



Editorial

Satish Pande



Participants and Organizing Committee members of the 8<sup>th</sup> Asian Raptor Research and Conservation Network (ARRCN) Conference held during 6 to 9 February 2014 at Pune, India.

The 8th Asian Raptor Research and Conservation Network (ARRCN) Conference was successfully hosted by Ela Foundation in collaboration with IISER, Pune, at IISER Campus and *Garud Maachi*, Pune, India during 6 to 9 February 2014. More than 230 participants including raptor researchers from 20 countries participated in this exciting event held every 2 years. The special 'Students Symposium' was overwhelmingly attended by over 200 student participants from India. The President of the ARRCN, Toru Yamazaki san has conveyed, 'I would like to express my best appreciation for the outstanding efforts of Organizing Committee members in India. In the special session on "Raptor Conservation and Culture", there were very interesting and significant presentations from each country. In addition, many important results about Vulture conservation were introduced by raptor researchers in India. There were so many presentations from which participants could choose. The ARRCN Symposium in India concluded with great success. During the farewell ceremony, the ARRCN Symposium Flag (made in Thailand!) was handed by Dr. Satish Pande san of India to the advertising team of Thailand'.

The ARRCN 9th Symposium will be held in October 2015 in Chumphon, Thailand.

**The following resolutions were approved and passed during the 8th ARRCN Symposium for the conservation of raptors that need priority attention of the Government of India, the public and NGO's:**

**Vulture Conservation:**

- 1a) The production of Diclofenac vials for human use should be limited to a maximum of 3 ml vials.
- 1b) Require safety testing of existing and emerging veterinary NSAID's.
- 1c) Only permit the use of vulture-safe drugs in veterinary practise.
- 1d) Identify a strategy for phasing out ketoprofen and aceclofenac drugs that are also known to be unsafe for vultures.
- 1e) Identify vulture breeding sites and protect them.
- 1f) Restrict mining, quarrying, developmental and recreational activities, etc. near vulture roost and nest sites.
- 1g) Promote and expand the network of vulture safe zones.

- 1h) Initiate scientific studies like ringing, wing-tagging, satellite tracking, etc. on a priority basis to elucidate the foraging range of vultures and to determine the area required for safe foraging zones.
- 7) Ban the use of nylon “*manja*” for kite flying in view risks to raptors and other birds.
- 8) Revise the conservation status of Indian diurnal and nocturnal raptors.

#### Renewable Energy and Raptors:

- 2) Facilitate a dialogue between stakeholders of renewable energy infrastructure and the conservation community (Government agencies, funding agencies, NGOs, academics) in view of risks to raptors from such energy structures.
- 2a) Strengthen coordination amongst the various government departments related to renewable energy.
- 2b) Recognize the threat to raptors from electrocution and implement safety measures.

#### Pesticides, heavy metals, others:

- 3) Investigate the negative effects of pesticides on raptors.
- 3a) Initiate a dialogue on the pesticide issue with stakeholders.
- 4) Investigate the extent of lead poisoning on raptors and take preventive action.
- 5) Identify and formalize an ‘Umbrella Group for Raptor Rehabilitation’.
- 6) Recognize the threats to Amur Falcons, and other raptors, during migration through India and safeguard their stopover sites on a wider scale by inter-state coordination

This resolution was signed by representatives from institutes such as: The Ornithological Society of Mongolia; University of Moscow, Russia; Asian Raptor Research and Conservation Network, Japan; representatives from Nepal, Israel, Kenya, Malaysia; Philippine Bird Society; State University of Yogyakarta and Kasetsart University, Thailand; Museum of Natural History Vienna, Austria; Raptor Indonesia; Raptor Research Group, Taiwan; Siberian Center for Ecological Studies, Russia; Darwin Biosphere Reserve, Russia; ; The Peregrine Fund, USA; Raptor Research Foundation, USA; The Denver Zoo, USA; The Royal Society for the Protection of Birds, UK; Aligarh Muslim University, India; Zoological Survey of India; Wildlife Institute of India; ATREE, India; Bombay Natural History Society, University of Goa; and Ela Foundation, India.

In this special issue of *Ela Journal*, original papers on Raptor Conservation and Culture from various countries are included. This is probably for the first time that such an attempt is made addressing the emerging field of Ethno-ornithology focused on raptor conservation in Asia.



**Inauguration of the 8<sup>th</sup> Asian Raptor Research and Conservation Network (ARRCN) Conference by Rishad Naoroji (right) with Satish Pande (left), Organizing Secretary; and Presidential address by Toru Yamazaki.**

## Raptors in Japanese Culture

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### ABSTRACT

In Japan, traditionally, there has been little persecution of raptors, because farming was more popular than herding and people did not regard raptors as their natural enemy. Even when utilizing raptors for falconry, raptors were cherished, because nature and its denizens were considered to have an intrinsic value. In this paper, I present a few cases illustrating the historical aspects of incorporation of raptors in the Japanese culture.

The oldest description of raptors in Japan is of Emperor Ojin, who enjoyed hawking during A.D.200. Nationwide, there are several places named after hawks or eagles. Place names often appear to have been associated with falconry, but several places are associated with the breeding sites of raptors.



Traditionally, each family has a family crest as its symbol. Samurai favored the crest using hawk feathers and there are about 60 varieties. Presently, family crest is used only on ceremonial occasions such as weddings. Arrows were made when samurai flourished (10-19th century). Eagles were hunted for procuring the highest-grade material of arrow feathers. Hunters called Matagi were making their living by hunting hare, fox and raccoon dog using Mountain Hawk Eagle during the winter. The practice is no longer seen after the war, because of the prohibition of maintaining hawks, reduction of prey and the shortage of trained successors. The cultural tradition of the art of catching raptors is no more seen, because of changing times and evolving values of people. "Culture of use" is shifting to "Culture of coexistence with love". Instead of catching raptors, taking pictures and observing them is becoming popular since the 1970s. But, we have new problems in the conservation of raptors such as the management of nesting locations and human stress on their habitat due to increasing development pressures.

#### Old records:



**Fig.1: Haniwa laid a hawk in hand (photo from the city of Ota's Web Site)**

The oldest description of people and raptors is of Emperor Ojin (200 AD), who enjoyed falconry using a hawk with a bell on the tail feather in the book named "Harima Fodoki". (Uegaki, 1997.) There is a symbolic meaning of authority in hunting activities that rulers performed, Haniwa or "clay image" showing the hawk in hand with a bell on the tail feathers (Fig.1) has been excavated from the mounds in Gunma prefecture around the

end of the sixth century.

The Emperor Saga had compiled a text describing the technique of falconry "Shinsyutakakyo", in the

eighth century; it is one of the old books on falconry in the world. "Waka" poetry is dedicated to the calling of an eagle of the mountain, in the songbook "Manyoshu" written in the 8th century. The oldest record that shows successful captive breeding of raptors, is that concerned with the military commander named Asakura Soteki in Fukui prefecture, who had succeeded in goshawk (*Accipiter gentilis fujiyamae*) breeding; it is written in the book "Yoyoki" in the 16th century. (Shimazu, T. edit, 1975.)

#### Places named after raptors:

Throughout Japan, many places are named after hawks or eagles. (Fujiwara K. 1987. Tanigawa, K. 1998.) Most of them are likely to be associated with hawk falconry for the Shogun. The name of the town "Takakai cho" means keeping hawks for falconry, and the mountain name "Takanosuyama" or "wasinosuyama" means the mountains where there are nests of hawks or eagles. Interestingly, in the most of these places, one can see hawks and eagles till date.

In addition, throughout Japan, large mountain rocks or boulders are called "Tenguwa". Iwa means rocks. People in old times, watched the Golden Eagle - Tengu (*Aquila chrysaetos japonica*) as they perched on such rocks. People named such eagle rocks as Tengu-iwa or rocks of the Golden Eagle. These rocks are located in the present habitat of the Golden Eagle and even today, one can see these eagles perched on the rocks.

#### Folklore:

Some birds of prey are also represented in folklore. These raptors include the Kite (*Milvus migrans lineatus*), Golden Eagle and Mountain Hawk Eagle (*Nisaetus nipalensis orientalis*). One of the most famous stories is the story of high priest Ryoben. As per this story, a baby was caught and carried away by a Golden Eagle near Kyoto, and this baby was later found and rescued from the top of cedar tree at Todaiji temple in Nara prefecture. The baby was reared by the monk of the temple, and subsequently grew admirably to become a famous High priest named Ryoben. (Ellis, D.H., author, edit.2013.)

#### Tengu story:

There many Tengu stories. Tengu is an imaginary animal in the folklore. Tengu are said to have golden eyes and long nose, wear high wooden clogs, and can

fly in the sky with wings and feather like a folding fan. These features are consistent with the Golden Eagle flying around the sky, having big beak, long legs and golden eyes. In the folklore, the appearance of the Tengu that came down using a folding feather fan from the virgin forest of the shrine in the mountain village is consistent with the features of Mountain Hawk Eagle inhabiting the forest with big trees around shrine. Such habitats of the Mountain Hawk Eagle and the Golden Eagle are still intact in many areas, where the Tengu legends originated.

There is another interesting story about karasu Tengu, another imaginary animal in the folklore. The karasu Tengu are servants of the Tengu and fly as their attendants. This scene is consistent with the scene of crows mobbing and flying with the Golden Eagle in the sky above a mountain village. Even though there were no binoculars in ancient times, people had rich imagination and excellent powers of observation.

#### Figures:

The era of the samurai extended from the 10th to the 19th century. The samurai considered the birds of prey as a heroic symbol, hence, in Japan, birds of prey are drawn in many paintings and several Ukiyo-e and Fusumae painting are designated as important cultural properties and national treasures.



**Fig.2: Golden eagle Figure on the Nijo castle.**  
Figure data from the book “Japanese classic card”

Typical, there is a figure such as the Ukiyoe Golden Eagle depicted in the sliding door of Nijo Castle in Kyoto (Fig.2) and the figures of Golden Eagle by Ando Hiroshige, Miyamoto Musashi and several other artists.

The White-tailed Sea Eagle and Steller’s Sea Eagle are relatively poorly represented because their main habitats were away from Kyoto and Tokyo.

#### Family crest:

Each family has a family crest as a symbol of home in Japan. It is designed with plants or other pattern. It is said that there are about ten thousand kinds of family coat of arms. About 60 kinds of these are designed using the feathers of hawk (Fig.3) and eagle. (Nosaka, T. 2004.)



**Fig.3: A family crest using hawk feathers**

The family coat of arms represented weapons such as swords and armor and it was used for decorating flags.

Presently, one can see the family crests on the embroidered kimono that people wear at the graduation and entrance ceremony of children, during wedding or funerals or on the grave stones of family members (Fig.4).



**Fig.4: Hawk feathers crest on the gravestone of author’s family**

#### Falconry:

There is little falconry to make a living in Japan because there is a symbolic meaning of authority in hunting activities. Only the rulers, Shogun and their families were allowed to perform falconry.



**Fig.5: The Matagi with a Mountain Hawk Eagle (photo from the Web Site of The last falconry master)**

People called “Matagi” performed falconry in the Tohoku region. (Fig.5) They hunted foxes (*Vulpes vulpes japonica*), hares (*Lepus brachyurus*) and raccoon dogs (*Nyctereutes procyonoides viverrinus*) with Mountain Hawk Eagles. (Tanaka, Y. 2009.) But after the second world war, because the wild prey populations declined and the capture of Mountain Hawk Eagle was prohibited by law, falconry vanished. (Asahi Shimbun Akita branch, editing. 1987. Tanaka Y.2009.)

#### **Raptor feathers:**

Another case of the expression of raptors in the Japanese culture is through their feathers. Arrows were created as weapons by the samurai and were used from the 10th to 19th century. Today, the technique of archery is the sport of “Kyudo”. The feathers of eagle and hawk are prized as the finest material for fletching (Fig.6) Golden Eagle, White-tailed Sea Eagle (*Haliaeetus albicilla albicilla*) and Steller’s Sea Eagle (*Haliaeetus pelagicus*) were captured for their feathers. (Urakami, S.1996.) Traps were deployed in the coastal habitat. Until 100 years ago, there were professional traders



**Fig.6 Arrow feathers used in Kyudo**

who regularly went to the Tohoku region from Edo to buy eagle feathers. This trade had ushered valuable cash income into the locality. (Endo, K. 1977) Till it was entirely prohibited by the law in 1947, the capture was in vogue in some areas of the Tohoku region.

#### **Food:**

The capture of Grey-faced Buzzard (*Butastur indicus*) was carried out for food as a valuable source of protein, and this practice was limited to a few localities on the Nansei Islands until the 1950’s. Buzzards were captured using traps planted on the branches where hawks perched to rest during the migratory season. (Kugai, K.1994.) The cultural practice of capturing raptors for food, falconry and feathers once seen in the whole of Japan, is no more seen now, due to the changing laws, changing values, and the stability of life.

#### **New relationships with raptors:**

Japanese people have long incorporated raptors in their culture in various ways, but have not captured them more than necessary and have never persecuted them. In recent times a new relationship is emerging between birds of prey and people. The culture of enjoying raptors by observing their migratory and other behavior and taking their photographs is spreading since 1970s. During the same period, development projects causing environment modification have increased and a network of roads and dams has emerged in the habitat of the birds of prey. The problem of development and habitat conservation has become one of the major socio-environmental problems and is a subject of discussion on various forums.

The importance of environment and habitats of birds of prey is becoming widely known, though not well recognized, and several people are becoming interested in these issues. The community of raptor watchers and photographers is increasing significantly, also due to improvement in photography equipment and affordability. Disturbance to breeding raptors due to unethical behavior of photographers is a rare problem.

