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ENVIS

ENVIS (Environmental Information System) is a network of subject specific centers located in various institutions throughout India. The Focal Point of the present 78 ENVIS centres in India is at the Ministry of Environment and Forests, New Delhi, which further serves as the Regional Service Centre (RCS) for INFOTERRA, the global information network of the United Nations Environment Programme (UNEP) to cater to environment information needs in the South Asian sub-region. The primary objective of all ENVIS centres is to collect, collate, store and disseminate environment related information to various user groups, including researchers, policy planners and decision makers.

The ENVIS Centre at the Bombay Natural History Society was set up in June 1996 to serve as a source of information on Avian Ecology and Inland Wetlands.

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Cover: Great White Pelican
Pelecanus onocrotalus
by Kedar Bhide

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C O N T E N T S

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78 threatened bird species in India

Presenting a depressing scenario of avian wealth, the IUCN Red List 2008 features India prominently among the ten countries in the world having the largest number of threatened species of birds. Brazil tops the list with 141 while India is ranked seventh with 78, reports the BirdLife International, the Cambridge based global alliance of conservation organisations and an authority for the IUCN Red List of Threatened Species.

Of the 78 threatened species in India, which includes migratory species, 13 are categorized as Critically Endangered (facing an extremely high risk of extinction in the wild), 10 as Endangered (facing a very high risk of extinction in the wild) and the remaining as Vulnerable (facing high risk of extinction in the wild). Two of the species, Baer's Pochard *Aythya baeri* and Spoon-billed Sandpiper *Eurynorhynchus pygmeus*, have been uplisted, from Vulnerable to Endangered and from Endangered to Critically Endangered respectively. The decline of the Pochards's population was traced to wetland destruction while that of the charismatic Sandpiper's to habitat loss in its breeding, passage and wintering grounds and effects of climate change. New research has shown the Yellow-breasted Bunting *Emberiza aureola* to be rarer than it was believed. Formerly classified, as Near Threatened it has been uplisted to Vulnerable.

GIRISH JATHAR

The Forest Owlet *Heteroglaux blewitti*

Following the evaluation of its population size, the Eurasian Curlew *Numenius arquata* was found to be rarer than generally assumed, uplisting it to Near threatened. Likewise, following the splitting of the newly-recognized species, the populations of *Spelaeornis chocolatinus* (Long-tailed Wren-babbler) are small enough to warrant uplisting it to Near Threatened status, from the previous status of Least Concern. The decline of the populations of Blackish-breasted Babbler *Sphenocichla humei* and Chevron-breasted Babbler *Sphenocichla roberti* were traced to shifting cultivation, logging and the reducing forest cover. Due to lack of reliable information on its status, Andaman Crake *Rallina canningi* was formerly classified as Data Deficient.

LIST OF THE THREATENED BIRDS OF INDIA

1	CR	Himalayan Quail *Ophrysia superciliosa*	16	EN	White-winged Duck *Cairina scutulata*
2	CR	Pink-headed Duck *Rhodonessa caryophyllacea*	17	EN	Baer's Pochard *Aythya baeri*
3	CR	White-bellied Heron *Ardea insignis*	18	EN	White-headed Duck *Oxyura leucocephala*
4	CR	White-rumped Vulture *Gyps bengalensis*	19	EN	Greater Adjutant *Leptoptilos dubius*
5	CR	Indian Vulture *Gyps indicus*	20	EN	Saker Falcon *Falco cherrug*
6	CR	Slender-billed Vulture *Gyps tenuirostris*	21	EN	Egyptian Vulture *Neophron percnopterus*
7	CR	Red-headed Vulture *Sarcogyps calvus*	22	EN	Great Indian Bustard *Ardeotis nigriceps*
8	CR	Bengal Florican *Houbaropsis bengalensis*	23	EN	Lesser Florican *Sypheotides indicus*
9	CR	Siberian Crane *Grus leucogeranus*	24	EN	Spotted Greenshank *Tringa guttifer*
10	CR	Sociable Lapwing *Vanellus gregarius*	25	EN	Rufous-breasted Laughingthrush *Garrulax cachinnans*
11	CR	Spoon-billed Sandpiper *Eurynorhynchus pygmeus*	26	VU	Nicobar Megapode *Megapodius nicobariensis*
12	CR	Jerdon's Courser *Rhinoptilus bitorquatus*	27	VU	Swamp Francolin *Francolinus gularis*
13	CR	Forest Owlet *Heteroglaux blewitti*	28	VU	Manipur Bush-quail *Perdicula manipurensis*
14	DD	Nicobar Scops-owl *Otus alius*	29	VU	Chestnut-breasted Partridge *Arborophila mandellii*
15	DD	Large-billed Reed-warbler *Acrocephalus orinus*	30	VU	Western Tragopan *Tragopan melanocephalus*

