

Immobilization, Handling and Vaccination of Bird and Mammal Species at Kabul Zoo, June 2007

Dr Stéphane Ostrowski
Wildlife Conservation Society
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Summary — Between 7 June and 14 June 2007, I trained the veterinary staff of Kabul Zoo to capture, handle, anesthetize, and clinically examine their captive wild animals. We captured most of the birds detained at the zoo and vaccinated them against Newcastle Disease. All species were handled except vultures and exotic species. We also anesthetized and vaccinated bears, wolves, lions, red foxes and Pallas's cats against rabies. The veterinary staff at the zoo took an active part in the chemical immobilization of the Pallas's cats, the Asiatic black bears (the rarest species in the zoo), and two of the wolves. The 4 (4.0) Asiatic black bears were identified with microchip transponders and blood-sampled for gene-banking.

Introduction — Following the seminar on wildlife immobilization and handling I gave at Kabul Zoo in November 2006, I undertook between 7 and 14 June 2007 a training course on capture, handling, anesthesia, and clinical examination of wild animals. The training took place at Kabul zoo and involved the veterinary staff at the zoo, namely Dr A. Kadr, senior veterinary officer (Plates 1 and 3) and three mammal/bird keepers (Plate 2), as well as Mr Sayeed Naqibullah, a WCS trainee in ornithology.

Displayed birds — At the time of the training course, Kabul Zoo displayed 62 birds belonging to 14 species known to occur in Afghanistan (Table 1)¹. According to Dr Kadr and to Mr Fazil Saidal, the education officer at the zoo, most of them were offered to the zoo by private donors from all over the country. It is likely that they were collected from the wild. Eagle owl (*Bubo bubo ascalaphus*), golden eagle (*Aquila chrysaetos*), long-legged buzzard (*Buteo rufinus*), griffon vulture (*Gyps fulvus*), black vulture (*Aegypius monachus*), lammergeier (*Gypaetus barbatus*), black kite (*Milvus migrans*), Himalayan snowcock (*Tetraogallus himalayensis*) and chukar partridge (*Alectoris chukar*) all breed in the country. Steppe eagle (*Aquila nipalensis*), demoiselle crane (*Anthropoides virgo*), and common crane (*Grus grus*) breed in Central Asia and have been observed in Afghanistan during migration periods (Rasmussen and Anderton, 2005). The displayed Dalmatian pelican (*Pelecanus crispus*) is said to have been brought from Pakistan (Mr Fazil Saidal, pers. comm.) but could also have been captured in Afghanistan — I observed single specimens in Afghan wetlands in May 2007 (Kol e-Hashamat Khan, Qargah Lake, Kabul Province). The zoo retains relatively large flocks of eagle owls and griffon vultures (Table 1). Specimens from those two species are easy to collect from nest when still unfledged and they are brought to the zoo when they become too difficult to maintain at homes or too expensive to feed (Dr Kadr, pers. comm.). Because of the zoo policy to accept all gifts and donations, the two pens receiving these species are now significantly overcrowded.

¹ Kabul Zoo also presented a small number of exotic species such as the Indian peafowl *Pavo cristatus* and the ring-collared parakeet *Psittacula krameri*; and feral/domestic birds such as feral pigeons *Columba* sp., domestic ducks, hybrid ducks (*Anas platyrhynchos* × domestic duck), and domestic geese (*Anser* sp.).

Table 1 — Wild bird species known to occur in Afghanistan, on display at Kabul Zoo, June 2007.

Common name	Scientific name	Number	Status in Afghanistan
Dalmatian Pelican	<i>Pelecanus crispus</i>	1	TO BE CONFIRMED
Black kite	<i>Milvus migrans</i>	3	¹ B, ² M
Bearded vulture	<i>Gypaetus barbatus</i>	1	B
Griffon vulture	<i>Gyps fulvus</i>	13	B
Cinereous vulture	<i>Aegypius monachus</i>	4	B
Long-legged buzzard	<i>Buteo rufinus</i>	5	B
Steppe eagle	<i>Aquila nipalensis</i>	9	M
Golden eagle	<i>Aquila chrysaetos</i>	2	B
Himalayan snowcock	<i>Tetraogallus himalayensis</i>	1	B
Chukar partridge	<i>Alectoris chukar</i>	4	B
Common pheasant	<i>Phasianus colchicus</i>	2	B
Demoiselle crane	<i>Anthropoides virgo</i>	1	M
Common crane	<i>Grus grus</i>	1	M
Eurasian eagle-owl	<i>Bubo bubo ascalaphus</i>	15	B
Total		62	

¹B=breeding species in Afghanistan, ²M=migratory species in Afghanistan (Rasmussen and Anderton, 2005).