### CONCLUSION:

In the Japanese culture, “beauties of nature” are respected and honored since ancient times. In the culture of “Katyofugetu”, wherein flowers, birds, winds and the moon, the innate expressions of animism, are connected with man by the feeling of respect, awe and love for nature. This way of Japanese life is passed on from generation to generation.

Japanese people have harbored various relationships with birds of prey. Because of hunting regulations evoked in the 1940s, the economic recovery and development after World War II, the law enforcing environmental protection in the 1970's, the environmental preservation awareness and consciousness have increased. Consequently, the ‘culture of use of raptors by capture’ has shifted to the ‘culture of co-existence and love’.

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**Sudhir Darode and Anand Jog of Darode-Jog Properties, Platinum sponsors of the 8<sup>th</sup> Asian Raptor Research and Conservation Network (ARRCN) Conference, Pune, India lighting the ceremonial lamp. K. N. Ganesh, Director IISER, Pune, Toru Yamazaki and G. Sundev are also seen.**

## Raptor Conservation and Culture, in the context of Thailand

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### ABSTRACT:

58 diurnal raptor species are reported from Thailand. Of these, 11 are categorized as Globally Threatened. Throughout Thai history, no special attention was paid to diurnal raptors. Raptors are mentioned in texts, poetry, folk songs as E-rung (Crested Serpent Eagle; *Spilornis cheela*), Ok (White-bellied Sea Eagle; *Haliaeetus leucogaster*), Rang (vulture), Insee (eagle), and Yeow (all diurnal raptors). They were described as part of the scenery. In general, there is no sculpture, ritual, worship, or taboo, except for the Barn Owl *Tyto alba*. However, the association between Barn Owls and death is no longer believed. Neither do we indulge in falconry. We appreciate the diurnal raptors in just the same way as we cherish our nature. Although there was no culture to promote conservation of raptors in particular; the shared sense of nature appreciation in poetry helps to conserve nature in general. Many still write poems to describe their birding trips. Thailand has many projects on raptors in the last 10 years, mostly by small groups. Some projects are scientific, and others are to raise public awareness. Two interesting raptor conservation project in Thailand are at Baan Nongplalai and Baan Bangjak to help raptor migrants at their wintering ground. In summary, there is no direct cultural significance of raptors in Thai culture that can be used to benefit their conservation but there are other aspects in the Thai culture that can assist raptor conservation.

### INTRODUCTION:

58 diurnal raptor species are reported from Thailand, as stated in Thai Bird Check-list by Bird Conservation Society of Thailand Record Committee in the year 2012. (1)

#### Category:

- A. Recorded in an apparently wild state within the last 50 years.
- B. Not recorded in wild in last 50 years.
- C. Introduced, with feral breeding stock apparently self-supporting.



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- D. Seen in wild state but possibility of escape or release from captivity not excluded.
- E. Previously published records doubtful owing to possibility of mistaken identification.

**Seasonal status:**

- R Resident or presumed resident.
- N Non-breeding visitor.
- B Breeding visitor.
- P Mainly spring and autumn passage migrant
- V Vagrant (non-breeding visitor with three or fewer records)

**Order Accipitriformes****Ospreys (Family Pandionidae)**

Western Osprey	<i>Pandion haliaetus</i>	เหยี่ยวออสเปร	A	N
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**Kites, Hawks & Eagles (Family Accipitridae)**

• Jerdon's Baza	<i>Aviceda jerdoni</i>	เหยี่ยวกิ่งก้าน้ำตาล	A	R, N
• Black Baza	<i>Aviceda leuphotes</i>	เหยี่ยวกิ่งก้าน้ำดำ	A	R, N
• Oriental Honey-buzzard	<i>Pernis ptilorhynchus</i>	เหยี่ยวผึ้ง	A	R, N
• Bat Hawk	<i>Macheiramphus alcinus</i>	เหยี่ยวค้างคาว	A	R
• Black-winged Kite	<i>Elanus caeruleus</i>	เหยี่ยวขาว	A	R
• Black Kite	<i>Milvus migrans</i>	เหยี่ยวดำ	A	R
• Black-eared Kite	<i>Milvus lineatus</i>	เหยี่ยวหูดำ	A	N
• Brahminy Kite	<i>Haliaeetus indus</i>	เหยี่ยวแดง	A	R
• White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	นกออก	A	R
• Pallas's Fish Eagle	<i>Haliaeetus leucorhynchus</i>	นกอินทรีหัวนวล	A	V
• White-tailed Eagle	<i>Haliaeetus albicilla</i>	นกอินทรีหางขาว	A	V
• Lesser Fish Eagle	<i>Ichthyophaga humilis</i>	เหยี่ยวปลาเล็กหัวเทา	A	R
• Grey-headed Fish Eagle	<i>Ichthyophaga ichthyaetus</i>	เหยี่ยวปลาใหญ่หัวเทา	A	R
• White-rumped Vulture	<i>Gyps bengalensis</i>	อีแร้งเทาหลังขาว	A	R (extirpated)
• Slender-billed Vulture	<i>Gyps tenuirostris</i>	อีแร้งสีน้ำตาลหัวดำ	A	R (extirpated)
• Himalayan Griffon Vulture	<i>Gyps himalayensis</i>	อีแร้งสีน้ำตาลหิมาลัย	A	N
• Red-headed Vulture	<i>Sarcogyps calvus</i>	พญาแร้ง	A	R (probably extirpated)
• Cinereous Vulture	<i>Aegypius monachus</i>	อีแร้งดำหิมาลัย	A	N
• Short-toed Snake Eagle	<i>Circaetus gallicus</i>	เหยี่ยวนิ้วสั้น	A	N
• Crested Serpent Eagle	<i>Spilornis cheela</i>	เหยี่ยวรุ้ง	A	R, N
• Western Marsh Harrier	<i>Circus aeruginosus</i>	เหยี่ยวทุ่งพันธุ์ยูเรเชีย	A	N
• Eastern Marsh Harrier	<i>Circus spilonotus</i>	เหยี่ยวทุ่งพันธุ์เอเชียตะวันออกเฉียง	A	N
• Hen Harrier	<i>Circus cyaneus</i>	เหยี่ยวทุ่งแถบเหนือ	A	N
• Pallid Harrier	<i>Circus macrourus</i>	เหยี่ยวทุ่งสีจาง	A	V
• Pied Harrier	<i>Circus melanoleucos</i>	เหยี่ยวต่างด้าขาว	A	N
• Crested Goshawk	<i>Accipiter trivirgatus</i>	เหยี่ยวนกเขาหงอน	A	R
• Shikra	<i>Accipiter badius</i>	เหยี่ยวนกเขาชิดรา	A	R, N
• Chinese Sparrowhawk	<i>Accipiter soloensis</i>	เหยี่ยวนกเขาพันธุ์จีน	A	P
• Japanese Sparrowhawk	<i>Accipiter gularis</i>	เหยี่ยวนกเขาพันธุ์ญี่ปุ่น	A	N
• Besra	<i>Accipiter virgatus</i>	เหยี่ยวนกกระจอกเล็ก	A	R, (N?)
• Eurasian Sparrowhawk	<i>Accipiter nisus</i>	เหยี่ยวนกกระจอกใหญ่	A	N
• Northern Goshawk	<i>Accipiter gentilis</i>	เหยี่ยวนกเขาท้องขาว	A	N
• Rufous-winged Buzzard	<i>Butastur liventer</i>	เหยี่ยวปีกแดง	A	R
• Grey-faced Buzzard	<i>Butastur indicus</i>	เหยี่ยวหน้าเทา	A	N
• Common Buzzard	<i>Buteo buteo</i>	เหยี่ยวทะเลทรายตะวันตก	A	N
• Eastern Buzzard	<i>Buteo japonicus</i>	เหยี่ยวทะเลทรายตะวันออก	A	N

• Himalayan Buzzard	<i>Buteo burmanicus</i>	เหยี่ยวทะเลทรายหิมาลัย	A	N
• Black Eagle	<i>Lophaetus malayensis</i>	นกอินทรีดำ	A	R
• Greater Spotted Eagle	<i>Lophaetus clangus</i>	นกอินทรีปีกลาย	A	N
• Steppe Eagle	<i>Aquila nipalensis</i>	นกอินทรีทุ่งหญ้าสเตปป์	A	N
• Eastern Imperial Eagle	<i>Aquila heliaca</i>	นกอินทรีหัวไหล่ขาว	A	N
• Bonelli's Eagle	<i>Aquila fasciata</i>	นกอินทรีแถบปีกดำ	A	N
• Booted Eagle	<i>Aquila pennata</i>	นกอินทรีเล็ก	A	N
• Rufous-bellied Eagle	<i>Lophotriorchis kienerii</i>	เหยี่ยวท้องแดง	A	R
• Changeable Hawk Eagle	<i>Nisaetus limnaeetus</i>	เหยี่ยวต่างสี	A	R
• Mountain Hawk Eagle	<i>Nisaetus nipalensis</i>	เหยี่ยวภูเขา	A	R
• Blyth's Hawk Eagle	<i>Nisaetus alboniger</i>	เหยี่ยวดำท้องขาว	A	R
• Wallace's Hawk Eagle	<i>Nisaetus nanus</i>	เหยี่ยวหงอนสีน้ำตาลท้องขาว	A	R

### Order Falconiformes

#### Falcons (Family Falconidae)

• White-rumped Falcon	<i>Polihierax insignis</i>	เหยี่ยวเล็กตะโพกขาว	A	R
• Collared Falconet	<i>Microhierax caerulescens</i>	เหยี่ยวแมลงปอขาแดง	A	R
• Black-thighed Falconet	<i>Microhierax fringillarius</i>	เหยี่ยวแมลงปอขาดำ	A	R
• Common Kestrel	<i>Falco tinnunculus</i>	เหยี่ยวkestrel	A	N
• Amur Falcon	<i>Falco amurensis</i>	เหยี่ยวตีนแดง	A	P
• Merlin	<i>Falco columbarius</i>	เหยี่ยวเมอร์ลิน	A	N
• Eurasian Hobby	<i>Falco subbuteo</i>	เหยี่ยวฮอบบี้ยุโรป	A	N
• Oriental Hobby	<i>Falco severus</i>	เหยี่ยวฮอบบี้	A	R
• Peregrine Falcon	<i>Falco peregrinus</i>	เหยี่ยวเพเรกริน	A	R, N

The raptor diversity is high. Of all 58 species, 11 raptor species are categorized according to Global Threat Status.

#### Global Threat Status:

- CR Critically endangered
- EN Endangered
- VU Vulnerable
- NT Near-threatened
- DD Data-deficient

• Pallas's Fish Eagle	<i>Haliaeetus leucoryphus</i>	นกอินทรีหัวนวล	VU
• Lesser Fish Eagle	<i>Ichthyophaga humilis</i>	เหยี่ยวปลาเล็กหัวเทา	NT
• Grey-headed Fish Eagle	<i>Ichthyophaga ichthyaetus</i>	เหยี่ยวปลาใหญ่หัวเทา	NT
• White-rumped Vulture	<i>Gyps bengalensis</i>	อีแร้งเทาหลังขาว	CR
• Slender-billed Vulture	<i>Gyps tenuirostris</i>	อีแร้งสีน้ำตาลหัวดำ	CR
• Red-headed Vulture	<i>Sarcogyps calvus</i>	พญาแร้ง	CR
• Cinereous Vulture	<i>Aegypius monachus</i>	อีแร้งดำหิมาลัย	NT
• Pallid Harrier	<i>Circus macrourus</i>	เหยี่ยวทุ่งสีจาง	NT
• Greater Spotted Eagle	<i>Lophaetus clangus</i>	นกอินทรีปีกลาย	VU
• Steppe Eagle	<i>Aquila nipalensis</i>	นกอินทรีทุ่งหญ้าสเตปป์	VU
• Wallace's Hawk Eagle	<i>Nisaetus nanus</i>	เหยี่ยวหงอนสีน้ำตาลท้องขาว	VU

Throughout Thai history, we do not pay attention to diurnal raptors more than as parts of our environment. The raptors were mentioned in texts, poetry, folk songs under five names: E-rung or Rung (Crested Serpent Eagle), Ok (White-bellied Sea Eagle), Rang (vulture), Insee (eagle), and Yeow (all other diurnal raptors). Historically, in comparison to other names, the name Insee was more recently used. Raptors were described as a part of the scenery. There is no sculpture, ritual, worship, or taboo. The only taboo was with one nocturnal raptor, the Barn Owl. The traditional belief system of association between Barn Owl and death is no longer believed. We do not use any raptor for falconry. We appreciate the diurnal raptors in just the same way that we cherish our nature.

The two oldest examples in Thai literature are included here. The first one is from Lilitongkarnchangnam (ลิลิตโองการแข่งน้ำ) from the reign of King Ramathibdee I who was the first king of Ayuthaya. (2) It was written for the use in the ritual prescribed for the civil servants. The first part was related to the worship of god. The second part was about creation of the world. The third part was asking the gods to be the witnesses. The last part was curse for traitors and blessing for collaborators. Names of raptors were in the last part where various methods of death were described.

๒๔ ตีร้ายบอกคนจำ กำรुकลีนเป็นเปลว[14]	ผีพรายผีขรหมื่นดำช่วยดู บชีอน้ำตัดคอค
๒๕ ตัดคอคเร็วให้ขาด บชีอน้ำหยาดท่องเป็นรุ่ง	บชีอมลั่งออเอาใส่เล่า บชีอแรงกาเต้าแตกตา
๒๖ เจาะเพาะฟงไบแบ่ง เขี้ยวซาชแวงยายี	บชีอหมาหมีเสือเขินเขี้ยว ยมราชเกี้ยวดาตาวช่วยดู

Rang (vultures) and crows were mentioned in association to death.

