among all Czech and Slovak zoos. Moreover, the zoo team members also actively participated in the initial meeting of the in situ projects and research specialist group, where they presented three reports on behalf of the zoo, which was the second largest number after the host zoo; the event was held in Liberec in November 2010.

As a conclusion I would like to thank to all who helped to improve the important goal of modern Zoological garden, the research. My thanks go to Jana Pluháčková, Jana Kanichová, and Monika Ondrušová for valuable comments and improving English of this text. Publishing of the European studbook for common hippopotamus was financially supported by the Ministry of the Environment of the Czech Republic.

Research papers published by zoo employees in international journals with impact factor in 2010

Pluháček, J. - Bartoš, L. - Bartošová, J.: 2010 Mother-offspring conflict in captive plains zebra (*Equus burchellii*): suckling bout duration. Applied Animal Behaviour Science 122, No. 2-4, p. 127-132.

Pluháček, J. - Bartoš, L. - Bartošová, J. - Kotrba, R.: 2010 Feeding behaviour affects nursing behaviour in captive plains zebra (*Equus burchellii*). Applied Animal Behaviour Science 128, p. 97-102.

Pluháček, J. - Bartošová, J. - Bartoš, L.: 2010 Suckling behavior in captive plains zebra (*Equus burchellii*): sex differences in foal behavior. Journal of Animal Science 88, No. 1, p. 131-136.

Research paper published in journal with impact factor in 2010 including data about animals living in Ostrava Zoo

Pomajbíková, K., Petrželková, K. J., Ilona Profousová, I., Petrášová, J., Kišidayová, S., Varádyová, Z., Modrý, D.: 2010: A survey of entodiniomorphid ciliates in chimpanzees and bonobos. American Journal of Physical Anthropology, 142, č. 1, p. 42-48..

List of the other papers which have been published by zoo employees in 2010:

Novák, J. 2010: Sborník č. 8. z jednání Komise pro malé kočky při UCSZ, duben 2009. Zoo Ostrava, Ostrava [in Czech].

Pluháček, J. - Bartoš, L. - Doležalová, M. - Bartošová, J.: 2010 Když matce dojde trpělivost aneb odstavení hříbat u zebry stepní. Živa 83, p. 92-93 [in Czech].

Svobodová, Y.: 2010: Aratinga guarouba (*Guarouba guarouba*) a jeho odchov v Zoo Ostrava. Fauna No. 10/2010 p. 9-11 [in Czech].

Svobodová, Y.: 2010: Umělý odchov aratinga guarouba v Zoo Ostrava - Fauna 14/ 2010 p. 12 - 13 [in Czech].

Horticulture

Tomáš Hanzelka

Starting the trial operation of background facilities for horticulture, i.e. a block of heated greenhouses, became the most important and the most extensive operation of the year within the department. Although the complex is yet to be taken over in the early 2011, it is clear today that the investment in this out-of-scenes facility becomes a significant achievement for the subsequent process of improving animal houses as well as the area of the zoo as such. Crops originating from southern countries were planted in the premises so that these can serve for teaching botany and dendrology in future. Work also began on the renewal and subsequent expansion of the collection of water and marsh plants.

Extensive reconstruction of the children's zoo with domestic animals on display was another significant investment, with department members being involved in refining the architectural design, which mostly make use of natural materials.

2010 was the third year of routine maintenance of the botanical park, this namely consisting of maintaining grass areas and beds of perennials, plus forest stands had to be pruned.

In winter, the department personnel was conducting treatment of mature trees near visitor paths and tree pruning to maintain health.

Last but not least, the members participated throughout the year in horticulture plant record keeping, which covered a range of species and cultivars growing throughout the zoo grounds, presenting these also to the media.

Chitwan: entellus langurs meeting Asian black bears

Karin Tančiboková

Construction of a mixed-species exhibit to house the entellus langur and the Asian black bear got underway in January 2009. Since these two mammal species have not been held in any other zoo in Europe together, the zoo team was eager to see how the introduction phase and coexistence of these animals would be going.

Regarding the indoor facility, both species are kept separately. The outdoor enclosure is fenced with high mesh and animals prevented to escape by an electric fence. The enclosure is large and based in natural settings, with an area of 12,290 square metres. Visitors can observe the animals when outdoors from four viewing platforms, of which the one made of glass provides a beautiful view of the area. In addition, its indoor part of this platform contains two large aquariums for freshwater fish. The entire new block has been named Chitwan after the oldest national park in Nepal. The area is complete with a natural outdoor enclosure for Asian small-clawed otters.

