

## Rehabilitation of an Injured Golden Eagle (*Aquila Chrysaetos*): A Case Study

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## REHABILITATION OF AN INJURED GOLDEN EAGLE (*AQUILA CHRYSAETOS*): A CASE STUDY

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### ABSTRACT

Habitat destruction and anthropogenic activities cause wild birds to migrate towards urban areas in search of food and sometimes nesting in high-roof buildings, where they are caught by local people using different techniques and are further used for hunting or recreational purposes. An injured Golden Eagle (*Aquila chrysaetos*) was found entangled in bushes near the vicinity of Balkasar Research Complex, Chakwal, Pakistan. After complete physical examination, a wound on the right wing and closed leg fracture was diagnosed. The successful treatment was done by anti-parasitic and anti-bacterial drugs with careful monitoring. Splint was adjusted after aligning the fractured bones to regain their original position. The bird was fed with fresh meat soaked in a little quantity of water so that the water intake can be made sure. After complete recovery, the eagle was kept under observation for two weeks and then set free to breathe in the open atmosphere. The successful treatment and release of wild birds into their natural habitat in such cases can help in their population stability and conservation.

**Keywords:** *Aquila chrysaetos*, bird injuries, Golden Eagle, rehabilitation, wildlife conservation

### INTRODUCTION

Wildlife rehabilitation involves cure and provisional care of a wounded, afflicted, and uprooted animal, preceded by the discharge of the healthy animal to the wild (Grogan, 2013). In this current era, bird species are encountering an increased threat of extinction, increasing the urgency of implementation of various conservation activities (Monadjem, 2014).

Golden eagle (*Aquila chrysaetos*) belongs to the family *Accipitridae*. It is fairly ubiquitous and the most widely distributed eagle species. It has brown feathers and eyes with a yellow beak. It was found to be present in North America, Europe, Africa and Asia including Pakistan (Qureshi, 2011; Bedrosian, 2018). Golden eagle's population is facing the risk of extinction due to low procreative capability,

habitat loss and increasing mortality threats due to extension of industrial areas and power lines, oil and gas mining activities as well as solar energy harvest. These factors result in habitat loss thus, leading to increased mortality rate of the already threatened golden eagles. Moreover, the development of wind energy, electrocution by power lines, contaminants, accidents with vehicles and illegal shooting is continuously contributing to a decline in the Golden Eagle population (Bedrosian, 2018).

The most detrimental human activity that negatively impacts wildlife is hunting (Casas, 2009). Many bird species have become endangered because of hunting and trading. Hunting is done by using different tools including shotguns, air-rifles, metal leg traps, pinchers, bamboo leg hold traps, bamboo cages, pitfalls and electric devices. Large sized metal traps having saw-teeth on two jaws are used to catch large mammals

(Liang, 2013). Bird trade is another major risk for the conservation of birds where, the birds are either exported internationally or they are captured to cater to the local demand. Bird trade includes a significant number of birds that are wild-caught. Bird species are traded for pets, food, medicines and folk magic purposes (Shepherd, 2006). All these factors pose a serious threat to the revival of bird species. Thus, need of the hour is to take some initiatives in order to conserve this endangered species. The most practiced conservation activity is reclamation of the injured or poisoned birds, which are then let back into the wild (Monadjem, 2014).

Luckily, people are voluntarily playing their role for wildlife reclamation as an effort to overcome the negative actions of man on species demographics. Ethically, the welfare of the individual casualty must be the first priority and personal and professional development a secondary consideration. Rehabilitation of injured animal/bird involves the preliminary assessment and provision of first aid care which is then transferred to the rehabilitation facility for further treatment. The animal/bird is let free after complete recovery and ensuring the pre-release fitness evaluation (Mullineaux, 2014). Current report describes the rehabilitation of an injured golden eagle. The overall aim of this intervention was to reintroduce the bird in question into its natural habitat.

## CASE HISTORY

An injured golden eagle was found entangled in bushes near the vicinity of Balkasar Research Complex, Chakwal, Pakistan (32.923855°N and 72.655745°E). It seemed that the eagle got injured due to hunting activities in local area and being entangled by a metal trap set by the hunters. After wearing heavy gloves and safety glasses, the bird was covered with a towel to

reduce its visual stimulation as it was in a shock-like condition. The eagle depicted fear for humans, but permitted handling as the bird was unable to fly (Figure 1).



Figure 1: Injured eagle rescued from bushes.

## DIAGNOSIS

The eagle was kept in a plastic kennel with a closed top and taken to the veterinary clinic of Balkasar Research Complex. The Eagle was restrained and physical examination was performed in order to find any physical injury and upon observation it was found that movement in a wing was not normal. Initial screening revealed a wound on the right wing of the eagle rendering it unable to fly (Figure 2).



Figure 2: Wounded wing of the eagle.

The eagle seemed lethargic and had labored breathing and couldn't place weight towards her right side. Closed leg fracture was diagnosed after careful observation of the body parts. The bone was not fractured

to the extent and with the angle whereby it would stick out through the leg's skin. Birds have very fragile bones, and often their bones shatter into multiple fragments. Fortunately, in current case right tibia (shin bone) was fractured almost in half but was broken only into 2 pieces. No signs of bruising, laceration or contusion were observed elsewhere in the body.