National News

LIST OF THE THREATENED BIRDS OF INDIA *(contd.)*					
31	VU	Blyth's Tragopan *Tragopan blythii*	55	VU	Narcondam Hornbill *Aceros narcondami*
32	VU	Sclater's Monal *Lophophorus sclateri*	56	VU	White-naped Tit *Parus nuchalis*
33	VU	Cheer Pheasant *Catreus wallichi*	57	VU	Grey-crowned Prinia *Prinia cinereocapilla*
34	VU	Green Peafowl *Pavo muticus*	58	VU	Yellow-throated Bulbul *Pycnonotus xantholaemus*
35	VU	Marbled Teal *Marmaronetta angustirostris*	59	VU	Nicobar Bulbul *Hypsipetes nicobariensis*
36	VU	Lesser Adjutant *Leptoptilos javanicus*	60	VU	Bristled Grassbird *Chaetornis striata*
37	VU	Dalmatian Pelican *Pelecanus crispus*	61	VU	Broad-tailed Grassbird *Schoenicola platyurus*
38	VU	Lesser Kestrel *Falco naumanni*	62	VU	Marsh Babbler *Pellorneum palustre*
39	VU	Pallas's Fish-eagle *Haliaeetus leucoryphus*	63	VU	Rusty-throated Wren-babbler *Spelaeornis badeigularis*
40	VU	Nicobar Sparrowhawk *Accipiter butleri*	64	VU	Tawny-breasted Wren-babbler *Spelaeornis longicaudatus*
41	VU	Indian Spotted Eagle *Aquila hastata*	65	VU	Snowy-throated Babbler *Stachyris oglei*
42	VU	Greater Spotted Eagle *Aquila clanga*	66	VU	Jerdon's Babbler *Chrysomma altirostre*
43	VU	Eastern Imperial Eagle *Aquila heliaca*	67	VU	Slender-billed Babbler *Turdoides longirostris*
44	VU	Houbara Bustard *Chlamydotis undulata*	68	VU	Bugun Liocichla *Liocichla bugunorum*
45	VU	Masked Finfoot *Heliopais personatus*	69	VU	Black-breasted Parrotbill *Paradoxornis flavirostris*
46	VU	Sarus Crane *Grus antigone*	70	VU	Beautiful Nuthatch *Sitta formosa*
47	VU	Black-necked Crane *Grus nigricollis*	71	VU	Grey-sided Thrush *Turdus feae*
48	VU	Wood Snipe *Gallinago nemoricola*	72	VU	White-bellied Shortwing *Brachypteryx major*
49	VU	Indian Skimmer *Rynchops albicollis*	73	VU	White-browed Bushchat *Saxicola macrorhynchus*
50	VU	Pale-backed Pigeon *Columba eversmanni*	74	VU	White-throated Bushchat *Saxicola insignis*
51	VU	Nilgiri Wood-pigeon *Columba elphinstonii*	75	VU	Kashmir Flycatcher *Ficedula subrubra*
52	VU	Pale-capped Pigeon *Columba punicea*	76	VU	Yellow Weaver *Ploceus megarhynchus*
53	VU	Dark-rumped Swift *Apus acuticauda*	77	VU	Green Avadavat *Amandava formosa*
54	VU	Rufous-necked Hornbill *Aceros nipalensis*	78	VU	Yellow-breasted Bunting *Emberiza aureola*

CR = Critically Endangered, EN = Endangered, DD = Data Deficient, VU = Vulnerable

P. JEGANATHAN

Jerdon's Courser *Rhinoptilus bitorquatus*

New research has shown it to be somewhat rare. Consequently, it is listed at Near Threatened. Previously listed as Near Threatened, the Wedge-billed Wren-babbler *Sphenocichla humei* has been downlisted among the rest to Least Concerned, following an evaluation of its population size.