The langur group of eleven members was relocated into the new premises on 26 May 2010. The process of capture and transfer from the primate house took 3 hours. Following 14 days, a testing electrical fence was installed in the indoor facility, as the animals had not have any experience with that kind of fence. All langurs were enabled from the very beginning to inspect the outdoor enclosure through a window with bars. On 25 June, the day came to release a part of the group (1.3 and 0.1) outdoors for the first time, with everyone watching how the primates were to respond to the large new territory. The stressed male Balachandran escaped out on the roof through the electric fence, but he soon returned. By the evening, only female Beruska returned indoors, while the remainder of the group was staying in the outdoor enclosure. The next day, female Gita with its young escaped to the zoo grounds, while the rest of the group was closed indoors. As no one was guessing on which place the female had been able to overcome the electrified fence, the team had to recheck the entire outdoor enclosure and take measures as appropriate. Gita spent just one day in the tall trees near the old bear facility. The next day early in the morning, the team managed to catch the female as well as the young one and integrate both into the group. From mid-August, the primates started to go outdoors on a regular basis. In managing that, training using a whistle, which was started back in the former house, proved to work well. The staff members were surprised themselves seeing how the animals were responding to whistling. Despite some initial hesitations, the animals learned very well within several days that going for a treat is worth when a whistle has been heard. The langurs started to settle very well in their new premises, making use of almost entire outdoor enclosure. By the way, as they are leave-eaters, they can make their own choice from the range of food in the forest grounds.

On 15 September 2010, it was finally the Asian black bears' turn to move into the new exhibit. Called Max (male, 21 years) and Olina (female, 22 years), this pair of black bears had to get familiar to their new indoor premises as well; the same applied to the electric fence. At the same time, the animals were given the opportunity to view the langurs in the outdoor enclosure through a window with bars. In early October, the bears were released outdoors. Initially, the animals were released separately, but two days later, they were ranging in the enclosure in the company of the primates. Male Balachandran was threatening and making barking sounds at the beginning. The whole langur group was keeping a distance and showing interest, but at the same time,

everyone was cautious. There were big concerns whether the bears would be coming back indoors or not, but from the very first day, this was not an issue. Since bears are too sticky as regards food, they came back indoors immediately after opening. From the start, the langurs stayed in the trees, watching the bears from a distance, but the status was improving day by day. After several days, the primates were brave enough to jump to the ground when food was served and carefully pick up fruits and acorns placed not very far from the bears, with males Balachandran and Bombaj showing the greatest courage of all, whilst mothers with juveniles being rather cautious. Thus, the process of integrating the langurs with the black bears underwent without troubles and the animals can now be watched outdoors in their mixed-species enclosure.

Asiatic lions examined

Lenka Juříková

The zoo has been holding the existing Asiatic lion pair since 2006, when three-year-old animals were imported. This involved male Sohan brought on 25 August from Paignton, the UK, and female Asha that came on 14 October from Eskilstuna, Sweden.

The animals were integrated without greater complications on 18 December 2006, with first mating observed on 3 January 2007, from which on the lions mated on a regular basis for three years, with however zero results.

After such a long time no one could ever assume that the failure had been caused by a mere inexperience and low age of the pair. This led to a decision to examine their physical status and fertility, which was scheduled to take place on 30 August 2010 upon agreement with veterinary specialists from IZW (Institut für Zoo- und Wildtierforschung) Berlin, who had been used to travel to Ostrava as part of the elephant female breeding efforts, with the lion male to be examined first. Sohan was isolated indoors and put to sleep, with NaCl infusion implemented and a pulse oxymeter attached to the animal's tongue to check pulse frequency and oxygen saturation of blood. Following an enema allowing subsequent examining the male's suprarenal gland, prostate gland and reproduction organs via anum using ultrasound, testicles were checked from the outside using the same device. Sperm was eventually collected by means of electric ejaculation for laboratory testing. With the male, the treatment took about an hour from anaesthetising to reviving.

