examined. Peripheral blood smears from another 16-year old ailing female leopard having a history of complete anorexia and severe dehydration, were similarly stained and examined for haemoprotozoan infection.

Blood smear examination revealed *Babesia* sp. organisms from both the dead as well as ailing leopards (Image 1[w]), which is in consonance with the findings of Upadhye & Dhoot (2000) who recorded babesiosis from the same zoo. Similarly, Shortt (1940) also reported *Babesia* sp. organisms in a leopard from Coimbatore district. Khurana (1969) and Sinha *et al.* (2000) observed babesiosis in a white tiger from National Zoological Park, Delhi and in a tigress form Birsa Jaivic Udyan, Ranchi, respectively. The complete anorexia recorded in ailing leopard conforms to the findings of Khurana (1969), Upadhye & Dhoot (2000), and Sinha *et al.* (2000), who recorded anorexia in white tiger, leopard and tigress, respectively. Additionally, all the dead leopards manifested clinical symptoms, *viz.*, dehydration, convulsions and lumbar pain, before death. The PM examination revealed oedematous lungs, splenomegaly, congestion of liver and kidney and pale mucous membranes indicating severe anaemia, which is in conformity with the findings of Upadhye & Dhoot (2000), who also illustrated enlargement of the spleen.

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A note on occurrence of *Spirometra* infection in Leopard *Panthera pardus* from Nagpur region

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Spirometra species are rarely pathogenic but the plerocercoids are of public health significance as a cause of sparganosis in human beings. In India, *Spirometra* infection has been reported from wild carnivores like Lion, Tiger, Wolf, Leopard, Jackal, Jungle Cat, Fox and Indian lesser cat (Niphadkar *et al.*, 1989; Rao & Acharjyo, 1994; Thiruthalinathan *et al.*, 1998; Jithendran, 2002). This note is of S*pirometra* infection in Leopard from Nagpur region is reported here.

An ailing 4-year old leopard (*Panthera pardus*) of the Forest Department, Tah-Wadsa, Chandrapur district, Maharashtra was presented for treatment at Nagpur Veterinary College Hospital, Nagpur. The animal later succumbed to severe injuries. At necropsy, the intestine was filled with parasites; the intestinal contents were collected and examined qualitatively for parasitic infections. Helminth parasites were collected, washed and stained for taxonomic identification (Yamaguti, 1959)

Macroscopic and microscopic examination of the collected parasites revealed the pseudophyllidian cestode (without a well defined scolex but acetabulum with a pair of grooves). Further, ova isolated by trichurating the gravid segments indicated operculated eggs, which were pointed at each end, confirming the *Spirometra* infection.

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Rehabilitation of an injured Shikra *Accipter badius*

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plus web supplement of 2 pages

Urbanization and the consequent loss of natural habitat has led to an increasing number of confrontations between wildlife and man. There is also an increased public awareness to help the injured wild animals. Because of their beauty and biology birds of prey enjoy a status of high priority (Hatt *et. al.*, 1995).

The forest range officer of Bhubaneswar presented an injured bird of prey to the surgery clinic of Orissa Veterinary College - the bird was unable to fly and was chased by stray dogs in the outskirts of Bhubaneswar. The Shikra was restrained physically with securely holding its head at its back and the legs. On physical examination a compound fracture of its left wing was detected (Image 1[w]). A radiograph of the affected wing revealed a distal radio-ulnar fracture with a bullet embedded in it (Image 2[w]). The bullet was palpated through the skin and a nick incision was given (Image 3[w]) to take out the bullet (Image 4[w]). The wound was irrigated with povidon-iodine lotion and one retention was applied to appose the skin edges leaving a drainage point. The retrieved bullet was suspected to be fired from an air gun rifle. The wing was immobilized with a splint made of micro-pore adhesive tape which was additionally supported with pieces of broom stick kept under the tape. The Shikra was handed over to a care taker for routine care. The bird was kept in a paper carton with small holes for ventilation. Small pieces of chicken

[w] See Images in the web supplement at www.zoosprint.org

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were offered which the bird caught with great difficulty.