The second oldest piece came from Mahachartkamluang Kanmahapon (มหาชาติคำหลวง กัณฑ์มหาพน) (3). The first version was written in the year 1482 in the reign of Somdejpra Boromatrailokanath the son of King Ramathibdee II. Because of popularity, there have been many modifications up until now. It is impossible to separate modifications from the original text.

๐ นกกดสองสิ่งเสียงหวาน อนกในไพรสนธ์	ไก่เถื่อนอันตรกาน
--	-------------------

๐ กวักกว่าเปลาปล่าโจษจล ก็ร้องวางเวงเวหา	ออกเอี้ยงอลวล
๐ ช้างแซวเหยี่ยวรุ่งเร็นกา สรหล้ายสรหลมซมกัน	จับจอมพฤษษา
๐ สาลิกาแขกเต้าขานขัน เพียงพวมแมนเขียน	บันลึงลายพรรณ

The names of Ok (White-bellied Sea Eagle) and Rung (Crested Serpent Eagle) were mentioned in the story as part of forest scenery. To emphasize that Crested Serpent Eagle is a raptor, the poet used the word Yeow (all other diurnal raptors) before its name.

The name Insee was more recently used. It was mentioned in the book Sattawapitarn in following poem. The book was written in the year 1884. (4)  
อินทรีกายาใหญ่โต มหันต์เดโช,ปะชนเอาไปบริกษช

Although there was no culture to promote conservation of raptors in particular; the shared sense of nature appreciation in poetry helps to conserve nature in general. Many still write poems to describe their birding trips.

Thailand has completed several projects on raptors in the last 10 years, mostly by small groups. Some projects are scientific, while others aim to raise public awareness. The most interesting raptor conservation project in Thailand is a local project at Baan Nongplalai and Baan Bangjak. (5) Baan Nongplalai is in Khaoyoy District and Baan Bangjak is in Muang District. Both villages are in Petchburi Province. The villagers try to keep their area as a safe winter ground for eagles, kites, and harriers. Most of their land is rice field. With their own observation and small help from conservationists, they are aware that these raptors help them to control rats which are their most annoying pests. The winter migrants come in October and leave around March. The harvest is between November and February. The raptors begin hunting for prey after each rice paddy harvest. The hunt is spectacular for photographers. But the best benefit is environmental, where the raptors act as important pest control agents. More importantly, the farmers of these two villages do not have to depend on chemicals. Raptors and farmers co-exist harmoniously. Conservation Groups and Tambol Administrative

Organizations host yearly community activity.

Although the examples of these villages give us hope; a new threatening situation is a new imported culture of falconry. Because Thailand has been important international port of this region; Thais often accept new culture as a fashion. In Thailand, fashion comes and goes very fast. Hopefully, the fashion of falconry will fade soon.

In summary, there is no direct conservation related cultural reference to raptors in traditional Thai culture that can be used for the benefit of conservation. But, the attitude of Thai culture and some other aspects of Thai culture contribute towards raptor conservation.

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2. Poets in the reign of Prajao Ootong (King Ramathibdee I), Lilitongkarnchangnam (ลิลิตโองการแข่งหน้า), the year 1350-1370
3. Poets in the reign of Somdejpra Boromatrailokanath, Mahachartkamluang Kanmahapon (มหาชาติคำหลวง กัณฑ์มหาพน), the year 1482
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5. Nongplalai Tambol Administrative Organization Official Letter #PB77701/W683, 11 December 2012



Release of 'Ela Files' on raptors by Elvira Nikolenko, Miroslav Babushkin, Simon Hulka, Mandar Bhide, Satish Karmalkar and Gombobataar Sundev during the 8<sup>th</sup> Asian Raptor Research and Conservation Network (ARRCN) Conference held at Pune, India.

## Ethno-ornithological relationships and trading of raptors and owls in Nepal (2009-2013)

Dhakal Hemanta and Tulsi Subedi

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### ABSTRACT:

A survey was conducted with informal interview with 1472 respondents from 49 districts of Nepal (2009-2013). Respondents were found having both negative and positive spiritual and cultural beliefs about raptors and owls. Body parts of raptors and owls were found to be very important in different communities for use as medicine, use in cultural and religious ceremonies and decoration. Some of the communities were fully dependent upon the hunting and trafficking of raptors and owls for living. 23 districts were found to have moderate trade intensity and 19 low trade intensity. As gathered from the interviews, Kathmandu, Bhaktapur, Kaski, Chitwan, Dhading, Lamjung, and Kapilbastu were districts with high raptors and owls' trade. Most respondents were not aware about the existing Nepal Government legislations, acts and regulations for the control of hunting and trade of wild fauna and flora. Effective government legislation and law implementation, awareness and conservation campaign in high trade intensity areas and rehabilitation centres for birds are necessary and should be launched as soon as possible.

### INTRODUCTION:

Among 871 species of birds recorded in Nepal, 61 species are raptors and 21 species are owls. Four species among nine species of vulture: Long billed Vulture *Gyps indicus*, Oriental White-backed Vulture *Gyps bengalensis*, Slender-billed Vulture *Gyps tenuirostris* and Red-headed Vulture *Sarcogyps calvus* have been listed as Critically Endangered. Egyptian Vulture *Neophron percnopterus* and Saker Falcon *Falco cherrug* as Endangered. Similarly four species of Eagles; Pallas' Fish Eagle *Haliaeetus leucoryphus*, Greater Spotted Eagle *Aquila clanga*, Imperial Eagle *Aquila heliaca* and Indian Spotted Eagle *Aquila hastata* are vulnerable. Lesser Fish Eagle *Ichthyophaga humilis*, Grey-headed Fish Eagle *Ichthyophaga ichthyaetus*, Cinereous Vulture *Aegypius monachus*, Pallid Harrier *Circus macrourus*, Larger Falcon *Falco jugger* are near



threatened (IUCN Red Data book 2013).

Among 21 species of owls recorded in Nepal, Dusky Eagle Owl *Bubo coromandus*, and Tawny Fish Owl *Ketupa zeylonensis* are critically endangered; while the Grass Owl *Tyto capensis* is endangered (Baral and Inskipp 2004). 13 species of owls Mountain Scops Owl *Otus spilocephalus*, Oriental Scops Owl *Otus sunia*, Eurasian Eagle Owl *Bubo bub*, Spot-bellied Eagle Owl *Bubo nipalensis*, Brown Wood Owl *Strix leptogrammica*, Tawny Owl *Strix aluco*, Collared Owlet *Glaucidium brodiei*, Asian Barred Owlet *Glaucidium cuculoides*, Jungle Owlet *Glaucidium radiatum*, Little Owl *Athene noctua*, Spotted Owlet *Athene brama*, Long-eared Owl *Asio otus* and Short-eared Owl *Asio flammeus* are species recorded in Annapurna conservation Area (Inskipp and Inskipp 2003). Due to the high susceptibility to illegal trade all the diurnal raptor and 19 species of owls found in Nepal are listed in CITES (Chapagai and Dhakal 2005).

In many places people of different culture and religions maintain wild birds in captivity for thousands of years. Wild birds have been traded internationally in large numbers since at least the mid-nineteenth century (Leader-Williams and Tibanyenda 1996). There are no exact government records about the number of birds, in captivity, trafficked or smuggled, hunted during the past decades. According to Inskipp 1990, over 2600 of the approximately 9600 described bird species in the world have been recorded in international trade during the past 20 years.

During our study it was found that collected birds were consumed in the local restaurants where they slaughtered the birds while some species of owls, live and stuffed diurnal raptors were trafficked to different places including Kathmandu, Dharan and Bhairahawa city, to export in the international market (Shakya 1997, Thapa and Thakuri 2011, Subedi 2013).

In Nepal, cultural and religious beliefs, traditional medicinal beliefs, ornaments and demand for decoration have increased the demand of bird products resulting in increased pouching and hunting of birds. Around 29 % (43 species) of nationally threatened species are affected by hunting and trapping (BCN and DNPWC 2011). Locally most trapped birds are sold for food; however, trapped raptors (including owls and raptors) are exported to international markets. Hunting and trapping of raptors and collection of eggs for different purposes regularly takes place in various parts of

the country leading to serious threats (Acharya and Ghimirey 2009, Shakya 1995, Baral and Inskipp 2004, BCN and DNPWC 2011).

World population of 14 % of all diurnal raptors are globally endangered or vulnerable (Bildstein 2006). In the Nepalese context, 28% of raptors were nationally threatened in 2004 (Baral and Inskipp 2004), however, this figure was as high as 41% in 2010 (BCN and DNPWC 2011). The severe decline in raptor population is due to a number of factors including shooting/trapping and illegal trade, poisoning, nest site destruction, habitat alteration and direct human persecution (Collar et al. 1994, Baral and Inskipp 2004, BCN and DNPWC 2011). Despite of all these problems and threats there are some positive religious believes which have also supported the conservation of some species of raptors and owls.

#### **Study Method:**

The information on raptors in Nepalese culture was collected through field visits in various places of Nepal. Total of 49 districts were visited to collect the information between 2009 and 2013. Key methods used during our visit were:

#### **Informal Interview:**

Informal interviews were made with local stockholders by pretending to be local tourists to find out the people involved in hunting, rearing and trading raptors and owls. It was more fruitful to collect the information and stories from local people regarding the religious and cultural importance of raptors and owls, their body parts and products. Since the purpose of visit was only to generate sufficient information regarding the raptors and owls in the area, no formal questionnaire surveys were drafted. Prior to the questionnaire survey we had discussed with the different experts to shortlist the potential hunting spots and efforts were focused in these areas.

#### **Limitations:**

Even though the conversation was informal some respondents were not comfortable to share information about bird trade, and in such districts we have variation in the number of respondents from 10 to 30. Besides such informal interviews formal, 600 Questionnaire Surveys were conducted in Rupendehi (300) and Dang district(300).

**Literature review:**

Prior to field visit different published and unpublished literature was reviewed thoroughly to generate information on different kinds of recorded threats, hunting/trapping, religious and cultural believes and traditional trade practices, and characteristics of stakeholders in different area .

**Result**

S.No	District	Number of people interviewed	Trade Intensity			Religious and cultural importance	
			Low	Moderate	High	P %	N%
1	Kathmandu	25			●	80	20
2	Lalitpur	25		●		75	25
3	Bhaktapur	25			●	75	25
4	Okhaldhunga	25		●		45	55
5	Khotang	15	●			80	20
6	Udayapur	10	●			70	30
7	Sunsari	10		●		40	60
8	Dhankuta	10		●		50	50
9	Illam	10	●			50	50
10	Jhapa	20	●			50	50
11	Morang	20				60	40
12	Pachthar	20	●			50	50
13	Saptari	15	●			50	50
14	Siraha	15	●			50	50
15	Dhanusha	15		●		50	50
16	Sindhuli	25		●		40	60
17	Mahottari	25	●			50	50
18	Bara	20	●			50	50
19	Parsa	20	●			40	60
20	Makwanpur	20		●		40	60
21	Dhading	10		●		50	50
22	Chitwan	25			●	45	55
23	Nawalparasi	25		●		40	60
24	Tanahu	20		●		50	50
25	Kavre	20		●	●	50	50
26	Gorkha	20		●		45	55
27	Syangja	15				50	50
28	Palpa	15		●		45	55
29	Kaski	25			●	70	30
30	Parbat	20		●		35	65
31	Lamjung	20			●	55	45
32	Gorkha	20	●			43	57
34	Baglung	20		●		55	45
35	Magydi	15		●		33	67

36	Manang	30		●		74	26
37	Mustang	30		●		77	33
38	Pyuthan	10	●			47	53
39	Gulmi	10	●			40	60
40	Arhghakhanchi	50		●		30	70
41	Kapilbastu	300			●	40	60
42	Dang	300		●		40	60
43	Banke	20	●			55	45
44	Bardia	20		●		60	40
45	Surkhet	20	●			75	25
46	Kanchanpur	20	●			65	35
47	Kailai	20	●			49	51
48	Dadeldhura	20	●			56	44
49	Salyan	10				50	50
Total		1472					

**Note :**

**Low:** People kill them in order to save their domesticated prey species in the village farm. People rare those as pet not for trade. They have heard about bird trade however they are not sure where and how to sell.

**Moderate:** People kill, consume locally and trade locally.

**High:** People consume, trade them and few people also rear the species in captivity. Trade mediators are present and live animals are traded outside Nepal.

**Positive (P%):** Use for positive spiritual purpose, cultural and social positive values and medicinal values.

**Negative (N%):** Negative spiritual value and social values.

**Results:**

During our visits to 49 districts in Nepal from January 2009 to January 2013, 1472 respondents had either positive or negative spiritual beliefs.

Most respondents were not aware about the Nepal Government legislations, acts and regulations to control hunting and trade of wild fauna and flora. Few have heard about the news relating to such wildlife protection legislations from radio and television sources.

23 districts were found to have moderate trade intensity and 19 low trade intensity. From the respondents it was gathered that the districts of Kathmandu, Bhaktapur, Kaski, Chitwan, Dhading, Lamjung, and Kapilbastu had high bird trade.