All the time the male was being examined, female Asha was staying outdoors. Once allowed inside the cage, she entered without problems. Looking very calm, the lioness became nervous only upon arrival of a veterinarian with his anaesthetising gun. When the animal was anaesthetised, a pulse oxymeter was attached to its tongue and infusion was implemented. Following an enema, reproduction organs of the lioness were examined via anum using an ultrasonic device. To do the same for ovaries from the outside via female's abdominal wall, shaving a small area of a rectangular shape was necessary, which was first done to the right to check animal's right ovary. Since Asha was lying on her side, she had to be turned to the other side to examine the left ovary. In this case, the treatment took about an hour as well, when measured from anaesthetising to reviving. Once testing was over, both lions were given a preparation for reviving. Nonetheless, both animals spent the rest of the day as well as the most part of the next day sleeping.

Examinations found Sohan's reproductive tract and sperm to be in good condition. In Asha, ovaries as well as the remainder of the reproductive organs are okay. However, cysts were discovered. These exist at the junction of the uterine horn and oviduct on both sides of the body, plus another cyst was found in the right-hand oviduct. Unfortunately, each of those is placed in such a way that it prevents the lioness in becoming pregnant naturally and in fact cannot be removed by surgery as this might damage female's oviducts with the highest probability.

It thus results from the examination conducted that the male is capable of reproduction, while female's ability to breed is prevented by cysts that are impossible to remove. The results were mailed to the Asiatic lion breeding programme coordinator and everyone now awaits his statement on further steps concerning breeding.

Breeding the crowned lemur (*Eulemur coronatus*) in captivity

Jana Kanichová

The smallest members of the *Eulemur* genus weighing 1.1 to 1.3 kg, crowned lemurs range in moist and dry tropic lowland forests of the outermost north of Madagascar, medium altitude (up to 1,400 m or less). As far as science knows, it is the only lemur found on the peninsula d'Ambre, which is the northernmost point of the island. Groups of average size have 5 to 6 members with a maximum of 15 animals. As they feed, large multi-male and multi-female groups often split to form smaller groups of 2-4 individuals. In this lemur species, the main portion of the diet in the wild consists of fruit, but they also feed on young leaves, flowers, pollen and sometimes on insects. They are able of utilising as many as 100 different plant species. Mating is underway from May to June (in the northern hemisphere, it takes place in winter). Females give birth from mid-September and late October, while in the northern hemisphere the offspring arrives in spring and in summer. Pregnancy takes about 125 days

The U.S. zoos began to hold the crowned lemur in 1955, while in European zoos the species appeared a few years later. Although the first offspring (twins) were born as early as 1957 in San Diego, of which one was stillborn and another died the following day with initial experience of breeding lemurs being zero, any vital offspring was not seen to arrive prior to 1969, when one was born in Cologne. Nonetheless, breeding efforts in the crowned lemur, as well as in some other lemur species, did not meet any greater success even after so many years, with the population currently counting 100 animals approximately, of which the U.S. stock is 21 and that of Europe 48, plus there are 33 animals kept in Africa and on Madagascar. This lemur species is held in a mere 25 zoos around the world (14 in Europe, 8 in the USA, 1 in Africa and 2 on Madagascar). Fortunately, the population is slowly growing (unlike the one of Sclater's lemurs mentioned in the previous annual report) with 6 to 10 animals born every year, of which at least a half survives. These figures relate to Europe and America, as Madagascar is mostly uncooperative in providing data.

In Ostrava, crowned lemur breeding efforts date back to 2006, when a pair of these beautiful animals was imported on 13 September from France; more specifically, the two-year-old female Verona came from Mulhouse, while the male Tango (4) was brought from the zoo of Montpellier. Actually, both animals were born in Mulhouse. The staff saw the first offspring on 11 April 2008, this being a female named Malala, which in the Malagasy language means „beloved“. The mother was showing unexampled care of the young one, and thanks to the fact that the family was staying that year in the beautiful natural grounds of the island below the giraffe enclosure, where there is a plethora of plants and insects for the animals to add to their diet as in the wild and the area is excellent in terms of movement, the process of rearing was completed in a standard manner. Having reached her maturity, Malala has recently formed a pair with a new arrival, a male Mamonjy. Unfortunately, the success with Malala was a single case of rearing going smoothly.