After a month the splint was removed and the wound was marked to be healed completely (Image 5[W]). When held with legs the bird showed rising of its two wings (Image 6[W]) in an attempt to fly, but when released it was unable to fly high for a longer distance. A radiograph was suggested to evaluate the fracture healing. While entering the x-ray room the Shikra suddenly flew and caught a gecko with its left leg (Image 7[W]) and swallowed it immediately. Subsequent radiograph revealed clinical union of the bones with a callous. The gecko could also be marked inside the crop of the bird (Image 8[W]). Then the Shikra was given back to the care taker to strengthen the wing and the flight muscles in hope of releasing it. The care taker allowed the bird to sit on tree branches for 5-10 minutes everyday. This routine was continued for a month and an increase in flying height and range of the bird was observed. Finally the bird was released near the area where it was found.

Because of repeated flying effort by the bird the splint might have loosened resulting in excess callous as evidenced by radiograph. Though there was not anatomical union, there was clinical union and the Shikra was able to fly and catch its prey. Hatt *et al.* (1995) stated that the path from a sick raptor to its successful rehabilitation is a complex puzzle because of frequently long convalescence which includes flight training. In the present case the care taker provided proper care and flight exercise which helped in rehabilitation and eventually release of the bird into the wild.

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Acknowledgement: Authors are thankful to Eezaz Chand, Bhubaneswar, for taking care in rehabilitating the bird in captivity.

Editor's Note: Invasive veterinary procedures such as this is best carried out under anaesthetic conditions from a welfare point of view.

Visceral gout in a White-backed Vulture *Gyps bengalensis*

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Gout is a metabolic disorder characterized by deposition of uric acid and urates in the body tissues. It occurs in two forms, synovial and visceral affecting eagles, falcons, hawks, owls and vultures with grave prognosis and palliative treatment. The cause of metabolic disorder is unknown, but the renal lesions associated with vitamin A deficiency, pyelonephritis, renal neoplasia, high protein diet and incorrect amino acid balance are predisposing factors (Fowler, 1986). Prakash (2001) reported decline in both White-backed and Long-billed Vultures in India because of breeding failure and high mortality due to neck drooping syndrome. Virani *et al.* (2001) observed presence of visceral gout in 71% of adult vultures necropsied in Pakistan. They ascribed the cause to be visceral gout coinciding with head-drooping behaviour due to increasing ambient temperature and possibly other stresses. The present paper describes visceral gout in a captive White-backed Vulture *Gyps bengalensis* of Nandankanan Zoo.

Two captive vultures, one male and one female, both aged about 25 years were observed to be depressed and anorectic. Multivitamin drops were administered for two days without any improvement. On 18.ii.2006 the male vulture died (Image 1[W]).

External examination of the carcass revealed chalky white deposits sticking around the vent. The postmortem lesions included white fine granules of urates on all visceral surfaces (Image 2[W]). These granules were most abundant on pericardium and visceral surface of liver (Image 3[W]) where they caused adhesion to adjacent organs. Chalky streaks of urates were also seen beneath peritoneum and the fascia of the musculature. The kidneys were enlarged, swollen and white tan in colour with deposits of urate crystals. The ureters were greatly distended. The histopathology of kidney sections showed marked congestion and presence of urate crystals replacing the kidney tubules (Image 4[W]). The urate crystals were arranged in radiating manner forming urate tophi (Image 5[W]). The presence of urate crystals were confirmed by degalanthas stain. Hence, death of the vulture was due to visceral gout. Next day the diet of the female vulture was changed from buffalo meat to goat meat. Administration of multivitamin drops continued and the female vulture showed improvement.

In the present case the male vulture did not show any clinical signs except anorexia and dullness as indicated by Fowler (1986). The postmortem lesions confirmed the case to be visceral gout coinciding with high ambient temperature during February in this region. As the birds affected with gout should be placed on a low-protein diet, the change of the diet to goat meat saved the female vulture although according to FAO the protein score for goat meat is 84 as compared to 89 for beef which does not seem like a significant difference.

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[W] See Images 1-5 in the web supplement at www.zoosprint.org

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