## TREATMENT

Breathing problem was found to be due to blockage of nostrils with mucus that was wiped with a damp cloth. Wound was flushed with lukewarm water and further washed by Seguvan (Trichlorophon), prepared by adding 1.5g of Seguvan powder in one liter of distilled water according to manufacturer protocol. After cleaning the wound, Chlortetracycline ointment (3.09% w/w) and Cicatrin (Neomycin sulphate and Bacitracin Zinc) in combination were topically applied to prevent the wound from microbial infection.

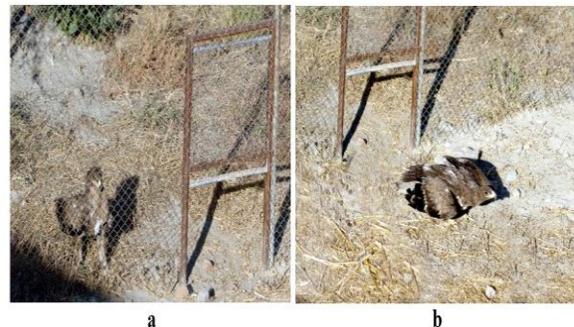
Surgical repair of bones in birds can be challenging as compared to animals, because birds' bones can be more easily smashed and fracture sites can become easily infected. A splint instead of surgery was selected to keep the bone stable so that it could be repaired quickly. The splint was adjusted after aligning the fractured bones to regain their original position (Figure 3). After splint adjustment, bandage was wrapped around the leg and the eagle was then kept in a well-ventilated cage under darkness to reduce stress.

Supplemental calcium was given to hasten the recovery and bandage was changed on daily basis. The eagle was periodically monitored to check the progress of wound healing. Physical therapy (physiotherapy) was initiated to loosen the frozen and stiff joints, and maintain range of motion. Feed involving fish and minced meat was given to the eagle.



**Figure 3: Splint fixed with the leg of eagle to repair the fractured bone.**

After six weeks of treatment, when the eagle was capable to walk, it was transferred to a large farm and kept under observation for another two weeks. Ensuring the complete recovery of eagle from wounds and fracture after complete fitness evaluation, the eagle was successfully released into wild (Figure 4).



**Figure 4: Releasing of the Golden Eagle; a): coming out the cage to open environment, b): getting ready to take her first flight after recovery.**

## RESULTS AND DISCUSSION

The Himalayas which cover 2400 km east to west through parts of China, Bhutan, Nepal, India and Pakistan provide habitats for a wide variety of species. Raptors (including eagle) migrate to Himalayas during autumn mainly, while some raptors migrate in spring season as well flying through valleys and rivers (Juhant, 2017; Roberts, 1991; Chettri, 2006;

DeCandido, 2013). However, during migration birds encounter accidents in natural events such as collapsing due to exhaustion and fights with other birds or anthropogenic experiences like gunshots, collisions with automobiles or fences, entangling with traps, etc. (Venugopal, 2014; Liang, 2013). Such incidents may result in severe injuries including bone fracture and body wounds and sometimes death of the birds.

Management of injuries and fracture in wild birds is a challenging task for a veterinary doctor (Bennett, 1992). Multiple orthopedic techniques have been employed to treat bone and wing fracture in eagle. However, standard orthopedic techniques may not be fruitful if fracture sites are contaminated and necrosed. Amputation of the wing is most suitable technique for management of contaminated and infected fractures in birds and amputation of the scraped part is the only way to save the life of bird (Langley-Hobbs, 2002; Davidson, 2005; Guzman, 2007; Hatt, 2007). Fortunately, in current case the eagle was immediately taken to the veterinary clinic after rescuing and the quick therapy helped in prevention of wound infection. As the bone was fragmented only into two pieces, therefore, the fracture was managed just by splint adjustment and the wound was treated by topical antibiotic medications. Moreover, motion exercises and massages decreased the chances of joint ankylosis and muscle-loss associated with immobilization and also retained the joint stability.

Appropriate diet was also helpful in speedy recovery. Initially, the eagle was reluctant and feed was given somewhat emphatically. However, with the passage of time, the eagle adapted and started taking the feed willingly. After shifting to a large farm, it was noted that the eagle preferred eating mice, reptiles and small birds entering the farm as compared to livestock animal

meet which was given initially during the treatment.

Clinical signs of wound healing were noted after third week of treatment. The fractured bone took about 6 weeks for complete recovery and the eagle was capable of walking. However, the eagle only became fully capable of flying after 8 weeks of getting treatment and physiotherapy. After complete fitness evaluation and ensuring complete recovery, the eagle was released to the wild.

If we see a bird that is sick, injured or trapped then it is our moral duty to help that bird. Moreover, a few measures can be taken to reduce the chance of birds being injured or killed. Birds are usually entrapped and entangled in all sorts of rubbish that has been thoughtlessly discarded. A source of entanglement of birds is loops and circles of plastic, especially the plastic or metal collars of bottles and cans. Some birds like to incorporate them into structures like their nests and become entangled resulting in painful injuries or even death. Therefore, before disposing of bottle collars, we should cut through all of the circles in order to stop birds' entanglement. Another dangerous category consists of long length wires, strings and fishing lines that can entrap and kill a number of birds at once. We should make sure to cut it into short lengths or burn it into a disposable blob. Such precautionary measures can save the life of many birds.

## CONCLUSION

We can conclude that in recent era wild birds face many challenges for their survival and reproduction due to many environmental and anthropogenic factors and habitat fragmentation. The successful treatment of injured birds and reintroduction into their natural habitat can be helpful in conservational efforts made worldwide leading to the stability of population of threatened species.

## Conflict of Interest

The authors declare no conflict of interest.

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