The year after, Verona refused to take care of another infant and the young female died subsequently. Reasons for this were unknown; it might be that the lemurs ranged over a different area or the offspring from the previous year, i.e. female Malala, could act as a disturbing element, or that kind of Verona's behaviour could be due to another reason, which we humans do not know. In 2010, Tango, Malala and pregnant Verona were moved back to a natural island, with however a different lake chosen. On 12 April 2010, soon after lunch

time, Verona gave birth, with however twins arriving instead of just a single infant as expected by the team, which made everyone very happy. Although twins are not so rare in crowned lemurs, after the case of Verona refusing to take care of a single young one the team was happy to see her care, with two young lemurs even involved. Despite initial considerations that the lemurs could be a male and a female since each of them had a completely different colouring, the twins turned out to be girls, both of them subsequently converting their colours into not very eye-catching grey. The females were named Betroka and Belsiboka, which follows Ostrava Zoo's convention of naming their primates after rivers, villages and cities throughout the range area in the wild or after specific words in the local language. Some may consider this habit rather peculiar, but this is only reflecting the fact that Ostrava Zoo produces only extraordinary offspring with extraordinary names, right.

Sadly, mischievous behaviour started to occur in the stock some 14 days after. Because the crowned lemur exhibits distinctive dominance of males over females, the staff believed that Verona would be able to keep her position in the group, which however was not confirmed. The grown-up female Malala joined forces with the male Tango and gradually began to drive Verona with her young away from feeding, chasing her even off the feeding times. We tried to separate the male for short periods of time, because when Malala was staying only in the company of Verona and infants, the situation was calming down. However, the situation reappeared as soon as the male joined the females. This sadly resulted in the male being permanently separated outside the island, which then settled the relationships within the group throughout the summer, with young ones fully benefitting from the natural environment of the island.

In late September, with the breeding season approaching, the group had to be relocated out of scenes and introducing a male was necessary. Sadly, the young female Belsiboka died soon after the move. The symptoms, i.e. convulsion and eye shaking (horizontal pathologic nystagmus) indicated rather brain contusion or bleeding into brain following crashing into some kind of barrier, which however was not confirmed by the post mortem results; instead, pneumonia was found. This unhappy event left the zoo with just three females, i.e. Verona, Malala and Betroka. Since Malala already reached the age of being capable of potential mating with the sire, it was clear for the team that they should attempt to join the new male Mamonjy who had arrived back in January 2010 to the group of females and offspring. Unfortunately, this was a hand-reared male.

Once hand-reared, primates usually adopt bad habits, which actually apply to other mammals in most cases. They are unable to socialise themselves, often attack humans and fail to respect them in a natural manner, females are often lacking skills of taking care of the offspring etc. Needless to say this does not apply generally to every individual, but a rule of thumb is: „hand-reared animals means risk animals“. This is another reason why Ostrava is no longer hand-rearing primates, with Sclater's lemurs being potentially the only exception, as the status of this species is disastrous - both in the wild and in captivity. By the way, the 2009 was the only year when all animals born (a total of three) were reared successfully, which actually is not true in most cases, with numbers of animals reared or even born being zero. This is an example of a critically endangered species when the zoo must undergo that risk. The fact that hand-rearing in primates is not a good option was confirmed in Mamonjy's case as well through fussing and fighting as the male was being integrated. After having bitten little Betroka and suffering a large injury of his back upon being attacked by Verona, the male was separated from the females. Betroka underwent plastic surgery of her upper eyelid after biting, with fortunately no

damage made to the eye alone. Since however reproduction is an obvious priority when keeping threatened animals, the staff decided to reintroduce Tango to Verona and little Betroka, and to form another pair from Malala and Mamonjy. However, food intake started to get worse in Betroka during December, and the female subsequently died of intestinal obstruction that occurred following the injury.

At present, the efforts to breed are starting again with two pairs available, of which one, i.e. Verona and Tang, is a proven pair, with mating observed as early as the late 2010, plus there is a new pair, where we will see if a hand-reared male will be able to pass his genes on...

**Research on suckling behaviour of common
hippopotamus (*Hippopotamus amphibius*)**
Jan Pluháček

The author described the suckling behaviour and for the first recorded allosuckling in common hippopotamus (*Hippopotamus amphibius*). For more details see: Pluháček, J. - Bartošová, J.: 2011 A case of suckling and allosuckling behaviour in captive common hippopotamus. *Mammalian Biology*: in press.