Displayed mammals — At the time of our training, Kabul Zoo displayed about 55 mammals belonging to 10 species known to occur in Afghanistan (Table 2). According to Dr Kadr most of them were offered to the zoo by private donors and originated from Afghanistan. It is plausible since their acknowledged provenance usually matches what is known from their distribution (Habibi, 2003). Most wolves (*Canis lupus*), the two jackals (*Canis aureus*), and the five red foxes (*Vulpes vulpes*) are said to come from provinces close to Kabul; Asiatic black bears (*Ursus thibetanus*), the rarest of all displayed animals, from the eastern provinces of Kunar and Nuristan; and two of the three brown bears (*Ursus arctos*) from Pamir, Badakhshan Province². Rhesus macaques (*Macaca mulatta*) apparently originated from eastern Afghanistan forests, presumably in Nuristan Province. Two of the Pallas's cats (*Otocolobus manul*) arrived in mid November 2006, apparently captured in Deykandi Province, whereas the third specimen was captured in late September 2006 in Ghazni Province (Nawar district?). The origin of the crested porcupine (*Hystrix indica*), a species scattered throughout the country, was not investigated. The zoo also retains an Alpine ibex (*Capra [ibex] sibirica*) originating from the Afghan Hindu Kush range, and two gazelles. They are said to be goitered gazelles (*Gazella subgutturosa*) coming from Helmand Province but present some phenotypic traits related to the dorcas gazelle (*G. dorcas*) occurring in Iran. It would require close examination to confirm species identification. Recently the zoo has received some funding that has been wisely invested in the improvement of several mammal enclosures. However, like eagle owls and vultures, wolves and red foxes are still kept in small, significantly overcrowded, pens.

² In 2002, the Republic of China sent to Kabul Zoo an “animal aid” package, including a couple of African lions (*Panthera leo*), a couple of brown bears, and a couple of Chinese pigs to the zoo. The lions were given to replace the late one-eyed Marjan, the zoo's most famous resident. As of June 2007, one of the Chinese brown bears — much larger and of different fur coloration than the Afghani ones — and the female pig had died of diseases (rabies for the pig). In addition to local mammal species, the zoo presents a number of domestic species such as sheep, goats, and rabbits.

Table 2 — Wild mammal species known to occur in Afghanistan, on display at Kabul Zoo, June 2007.

Common name	Scientific name	Number	Global Conservation Status ¹
Rhesus macaque	<i>Macaca mulatta</i>	20+	LR ² /NT ³
Pallas's cat	<i>Otocolobus manul</i>	3	NT
Wolf	<i>Canis lupus</i>	12	LC ⁴
Jackal	<i>Canis aureus</i>	2	LC
Red fox	<i>Vulpes vulpes</i>	5	LC
Brown bear*	<i>Ursus arctos</i>	3	LR/LC
Asiatic black bear	<i>Ursus thibetanus</i>	4	VU ⁵
Gazelle**	<i>Gazella</i> sp.	2	–
Alpine ibex	<i>Capra [ibex]sibirica</i>	1	LR/LC
Crested porcupine	<i>Hystrix indica</i>	1	LR/LC
Total		55+	

¹IUCN 2006 (See footnote 3 for details on IUCN Red List categories and criteria); ²Lower Risk; ³Near Threatened; ⁴Least Concern; ⁵Vulnerable; * One of the brown bears was donated by China, see footnote 2; ** Identification needs to be confirmed.

Species handled during training course — Specimens from all displayed bird species, except vultures and exotic species, were handled. We captured them directly by hand or using nets and Tomahawk traps as temporary cages. Following a clinical examination (without tranquilization) we vaccinated them against Newcastle Disease with an inactivated vaccine (Nobilis® Newcavac, Intervet, France) administered in the pectoral muscles. Dosage varied according to body mass (0.5ml, 1ml, 1.5ml for birds weighing 0.2–1kg, 1.1–2kg, >2kg, respectively). We noticed bumblefoot lesions on two steppe eagles and one golden eagle. We also recorded old eye injuries on one steppe buzzard and one golden eagle. These injuries might have resulted from inter-specific conflicts in relatively overcrowded pens. Apart from bumblefoot, we observed no clinical symptoms of infectious diseases. However, Dr Kadr mentioned that, on several occasions in the past, avian collections of the zoo suffered outbreaks of a neurologically-expressed disease that could have been Newcastle Disease. Eventually we sampled blood from 37 specimens belonging to 9 species (Table 3) to evaluate their exposure to avian influenza viruses. Sera samples were forwarded to Kabul Central Veterinary Laboratory for serological investigations (HAI, Inhibition of Hemagglutination test). Results are pending. These serological investigations should also include vultures, which we plan to capture in early October 2007. As for mammal species, the three Pallas's cats (Plate 1), the four Asiatic black bears (Plates 2 and 3), and two of the wolves, were chemically restrained using a pneumatic remote delivery pistol (Table 4). The red foxes and five 40-day-old wolf cubs were handled without anesthesia. The former were trapped in Tomahawk traps while the latter were captured by hand. All the handled mammals were examined and vaccinated against rabies, except wolf cubs which were too young for vaccination. For foxes and wolves, the inactivated vaccine (Nobivac® Rage, Intervet, France) was administered under the skin of the neck. For the lions, and the three brown bears, it was delivered intramuscularly with the remote delivery system. We inserted Trovan® microchip transponders under the skin of the neck of the four rare Asiatic black bears for permanent identification and collected blood from their femoral arteries. Preserved on FTA® cards, Whatman, USA, these blood samples will be available for future DNA analysis.

