



Short Communication

Trapping Techniques and Lure (Bait) Used in Capturing of Falcons in Punjab, Pakistan

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ABSTRACT

In this study, different trapping techniques and lure used in capturing of falcons were documented in various districts of Punjab, Pakistan where falcons are commonly captured and traded. Total eight falcon capturing techniques i.e. bal-chatri, dho-gaza, piddam, jacket, socks-ball, nest-net, adda and laggar falcon (*Falco jugger*)/white eyed buzzard (*Butastur teesa*) as bait technique were recorded. Out of these eight techniques two i.e. sock-ball and laggar falcon (*F. jugger*)/white eyed buzzard (*B. teesa*) as bait technique were documented for the first time. The size of sock ball is about 7-8cm in diameter having noose traps of 7-8cm in size used to install on the surface. Laggar falcon (*F. jugger*) and white eyed buzzard (*B. teesa*) also used as technique to capture superior (migratory) falcons. Animals used as lure in biological traps were pigeon (*Columba livia*), quail (*Coturnix coturnix*), sparrow (*Passer domesticus*), myna (*Acridotheres tristis*), dove (*Streptopelia senegalensis*) and mice (*Mus musculus*). While the percentage use of quill, mice, dove, sparrow and myna has been calculated as 66.67%, 46.24%, 46.24%, 34.41% and 21.51%, respectively. Further it was observed that falcon trapping was a teamwork and each team used multiple techniques at the same time during capturing in the field.

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Authors' Contribution

AAK and AA organised the work plan and wrote the manuscript. AA conducted the surveys, collected and analysed the data.

Key words

Trapping techniques, Falcons, Lure for falcons, Raptors

Trapping of wildlife for marketing is as old as the world civilization (Wyatt, 2010). The countless usage of birds including as a pet made them vulnerable to illegal trade which in turn poses threats to birds' population (Ahmed, 1999; Parker, 1999; Branes, 2000). Raptors migrate from Russia in winter to Indus River. Compared to past decades, the significance of these birds has increased in Pakistan due to the involvement of falconers from Arabia (Khan *et al.*, 1996). Saker falcon (*Falco cherrug*) is a desert and semi-desert species. This falcon is trained to be used in hunting of houbara bustard (*Chlamydotis undulata*) which increases its demand in Pakistan (David *et al.*, 2007). Peregrine falcon (*Falco peregrinus*) is another species of falcon which is found in the Indus plains and coastal areas of Baluchistan in the winter season for the hunting of water birds. Laggar falcon (*F. jugger*) is native species of Pakistan which is captured in Sindh, Punjab and Baluchistan provinces (Khan *et al.*, 2010). Many falcons were captured (about 60% of the total land area) in Afghanistan and then smuggled to Pakistan due to increased demand (Fox, 1998). It is believed that the illegal trapping of saker falcon has been one of the main causes of decline in its population in Asiatic Russia (especially in the Altai-Sayan region), China, Kazakhstan, Kyrgyzstan,

Mongolia, Turkmenistan and Uzbekistan (Li *et al.*, 2000; Nikolenko, 2007; Ma and Chen, 2007; Levin, 2011; Nikolenko and Karyakin, 2013). Limited baseline data, weak capacity, and poor law enforcement are causes to decrease of wildlife (IBRD, 2005). The saker falcon is protected under CITES Appendix II, the Bonn Convention Appendix II, and the Bern Convention Appendix-II. Illegal poaching and trafficking of raptors is an organized crime performed by the local groups along with Saudi Arabians and Emirates mafia who are final buyers and owners of the smuggled birds (WWF Vladivostok, 2006). Large amounts of profits reaped by this organized crime with no fear of recrimination makes the raptors and all wildlife trade alluring (Wyatt, 2010). Due to increasing interest of Southeast Asians in birds, it is the urgent need to determine the extent and magnitude of the threat posed by the trade (Harris *et al.*, 2016).

Trapping of raptors is very difficult and time taking process due to less efficiency of techniques used to capture the raptors (Bub, 1995). Cane cage covered with horsehair nooses is an old idea commonly used in India for trapping birds of prey which now has been altered (Ward and Martin, 1968). Variety of raptor's trapping models have been used in Spain but the combination of mist nets, Dho-gazas and Eurasian eagle-owl were the best methods to capture many species (Zuberogoitia, 2008). Several species of birds and mice were used as lure to trap the raptors. House mouse (*Mus musculus*) is the most common rodent used as lure.

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Mostly the birds of prey are captured by using the Bal-Chatri (Berger and Muller, 1959). Live birds capturing techniques mostly involve bait, decoy, recorded calls or lures to attract birds at trapping sites, but in some situations trappers pursue the birds also. Selecting the proper trap and lure for any given situation can be challenging.