The Returning the Golden Eagle (*Aquila chrysaetos*) to the Mountains of Moravskoslezské Beskydy project: year 5

Jana Kovářová

A repatriation project has been underway in Moravskoslezské Beskydy Mountains from 2006 to return the golden eagle to the Czech Republic, with young eagles being removed from the nests of wild parents in the Slovak Republic and subsequently reared in rescue stations based in Bartosovice, Moravia, and Zazriva, the Slovak Republic. When reaching three months of age approximately, the birds are released into the wild along the limits of Beskydy Mountains.

2010 project update

As weather was not very favourable in the spring of 2010, the nesting season for the golden eagle in Slovakia was classified as one of the worst, with two females collected and named Petra and Orava. Reared under female Dina in Bartosovice (Petra) and Zoja in Zazriva (Orava), both young females were released into the wild on 11 August 2010 with radio transmitters installed, which in the case of Petra was a conventional radio device, while Orava was fitted with a hybrid solar power transmitter that combines a radio and a satellite device.

NESTING OBSERVED IN RELEASED EAGLES FOR THE FIRST TIME: 2010 is the year of a huge success, since **male David and female Filomena, both released in 2007, formed a stable nesting pair and settled within a territory located about 30 km away from the site of release.** Thus, eagle mating and wedding behaviour, nest building and the complete nesting process could be observed after more than 100 years. Although the clutch was not fertilised as the male still had not reached his sexual maturity, the fact that these birds return, when adult, to nest to their place of hatching, which in this case involved the area of release into the wild, was reconfirmed in these eagles.

Also monitored was another pair of golden eagles, i.e. female Isabela released in 2008 and male Kysucan, which is a wild male whose origin is probably Slovakia. This one has so far been not stable, with Isabela still roaming there and back from time to time. Despite initial efforts to chase the released females off the area by both members of this pair, no direct confrontation ever occurred any later.

Project review

2006: physical start of activities, four young eagles released (1 male, 3 females)

2007 (year 2): three young ones (females) released; of which one (Gabca) died later in 2009.

2008 (year 3): four young birds released (2 males, 2 females)

2009 (year 4): two young eagles released (1 male, 1 female), male Miko died in December; female Gabca released back in 2007 found dead in September due to having been intentionally poisoned

2010 (year 5): two young birds (females) released; nesting recorded for the first time and involved eagles released in 2007 (David and Filomena), but the nesting efforts failed

Losses

In 2008, male Evzen released, but died in the same year; this one-year-old bird was included in the scheme beyond the initial plans. Having fallen from the nest in Slovakia in 2007, this eagle was treated for multiple fractures of both wings and probably died after being bitten by a common viper.

In September 2009, female Gabca was found dead in the territory of Sedlcany, Central Bohemia. This female was released back in 2007 and died as a result of eating a bite poisoned with a chemical substance (Carbofuran). In December 2009, male Miko was found dead in Bruntal District; this eagle was released in 2009 and its death was probably caused by an inherited heart defect.

Summary

At the end of 2010, there were a total of 13 young golden eagles in the wild, with efforts to protect their own territory observed and evidenced earlier in the first three birds. In the spring of 2010, the first case of nesting of released birds took place near the site of release, which was not successful.

Thanks to the Czech Ministry of Environment (MoE) support and grant, ongoing satellite tracking was again possible in 2010, with one male (Jakub) and one female (Lia) monitored over the entire period and one female (Orava) tracked from the date of release. In addition, the assistance above enabled aerial monitoring activities within the project, plus information posters featuring five years of the golden eagle project were published.

There were also ongoing publicity activities in 2010; incorporated in educational schemes as well as events for the public, they included distribution of information posters concerning the project.

As of 2009, the project has been underway thanks to the financial support of the European Union and a cross-border cooperation scheme of Slovakia and the Czech Republic, a part of which is the project home page produced, which is available at www.orelskalni.cz.

Outlook

Participation in this project is something that is planned by the institution in future as well. With the MoE's funding and in light of expected nesting, the team would like to continue to expand the activities of satellite monitoring as regards released birds and purchase camera traps to monitor the area of feeding sites. In addition, making use of aerial monitoring is desired to increase coverage and verify reports on the occurrence of eagles.