**Summary and discussion:**

The ethno-ornithological relationships including social, cultural, medicinal and religious beliefs about owls and raptors in Nepal are summarized based on our visits from Eastern to Western parts of Nepal. Some people were found hunting raptors for meat; and meat of owls was believed to be tasty as mentioned by Acharya and Ghimere 2009. Meat and bones were used in some communities for medicinal purpose, as medicine of asthma and infertility. Bones of raptors and owls are used by witch doctors and priest of different ethnic communities with a belief that they protect against evil powers and black magic. Head of owl, feathers of owl and bearded vulture are believed to protect from evil. Eagles, Kites and Falcon were also reared as pets

to control the agricultural pests and for hunting other animals (Wild hare, mice, etc.).

Body parts of owls were important in the spiritual (tantric) practises like *Indrajaal* and *Mahajaal*. According to one spiritual person, owls are the enemies of Wildman (*Banmanchhe*), Ghost (*Bhoot/Pret*) and Evil Spirit. Therefore if people use any part of owls such as feathers, beak, claws, bones and flesh the Wildman, Ghost or Evil Spirit never comes to their home.

Feathers and beaks of raptors and owls are used for decoration of traditional dress, hats of witch doctors (*Dhami* and *Jhakri*) and Spiritual (Tantric) people. They use the feathers of vultures, eagles, hawks and owls frequently in their practises. They also believe that Vultures are masters of the sky and if they use vulture feathers, they carry the evil spirit away from the man. People also believe that devils (*Saitan*) and witches (*Boksee*) also used owls and raptors in black magic. People believe that they will have good luck and can win gambling if they have a bone of Eurasian Eagle Owl *Bubo bubo*. Similarly, call of owl from the roof of the house is believed to be the sign of some bad message.

Even though Hindu Epics praise Vultures and describe as Carrier (*wahan*) of god Shani, people consider vultures as bad omen if they sit on the roof of the house. They have to perform various rituals for the spiritual purification of the house. Vultures roosting on the trees around the houses are believed to be a sign of bad message or incidents. Hence, people cut down tall trees around the houses if vultures are seen roosting or nesting. Touching vulture or vulture body and feathers are also believed as bad omen. On the other hand, in Upper Mustang (Dolpo and Some Tibetan Community) of Nepal, some Buddhist people follow the cultural practise of feeding different parts of dead body to vultures after the prayers are performed by the priest.

Eggs of raptors and owls are supposed to contain high protein and medicines for different types of diseases are prepared from them. People also believe that it increases the fertility. Blood of Kestrels is believed to cure epilepsy.

Eagles and Buzzards are often persecuted by humans, as raptors are predatory species and sometimes they hunt poultry and other domesticated prey species in the village farms. People often kill them by poisoning, target by catapults, hitting by stones and sticks, or they

resort to the destruction of nests, eggs and chicks.. People sometime confuse vultures for other eagles and kill them.

Hunting and trading of raptors and owls:

People and traders are often found mongering rumours without any scientific and medical proofs to increase the market price of the products made from raptors and owls. In Newakot, Itahari, Manang, Okhaldhunga and Khotang districts of Nepal people pay high price for Eurasian Eagle Owl. It is believed that if turmeric powder is put on the upper part of their wings they turn black, and if a packet of rice is kept under the wings it gets cooked, and if torch is directed into its eyes, they burst. Similar findings are mentioned in the study report by Acharya and Ghimere 2009.

Some of the community fully depend on hunting and trafficking of raptors and owls for living. Others are found rearing chicks of raptors and owls and selling them to middlemen after they are fully grown.

In some villages people also used the technique of taxidermy locally, to use skins of raptors and owls to adorn the wall of the house and for selling it in the market as they fetch good prices. Chicks, products of body parts of owls and raptors are collected locally. They are transported to the nearest city or district headquarters from where they are traded to bigger cities like Pokhara, Kathmandu, Itahari and Dhangadi. Chicks of raptors and owls after reaching the city, are purchased by people for use as pets at a high price. They are subsequently traded to India, Bangladesh, China and other middle east countries. This is also mentioned in the report of Acharya and Ghimire 2009.

### Trade route

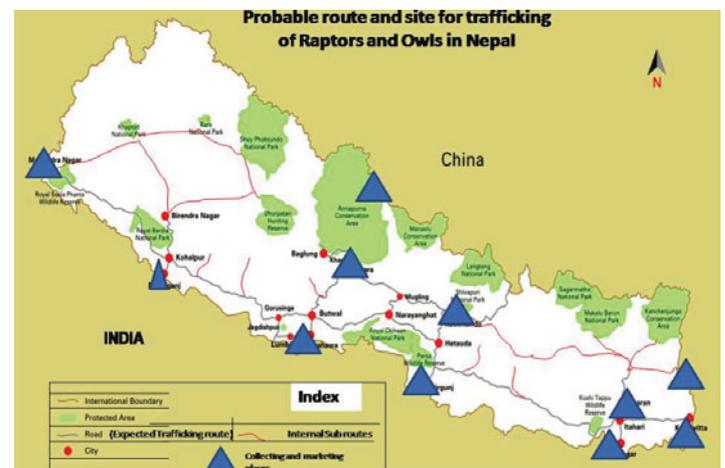


Figure 1: Map of Nepal representing probable trade route of Raptors and owls.

After interviews with different people from 49 districts of Nepal, finally a probable trade route has been postulated. Even though the Figure 1 doesn't represent the exact route of trafficking of birds but, most local people agreed that owls and raptors and their products are collected in the main city by a smuggler at a cheaper price and is sold to other persons in and out of the country at a higher price. The sub routes shown in Fig 1 represent the connection between the different villages and protected areas with the main city and main highways. People also expressed that there is a high demand of products of owls and raptors in China and other countries. The route could also be the route for trading of wild animals and other birds.

**Highlights from personal informal interviews with local people:** (Subedi 2013).

*The Gurung people who live in KahunKhola, frequently hunt and trap birds. In 2010 a young owl was collected from the nest near Lekhnath. It was successfully raised owl in the house. The trapper had a connection with middlemen. One day 3 people (middleman) came to the village and took the owl away –this information was given by one local person of age around 50 years.*

*Every day I gather some local young unemployed villagers and visit the nearby jungle for hunting and look for the nests of raptors and owls. Last time we brought two chicks of Owl and reared them. We sold them to middleman at Nrs 20000. These days it is difficult to find nests and chicks as easily as before. So my family is having a hard time – as informed by Said Gharti 38 years old local person from Syanja. Feb, 2011.*

*Adhikari, a 30 year old farmer, who lives in Sarangkot Village Development Committee, Kaski, Nepal, described to me how and why he killed black kites. "It was 2 0' clock in the afternoon and I was working in my vegetable garden and suddenly I saw one Cheel (Black kite) carrying my chicken. Luckily I had a catapult and I was able to kill the kite."*

*Amrit Ghale , a 30 year old farmer, who lives in Pasgaun Village Development Committee, Lamjung, Nepal, described tome how and why they use different*

*body parts of raptors to decorate the dress and hats of witch doctors (Dhami and Jhakri) .*

*Ram Hari Poudyal, a 45 years old local from Dang district believes that it is bad luck to touch or bring feathers of vulture in the house.*

*Group leader from Chaudhary community Ram Narayan from Gunjanager Village Development committee ,Narayanghat believes that the use of Fish owl bones protects them from evil power if hung on the door ..*

**Conclusion and recommendation:**

Most of the peoples in the study area were not aware about the existing legislation including CITES. Both negative and positive spiritual, cultural and social beliefs persist among people, which is one of the reasons why bird traffickers are encouraged for hunting of Raptors and Owls. Interviewing different respondents from different parts of the country revealed that some people, especially young boys are collecting eggs, and capturing chicks and adult birds besides the professional bird hunters.

Rumours about the medicinal, traditional and spiritual beliefs are also promoting hunting and trade of birds. Various sensitization and awareness raising activities/campaigns should be conducted with local participation to discourage unscientific and unreliable beliefs. This will also help to minimize the hunting and trade intensity of birds and other wildlife.

During our visit some respondents were also curious about injured owls, raptors or other birds and about the facilities to rehabilitate such birds. Government should focus on such programs which will also increase awareness among local people. Even though there are several government legislations, acts and regulations to control hunting and trade of wild fauna and flora, people are regularly keeping parrots, pheasants, owls and raptors as pets but governmental authorities are focused on the large animals like tiger, rhino, etc.

The government policy for confiscated birds seems impractical. Confiscated or seized birds are released in the wild without rehabilitation procedure just because government has the mechanism to release such birds in the wild as soon as possible without studying the physical condition of such birds. By releasing such birds without proper care and rehabilitation do not give

a guarantee that the birds will survive. Rehabilitation centres for birds should be launched with avian veterinary experts.

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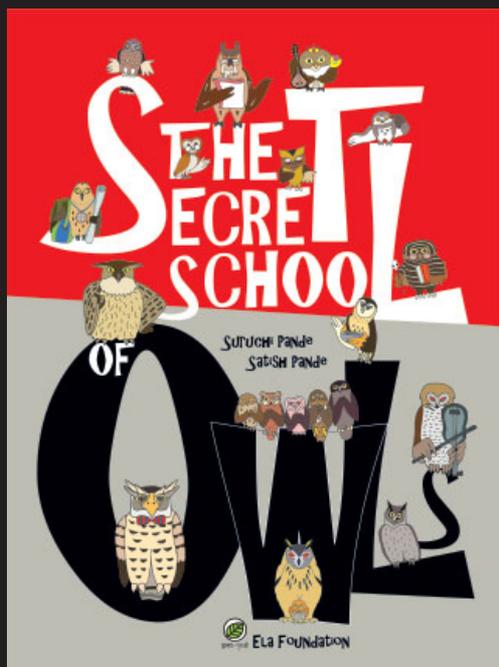
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### ABSTRACT:

In Malaysian life birds including raptors feature in culture in several ways. The various aspects include sculpture, symbolism, belief systems, augury, folk lore, inclusion in annual calendar, particularly the Kelabit calendar. The latter is an example of amalgamation of bird life with the human life and both are an inseparable part of one another.

### INTRODUCTION:

Malaysia, located in South-east Asia, is divided into two regions by the South China Sea: Peninsular (West) Malaysia on continental Asia and East Malaysia, consisting of Sarawak and Sabah states, on the island of Borneo. As a result of this zoogeographical coverage and its location on the flyways of migratory birds, Malaysia has a rich raptor fauna with at least 44 species of diurnal raptors and 19 species of owls recorded in the country. The current status of these raptors is not well understood but it is believed that the populations of many species have declined. The main factor responsible is thought to be habitat loss caused by clearing of large tracts of forests for single crop agriculture. The increase in the use of pesticides due to the rapid expansion of large scale monoculture plantations in recent years and, to a lesser extent, hunting and trapping are also contributing factors.

### Observations and discussion:

The population of many raptor species is thought to be declining with eight diurnal raptor species and three owl species threatened with global extinction. Globally-threatened resident raptors include Grey-headed Fish-Eagle (*Ichthyophaga ichthyaetus*), Lesser Fish-Eagle (*I. humilis*), Mountain Serpent-Eagle (*Spilornis kinabaluensis*), Wallace's Hawk-Eagle (*Nisaetus nanus*), White-fronted Falconet (*Microhierax latifrons*), White-fronted Scops Owl (*Otus sagittatus*), Reddish Scops Owl (*O. rufescens*) and Mantanani



Scops Owl (*O. mantananensis*). Legal protection for all species of raptors is governed by national as well as regional legislations. The protected areas system in Malaysia, covering some 6% of the country, provides in-situ conservation of raptors. Malaysia is also a signatory to international agreements which in essence require the protection of raptors and their habitats.

Malaysia is a relatively young country in terms of history and culture. Its multi-racial and multi-cultural population consist of the majority ethnic Malays, the descendants of the early Chinese and Indian immigrants and the many indigenous groups. A homogenous Malaysian culture is only evolving slowly in the country, thus most Malaysians, with the exception of certain indigenous groups in Malaysian Borneo, have no significant cultural ties with raptors other than to regard them as symbols of power and bravery. Eagles and hawks, lumped under the generic “*lang*” in the Malay language, are often featured in legends and are also widely used as logos in commercial branding, as fixtures to adorn buildings and as decorations on implements and other objects. The White-bellied Sea-Eagle (*Haliaeetus leucogaster*), arguably the most powerful raptor in Malaysia, is the logo of Selangor, the most progressive state in Peninsular Malaysia. Folklore has it that the White-bellied Sea-Eagle would scream to warn shellfish at the changing of tides, hence its old Malay name of *burung hamba siput*, literally “bird that is slave to the shellfish”. *Silat*, the Malay art of self-defense, is reputed to have originated from observing and imitating the movements of wild animals, including the eagle. The Brahminy Kite (*Haliastur indus*), known as *Lang Merah* and common on Langkawi, a popular tourist island, is said to give the island its name. A giant replica of the Brahminy Kite now greets visitors as they disembark on the island.

Although not strictly cultural in essence, there are a few examples of human associations with raptors in Malaysia for economic benefit. The Barn Owl (*Tyto alba*) is widely used as a natural biological agent to control the rodent pests in oil palm plantations and paddyfields and nest boxes are put up for them to breed. In the treeless paddy fields, wooden posts are put up for rice field raptors such as Black-shouldered Kite (*Elanus caeruleus*) to perch while resting or feeding. Raptors also feature in certain tourist attractions in the country. The best known is the annual Raptor Watch

Week at Tanjung Tuan, Malacca where visitors enjoy the spectacle of hundreds of raptors, mainly Oriental Honey-buzzards (*Pernis ptilorhyncus*) on spring migration. On Langkawi, one of the tourist activities there is “eagle feeding” whereby boats take visitors to see Brahminy Kites and White-bellied Sea-Eagles swoop at pieces of chicken entrails thrown out to them. Fortunately, this potentially harmful activity is being discouraged.

