

## STATUS, DISTRIBUTION AND THREATS TO SCALY ANTEATER (*MANIS CRASSICAUDATA* E. GEOFFROY, 1803) IN SOUTHERN BELT OF KHYBER PAKHTUNKHWA, PAKISTAN

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### ABSTRACT

Pangolins, placental mammals, also known as Scaly Anteater. They included in the order Pholidota. There are eight existing species of pangolins in the World. The Indian Pangolin is an endangered species frequently found in specific habitats and depends on specific prey. The current study was conducted with main aim to know its status and distribution and threats to it in southern Districts (Bannu, Lakki Marwat, Tank and Dera Ismail Khan) of Khyber Pakhtunkhwa, Pakistan as data pertaining to it is limited and the species' population is decreasing continuously. The animal was observed in both plains and hilly regions of the study areas. Pangolin lives in burrows and each burrow is used by a single individual. Population density showed a sharp and significant decrease due to habitat destruction. An alternate way to protect this species is captive breeding.

**Key words:** Indian Pangolin, habitat, population, distribution, threats.

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### INTRODUCTION

The Pangolins are eutherian mammals. They are also known as scaly anteater, considered as unique placental mammals, chiefly distributed in Asia and Africa. Their size ranges from 30 to 100 cm. There are eight species of scaly anteater in the world in which four species are endemic to Africa and the other four particularly in the Asia. African Pangolins are Cap Pangolin (*Manis temminckii*), Giant Pangolin (*Manis gigantean*), Long tailed Pangolin (*Manis tetradactyla*), and Tree Pangolin (*Manis tricuspis*). The Asian Pangolin includes Chinese Pangolin (*Manis pentadactyla*), Indian Pangolin (*Manis crassicaudata*), Malayan Pangolin (*Manis javanica*), and Palawan Pangolin (*Manis culionensis*) (IUCN, 2008).

The Asian Pangolins are different from African Pangolins due to the presence of hairs on the body which arises from between the scales. In Asia, the Pangolins are found in India, (South of Himalayas), Myanmar, Sri Lanka, Pakistan, Bangladesh, West of China, and Nepal (CITES, 2000). Their populations are described from a few confined places in Pakistan that is Baluchistan, Sindh, Khyber Pakhtunkhwa and Punjab provinces. Potohar Plateau is the chief distribution region in the state where Pangolin occurs in various unprotected and protected areas chiefly Domeli-Diljaba Game Reserve (Jhelum), Loibher wildlife Park (Rawalpindi/Islamabad), Margalla Hills National Park (MHNP) Islamabad, Sialkot, and Gujrat Districts in the Northwest of the Punjab, extending across the Salt Range into Kohat District, and from Attock District (formerly known as Campbellpur) up to Mardan and Peshawar in the North West Frontier Province (Roberts, 1997; CITES 2000).

The Indian pangolin is a nocturnal animal and very much important because it plays significant role in the agriculture and ecosystem by consuming ants and termites. According some reports, the Indian pangolin is illegally hunted, traded and killed for obtaining fats and scales of its body and for its flesh (Mahmood et al., 2012; Mahmood et al., 2013). Previously the animal was reported from District Chakwal and District Attock of Potohar Plateau, Margallah Hills National Park Islamabad and Pir Lasura National Park, Azad Jammu and Kashmir (Mahmood et al., 2015; Mahmood et al., 2014; Mahmood et al., 2013; Akrim et al., 2017).

Pangolins feed on ants and termites and several other invertebrates such as bee larvae, flies, worms, earthworms, and crickets. According to an estimate an adult Pangolin can eat more than 70 million insects per year, and thus act as a controlling agent of forest termites and other insects (Shi and Wang, 1985). Pangolins have poor vision and trace the ants and termites' nest by using their well-developed sense of smell. They are lacking teeth but having remarkably long, muscular and sticky tongue which is perfect to reach and holds their prey in deep cavities (Dickman and Richer, 2001). Its stomach is muscular and having small stones which grinds the prey in much same way as the bird's gizzard. They have special muscles that cover their nostrils and ears closed protecting them from attacking insects (Heath, 1995). The body of Pangolin is covered with hard scales and these scales are anti-wear

along with features of anti-adhesion against rock and soil. Pangolins scales are formed of keratin protein, which provide good defense against most predators. They quickly curl the scales into a tough ball. Humans, tigers, wild dogs, pythons and leopards are some of known predators of Pangolin (Tong *et al.*, 1995).

The Scaly anteater has distinctive adaptations to dig burrows; it has powerful forelimbs with tough claws, which are used for digging. The Pangolin occurs in low numbers naturally and mostly it prefers forests (Gaudin *et al.*, 2006). Commonly, scaly ant eater is distributed in diverse kinds of forests; such as humid, damp, dry, deciduous and grasslands environment. Pangolin is also found in ruined wetland which is close to human environments (Yang *et al.*, 2007).