Elsewhere, the 2008 Red List makes grim reading with 1,226 species of bird in the world now threatened and eight species newly uplisted to Critically Endangered, the highest threat category. On the national front too, the picture is grim with an addition of two species to the list as against the list of 2007 totaling to 76. ■

Source: BirdLife International 2008/BNHS

Tata withdraws Natron Project ESIA Report

Tata Chemicals Ltd (TCL) has finally withdrawn the much discredited Environmental and Social Impact Assessment (ESIA) Report for the proposed Lake Natron soda ash plant. The development has been opposed by national NGOs in Tanzania, the Lake Natron Consultative Group (a consortium of 32 mainly East African NGOs), BirdLife International and the Royal Society for the Protection of Birds (RSPB; BirdLife in the UK), for posing serious threats to the survival of Lesser Flamingos *Phoeniconaias minor* and the livelihood of local communities. In an apparent response to these concerns, the company told a stakeholder meeting hosted by the World Bank in Dar–es –Salaam, that they had asked the Tanzanian government to disregard the earlier report as the company plans to work on new studies on the matter. During the meeting - attended by a wide range of donors, media, government personalities and the private sector - Lota Melamari, the CEO of the Wildlife Conservation Society of Tanzania (WCST, BirdLife in Tanzania) presented a strong case for the complete abandonment of the project in a presentation entitled "Flamingos of Lake Natron, a Tanzanian Treasure". In his talk, Lota described Natron's vast flocks of shimmering pink flamingos as one of the world's greatest wildlife attractions. At the same meeting the Tourism Services Manager of the Tanzania Tourist Board, Ms Serena Shao, warned that Tanzania may not achieve its tourism targets if key attractions are destroyed. She emphasized that the soda ash proposal must be critically analysed given that Tanzania currently earns over 1 billion US dollars from tourism. She added that their dream of attracting one million tourists by 2010 may not be achieved if key attractions like Lake Natron are damaged. In response to the investor's withdrawal of the project, the new Environment Minister of Tanzania (Dr. Batilda Burian) called a press conference on 1 May 2008 and issued a government statement in which she warned that while the investors were free to conduct a fresh ESIA, they should be aware that unless their report satisfied environmental and social concerns, no approval would be granted. Dr. Burian further said that a new ESIA must be preceded by the development of an Integrated Management Plan for the Lake Natron Ramsar Site, which would spell out the

ISAAC KEHIMKAR

The Lesser Flamingos at lake Natron

future conservation and development agenda for the area. BirdLife International, the RSPB and the Lake Natron Consultative Group welcome the investor's decision to withdraw the initial ESIA report submitted to NEMC. Shifting the project 32 km away from Lake Natron does not amount to "mitigation" of the serious impacts the project is likely to pose to the Lesser Flamingos and the local communities. The project impacts are not limited to the operations of the plant alone but the whole process of brine extraction (including an intricate network of pipes and roads on the surface of the lake as is the case at Lake Magadi in Kenya), pumping and processing. In a related development, the Lake Natron Consultative Group, of which the BirdLife Africa Partnership Secretariat is a member, has stepped up its advocacy campaign to save Lake Natron following the investors' announcement that the project will be shifted to a new site. The Group held an International Press conference in Nairobi last week and declared that it was opposed to the plans by the investor to continue with plans for development of the soda ash plant by shifting the site 32 km away from Lake Natron. BirdLife International's position still remains that the risks posed by the proposed project are extremely serious in relation to the lesser flamingos breeding and therefore urges the Tanzanian Government to reject the project altogether. ■