Table 3 — Birds sampled for serological examination of exposure to avian influenza, Kabul zoo, June 2007.

Common name	Scientific name	Number	% zoo population
Dalmatian Pelican	<i>Pelecanus crispus</i>	1	100
Domestic duck	–	6	100
Domestic goose	–	4	100
Black kite	<i>Milvus migrans</i>	2	66
Bearded vulture	<i>Gypaetus barbatus</i>	1	100
Long-legged buzzard	<i>Buteo rufinus</i>	4	80
Steppe eagle	<i>Aquila nipalensis</i>	7	78
Golden eagle	<i>Aquila chrysaetos</i>	2	100
Demoiselle crane	<i>Anthropoides virgo</i>	1	100
Common crane	<i>Grus grus</i>	1	100
Eagle owl	<i>Bubo bubo ascalaphus</i>	8	53
Total		37	

Conservation status³ — All bird species maintained at the zoo are categorized as Least Concern by the IUCN (IUCN, 2006), except the cinereous vulture, which is classified as Near Threatened. Yet, the regional conservation status of this species is poorly known and would require further investigations. Regarding mammals, the Asiatic black bear is categorized as Vulnerable, and the Pallas’s cat as Near Threatened. All other mammal species detained at the zoo are either classified as Least Concern or Lower Risk.

Conclusion — Capturing wild animals is a common practice in Afghanistan (see for example Ostrowski, 2006 for birds). Although its impact on local populations is unknown, it is of concern that individuals from relatively rare species, such as the Asiatic black bear and to a lesser extent the Pallas’s cat and the cinereous vulture, may be marketed or end-up in the zoo. Afghanistan is in need of public and institutional awareness about wildlife protection and preservation. People should be informed that capturing wild animals has become a questionable practice in view of the increasing threats affecting animals regionally and worldwide. To be coherent with such awareness campaign, Kabul zoo should change its policy concerning incoming animals and refuse donations of animals captured in the wild or of doubtful origin.

³ According to the IUCN Red List Categories and Criteria (2001), a species is assessed as Least Concern (LC) when it has been evaluated against the defined criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category. A species is assessed as Near Threatened (NT) when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

The older 1994 version of the IUCN Red List Categories and Criteria had only a single Lower Risk (LR) category which contained three subcategories: Conservation Dependent (LR/cd), Near Threatened (LR/nt) and Least Concern (LR/lc). In the 2001 system, Near Threatened and Least Concern have now become their own categories, while Conservation Dependent is no longer used and has been merged into Near Threatened.

A species is assessed as Vulnerable (VU) when the best available evidence indicate that it meets any of the criteria listed for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.

Table 4 — List of mammal species anesthetized at Kabul zoo, June 2007.

Common name	Numbers	Drug combination	Body mass	Remarks
Asiatic black bear	4	370–500 mg Zoletil® + 100 mg ketamine + 30–50 mg xylazine IM, reversed with 7.5 mg atipamezole IM	(Est.) 90–130 kg	Four males, identified with Trovan® microchips: #006964D13, #006965937, #006964D47, and #0069656D6
Wolf	2	250–275 mg ketamine + 45–65 mg xylazine IM, reversed with 10–15 mg atipamezole IM	31.5(m) and 34(f) kg	One male and one lactating female.
Pallas's cat	3	20–25mg ketamine + 0.15 mg medetomidine IM, reversed with 0.55 mg atipamezole IM	1.4–3.2 kg	Two males and one female.

Of course, such drastic change in zoo policy should not be imposed but thoroughly discussed with the managerial staff and perhaps progressively implemented on a case by case basis. I plan to revisit the zoo in October 2007. In collaboration with the zoo staff, I will capture vultures for vaccination against Newcastle Disease and blood sampling for avian influenza testing. I may also take this opportunity to examine gazelles and the small collection of reptiles and amphibians.

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From top left, clockwise: Plate 1. Dr Kadr, senior veterinary officer at Kabul Zoo, holding a tranquilized Pallas's cat. Plate 2. The 'bear keeper' of Kabul zoo monitoring the respiration rate of two anesthetized endangered Asiatic black bears. Plate 3. Dr Kadr preparing a tranquilized Asiatic black bear for blood sampling from the femoral artery.