Keeping in view the above considerations, we decided to study the techniques and lure used to capture these precious falcons in the Punjab Province of Pakistan. This study documented illegal falcon trapping for the first time in Pakistan.

Materials and methods

Surveys were conducted to record the major trapping sites in the province of Punjab, Pakistan and found six districts i.e. Bahawalnagar, Bahawalpur, Rajanpur, Khushab, Mianwali, Rahimyar Khan, and Rajanpur where falcons were commonly trapped, captured and then traded. Present study period was from September 2012 to April 2015. Every district was surveyed twice in a season to record the data. One visit was made at the mid of the season in the months of October and November and second was done at the end of the season in the months of February and March in every study year. The species were identified by using field guides (Ali and Ripley, 1978; Roberts, 1992; Grimmett *et al.*, 2009).

Although investigation of people involved in this illegal capturing and collecting primary data could be risky and difficult. We visited and interviewed people involved in falcon trapping (TRAFFIC, 2008; Zhang *et al.*, 2008; Wyatt, 2009; Shobrak, 2014). Besides that semi-structured interviews were conducted by using questionnaire (Soorae *et al.*, 2008) to collect the required information on data sheet. The questionnaire was divided into three major parts: Part-1; Basic information of poachers or trappers such as date, name, address and city of trapper; Part-2 general information about the bird and Part-3 noted the common and scientific names, number of birds, age class, gender and prices of the birds.

Results and discussion

In this study total 93 parties consisting of 574 individual trappers were interviewed. During study period, total eight falcon capturing techniques i.e. bal-chatri, dhogaza, piddam, jacket, socks-ball, nest-net, adda and laggar falcon (*F. jugger*)/white eyed buzzard (*B. teesa*) (WEB) as bait technique were observed. Out of these eight techniques two i.e. sock-ball and laggar falcon (*F. jugger*)/white eyed buzzard (*B. teesa*) as bait technique were recorded for the first time in Pakistan, whereas the remaining six were already known (Bloom *et al.*, 2007) (Table I). Most of the techniques were equipped with a prey animal as lure except adda, nest-net and sock-ball which differentiate biological from the non-biological techniques.

Table I.- Frequency of techniques used to capture falcons by trappers in Punjab, Pakistan.

Type of trap	Technique	Parties using	Usage frequency (%)
Biological trap	Laggar/WEB	93	100
	Ball chatri	93	100
	Dogaza	93	100
	Piddam	93	100
	Jacket	7	7.28
Non-biological traps	Socks ball	32	34.4
	Adda/nest-net	28	30.11

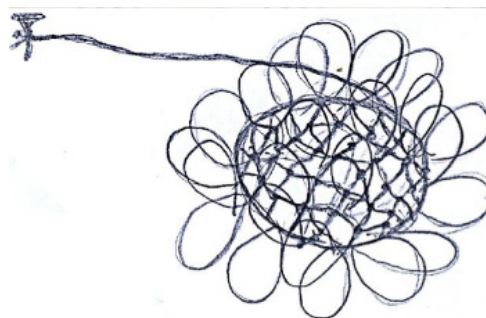


Fig. 1. Sock ball having loose traps of plastic wire used to capture the falcons.

Sock-ball technique is used to capture or trap the inferior or local falcons (Laggar and WEB). It is made with the old socks filled with cotton on which feathers of prey birds are stitched in such a way that it looks like prey bird. The size of this ball is about 7-8cm in diameter. Noose traps of 7-8cm in size are installed on the surface of the ball among the feathers of prey birds. This ball is also attached with long rope which is attached to a hook or nail on other side. Falcons take the ball as prey bird and attack it and resultantly get entangled in the noose traps on the surface of sock ball (Fig. 1).

Another technique used for capturing superior or migratory falcons (Saker and Peregrine) involves the use of laggar falcon/white eyed buzzard as bait. In this method the eyes of laggar (*F. jugger*) or white eyed buzzard (*B. teesa*) are partially stitched with thread. A ball (just like socks ball) prepared with bird feathers and having noose traps on its surface is tied to the legs of these baits in such a way as if having prey in their legs. Whenever migratory falcon finds a prey in the legs of laggar falcon or white eyed buzzard and try to attack it, both the falcons get entangled in noose traps of the ball and fall down. Finally, it is trapped and captured by the pursuing poachers. Further it was found that biological trapping techniques were more common in use by poachers or trappers as compared to non-biological techniques (Table I).

Table II.- Frequency of various animals used as lure to capture the migratory falcons in Punjab, Pakistan.