Source: http://www.birdlife.org/news/news/2008/05/Lake_Natron.html

Ornithologists announce discovery of new bird species

The announcement of the discovery of a new bird comes with a twist: It is a White-eye, but its eye is not white. Still, what this new bird lacks in literal qualities it makes up for as one of the surprises that nature still has tucked away in little-explored corners of the world. Ornithologists, including one from the Michigan State University (MSU), describe for science a new species of bird from the Togian Islands of Indonesia – *Zosterops somadikartai*, or Togian White-eye, in the March edition of *The Wilson Journal of Ornithology*. Its eye is not ringed in a band of white feathers like its cousins who flock in other remote tropical islands of Indonesia. Still, it has many features in common with the Black-crowned White-eye *Zosterops atrifrons* of Sulawesi, which is clearly its closest relative, said MSU's Pamela Rasmussen, an internationally known ornithologist specializing in Asian birds. The Togian White-eye was first spotted by Mochamad Indrawan, an Indonesian field biologist at the Depok Campus of the University of Indonesia, and Sunarto, who is now working on a doctorate at Virginia Tech, 12 years ago during their first trip to the Togian Islands. Those first sightings were fleeting, but Indrawan and Sunarto returned and made several more observations of these active little green birds, and obtained the type specimen upon which the species' description is now founded. The type specimen was then sent on loan to Rasmussen at the MSU Museum, so she could make detailed comparisons between it and related species at museums such as Britain's Natural History Museum, the American Museum in New York and the Smithsonian Institution. The new bird is believed to be endangered. The White-eye has been seen only near the coasts of three small islands of the Togian Islands in central Sulawesi. Unlike most White-eye species, it is evidently quite uncommon even in its very limited range. Considering its limited numbers and distribution, it falls into the World Conservation Union category of 'Endangered'. This finding also establishes the Togian Islands as an Endemic Bird Area.

The species is named for Soekarja Somadikarta, Indonesia's leading taxonomist and mentor to Indrawan. Somadikarta was recently appointed honorary president for International Ornithological Congress XXV. Rasmussen noted that the Togian White-eye is distinctive not only in appearance, but its lilting song, which Indrawan recorded and Rasmussen committed to sonogram, sounds higher pitched and is less varied in pitch than its close relatives. Rasmussen says that the discovery highlights that in some parts of the world there are still virtually unexplored islands where few ornithologists have worked, which still hold avian surprises.

Rasmussen is assistant curator of mammalogy and ornithology at the MSU Museum and an assistant professor of zoology. She recently authored a field guide *Birds of South Asia: The Ripley Guide*. On the way there, her work on uncovering the ornithological frauds of British Col. Richard Meinertzhagen has received international attention, detailed in *Nature*, the May 2006 *The New Yorker, and The Best American Science and Nature Writing 2007*.■

Source: http://newsroom.msu.edu/site/indexer/3346/content.htm

Conservation of Raptors and Falconry

Shivani Jadeja,
BNHS Member, Vadodara

Travelling on a highway gives me an opportunity to look for a Common Kestrel *Falco tinnunculus* hovering, in search of prey. The sight is simply magical! During vacations at my grandparents', I spend time watching a pair of Shikras *Accipiter badius* that nested each year in a tall *Eucalyptus* tree in the garden. But I fear the time when I will no more see these wonderful raptors and many others.

Today some raptors found in India are threatened according to the IUCN Red List. The Laggar Falcon *Falco jugger*, a widespread resident, is Near Threatened. The Saker Falcon *Falco cherrug* and the Eastern Imperial Eagle *Aquila heliaca*, both winter visitor, are Endangered and Vulnerable respectively. There are many others that used to be common, and are now rare. Vulture decline in India has been highlighted but awareness about the plight of other raptor species seems to be minimal. I believe that sooner or later, owing to the contamination of our ecosystem with pesticides, heavy metals and other toxins, raptors will be affected and we will end up losing some of our ecologically important top carnivores. The bioaccumulation and biomagnifications of man-made chemicals and toxins not only lead to the death of these splendid birds, but also smaller birds, mammals and reptiles that they feed on. The effect is seen on the entire food web. Being on the top of the food chain, birds of prey act as

SOURCE: JADEJA FAMILY ALBUM

The Peregrine Falcon *Falco peregrinus*

SOURCE: JADEJA FAMILY ALBUM

Late Mr. Vijayrajsinh Jadeja training a Peregrine Falcon

indicators of the health of the ecosystem. So, the importance of raptors in an ecosystem is clear. Sadly these birds are being affected by loss of habitat as expanding cities are engulfing their breeding and hunting sites. The Peregrine Falcons *Falco peregrinus* once often seen, are now a rare sight.