In Malaysian Borneo, the Brahminy Kite feature widely in the traditional beliefs of some of the indigenous groups collectively referred to as Dayaks. Although many Dayaks have abandoned their animistic beliefs and converted to Christianity and other religions, the communities in the more remote areas still follow traditional customs. The Ibans, the largest of Sarawak’s indigenous groups, traditionally practice “bird augury” in which the behavior and calls of certain sacred bird species are interpreted to give guidance in almost every aspect of their lives. The Brahminy Kite plays a large part in the beliefs of the Ibans and is considered the manifestation of their paramount god, *Singalang Burung* (Singalang the Bird). *Singalang Burung*, as befits the supreme god, does not show himself often but makes his wishes known to man through the help of his seven messengers who take the form of the Rufous Piculet (*Sasia abnormis*), Banded Kingfisher (*Lacedo pulchella*), Scarlet-rumped Trogon (*Harpactes duvaucelii*), Diard’s Trogon (*H. diardii*), Crested Jay (*Platylophus galericulatus*), Maroon Woodpecker (*Blythipicus rubiginosus*) and White-rumped Shama (*Copsychus malabaricus*). An encounter with any of these omen birds is taken as a sign that the gods have something to communicate to the Iban.

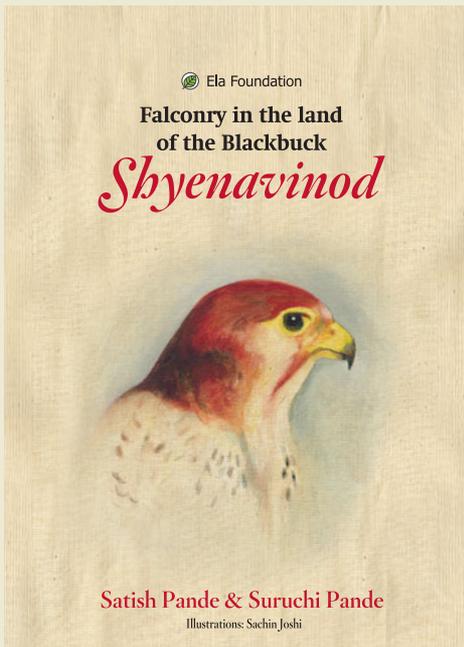
The remote highlands of Sarawak are inhabited by the Kelabits who are essentially paddy farmers. They use no written calendar to schedule their farming activities but instead have developed a unique system of determining their rice-planting and other activities by reference to recurrent natural events that can be easily observed. The cool highlands attract many migratory birds on passage or wintering from the northern hemisphere and the Kelabits rely on their arrival dates to plan their year. Four species of migrants, including a raptor, are involved and give their names to the arrival periods in the Kelabit calendar of migratory birds. The Kelabit bird-month *Sensulit mad’ting* approximate the

conventional calendar months of August-September when the Yellow Wagtail (*Motacilla simillima*) first arrives; this is followed by *Sensulit pererang* in September-October when the Yellow Wagtail stays. *Neropa* marks the arrival of the Brown Shrike (*Lanius cristatus*) in October-November, *Kornio piting* the arrival of the Japanese Sparrowhawk (*Accipiter gularis*) in November-December and *Padawan* the arrival of the Eye-browed Thrush (*Turdus obscurus*) in December-January. The Kelabits consider the bird-calendar reliable because the arrival and departure of the migratory birds convey the true sense and pattern of the season.

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## Raptor Conservation and Culture in Western China

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### INTRODUCTION:

Raptor research and conservation is a hot topic in the world. In China, two orders of raptors (including owls) are listed under the National Key Protected Animal Directory (Zheng and Wang, 1998). Raptors, as the top consumers in any ecosystem, are an integral component of the food-chain and have high ecological and economic value (Xu, 1995; Meyburg et al., 2004). Western China, has the largest density of raptors, with ca. 53 species in Xinjiang (Gao, 2002; Ma, 2011). However, in this region, the largest number of raptors are captured for a range of falconry related activities and trade. Raptors are also killed for use in Chinese medicine.



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Training of raptors can be traced back 3000 -4000 years (Wang, 1984; Guo et al, 1999). As early as 4000 years ago, local minority ancestors (including the Uygur, Kazak, etc.) practiced falconry in Xinjiang, as evident from rock paintings. We think that the origin of falconry was from Central Asia, and the art spread to other parts of Asia and finally to Europe and Africa in 500 BC. This probably happened with the westward campaigns of Genghis Khan, with his army having tens of thousands of falconers to provide fresh food for the troops. At present, in the mountain pastoral areas of Central Asia and in western China (Qinghai, Gansu, Xinjiang and Inner Mongolia Region) local people have preserved this tradition (Ma and Yang, 1992).

From the perspective of national tradition, culture and history, falconry has received the maximum attention and support in the world. However, there is a conflict between traditional culture and the raptor protection law. In order to encourage tourism, attract global attention and stimulate the economy, falconry activities received “extrajudicial mercy”. Some places were even named as the “hometown of falconry”, and falconers enjoyed a special state benefit. But the revival of the culture of falconry that was previously banned for decades poses a huge challenge for the protection of raptors. In this perspective, with the support of the Chinese Natural Science Foundation and Hong Kong Bird Watching Society, the China Conservation Fund conducted seven falconry distribution surveys in Xinjiang between 2007 - 2013. The summary of these surveys is presented here.

#### Study site and methods:

Our survey area concentrated in the Xinjiang Uygur Autonomous Region (E 73 ° 20 ‘~ 96 ° 10’, N 34 ° 10 ‘~ 49 ° 15’) in western China. The cumulative survey included 16 counties and 26 townships in Xinjiang, and more than 360 people were questioned. The survey methods included market surveys, field research, chips implanted in falcons, and questionnaires. During the field research we visited remote mountains, pastoral areas and rural areas. We combined relevant literature records, visited hunter and falconry households, and watched the local “falconry festivals”. We recorded the survey data, and documented the species and numbers of raptors used. We gathered local information provided by people and focused on bazaars (markets), herbaria, zoos, protected areas authorities and officials from the police and customs departments. We also surveyed raptor prices, usage, number of raptors listed for trade, smuggling channels, hunting locations, capture methods and tools. Further, we researched the history of local falconry, falconry culture, traditions and customs, peoples’ attitude towards fishing eagles and other raptors. From the ethnic structural point of view, our survey included 85% of the minority groups (Uygur, Tajik, Kazakh, Kirghiz, Uzbek) and the remaining 15% were Han or Hui people.

Xinjiang covers an area of 1.66 million km<sup>2</sup>, accounting for 1/6th of the territory of China. Hence, it is difficult to investigate the entire territory due to time and monetary constraints. Representative areas were targeted where raptors were known to breed. We also evaluated raptor and human conflicts during our study.

**Results:**

Eagle 'culture' has resulted in the destruction of wild eagle populations in China. Based on past traditions, we understand that people capture Goshawk (*Accipiter gentilis*) each fall, train it for falconry during the winter, and release it back to the wild in spring in order to allow them to breed. We assume that had the raptors been undisturbed, their populations would have remained stable and not threatened. Now, owing to a sharp decline in prey populations it is harder to capture wild raptors. Hence, the falconers are increasingly reluctant to release their trained raptors because they are not only expensive but also hard to capture in the wild. In addition, the artificial breeding of birds of prey is very difficult; hence even today almost all raptors are caught from the wild, causing additional depletion of the wild populations. Practical experience tells us that artificial breeding of raptors is undesirable, because

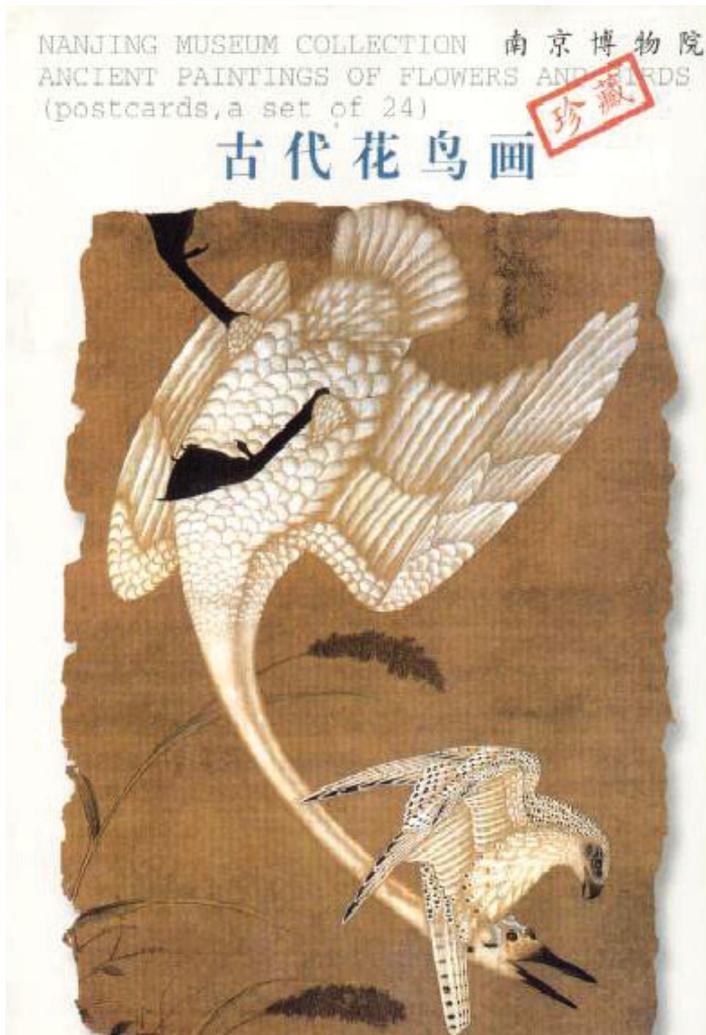
they lose wild instincts, have less flight speed, sober temperament and become lazy and hunt inefficiently.

According to the survey, falconry households existed in 80 - 90 percent of the counties. In the local ethnic tradition, the practices of falconry are different. For example, the local Uighur liked to train the goshawk, Kazak and Kirgiz prefer the larger Golden Eagle (*Aquila chrysaetos*), others prefer the smaller Sparrowhawk (*A. nisus*), while some Europeans and Arabs prefer the Saker Falcon (*Falco cherrug*) and Peregrine Falcon (*F. peregrinus*). Xinjiang falconry activities are concentrated in areas such as Taxkorgan Tajik Autonomous County (Kashi), Yutian County (Hotan), Akqi County (Kezilesu), Zhaosu (Ili Kazak Autonomous Prefecture), Qinghe County and Burjin County (Altai). The number of raptors used for falconry was from 1800 - 2200 in Xinjiang (Table 1).



**Table 1:** The distribution and quantity statistics of falconry in Xinjiang

Area	City and county	Trained species	Density (birds / village)	Number
Kashgar Area	Kashgar City	Goshawk	1	7-10
	Shule County	Goshawk	1	10-30
	Yengisar County	Goshawk	1	<10
	Yarkant County	Goshawk	1	36-40
	Kargilik County	Goshawk	4	60-80
	Maralbexi County	Goshawk, Golden eagle	2	24-30
	Peyziwat County	Goshawk	2	20-40
	Makit County	Goshawk	1	10-20
	Taxkorgan County	Goshawk, used eagles & vultures	9	120-140
Hotan Area	Pishan County	Goshawk	5	50-70
	Hotan City	Goshawk	1	7-10
	Hotan County	Goshawk	6	50-70
	Karakax County	Goshawk	4	70-90
	Lop County	Goshawk	3	40-60
	Qira County	Goshawk, Golden Eagle	4	40-50
	Yutian County	Goshawk	7	110-120
	Minfeng County	Goshawk, Golden Eagle	4	40-60
Bayingolen Mongolian Autonomous Prefecture	Luntai County	Goshawk, Sparrowhawk	4	40-70
	Korla City and so on	Goshawk, Hen harrier	3	40-60
Aksu District	Kuqa County	Goshawk	2	60-100
Kizilsu Kirghiz Autonomous Prefecture	Akqi County & Wuqa County	Golden Eagle, Goshawk, Saker Falcon, Barbary Falcon	18	280-320
Ili Kazak Autonomous Prefecture	Zhaosu County	Golden Eagle, Goshawk	11	130-170
Altay Area	Qinggil County	Golden Eagle, Goshawk	17	120-150
	Burqin County	Golden Eagle, Goshawk	15	110-140
Hami Area	Yiwu County & Barkol Kazakh Autonomous County	Golden Eagle, Goshawk	3	40-50
Other area		Goshawk, Golden Eagle		>390
Total	80-90% counties	About 10 species		1800-2200



Within the survey area, approximately 40.6% of people have either witnessed or were involved in falconry activities; while 74.5% of the people were aware that to capture, tame, transport or sell a raptor is in violation of the China Wildlife Conservation Law (1989). However, due to cultural, regional, ethnic traditional and other reasons, approximately 64.5% of the people accept or are involved in falconry. For the past 10 years, the price of the three major raptors - Goshawk, Golden Eagle, Sparrowhawk - has increased tenfold. The price of a Golden Eagle in the market surged from 1000 - 3000 Yuan to 8000 - 15000 Yuan (one U.S. dollar = 6.1 Yuan). Such increases are due to the huge market demand. Excluding the price of the raptor, falconry can fetch an annual income of 6000 - 7000 Yuan RMB. The average income of farmers and herdsmen is ca. 2640 ~ 3150 Yuan (RMB/year) and the huge economic gain from falconry becomes self-evident. The conflict between animal protection and traditional culture is a major problem, and since economic considerations

drive demands, these will impose newer challenges on the protection of rare species.