Pangolins typically produce only one offspring per year. At birth, Pangolins are about 15cm long and weigh about 120 g having soft and pale scales (Zhou *et al.*, 2014). Historically, Pangolins are used as a source of food, spiritual protection and in Traditional Chinese Medicines (TCM) particularly for treating a wide variety of skin diseases in local and global markets. In Africa, the Pangolins are hunted and consumed by the men. It is one popular kind of 'bush meat'. In China Pangolins are highly in demand for their medicinal properties of the scales and their meat characteristics. In Pakistan, hakims (practitioners of traditional medicine) consider various parts of the body of Pangolins to be an important source of medicines (Roberts, 1997). Due to this remarkable illegal hunting pressure exists for the scaly anteater in Pakistan (Mahmood *et al.*, 2011).

Generally, it is believed that its scales improve blood circulation, milk secretion, detumescence and apocrenosis, etc. Pangolins is on decline due to its illegal hunting and capture for its meat, scales and skin. The habitat destruction is also indicated as a factor affecting the status of Pangolins. The country which is most responsible for decreasing their population in Asia and Africa is China (Tong *et al.*, 1995). The IUCN Red List of Threatened species (2014) labels all Pangolins species as "Endangered" species (IUCN, 2014). Due to very scarce data from Pakistan regarding this animal and no report from the Khyber Pakhtunkhwa Province, the current study was designed to investigate the various parameters about the pangolin in the Southern belt with the aim to assess its ecological status, distribution and major threats to Pangolins in the Southern belt of Khyber Pakhtunkhwa, Pakistan.

## MATERIALS AND METHODS

### Study Area

The study was conducted mainly in the four Districts of southern belt of Khyber Pakhtunkhwa - the District of Dera Ismail Khan, Tank, Lakki Marwat and Bannu. All these areas are arid characterized by sand dunes, scorching heat and dry weather. Summer are hot while winter are moderately cool. The maximum temperature range of 42 to 45 degree Celsius and a minimum temperature range of about 10 to 15 degree Celsius in winter. This vary area is also one of the important habitat for many floral species such as Sheesham (*Dalbergia sisoo*), Babul (*Acacia nilotica*) and Trifolium (*Trifolium alexanderium*) while the shrubs include reed beds and tamarisk and faunal species listed in the IUCN red list like axis deer, blackbuck, hog deer, white-backed vulture, grey partridge, Houbara bustard, black pond turtle, etc.

### Study Design

The data regarding status, distribution and threats to Pangolin in the study area were collected through interviews of the local people. Survey was conducted in southern belt of Khyber Pakhtunkhwa from October, 2017 to late July, 2018 with the help of Divisional Wildlife staff of the Districts. The interviewees (50 in number) belonged to different backgrounds including hunters, farmers, shop keepers and students. People were randomly selected for interview from each village. Individuals under the age of 18 were not included in the interview. A questionnaire comprising different questions was used for this purpose.

### Distribution

The survey was mostly conducted by walking on foot. Similarly, for confirmation of presence of the species was made by indirect or direct signs; sleeping and feeding burrows and active living permanent burrows.

## RESULTS AND DISCUSSION

A total of 29 Pangolin were recorded. Several people were capable to identifying the species, their environmental and morphological description with the help of photograph of species given to them. Fourteen people said that they have seen a Pangolin. More number of the animals were recorded in D.I. Khan District.

In District Bannu, the species was reported in 3 regions. Two pangolins were recorded from Sada Khel and Karab Killa each. There were 5 burrows of pangolins in Sada Khel (area of 400 ha) and 5 in Karab Killa (an area of

460 ha) (Table1). The pangolins were captured by the local community and were then successfully rescued by the wildlife staff of District Bannu which released them into the natural environment (Fig. 1 A, B). Third area in the District was Besi Killa, an area of 600 ha, where only one pangolin was reported. Two burrows were recorded in this area.

In District D.I. Khan, the species was reported from five sites. First site of the species was Indus Game Reserve where six Pangolins were reported. Three burrows were recorded in the area. Second region where the animal was reported was Ramak of 1800 hectares. One Pangolin and a single burrow was reported in the region. Third region was Paniala. It is a small town in the north of District D.I Khan. It is about 55km away from D.I Khan. Three Pangolins were reported. One burrow of the Pangolin was described. Fourth region was Yarik which is a town and union council of District D.I Khan. It is located on Indus highway and has an altitude of 186 meters (610 feet). Two Pangolins were reported in the region. No burrow of the species was reported in Yarik. Fifth region in D.I Khan was Kulachi which is an administrative subdivision. Two Pangolins and a burrow was reported from Kulachi.

Table 1. Estimated population of Scaly ant eater in sub regions of Southern belt of Khyber Pakhtunkhwa during 2018.