Humans have been training raptors for ages; Falconry is the ancient art involving the use of trained raptors to hunt for humans. Falconry and hawking have been associated with man for at least 4,000 years. There are evidences that falconry and hawking originated in parts of Central Asia and went on to become a sport in Syria, Persia, Arabia and in many parts of India. Over the years falconry spread to the west.

SOURCE: JADEJA FAMILY ALBUM

Juvenile Crested Hawk-eagle *Spizaetus cirrhatus*

My late father Vijayrajsinh Jadeja was passionate about raptors and falconry. He used to train birds of prey himself and growing up with Shikras (*Accipiter badius*), Laggars (*Falco jugger*), Peregrines (*Falco peregrinus*) and Merlins (*Falco columbarius)* has encouraged my own interest in falconry. A falconer keeps birds of prey and trains them to hunt for him. What originated as a means to procure food for the falconer became a graceful sport for Kings and Sheikhs. Even women from royal families took great interest in falconry. Rulers made laws protecting these birds, ensuring they were treated with care.

Over the years falconers have gathered a great deal of knowledge about the birds they trained. Around the world, falconers have developed an insight into the aspects of the raptors' lives. They are masters in identifying these difficult birds even from their silhouettes in flight. They understand their behaviour, their breeding biology, preventive medication, the diseases affecting them and their treatment.

Birds of prey have been wiped out from many parts of the world. This problem can be solved using the art of falconry. A bird cannot be released in the wild if it has lived for long, or was born in captivity. It will eventually die, as it will not know how to hunt. The falconer's method of training birds taken from the nest to hunt, called 'Hacking out', has been used for reintroduction. Exemplary is

SOURCE: JADEJA FAMILY ALBUM

A Peregrine Falcon with its hood, jesses and gorment

the training and the subsequent release of the Golden Eagles *Aquila chrysaetos* by the San Francisco Zoo. To revive the failing populations of these graceful hunters of the sky captive breeding is required. The National Birds of Prey Centre (NBPC) in England has successfully used captive breeding and falconry to re-introduce raptors in the wild. Falconers are often believed to be a threat to the wild populations of the birds they capture and train. Jemima Parry-Jones of the NBPC says that more birds were taken from the wild for falconry in the Middle Ages than any other time in this century, yet no species had suffered a decline then. Actually falconers have opened new avenue, by virtue of their knowledge, experience and passion for wildlife, for the conservation of these threatened species.

Today, falconry is illegal in India and these powerful birds of prey are protected under the Wildlife (Protection) Act, 1972. On the contarary many Gulf and Western countries practice falconry legally. With falconry no more being practiced in India, one wonders if the secrets of the great Indian falconers would be lost forever.

Even today in India there are people passionate about falconry. Given a chance they can play an important role in the conservation of our falcons, hawks and eagles. Having centers for raptors in the country would help save injured or confiscated raptors. We could give them another chance to soar in our skies. It would allow immense interest in scientific research in the field. Educational programmes could help make people aware of the beauty and power of these brave birds and also the need to save them. In the future re-introduction programmes could also be a possibility.

The West has already tapped into the secrets and lores of falconry. Despite the disregard for falconry today, the art has found new applications. Alongside conservation, falconry is being used to prevent bird hazard at airports in USA, Israel and South Africa. Collisions of birds with aircrafts not only kill the birds but also put lives of pilots and people in danger. At many civil and defence airports trained birds of prey are kept to keep the 'problem' birds away. This is one of the most effective methods to avoid bird hazard. Who could have thought, an aid to hunt could save lives! What was only a passion for me, now seems to be a conservation strategy.