In addition to falconry related activities, Tajiks and Tibetan people like to use the bones of vulture wings to make "Eagle Flutes" for playing music. This is becoming another "World Cultural Heritage". The price of a pair of vulture flutes soared from 150-300 Yuan to 3000-7500 Yuan. Some Chinese herbal shops sell raptor corpses, bones, feathers and offal for medical treatment. Some superstitious people that hate owls, because of 'ominous' sounds, drive them away or kill them. In contrast, in other regions people are fond of owls and a large collection of Eagle Owl (*Bubo bubo*) feathers are considered essential for household decorations. Trading raptors for museums, schools, research institutes, individual collectors and for the market fetches large profits. In a large region of the western prairie, baiting with poisoned mice, results in mass-killings of raptor. Electrocutation from high-voltage power lines results in accidental raptor mortality. Thus, other than cultural aspects, other factors like social and political considerations, religious thought, biological causes, economic interests, changing philosophy of development, pose threats to the raptor populations of western China.

#### Discussion:

Eagles feature as a national emblem on the flag of many a country. The eagle is commonly deified and hence respected. In response to our questionnaire about the knowledge of legal status of capture, handle, transport of raptors, 74.5% of local people said it was illegal, 16% as legal, and 9.5% did not know. Although majority knew that it was illegal, capture and trade continues, trade information was easily obtained from Kashi and Hotan. We visited hundreds of households that kept eagles in Kashgar, Yarkand, Karghalik, Pishan, Hotan, Keriya, Niya oasis, etc. The analysis of our information revealed that most falconers learned their skills from their father or grandfather. Falconers were between 20 to 80 years old, and most were 40-50 years old.

However, unrealistic reports and promotion of falconry by media, based on minority customs, cultures and religions, cause confusion and conflicts between eagle hunting and protection. Falconry continues to receive significant media coverage and stunning



Vulture or eagle bones are used to make flutes

performances by falconers shown by the media continue to encourage and guide people's minds. This not only encourages the practice of falconry by recognition and public support, but also greatly weakens the legal protection and management. At present raptor trading receives acquiescence by the government in most areas of Xinjiang.

In recent years, loss of wildlife habitat, large-scale grassland poisoning, use of veterinary drugs and pesticides, chemical fertilizers, heavy metal poisoning, infectious diseases, network of power grids, transport facilities, wind power, tall buildings on the migration routes of the birds, as well as environmental pollution, human population pressure and other factors such as direct human disturbance from infrastructure development are seen in the western region. They not only deplete wildlife resources, but also directly affect reproduction capabilities and their subsequent distribution (Oaks et al., 2004; Li, 2004; Mei et al., 2008; Ma et al., 2010). Amongst these factors, we think that the threat from eagle hunting is severely underestimated. If habitat destruction renders the raptor homeless, then subsequent capture, poaching and trade undoubtedly wipe out the "homeless"! Sadly most people do not realize the harm inflicted by the culture of eagle trapping.

Based on our field survey, conducted between 2004 - 2013, the breeding density of Golden Eagles in the Karamay of Xinjiang has decreased from 1.67 nests/1000 km<sup>2</sup> to 0.37 nests/1000 km<sup>2</sup> (Ma, 2013). Many nest sites are abandoned because nests are disturbed and eggs or chicks are repeatedly stolen. The national and regional policy of unchecked rapid-development and promotion of economy are harmful to the raptors in western China and the status of the raptors

of Xinjiang is of great concern and needs immediate attention to implement protection measures.

#### Recommendations:

The rapid development of western China in recent decades has led to the destruction of raptor habitats within a very short time which has resulted in the drastic decline of raptor populations. It is also matter of great urgency that the local people, government, and the international community recognize the additional magnitude of disaster brought on by falconry and hunting activities. Our suggestions are:

- (1) The traditional culture of falconry should be scientifically preserved, controlled professional, and not commonly promoted. Unrestricted falconry, to satisfy personal pleasures and ego, leads to animal suffering and disturbance to the ecosystem. Historically, falconry was used to attain food and was rationally and judiciously used as a recreation measure by some of the nomadic minorities. In today's world, falconry has lost its original connotation, and most raptor populations have suffered and some even become endangered. Enhancing traditional culture by irresponsibly endorsing falconry, especially since it cannot meet the economic interest of these ethnic groups, is inappropriate.
- (2) Strengthen law enforcement and implementation to ensure that falconry will not degenerate into unchecked economic gains by uncaring people. Falcon prices have soared in recent years, and the profit from annual falconry activities, and their products such as eagle flute, specimens, medicines, etc., has benefitted locals but harmed raptor populations. The heritage perspective and purpose of protecting traditional cultural skills such as falconry is used by criminals to negatively take advantage of wild raptors.
- (3) Unified and common registration and access system should be strictly imposed on falconers for the entire Xinjiang province. Fragmentation of data in any form, type, size and quantity of raptors used in falconry should not be allowed; and a ban imposed on all illegally acquired raptors and domesticated raptors. Pressure from government offices or law enforcement officers should not become an excuse for promoting un-authorized falconry under the pretext of traditional culture, economic development or promotion of tourism development.
- (4) Poverty and general interest are the root causes of

widespread falconry activities, and when falconers experience the economic rewards, falconry is impossible to control. Possession of existing legal domesticated raptors should be subject to taxation. People who voluntarily give up falconry should be awarded with economic incentives.

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### INTRODUCTION

In Indian context, ‘*sanskriti*’ is the word for ‘culture’. Here the root verb is ‘*sam + kru*’ which means to refine. The refinement of human thoughts is on two levels, material (*aadhibhautika*) and spiritual or mental (*aadhyatmika*). Various forms of arts, historical monuments, ritual systems, festivals and different types of worships are aspects of a material culture. Values, ethics, self-enrichment and concern for one’s own universe are the aspects of spiritual or mental culture. Culture is reflected on visible and invisible levels.

In the Western context, the origin of the word culture is related to the Latin word ‘*cultura*’. This word was first used in the 18<sup>th</sup>, 19<sup>th</sup> century in Europe. It was to connote a process of cultivation or improvement. The concept of culture developed in the 19<sup>th</sup> century. It referred to the refinement of individual especially through education and subsequently to the fulfillment of national aspirations.

The idea of Indian culture is well expressed in the Rigveda (1400 BC)<sup>1</sup>. It is said,

सं गच्छध्वं सं वदध्वं सं वो मनांसि जानताम् ।  
देवा भागं यथा पूर्वे संजानाना उपासते ॥

समानो मन्त्रः समितिः समानी समानं मनः सह चित्तमेषाम् ।  
समानं मन्त्रमभि मन्त्रये वः समानेन वो हविषा जुहोमि ॥

समानी व आकूतिः समान्ना दयानि वः ।  
समानमस्तु वो मनो यथा वः सुसहासति ॥

- ऋग्वेद १०.१९१. २-४

“Assemble, speak together: let your minds be all of one accord,

As ancient Gods unanimous sit down to their appointed share. 2

The place is common, common the assembly, common the mind, so be their thought united.

A common purpose do I lay before you, and worship with your general oblation. 3

One and the same be your resolve, and be your minds of



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Owl sculpture at Lepakshi temple in Andhra Pradesh

one accord.

United be the thoughts of all that all may happily agree.  
4”

Culture gives a peculiar identity to the nation and to the persons belonging to a particular group and culture has a capacity to withstand shocks. Culture keeps on changing and evolving.

Unbroken tradition, absence of centralization of political and religious power and a tendency to synthesize different cultures are the peculiar characteristics of Indian culture. The oldest literature from the group of Indo-Germanic languages is available in Sanskrit language. The period goes back to at least 7000 years back. The oral tradition of the Vedas is still preserved and taught in India. There was never an importunate attitude regarding religious practices or religious beliefs.

We find a variety of cultures in India because of the tendency for synthesis and universal symphony which is reflected through the indigenous wisdom. There was no conflict between a concern for nature and needs of a society. The definition of India 2 was:

गङ्गायामुनयोन्तरेप्येके ।

यावद्वा कृष्णमृगो विचरति तावद् ब्रह्मवर्चसमित्यन्ये ॥

वसिष्ठ धर्मसूत्र (१-१२-१३)

“The land between the Ganga and Yamuna rivers is (known as) *aaryaavatra* (the land of Aryas i.e. cultured people). Or the region where the blackbucks roam unrestrictedly is the land of sacred rituals and that is (known as) *Aaryavarta*”.

### Material and methods

For the study of raptors in Sanskrit literature I

have gone through the original Sanskrit texts from the Vedic literature- *Rigveda Samhita*, *Taittiriya samhita*, *Shukla Yajurveda* (Vajasaneyi madhyandina Samhita), *Bruhadaranyaka Upanishada*; Purana texts particularly *Linga Maha Purana*, *Bhagavata maha Purana*, *Agni Purana*; epics like the Valmiki Ramayana and the Mahabharata; works on architecture, engineering and sculpture like *Kashyapa Shilpam*, *Vishvakarma Vastu Shastram*, *Yantrasarvasva*; lexicons like *Kalpavriksha*; encyclopedias like *Bharateeya Sanskriti Kosha*, *Manasollasa* [or *Abhilasitarthacintamani*]; work of statecraft titled *Artha Shastra*; a treatise on Indian music *Sangita ratnakara*; ancient texts on Ayurveda such as *Caraka Samhita* and *Sushruta samhita*; a text on ancient Indian law titled *Manusmriti*; a piece of classical Sanskrit literature *Meghaduta* and a documentation on ancient religious observances and stories related to those religious traditions titled *Vrataraja*. The chronology is mentioned where the original references are quoted.

### Observations and discussion

Concept of environmental thought in Indian philosophy since this paper is based on ancient scriptures and works of Sanskrit literature. There are innumerable references where nature is regarded and honoured as a preceptor. Here is a reference from the *Upanishadas*.

एषा वै भूतानां पृथिवी रसः

पृथिव्या आपः अपामोषधयः ओषधीनां पुष्पाणि पुष्पाणां फलानि

फलानां पुरुषः पुरुषस्य रेतः ॥

- *Bruhadaranyaka Upanishada* VI.iv.1 (600 BC)<sup>3</sup>

“The earth is the essence of all these beings, water is the essence of the earth, herbs of water, flowers of herbs, fruits of flowers, man of fruits, and the seed of man.”

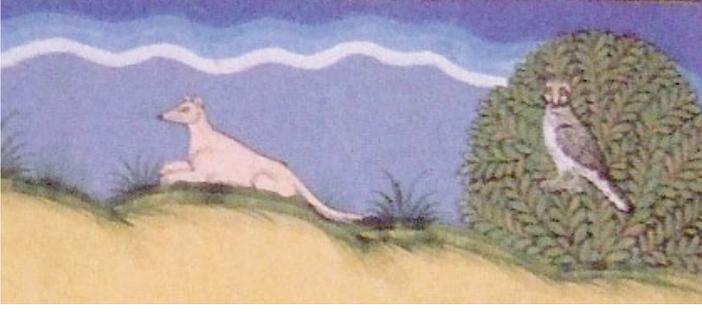
There is an interesting story from the *Chhandogya Upanishada* (6.12.1,2) (600 BC).

The story goes like this - a sage named *Uddalaka Aruni* is teaching his son named *Shvetaketu* about the principle of actuality and potentiality that is beautifully expressed in nature. The dialogue between the father and the son is as follows:

The sage says, ‘bring a fruit from this banyan tree.’

‘here it is, revered sir.’

‘Break it’.



‘It is broken, revered sir.’  
 ‘What do you see in this?’  
 ‘These seeds, small like particles, revered sir.’  
 ‘Break open of these, my child.’ ‘It is broken, revered sir.’  
 ‘What do you see in it?’ ‘Nothing, revered sir.’

The father says to him, “Dear boy, this subtle essence which you do not perceive, growing from this subtle essence the large banyan tree thus stands. Have faith, dear boy.”

**Here are some examples showing how the environmental thought was practiced in ancient India in daily routine:**

1) - - - पूर्वमग्नये वयोभ्यश्च बलिं कृत्वा । कौटिलीय अर्थशास्त्र  
 अध्याय २०, प्रकरण १६, अधिकरण १, ३

“(The king) should first offer the food cooked in the kitchen of the palace to the god of fire, then to the birds and (then have for oneself).” Kautiliya Arthashastra 20.16.1.3 (4th C.)<sup>4</sup>

2) There are clear instructions for the king to maintain protection of birds and animals. Kautiliya Arthashastra 26.42.2.5

3) A poetic work named “Janakaiharana 5.2 (517-26 AD) describes the penance grove) had vessels filled with water placed under the tress for the birds to drink.

5) The concept of five great sacrifices (**panchamahayajnas**): A practical philosophy expressing a universal responsibility.

Initially, in Hindu tradition there was the concept of *Runa-traya* i.e. ‘three debts. As per the Hindu scriptures, a householder is expected to perform three great sacrifices every day. For example, we find the Sanskrit verses for

*Brahmayajna*, *Bhutayajna* and *Manushyayajna* in the text of “*Rugvediya Nityavidhi*”. These sacrifices are to be performed in order to repay our debts (*Deva-runa*, *Pitru-runa*, and *Rushi-runas*) towards divine beings, towards Mother Nature and towards our teachers. Later, two more sacrifices or obligations were added: towards our forefathers and towards the society, because we prosper because of their help. Begetting children is also considered as repaying our debt to the manes. For repaying the third debt i.e. *Rushi-runa* one is expected to study and practice austerities. There is also a feeling of expressing our concern and awareness of unknowingly and unwillingly committing some sins, when we work in the house and use five implements like pestle and mortar, domestic fire, grinding stone as well clean our home where violence is committed through killing ants or worms.