**PROGRAM
CEZHRANIČNEJ
SPOLUPRÁCE**
SLOVENSKÁ REPUBLIKA
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Zoo library review

Jindřicha Zemanová

The zoo library contains 1900 items, this including domestic and foreign technical, scientific and general literature.

Currently, about 100 persons make use of book lending services. They include the zoo staff (mostly keepers and curators) and members of the Friends of the Zoo society. The books are also utilised by university students in their seminar papers and diplomas.

The library has been registered in the ARD library database, ID (sigla): OSE302.

Name of the journal	from	to	Volumes
Akva fórum	2007		
Akvárium živě	2003	2005	
Akvárium-terárium	1992	now	
Biologizace a chemizace	1984	1990	
Cites ČR výroční zpráva			1996, 1998 - 2000
České právo životního prostředí	2006	2010	
Der Zoologische Garten	1971	now	
EAZA NEWS	1998	now	16 - 27, 30, 32 - 34, 36 - 55, special
Eko	2006	now	
Ekologia	1983	1988	
Exota	1992	1996	supplements: 4 - 7, 10, 12
Evropská plemenná kniha hrochů obojživelných	2007	now	
Fauna	1997	now	
Fauna Bohemiae Septentrionalis	1992	2003	17, 18, 19, 2 x 20, 21, 25, 28
Floraprint /soubor katagogů/	1998		
Folia zoologica	1977	1994	
Gazella	1975	now	1, 2, 13, 14, 17, 18, 20, 21, 22, 23, 24, 26 - 33
International Tiger Studbook	1976	1994	
International ZOO Yearbook	1959	now	missing: 23, 26 - 29
Internationales Zuchtbuch Für den Mezopotamischen Darmhirsch	2008	2010	
IZE journal	2006	2009	
Journal of Mammalogy	1960	1972	
Lidé a Země	1989	2000	
Lynx	1964		3, 6, 7, 12, 14, 15, 16, 18, 24, 25, 28, 29, 30, 31
Milu	1998	now	9/5 - 6, 10/3 - 4, 11/2, 4 - 6
Myslivost	1991	2002	
National Geographic	2002	2009	
Naše příroda	2008	now	
Nové Knihy SSSR 1990			archive: 17 - 19, 22 - 25, 27, 29, 33 - 46

Ochrana Přírody	2000	now	1964 - 1999 - archive
Oryx	1979	1991	
Památka a příroda	1976	1989	
Papoušci	2001	now	
Pomocné ornitologické tabulky	1980		
Primate report	1990	2001	
Referativnij žurnal	1983	2004	
Ročenka UCSZ	1987	now	
Ročenka UNIE-stavy zvířat	1985	now	
Saugetierkundliche Mitteilungen	1979	1983	27/1 - 4, 28/1 - 3, 27, 27 suppl., 31/1 - 3
Unie ČS ZOO-informace			1/92 3/95
WAZA magazine	2004	now	
WAZA News	2005	now	
Zahradnictvo	1987	1991	
Zeitschrift des Kölner ZOO	1980	now	
ZOO Anvers Plackendael	1994	1998	
Zoologické listy	1965	1976	
Zoologischer Anzeiger	1980	1990	
Živa	1958	now	

The list of employees of the Ostrava Zoo (as of December 31, 2010)