Such successes inspire me to revive ancient arts and techniques in hope of finding old solutions to new hurdles. I look forward to seeing this royal sport of falconry go hand in hand with other conservation initiatives. ■

Species fact sheet

Critically Endangered

Bengal Florican *Houbaropsis bengalensis*

This bustard has a very small, de clining population; a trend that has recently become extremely rapid and is predicted to continue in the near future, largely as a result of widespread and ongoing conversion of its grassland habitat for agriculture. It therefore qualifies as Critically Endangered

The Bengal Florican is 66-68 cm. in size and entirely black, with white wings. In flight, the wings appear entirely white except for the black tips. The male is black from head to neck and on its underparts. Upperparts are buff with fine black vermiculations and black arrowhead markings, and it has a conspicuous white patch on the wing coverts. Females are larger than males and have a buff brown colour, with a dark brown crown and narrow dark streak down the side of the neck. Immature are buff-brown to sandy-rufous, and have buffish-white wing-coverts with fine, dark barring. They are normally silent but utter a shrill metallic *chik-chik-chik* when disturbed. During display they croak and utter strange deep humming. They are usually seen in the early mornings and evenings, and are especially easily spotted in the breeding season of March to August.

The Bengal Florican is a summer breeder arriving in grasslands at the end of February after the grasses are burnt down, as is the annual traditional practice. Males arrive first and occupy their territories for foraging and display, the former being larger and the latter located at the most visible location within the territory. Males are solitary during the breeding season and coming together of two or more males results in threats, chases and fights. Females arrive later on which is followed by courtship, which constitutes the male

Bengal Florican *Houbaropsis bengalensis*

performing the flight display erecting its neck and head plumes. Breeding ends in the month of July after which they leave. They nest on ground, the nest being a simple scrape in the ground without any nesting material added.

Houbaropsis bengalensis has two disjunct populations, one in the Indian subcontinent, the other in South-East Asia. The former occurs from Uttar Pradesh, India, through the terai of Nepal, to Assam and Arunachal Pradesh, India, and historically to Bangladesh. It has declined dramatically and only survives in small, highly fragmented populations (220-280 birds in India and up to 100 in Nepal). Declines have apparently continued in Nepal, even inside the protected Royal Chitwan National Park, but they may have stabilized in India. A recent estimate put the Nepalese population at just 32-60 individuals. The South-East Asian population occurs in Cambodia and may be extant in southern Vietnam. The Cambodian population currently numbers *c*. 600-900 individuals at its known stronghold in the alluvial lowlands of the country, in particular the floodplain of the Tonle Sap lake. However, this population has begun to decline rapidly falling from a projected 3,000 individuals in 1997 to 700 individuals in 2005/2006 owing to rapid habitat conversion. This rate of decline will equate to over 80% during a three-generation period. Were this decline to continue unchecked, it is conceivable that the species may be extinct in the country within 5 years.

It inhabits lowland dry, or seasonally inundated, natural and semi-natural grasslands, often interspersed with scattered scrub or patchy open forest. Most Indian populations appear to be resident. In Cambodia it is known to make relatively local seasonal movements, in response to the flooding regime of the Tonle Sap lake: in the dry season, the species breeds in grasslands in the inundation zone of the lake; it then moves to nearby open forest areas during the wet season.

The key threat is extensive loss and modification of grasslands through drainage, conversion to agriculture, overgrazing, inappropriate cutting and burning regimes and heavy flooding. In particular, the spread of dry season rice cultivation in Cambodia is rapidly converting existing grassland habitat. Excessive hunting for sport and food may have triggered its decline, and continues to be a serious threat, especially in Cambodia. Other threats include human disturbance and trampling of nests by livestock. At least in South Asia, most populations are small, isolated and vulnerable to local extirpation. ■

Source: Sankaran, R. (1991): Some aspects of the breeding behaviour of the Lesser Florican *Sypheotides indicus* and the Bengal Florican *Houbaropsis bengalensis*, Ph. D. thesis, Univ.of Bombay./ BirdLife International 2008