(It is said,  
 “*pancha sunaa gruhasthasya chulli  
 peshanyupaskara: |  
 Kandani chodakumbhasya badhyate yaastu  
 vaahayan ||  
 Taasaam kramena sarvaasaam nishkrutyartham  
 maharshibhi : |  
 Pancha kluptaa mahaayajnaa: pratyaham  
 gruhamedhinaam ||*  
 - *Manu Smruti* 3. 68, 69)<sup>5</sup>

There are hints of this idea in the *Rigveda* (8.32.16 and 6.61.1) and they are more clear in the *Taittiriya Samhita* (6.3.10.5)<sup>6</sup> and *Shatapatha Brahmana* (1.7.2.11).

**The five great sacrifices** are as follows (*Manu Smruti* 3. 70):

- 1) *Devayajna* – It is a sacrifice to Gods like the *Surya* (sun), *Prajapati* (the creator) and *Indra* (the king of Gods). It is a daily sacrifice which is offered in a consecrated fire in order to express our gratitude since these Gods give us rain, crops and prosperity.
- 2) *Pitruyajna* – It is a sacrifice performed for the remembrance of our forefathers by offering rice balls i.e. *Pinda* and water i.e. *Arghya*.
- 3) *Rushiyajna* – It is sacrifice performed for the remembrance of the sages and it is also called as *Brahmayajna* because our ancestors preserved the knowledge and passed it for the future generations.
- 4) *Manushyayajna* – In this sacrifice performed for

our fellow human beings by feeding those who are hungry.

- 5) *Bhutayajna* – It is the sacrifice where domestic and other animals are fed. People perform *Baliharana* (distribution of offerings) of cooked rice. These *balis* are kept on the ground is properly cleaned in the name of deities of water, herbs and birds and animals are fed.

### Birds in Indian culture:

Indian culture offers a unique place to birds mixed up with accurate description, traditions, and religious practices, pious acts of austerity, devotion and respect towards Mother Nature. Here I’ll explain various aspects of bird references with some examples from ancient Sanskrit literature.

#### i) Oldest References

In the *Rigveda* (1400 BC) (7.104.17; 10.165.4), ‘*uluka*’ is the general word for owl and its call or shrill voice was noted. The *Vajasaneyi Samhita* (1400 BC) (24.23)<sup>7</sup> says “*Aalabhate Vanaspatibhya Ulukaan*” means “let the plants get the owls.” Owls were supposed to be an offering to the deity of tress probably because owls roost in tress.

#### ii) Birds and Religion

- i) Mythology – There are mythological stories explaining certain belief systems about auspiciousness or inauspiciousness of birds. For example in the *Linga Purana* we find a reference to an owl which has melodious calls.
- ii) Religious Traditions – Traditionally, eating meat of some birds was prohibited. The *Dharmasutras* also mention punishments for unnecessary killing of birds. Texts like the *Brihatsamhita* (500-50 AD) (53.120), *Kashyapshilpa* (79.11)<sup>8</sup> and the *Vishvakarmavastu Shastra* (4.20)<sup>9</sup> prohibit the felling of trees where birds nest. The *Manusmriti* (2<sup>nd</sup> c. AD) ( 5.11) says :

“*kravyaada: shakunin sarvaan tathaa  
graamanivaashina: |  
anirdishtaanschaikashaphaaishittbham cha  
vivarjayet ||*”

“One should avoid all carnivorous birds, so also these abide in those in towns and beasts with solid hoofs not permitted (by this law), lapwings also.”



The Sanskrit text namely *Vrataraaja*<sup>10</sup> mentions an observance namely ‘*Kokila Vrata*’. The female cuckoo is believed to be a form of Parvati- the consort of Shiva. While keeping this observance married women take the food only after hearing a call of the cuckoo bird. If this call is not heard they go on continuing their fasting. The text also gives a story behind this tradition. There are some birds like eagle or peafowl that are believed to be the carrier vehicle of various gods and goddesses and deities of rivers. The texts like the “*Shulba Sutra*” (600 BC) describing the geometrical brick arrangements of fire altars (mainly they were *Abhichara Yagas*) that look like the birds having its wings spread, for example *Shyena Chiti*, *Kanka Chiti* or *Alaja Chiti*. All these are birds of prey.

Though there are some wrong belief systems regarding owls, Indian religion and culture has conferred a respectable position to owls. In West Bengal the owl is worshipped as a carrier vehicle of Goddess *Lakshmi*, because the owl feeds on mice, rats, etc. that are pest to crops. Thus the bird protects wealth that is in the form of crops. Pictures and artifacts of Goddess *Lakshmi* accompanied with the owl are commonly seen in West Bengal.

Secondly the owl is also believed to be a carrier vehicle of Goddess *Chamunda* and it is depicted accordingly in sculptures. *Chamunda* is the form of Mother Kali who symbolizes the power of time in its all-destroying aspect. She is described as the fierce goddess and is black in colour. Thus it is interesting to note that the owl is related to death that approaches us without giving any intimation, just like the owl that pounces on its prey with its peculiar noiseless flight! This philosophical thought elevates the symbol of the owl to a different status.

- iii) Superstitions and Augury – There are various

concepts of good omen or bad omen related to the sighting of various birds. After the *Purana* literature period, the concepts about some birds of their being inauspicious has been detrimental to some extent to the conservation of birds as it affected the attitude of humans.

### iii) Birds and Sanskrit Literature

i) Etymology – There are grammatical and non-grammatical explanations and derivations to show how a particular word is formed.

ii) Lexicons – The names of birds are aptly mentioned in various lexicons . (varying from the period of 6<sup>th</sup> c. AD to 17<sup>th</sup> c. AD). For example, the *Kalpadrusha* (1660 AD)<sup>11</sup> of *Keshava* mentions a word *Vaktravishtha* as a synonym for owl. The words means ‘one who excretes (i.e. discards pellets) through mouth!’ This is a very peculiar observation and description of owl.

It is extremely important to understand the words in these lexicons as they provide us the observations done in ancient times through such interesting words. The subject has immense conservation potential.

iii) The language of birds – The *Mahabharata* (400 BC- 400 AD)<sup>12</sup>, the *Lingapurana* (after 1000 AD)<sup>13</sup>, the *Manasollasa* (1129 AD)<sup>14</sup> speak about the language of bird calls which was known as ‘*Ruta Jnana*’.

iv) Maxims – There are uses of bird symbols in various maxims. For example, the word ‘*Kaaka danta*’ means ‘a crow’s tooth’. The expression is used to convey something that is impossible.

v) Birds in philosophical Context – The *Brihadaranyaka Upanishada* (600 BC) (6.8.2) says, “ *Sa Yathaa Shakuni: Sutrena Prabaddho Disham Disham Patitvaanyatraayatanamalbddhvaa Bandhanamevopashrayata - - |*”

“The bird that is tied to the rope (by the noose-trapper) tries to fly away at various directions but it does not find the place to rest and comes back to its previous place. - -”

vi) Nature Descriptions – in Sanskrit literature, there is abundance of verses describing the beauty of nature due to the existence of birds. For example, the *Kalpadrusha Kosha* (11.86) says that an eagle having a sharp beak resides on a silk cotton tree.

vii) Speed of Birds – It is interesting to note that in the *Valmiki Ramayana* (400 BC- 400 AD) (IV.57.24-27) we find the verses describing the various types of

speed of flying birds.

### iv) Birds in Art forms

i) Paintings – In the paintings on walls or rocks we find bird depictions.

ii) Sculpture – In sculpture there are carvings unfolding the beauty of birds or the birds accompanying the deities.

v) Birds in Yoga Postures – There are some Yoga postures imitating the shape of a particular bird. For example, *Garudasana* which means a posture that depicts the shape of an eagle.

vi) Bird Classification in the *Ayurveda* – The *Ayurveda* has its own system classification of birds. The *Charaka Samhita* 15 and the *Sushruta Samhita* (both 2nd c. AD) 16 say that there are three types of birds – *Prasaha* (a class of those birds that catches the prey forcibly and eat it.

For example, *Grudhra* – a Vulture); *Pratuda* (a class of those birds which beat the prey with their beaks and then eat it. For example – *Kokila* – an Indian Cuckoo) and *Vishikira* (a class of birds that eat the food by scattering it. For example *Kukkuta* - a Cock).

v) Uses of birds – From ancient times birds were hunted as favourite pastimes, used as pets, were trained as messengers, as food, used as game birds, for medicinal purposes (thankfully now the practice of using birds’ organs is replaced by modern medicines. But it is sad to say that the practice of illegal trade of birds for the purposes of black magic or witchcraft is still going on in India.)

Birds of prey in Indian culture

Use of birds in warfare

The *Kautiliya Artha Shastra* speaks about tying some explosives to the feathers of the birds like falcon, crow, vulture, parrot, myna, owl and pigeon and then letting them fly to the enemy’s forts for destruction. (13.4.14)

### Kuara - Osprey

१) तां क्रन्दनामत्यर्थं कुररीमिव वाशतीम् ॥ महाभारत / वन पर्व - नलोपाख्यान पर्व / ६३.२०

“(Damayanti) wailed like an osprey.” *Mahabharata* / Vana Parva – Nalopakhyaana Parva / 63.20

२) एवमुक्ता तु सा तेन शाल्वेनादीर्घदर्शिना ।

निश्चक्राम पुराद् दीना रुदती कुररी यथा ॥ महाभारत / उद्योग पर्व  
- अम्बोपाख्यान पर्व / १७५.२५

“Amba wailed like an osprey.” *Mahabharata* / Udyoga Parva – Ambopakhyaana Parva / 175.25

३) परिशोचति ते माता कुररीव गतप्रजा । - - - ॥ भागवत महा पुराण  
/ दशम स्कन्ध / ५५.१५

Here is a reference to the wailing of a female osprey when her chicks die. *Bhagavata Maha Purana* / Dashama skandha / 55.15

4) The similar references to the wailing in a loud and sweet tone like that of an osprey are seen in the compositions like *Malati Madhava* (5.20), *Vikramorvashiyam* (first canto); *Avadana Kalpa Lata* (3.128), *Champu Bharatam* (5), *Raghu Vamsha* (14.68), *Valmiki Ramayana* (Kishkindha Kanda / 19.28; Yuddha Kanda / 32.3; Yuddha Kanda / 49.9).

5) In a philosophical context an osprey was described as our teacher in the *Mahabharata* (Shanti Parva / Moksha Dharma Parva / 178.7, 10) as well as in the *Bhagavata Maha Purana* 11.9.2) 20.

The kurara was flying with a piece of flesh in its beak. Other birds followed it for the piece of that flesh. When he kurara left that piece, it became carefree.”

There is story about an osprey and a wandering monk named Avadhuta. He sees that an osprey flying by holding a fish in its beak. The bird was chased by a flock of birds. An osprey finally gets tired and loses hold on its prey. Immediately the birds let it free and start chasing and grab the fish dropped from the beak of an osprey. The monk learns that one should not carry unnecessary belongings in order to avoid getting chased.

6) The *Harsha Charitam* (2nd part) describes osprey birds sitting on the tree of arjuna – a tree with useful rind – botanical name ??)

### Kanka

The Valmiki Ramayana refers to the fierce Kanka birds (III.23.10a) and the arrows decorated by the feathers of Kanka birds (IV.5.27c).

### Shyena – Falcon

1) The *Kumara Sambhava* (16.28) speaks of falcons carrying the heads of the warriors who died on the war field.

2) The *Harsha Charita* (2nd part) compares flames of fire in the forest forcefully engulfing the nests of the birds like a falcon approaching ferociously.

3) The *Rigveda* (4.26.5) the *Shukla Yajurveda* (32.6) speaks of a falcon bringing a particular Soma plant from the heaven.

*The Shukla Yajurveda* (10.19.10) also speaks of protecting the falcon from cholera.

*The Samaveda* (3.5.3; 6.6.1) speaks of a falcon returning to its nest.

4) The shrauta Sutras describe the construction of fire altars having the shape of a falcon having its wings spread. It was known as a ‘shyena chiti’. It required five layers consisting 200 bricks in each layer. Thus it required 1000 bricks of different shapes.

५) वज्रपातो चलेन्द्राणां श्येनं सर्वपतत्रिणाम् ।  
मृगेन्द्रो मुगसङ्घानां मृत्युः पुरुषविग्रहः ॥ ७ ॥ मध्यमव्यायोग

“Who is as it were a stroke of thunderbolt for the big mountains, a falcon to all the flying birds, a lion among the herd of beasts or even death itself in a human form.”  
*Madhyamavyayoga* 7

६) श्येनः शंसनीयं गच्छति । निरुक्त ४.२४

“Shyena means the one who flies graceful speed.” –  
*Nirukta* 4.24

7) In the *Rigveda* a falcon is praised as the swiftest and strong bird. The sage named Vamadeva praises (sukta 4.27) the lord Indra as if he is in the form of a falcon.

### Grudhra – Vulture

1) There are references to the vultures in the *Rigveda*, the *Atharvaveda*, the *Taittiriya Samhita*, the *Samaveda*, the *Taittiriya Aranyaka*.

- 2) *Valmiki Ramayana* (Yuddha Kanda, 10.20 ) speaks of disturbed vultures who were sitting on the roofs of the houses.

There are many references which speak of the presence of vultures near war fields or the vultures following the chariots of warriors Yuddha kanda 106.23).