Region/site	Area (ha <sup>2</sup> )	No. of animals observed/live captures (n)	Population/ha <sup>2</sup>	No. of active Burrows
Sada Khel	400	2	0.005	5
Karab Killa	460	2	0.004	2
Besi Killa	600	1	0.001	2
Indus Game Reserve	500	6	0.012	3
Ramak	1800	1	0.0005	1
Paniala	400	3	0.007	1
Yarik	1300	2	0.0015	0
Kulachi	2800	2	0.0007	1
Haramatala	650	2	0.003	1
Dadiwala	900	3	0.0033	1
Abdul Khel	1200	2	0.001	0
Tane Darwala	1200	1	0.0008	0
Tor Band	700	1	0.0014	1
Gomal Murtaza	950	1	0.0010	0
Total	13860	29	0.0422	18
Mean $\pm$ SD	990 $\pm$ 661.89	2.714 $\pm$ 1.3281	3.014 $\pm$ 3.226	1.285 $\pm$ 1.382

In District Lakki Marwat, the animal was reported in four regions. First region was Haramatala. It is a small village which consists of 650 ha of area. Two Pangolins and a single burrow was reported in the region. Second region was Dadiwala which consisted of 900 ha area. In this region three Pangolins were reported. A single burrow

was reported in the region. Third region was Abdul Khel which is a town and union council of District Lakki Marwat. It is located at  $32^{\circ} 23'59''$  N  $70^{\circ} 54'49''$  E and has an altitude of 493 meters (1620 feet). The region has an area of 1200 ha. In this area two Pangolins were reported which were captured by the local community and were then released into the natural environment (Fig. 1 C, D) but no burrow was reported in the region. Fourth region was Tane Darwala which consists of 1200 ha area. One Pangolin was recorded but no single burrow was reported in the region.

In District Tank, the specie was reported in two sub regions. First region was Tor Band which has an area of 700 ha. One Pangolin and one burrow was reported in the region. Second region was Gomal Murtaza which is located on Gomal River. The region has an area of 950 ha. A single Pangolin was reported but no burrow was described in this region. The individuals who said they have seen a Pangolin also provided details about their location and holes. Most of their locations were mountains, edges and other adjacent locations.



Fig. 1. A, B. Live Pangolins captured by local community of District Bannu being successfully rescued by wildlife staff and then released into natural environment. C, D. Live animals captured by local community of District Lakki Marwat. These captured animals were reported to the concerned wildlife office which were afterwards released into natural area.

The information obtained from the study indicated that the species population is decreasing in the area. Nearly all the interviewees considered the Pangolin status as either being none or rare in occurrence in the area. Most of the people were unfamiliar with Pangolin features such as their diet, ecosystem, physical appearance, hunting and medicinal value. Some respondents were familiar with the fact that Pangolins are protected in Pakistan and hunting is illegal. A small number of respondents reported that Pangolins scales could be used in some products. No respondent said about medicinal use of Pangolin and no significant hunting of Pangolins was reported. In current research survey most of the respondents thought that the population of the species was decreasing speedily in their areas. Deforestation, road mapping, igniting and other Illegal human activities are probably the major causes for its decline. The Pangolin population is decreasing day by day due to the destruction of habitat by deforestation, forest fire and human activities. Other causes of population declining include predation by different animals such as leopards, tiger, wild dogs, pythons, and human beings etc. The use of different agricultural pesticides also

decreasing their population by destroying their food sources like different insects, which is one of their major food sources. Before the survey was conducted, the data on local scaly ant eater status, distribution and threats were not available. This persistence of Pangolins in different localities of our survey regions provides a significant and hopeful note that it is still not too late to protect the species by taking effective steps for their preservation in Khyber Pakhtunkhwa, Pakistan.

In our survey total 29 Pangolins were recorded from all the four Districts of Khyber Pakhtunkhwa, Pakistan. More specifically, pangolins were recorded greater in number in District D.I Khan. A total of 18 burrows were reported in these Districts.

Robert (1997) reported that *Manis crassicaudata*, the Indian Pangolins prefer unfertile mountainous ranges and subtropical forests. Pie (2008) also indicated several types of tropical forests where Pangolin found, ranging from humid to dry and thorn to grassland. In current study we have found Indian Pangolin distributed in the District Bannu, D.I Khan, Lakki Marwat and Tank which have both plain areas and hilly regions. Robert (1997) had reported Indian Pangolin restricted in its distribution below 762m. However, the same species (*Manis crassicaudata*) is found in elevations under 1524 meters in some Asian countries (Frick 1968; Mitchell 1975).

Burrows of the animal were found in almost all sites where Pangolins were present. Our results indicate that the Indian Pangolin is also found at higher elevation and ground areas. Parter (2005) also reported this species occupying both plains and hills. Mostly Pangolins are found in unprotected areas. Almost all people think that habitat loss is the major threat to the surviving population of Pangolins in the southern Districts of Khyber Pakhtunkhwa, Pakistan.

According to Robert (1997) the main reasons of the decline of the species are hunting, poaching and weak law enforcement; the major threats. In present research study most of the respondents thought that the population of Pangolin was decreasing rapidly in their areas. Almost all respondents agreed that human were the prime cause to decline in population of Pangolins. Illegal activities of human were major causes for its decline.

Therefore, it is recommended that future surveys should be conducted on national and international level to help and improve the conservation strategies for scaly ant eater.

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