Vulture Decline in South Asia

DICLOFENAC RESIDUES AS THE CAUSE OF VULTURE POPULATION DECLINE IN PAKISTAN

J. Lindsay Oaks, Martin Gilbert, Munir Z. Virani, Richard T. Watson, Carol U. Meteyer, Bruce A. Rideout, H. L. Shivaprasad, Shakeel Ahmed, Muhammad Jamshed Iqbal Chaudhry, Muhammad Arshad, Shahid Mahmood, Ahmad Ali and Aleem Ahmed Khan

The Oriental white-backed vulture (OWBV; *Gyps bengalensis*) was once one of the most common raptors in the Indian subcontinent. A population decline of >95%, starting in the 1990s, was first noted at Keoladeo National Park, India. Since then, catastrophic declines, also involving *Gyps indicus* and *Gyps tenuirostris*, have continued to be reported across the subcontinent. Consequently these vultures are now listed as Critically Endangered by BirdLife International. In 2000, the Peregrine Fund initiated its Asian Vulture Crisis Project with the Ornithological Society of Pakistan, establishing study sites at 16 OWBV colonies in the Kasur, Khanewal and Muzaffargarh–Layyah Districts of Pakistan to measure mortality at over 2,400 active nest sites. Between 2000 and 2003, high annual adult and Subadult mortality (5–86%) and resulting population declines (34–95%) (ref. 5 and M.G., manuscript in preparation) were associated with renal failure and visceral gout. Here, we provide results that directly correlate residues of the anti-inflammatory drug Diclofenac with renal failure. Diclofenac residues and renal disease were reproduced experimentally in OWBVs by direct oral exposure and through feeding vultures diclofenac-treated livestock. We propose that residues of veterinary diclofenac are responsible for the OWBV decline.

***NATURE* (2004): 427, pp- 630-633.**

PATHOLOGY AND PROPOSED PATHOPHYSIOLOGY OF DICLOFENAC POISONING IN FREE-LIVING AND EXPERIMENTALLY EXPOSED ORIENTAL WHITE-BACKED VULTURES (*GYPS BENGALENSIS*)

Carol Uphoff Meteyer, Bruce A. Rideout, Martin Gilbert, H. L. Shivaprasad, and J. Lindsay Oaks

Oriental white-backed vultures (*Gyps bengalensis*; OWBVs) died of renal failure when they ingested Diclofenac, a nonsteroidal anti-inflammatory drug (NSAID), in tissues of domestic livestock. Acute necrosis of proximal convoluted tubules in these vultures was severe. Glomeruli, distal convoluted tubules, and collecting tubules were relatively spared in the vultures that had early lesions. In most vultures, however, lesions became extensive with large urate aggregates obscuring renal architecture. Inflammation was minimal. Extensive urate precipitation on the surface and within organ parenchyma (visceral gout) was consistently found in vultures with renal failure. Very little is known about the physiologic effect of NSAIDs in birds. Research in mammals has shown that Diclofenac inhibits formation of prostaglandins. We propose that the mechanism by which Diclofenac induces renal failure in the OWBV is through the inhibition of the modulating effect of prostaglandin on angiotensin II-mediated adrenergic stimulation. Renal portal valves open in response to adrenergic stimulation, redirecting portal blood to the caudal vena cava and bypassing the kidney. If Diclofenac removes a modulating effect of prostaglandins on the renal portal valves, indiscriminant activation of these valves would redirect the primary nutrient blood supply away from the renal cortex. Resulting ischemic necrosis of the cortical proximal convoluted tubules would be consistent with our histologic findings in these OWBVs.

***JOURNAL OF WILDLIFE DISEASES* (2005): 41(4), pp- 707–716.**

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BOMBAY NATURAL HISTORY SOCIETY

Founded in 1883 for the study of natural history, the Bombay Natural History Society (BNHS) is now one of the premier research and conservation organisations in the country. The Society publishes a journal, the Journal of the Bombay Natural History Society, devoted to natural history and also has a popular publication, Hornbill, for the layman. It has also published a number of books on wildlife and nature. Its library has a large collection of books and scientific journals on wildlife and the environment. The Society's invaluable collection of bird, mammal, reptile, amphibian, insect and plant specimens has been recognised as a National Heritage Collection.

Membership of the Society is open to individuals and institutions within India and abroad. For more details, please write to:

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