The characters of vultures who were named *Jatayu* and *Sampati* have important role in the epic.

- 3) The *Mahabharata* speaks of a symbol of a vulture having spread its wings and claws and giving out calls decorating the flag of Ghatotkacha (the son of Bheema) (Drona Parva / Ghatotkacha Vadha Parva / 156.60)
- 4) The *Agni Purana* (116.11, 12) 21 refers to the Grudhreshvara (the lord of vultures and usually such words refer to the lord Shiva); Ghrudhrakuta (name of the place) and Ghrudhravata (athe name of the place or a banyan tree providing shelter to the vultures).

The *Garuda Purana* (a chapter describing the religious importance of a place named Gaya, 12) on the place also refers to the god named Grudhreshvara.

The *Matsya Purana* (39.6) speaks of a vulture having black neck – shiti kantha.

- 5) In the Vedic period the swiftness of the flight of the vulture and its fondness for devouring carrion were noticed.
- 6) The *Raghuvamsha* (11.26) describes the army of demons holding flags looking like the vultures flapping their wings.
- 7) While describing a concept of an aero plane a text titled “Yantra Sarvasva” 22 says that the aero plane should be like be like the sped of a vulture.” (गृध्रादिपक्षिणां वेगसाम्यं यस्यास्ति वेगतः । वैमानिक शास्त्र / सूत्र १ अध्याय १)
- 8) The *Valmiki Ramayana* (Kishkindha Kanda / 58.30) praises the farsightedness of vultures.

- 9) The *Mudra rakshasa* (28) describes the circling of scavenging vultures as “vultures, whose wings were long and motionless having formed themselves into circles - - -”).

- 10) The text named *Urubhangam* (1.11) says that “Vultures, with eyes tawny and protruding like the madhuka (botanical name??) buds and beaks as sharp as the curved goad of the elephant of the lord of demons, with extensive long wings outstretches look like coral-inlaid fans on account of bits of flesh.”

### Garuda – Eagle

- 1) There are references to Garuda from the Rigvedic times. It seems that the eagles were trained to bring a certain herb called as ‘soma’ which grew in high mountainous regions.
- 2) The *Brahma Purana* (chapter 43) refers to the place named Garuda teertha.
- 3) The *Valmiki Ramayana* (Kishkindha Kanda / 58. 24-27) describes the kurara (osprey), bhasa (meaning not clear), the shyena (falcon), grudhra (vulture) and vainateya (eagle) according to speed of their flight and says that the speed of an eagle is the supreme.
- 4) Garuda – the eagle is respected as the carrier vehicle of Lord Vishnu and worshipped with his master. In temples we often see the stone or wooden idols of Garuda. Garuda is believed to be the king of birds and is honoured because of his mythological status and his valour. In the warfare, the army was arranged in the shape of an eagle on the battle field, which was known as “garuda-vyuha”. In the Yoga posture there is a unique posture known as “garudaasana”. “Suparna Chiti” was a type of a fire altar which has a structure of an eagle which has spread its wings. The *Shulba Sutra* (600 BC) text describes its geometrical measures.
- 5) Garuda- 58 names which are said to be the names of offspring of the *Garuda* – the eagle in the *Mahabharata* (400 BC- 400 AD).  
(The major references are,

*Mahabharata*. Vol. I-V, ed. R. N. Dandekar et al. (1971-1976), Poona: Bhandarkar Oriental Research Institute. (5.99.1-3, 9-14).

*Mahabharata*. Geeta Press; Gorakhpur; Udyogaparva; Volume 3; Adhyaya 101. Page 2334.)

अयं लोकः सुपर्णानां पक्षिणां पन्नगाशिनाम् ।  
विक्रमे गमने भारे नैषामस्ति परिश्रमः ॥ १ ॥  
वैनतेयसुतैः सूत षड्भिस्ततमिदं कुलम् ।  
सुमुखेन सुनाम्ना च सुनेत्रेण सुवर्चसा ॥ २ ॥  
सुरुचा पक्षिराजेन सुबलेन च मातले ।  
वर्धितानि प्रसृत्या वै विनताकुलकर्तृभिः ॥ ३ ॥

- - -

सुवर्णचूडो नागाशी दारुणश्चण्डतुण्डकः ।  
अनिलश्चानलश्चैव विशालाक्षः अथ कुण्डली ॥ ९ ॥  
पङ्कजिद् वज्रविष्कम्भो वैनतेयः अथ वामनः ।  
वातवेगो दिशाचक्षुर्निमेषः अनिमिषस्तथा ॥ १० ॥  
त्रिरावः समरावश्च वाल्मिकिर्द्वीपकस्तथा ।  
दैत्यद्वीपः सरिद्वीपः सारसः पद्मकेतनः ॥ ११ ॥  
सुमुखश्चित्रकेतुश्च चित्रबर्हस्तथानघः ।  
मेषहत् कुमुदो दक्षः सर्पान्तः सहभोजनः ॥ १२ ॥  
गुरुभारः कपोतश्च सूर्यनेत्रश्चिरान्तकः ।  
विष्णुधर्मा कुमारश्च परिबर्हो हरिस्तथा ॥ १३ ॥  
सुस्वरो मधुपर्कश्च हेमवर्णस्तथैव च ।  
मालयो मातरिश्वा च निशाकरदिवाकरौ ॥ १४ ॥

- 1) Suparna – One who has beautiful wings.
- 2) Pannagashin – One who devours snake.
- 3) Vainateyasuta – One who is the son of *Vinata*.
- 4) Sumukha – One who has a beautiful face.
- 5) Sunama – One who is well-named.
- 6) Sunetra – One who has a beautiful eyes.
- 7) Suvarchasa – One who is full of vigour.
- 8) Surucha – One who has a good appearance.
- 9) Pakshiraja – One who is a king of birds.
- 10) Subala – One who is very powerful.
- 11) Suvarnachuda – One who has golden crest.
- 12) Nagashin – One who is a snake-eater.
- 13) Daruna – One who is dreadful.
- 14) Chandatundaka – One who has a powerful beak.
- 15) Anala – One who is sharp, bright (like fire).
- 16) Anila – One who is fast-flying (like the wind).
- 17) Vishalaksha – One who is large-eyed.
- 18) Kundalin – One who is spotted.
- 19) Pankajid – *Panka* means mud. One who wins over mud.
- 20) Vajrajavishkambha – One who supports the thunderbolt. (Does it refer to the mighty power of the eagle?)
- 21) Vainateya – One who is the son of *Vinata*.
- 22) Vamana – One who is crooked.
- 23) Vatavega – One who is speedy like the wind.
- 24) Dishachakshu – One who has a sky vision.

- 25) Nimehsa – It literally means a measure of time or twinkling of winking. It refers to the swiftness of the eagle.
- 26) Animisha – One who has no winking of an eye i. e. who has sharp and concentrated vision.
- 27) Trirava – The meaning is not clear. (Does it refer to the call?)
- 28) Saptarava – The meaning is not clear. (Does it refer to the call?)
- 29) Valmiki – The meaning is not clear. (*Valmika* means an ant-hill.)
- 30) Dvipaka – The meaning is not clear. (*Dvipa* means an island. Does it refer to the particular habitat?)
- 31) Daityadvipa – One who takes shelter on an island of demons.
- 32) Saridvipa – One who takes shelter on an island on a river.
- 33) Sarasa – One who belongs to a pond or a lake.
- 34) Padmaketana – Literally it means the house or symbol of a lotus. (Does it refer to some particular habitat?)
- 35) Sumukha – One who looks beautiful.
- 36) Chitraketu – One who is colourful.
- 37) Citrabarha – One who has variegated colours.
- 38) Anagha – One who is faultless.
- 39) Meshahruta – One who lifts up a goat.
- 40) Kumuda – It means white lily. May be it refers to the white colour of the eagle.
- 41) Daksha – One who is alert.
- 42) Sarpanta – One who kills a snake.
- 43) Sahabhjana – One who consumes eats along with others.
- 44) Gurubhara – One who is hefty.
- 45) Kapota – Literally it means a pigeon. But it may refer to the grey colour of the eagle.
- 46) Suryanetra – One who has sharp sight as the sun.
- 47) Chirantaka – One who is existing from ancient times.
- 48) Vishnudharma – One who carries lord Vishnu. The eagle is the carrier vehicle of lord Vishnu.
- 49) Kumara – One who is young.
- 50) Paribarha – One who has a round-shaped plumage.
- 51) Hari – One who is reddish-brown.
- 52) Susvara – One who has melodious voice.
- 53) Madhuparka – Literally it means a mixture of milk and honey. It may be suggestive of the brown colour of the eagle.
- 54) Hemavarna – One who is golden coloured.
- 55) Maalaya – Malaya is name of a mountain and so it

may suggest the habitat of the eagle in the mountain range on the west Malabar and Western Ghats.

56) Matarishvan – One who flies in the sky.

57) Nishakara – One who causes a night. The meaning is not clear.

58) Divakara – One who causes a day. The meaning is not clear.

### Raptor classification (Pratuda, Prasaha and Vishkira)

#### i) Bird Classification in the *Ayurveda*

The *Ayurveda* has its own system classification of birds. The *Charaka Samhita* and the *Sushruta Samhita* (both 2nd c. AD) say that there are three types of birds – *Prasaha* (a class of those birds that catches the prey forcibly and eat it. For example, *Grudhra* – a Vulture); *Pratuda* (a class of those birds which beat the prey with their beaks and then eat it. For example – *Kokila* – an Indian Cuckoo) and *Vishkira* (a class of birds that eat the food by scattering it. For example *Kukkuta* - a Cock).

#### ii) Surgical Instruments in ancient India

There were references to various surgical instruments namely *kuraramukha* (which is like the face of an osprey); *shashaaghati* (one that is like a bird of prey – probably like an eagle – one that kills hares); *ulukamukha* (which is like the face of an owl); *chillimukha* (which is like the face of a kite) and *shyenamukha* (which is like the face of a falcon).

A text namely *Harita Samhita* mentions a surgical instrument called “*grudhra paada shastra*” – an instrument like the legs of a vulture).

### Conclusions

In case of raptors, culture has played a positive role in their conservation and protection. In case of owls the situation is not very encouraging but we are trying to document various cultural aspects from India and to disseminate the useful and positive information on various platforms. We have to use culture as a medium of education.

### The purpose of Ethno-ornithological Studies in the Indian context:

1) Compilation of bird and animal stories, myths and belief-systems available in Sanskrit and regional languages. Sanskrit language has formed the basis or

Indian culture, it is the source of our ancient literature as well as heritage and that is why it is important to refer to Sanskrit literature.

- 2) Listing the names of the birds and animals documented along with their Sanskrit or regional names.
- 3) Trying to identify the birds and animals mentioned in our ancient literature according to their actual or factual descriptions wherever possible. It will give us picture of bio-diversity of that period.
- 4) Trying to identify animals and birds from their behavioral descriptions.
- 5) Trying to identify animals and birds from their use in particular types of myths.
- 6) Trying to estimate if actual animal and bird behavior and behavioral patterns mentioned in the myths are relevant and interrelated or mere poetic fancies.
- 7) Study if there is any relation between various beliefs in Indian culture and that of other traditions.
- 8) Evaluate the conservation aspects of the myths and correlate the occurrence of animals and birds in Indian mythology with birds and animals documented in India. (This will enable us to document the extent of cultural exchange with other provinces and the extent of use of poetic fancies apart from the actual observations of ancient Indians regarding nature.)
- 9) The modalities used in the myths for promoting nature conservation, such as fear, reverence, rewards, etc.
- 10) Introduce the beautiful literary images of birds to increase awareness regarding nature and wild life, ancient human values as an instrument to increase love towards nature as it effective in changing attitudes.
- 11) With the help of ancient knowledge we can erase superstitions regarding birds and thereby help in their protection.

### How to use culture for conservation of raptors in present scenario (A concrete example – about owl):

For a few years I worked on a project, “Owl in Indian Culture and Literature,” where I documented references from Sanskrit Literature and local literature from Maharashtra, Gujarat, West Bengal, Rajasthan and some of the states from the North-east India.

I was given an opportunity to write a lesson for the 9th standard Sanskrit text book published by the Maharashtra Text Book Education Bureau on how owls are true friends of human beings and how they protect agriculture. This

lesson is now included in the text books.

Then a first comic was written with Dr. Satish Pande which enlightens the reader about Spotted Owlet, Barn Owl, Indian Great Horned Owl, Short-eared Owl, Collared Scops Owl, Grass Owl, Brown Hawk Owl, Dusky Horned Owl, Brown Fish Owl, Mottled Wood Owl, Andaman Owls – Andaman Scops Owl, Andaman Barn Owl, Andaman Hawk Owl, Nicobar scops Owl and Hume’s Hawk Owl, Forest Eagle Owl, Forest Owlet, Forest Owlet, Mountain Scops Owl, Barred Jungle Owlet, Little Owl and few peculiar Owls seen abroad – Elf Owl ( the smallest Owl), Blakiston Owl (the biggest Owl), Long-eared Owl and Snowy Owl.

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A juvenile Painted Stork wing tagged by Ela Foundation and Forest Department, Maharashtra. Ring was also fitted on the left leg. Grey Herons, White Ibises, Pond Herons, Little Cormorants and Little Egrets were also tagged during the bird flu surveillance jointly conducted by Ela Foundation and National Institute of Virology Pune in March 2014. Bird watchers are requested to inform Ela Foundation ([pande.satish@gmail.com](mailto:pande.satish@gmail.com)) if the red coloured wing tagged birds of above mentioned species are observed.