	Name	Funktion	Number of years in the organisation
1	Adámek Vladimír	Worker at Public Relations	19
2	Beníček Rostislav	Driver	24
3	Benko Vladimír	Gardener	4
4	Berger Zdeněk, Mgr.	Worker at Public Relations	6
5	Černohorská Jana	Zookeeper	23
6	Čolas Petr, Ing.	Director	21
7	Derlich Stanislav, JUDr.	Lawyer	9
8	Deniševský Milan	Worker at Zoo-kitchen	1
9	Dubská Dagmar, DiS.	Accountant	3
10	Fiala Dušan	Zookeeper	2
11	Fiala Jaromír	Zookeeper	7
12	Filipová Ivana	Zookeeper	26
13	Firla Ivo, Ing.	Head of Zoological Department II	18
14	Firlová Sylva	Zookeeper	33
15	Galvasová Jarmila	Gardener	1
16	Gorčáková Pavla	Zookeeper	33
17	Guryča Pavel	Gardener	3
18	Hájková Liběna	Zookeeper	12
19	Halfarová Renáta	Zookeeper	17
20	Hanzelka Tomáš, Ing.	Head of Horticulture	18
21	Hradil Tomáš	Zookeeper	3 months
22	Hruška Ondřej	Zookeeper	10
23	Hruška Roman	Gardener	15
24	Hruška Rudolf	Zookeeper	18
25	Janečka Radomír	Driver	10
26	Jankovičová Zuzana	Zookeeper	12
27	Janošťáková Věra	Zookeeper	32
28	Juříková Lenka, Bc.	Zookeeper	3
29	Juřina Petr	Gardener	1
30	Justová Liana	Zookeeper	17
31	Kaloušková Šárka, Mgr.	Head of Public Relations	6
32	Kalužová Petra	Zookeeper	9
33	Kanichová Jana	Zookeeper	18
34	Konečná Pavlína, Ing.	Head of Finance	5
35	Kopia Robert	Zookeeper	10
36	Kopřiva Richard	Warehouse Keeper	8
37	Košťál Emil	Locksmith	11
38	Kötelešová Andrea	Zookeeper	2

39	Kovářová Jana, Bc.	Worker at Public Relations Department	3
40	Kratochvílová Milada	Gardener	4
41	Krejčík Tomáš	Gardener	1
42	Kubala David	Gardener	10
43	Legierský Jiří	Gardener	12
44	Leštinská Anna	Zookeeper	3
45	Lindovská Lenka	Animal Feeding and Nutrition	20
46	Lindovský Josef	Operations & Maintenance	10
47	Marková Dagmar	Zookeeper	30
48	Maršálková Pavlína	Worker at Zoo-kitchen	10
49	Mikulský Rudolf, Ing.	Head of Operations & Maintenance	31
50	Mílek Bohuslav	Bricklayer	18
51	Moldrzyková Andrea	Payroll Clerk	2
52	Moravcová Martina	Gardener	17
53	Niesnerová Kateřina, Ing.	Projekt Manager	1
54	Nová Drahomíra	Gatekeeper	1
55	Novák Jiří, Mgr.	Head of Zoological Department I	13
56	Ondrušová Monika, Bc.	Director's Office	6
57	Orlík Ladislav	Painter/Decorator	30
58	Papiorek Jaroslav	Driver	1
59	Pastyriak Roman	Zookeeper	7
60	Pecháček Jiří	Electrician	7
61	Pluháček Jan, RNDr., Ph.D.	Researcher	4
62	Pluháčková Jana, Mgr.	Animal Registrar	6
63	Poluda Roman	Locksmith	12
64	Říman Antonín	Projekt Manager	1
65	Sahajová Iva	Gardener	1
66	Serbusová Lenka	Zookeeper	17
67	Skupník Rostislav	Safety and Fire Technician	9
68	Skýbová Karin	Zookeeper	18
69	Střížík Rostislav	Zookeeper	18
70	Svobodová Yveta	Zookeeper	29
71	Šafrán Michal	Zookeeper	11
72	Šarišková Nataša	Worker at Zoo-kitchen	3
73	Šešulková Hana	Gardener	1
74	Ševčíková Pavlína	Zookeeper	20
75	Štěrba Jiří	Zookeeper	1
76	Švacho Zdeněk	Gardener	3
77	Švihálek Igor	Zookeeper	12
78	Tančiboková Karin	Zookeeper	6
79	Tomčal Zdeněk	Gardener	18
80	Tomek Jaroslav	Locksmith	22
81	Tomková Hana	Zookeeper	28

82	Ulivelliová Věra	Personnel Manager	6
83	Ullmannová Anna	Gatekeeper	14
84	Velčovská Adéla	Zookeeper	3
85	Vlček Pavel	Gardener	7
86	Vojtuš Jaromír	Fireman - Gardener	1
87	Volná Lenka, Bc.	Zookeeper	7 months
88	Vrhelová Jiřina	Zookeeper	21
89	Výkruta Luboš	Worker	16
90	Zajíc Karel	Driver	3
91	Zajoncová Eva	Zookeeper	11
92	Zemanová Jindřicha	Worker at Public Relations Department	38
93	Zvolánek Daniel	Zookeeper	12
94	Zvolánek Pavel	Zookeeper	14
95	Žižka Marcel	Power Engineer	20