Animals used as lure	No of parties using	Usage frequency (%)
Laggar	93	100
WEB	93	100
Pigeon	93	100
Quail	62	66.67
Sparrow	32	34.41
Myna	20	21.51
Dove	43	46.24
Mice	43	46.24

Data from all six districts under study revealed that pigeon (*Columba livia*), quail (*Coturnix coturnix*), sparrow (*Passer domesticus*), myna (*Acridotheres tristis*), dove (*Streptopelia senegalensis*) and mice (*Mus musculus*) are used as lure to capture falcons. Mice are mostly used by the poachers of desert areas like Rahimyar Khan, Bahawalpur, Rajanpur and Mianwali regions while pigeon was commonly used as a bait in grassland as well as in the desert areas (Personal communication). Local falcons (laggar falcon and white eyed buzzard were also used as bait to capture the migratory falcons (Saker and Peregrine). While the percentage use of quail, mice, dove, sparrow and myna has been calculated as 66.67%, 46.24%, 46.24%, 34.41% and 21.51% respectively (Table II).

Ward and Martin (1968) reported that Indian falconers capture the birds for their sport by a cane cage (Bal-chatri) which contained some small birds as bait and slip-nooses of horsehair tied to the cage. The toes of a striking falcon would become entangled in these slip-nooses and hence trapped and captured. MacPherson (1897) named this device a "Shikra trap." The Indian name "Bal-chatri" was given by Craighead and Craighead (1942) is now used commonly. Ward and Martin (1968) modified its two different forms. According to Berger and Mueller (1959), the Bal-chatri was the best trap of all techniques as it was being small, having no moving parts, and can be thrown in the neighborhood of raptors nesting and feeding area. Bal-chatri and mist-net were also used by the Thorstrom (1996) to capture the tropical forest birds of prey. Further he also reported that it could be used during all seasons, and has a success rate of up to 85%. In Guatemala, Thorstrom (1996) captured 12 species including hawks, hawk-eagles, falcons, and owls, with this technique. In India, Kenya, South Africa, Israel and some other countries, have used Bal-chatri to capture the wide variety of species of kites, accipiters, buzzards, harriers, small to large eagles and falcons.

Our results also showed that dho-gaza is another common technique for raptor trapping which is similar to

the findings of Meredith (1943), Hamerstrom (1963) and Bub (1991). They reported that dho-gaza technique was first developed by Arab and Persian falconers and used extensively in North America. Zuberogoitia *et al.* (2008) documented the success ratio of dho-Gaza and mist-net and they have captured 13 species of European raptors. Jacobs and Proudfoot (2002) also reported that a wide variety of migrants, including harriers, accipiters, buteos, falcons and small owls have been captured with small dho-gaza in North America.

A noose carpet (Adda) in our studies was made up of iron mesh, weighted piece of hardware decorated with nooses have been used which is strategically placed on perch or other siting places. Similar findings reported by Anderson and Hamerstrom (1967), Collister (1967) and Kahn and Millsap (1978) and used noose carpets to trap vultures, kites, harriers, accipiters, buteos, eagles, falcons, and owls in North America. Thorstrom (1996) also used noose carpets in Guatemala to capture several species of raptors. In North America, mist nets use to capture the migratory accipiters, buteos, and falcons (Clark, 1970).

Mice was most successful bait in desert areas while pigeon was common in croplands as well as in desert areas. Similar results were observed by Ostrowski *et al.* (2008), they found that trappers use pigeons fitted with 'snare harnesses to trap falcons. Snares are fitted on the back of the pigeon which is either fixed to the ground or piece of cloth attached to its legs to reduce his flight performances. This method is parallel to jacket that is worn by the pigeon bait and have noose traps of plastic wire. Ming and Ying (2007) used pigeons or partridges as the lure fitted with a harness of nooses or by the use of dho-gaza net to capture the sakers. Zahler *et al.* (2004) also documented that saker falcons can also prey on birds ranging from small larks to large gulls and corvids/magpies. According to the Ward and Martin (1968) mice can also be used as bait to capture the falcons. The typical lure used in bal-chatri are the house mouse (*Mus musculus*), black rat (*Rattus rattus*), gerbil (*Gerbillus* spp.), house sparrow, common starling (*Sturnus vulgaris*), and common pigeon (*Columba livia*), while in remote areas where such lures are not available then red jungle fowl (domestic chickens, *Gallus gallus*) or ducks (*Anas* spp.) can be used as lure (Clark, 1992).

It is concluded that two novel capturing techniques (sock-ball and laggar/WEB bait technique) were documented for the first time. Further it was also recorded that pigeon and mice are successful lures used to capture the falcons in Punjab, Pakistan.

Statement of conflicts of interest

Authors declare no conflict of interest.

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