Journal of Wildlife and Ecology. (2018). 2(3):23-30

Research Paper **Open Access**

Status and cultural uses of Indian Pangolin (*Manis crassicaudata*) in selected sites of Pakistan

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Peer Reviewed

Citation: Iftkhar, A., M. Umair, A.R. Abbasi, S. Ashraf, S.M. Bashir, S. Afsheen, H. Aslam, S. Ijaz, S. Adil. 2018. Status and cultural uses of Indian Pangolin (Manis crassicaudata) in selected sites of Pakistan. Journal of Wildlife and Ecology. 2 (3): 23-30.

Received: 11, 07, 2018
Accepted: 21, 08, 20178
Published: 01, 09, 2018

Competing interests: The authors have declared that no competing interests exist.

Funding: Authors have no source of funding for this work.

ABSTRACT

Introduction: Indian pangolin has specific feeding damage to agriculture. They feed termites. This species is also used by the health practitioners, they are used in traditional medicinal. *M. crassicaudata* is hunted, killed and trade to china.

***Materials and Methods*:** The data were collected from the selected sites of the Pakistan. During the research data were collected (from January 2016 to December 2016) through direct (physical count) and indirect (body parts, burrows, carcasses and meetings and interviews from the local people) methods.

Results: During the surveys noted high diversity (RA=0.82191781) of Indian pangolin were recorded from the Margalla hills national park, Islamabad. During the research noted that human-Indian pangolin conflict is present, because this species damage to crops and in the response human killed this species. Traditional healer also used this species in traditional medicine. This is the most traffic animal in Pakistan, poaching this species and export to china. Due to both reasons this species declined very rapidly.

Conclusion: It is concluded that this species has threats and declined very rapidly due to deforestation, conflicts and ethnomedicinal uses of this species.

Key Words: Ethnomedicine, traditional healer, conflict, Traffic animal

INTRODUCTION

Manis crassicaudata (Gray, 1827) is scaled animal, and covered with horny scales. The *M. crassicaudata* has a small head, a large body and thick tapering tail equal to body. The head, upper neck, trunk and outside of the feet are covered with horny scales. Scales are olive-brown or dirty yellowish color and their outer edge are rather sharp and have reddish bristles. *M. crassicaudata* has external ear, muzzle and snout. The external ear pinna consists of deep curved-shaped vertical fold in skin, and has short bristles. The mouth is present beneath the muzzle. Indian Pangolin has small jaw. The tongue is long, narrow and cylindrical; it can stick out 10 inches away from the tip of the snout and is about 0.14 inches wide. Tong is longed in female as 23 cm. Belly among the four legs is covered with pinkish-white skin along with reddish blond hair. Hind legs are similar with elephant foot as rounded pinkish-white. Knee of hind legs are also protected with horny scales. The fore-feet are also shorter with 5 fingers; the three middle ones contain the powerful long claws. The 3rd digit claw is 50mm and the 2^{nd} and 4^{th} digits are 40mm in length. The pangolin walks on the knuckles of its forefeet with these huge claws bent backward and pointed clear off the ground. The palms of the forefeet are soft and not calloused like that of the hind feet. Their only defense to protect its whole body is to curling up into its large scaly tail. In its protective situation it is impossible to uncurl this animal. Although they have protective covering of hard scales on their body, the pangolins are victim upon by the carnivores such as Hyaena, wolves and caracal cat (Roberts, 1997).

It has specific feeding damage to agriculture. This species is also used by the health practitioners, they are used in traditional medicinal and status is rare in Pakistan. The Indian Pangolin is hunted, killed and trade to china. These animals are unsocial and living single in burrows except mating season; they are nocturnal and spend whole day in burrows. They forage

very slow and climb up tree. In foraging they rely deeply sense of smell, and it is thought that Indian pangolin hearing is poorly. Indian pangolin is very professional excavators and finds his food by excavators the nests. They use for-feet claws and have ability to excavate the rocks. They feed termites (Roberts, 1997).

This species is recorded from the Sialkot, Gujranwala, Gujrat (Altaf, 2016), Chakwal (Irshad *et al.*, 2015), Jhelum, Attock (Mahmood *et al.*, 2012), Kotli (Akrim *et al.*, 2017), Hafizbad, Mianwali, Khushab, Kohat, Murdan, Pashawar, Rawalpindi, Mandi Bahauddin, Sargodha, Khushab, Dadu, Karachi, Hyderabad, Tharparkar, Badin, Keti Bandar and Larkana districts of Pakistan (Roberts, 1997). Indian Pangolin is endemic in Pakistan (Roberts, 1997), India (Prakash, 1960; Mishra and Panda, 2012), Bangladesh (Trageser *et al.*, 2017), Nepal (Gurung, 1996) and Sri Lanka (Srinivasulu and Srinivasulu, 2012) and China (Yue, 2009).

MATERIALS AND METHODS

Study area*:* Pakistan lies in the subtropical arid zone and most of the country is subjected to a semi-arid climate (FAO, 2011). The data were collected from the selected sites of the Pakistan as; Margalla hills national park, Islamabad, Ayubia national park, Abbottabad, River Jhelum, River Chenab, Uchali Complex and Daphar Forest, Mandi Bahauddin.

Climate: June and July are the hottest months, with temperatures over 38°C, while the December and January is the coldest months with temperature below 4°C. The annual precipitation is about 494 mm. It varies in each province i.e. Balochistan, Sindh (less than 100 mm), Punjab and Khyber Pakhtunkhwa (more than 1500 mm). The rainfall is less than 50 mm in parts of Sindh and Balochistan and more than 500 mm in Khyber Pakhtunkhwa and Punjab (FAO, 2011).

Methodology*:* During the research data were collected (from January 2016 to December 2016) through direct (physical count) and indirect (body parts, burrows, carcasses and meetings and interviews from the local people) methods.

RESULTS AND DISCUSSION

During the surveys noted high diversity (RA=0.82191781) of Indian pangolin were recorded from the Margalla hills national park, Islamabad, while in the other areas population of the Indian pangolin was very low as; Ayubia national park, Abbottabad (0.02739726), River Jhelum (0.05479452), River Chenab (0.04109589), Uchali Complex (0.02739726) and Daphar Forest, Mandi Bahauddin (0.02739726) (Table 1). During the research noted that human-Indian pangolin conflict is present, because this species damage to crops and in the response human kill this species. Traditional healer also used this species in traditional medicine (male potential, feet swelling and warts) (Table 2). This is the most traffic animal in Pakistan, poaching this species and export to china. Due to both reasons this species declined very rapidly. Researchers reported that this species is used in treatment of angina, anti-haemorrhoidal, anti-poison, asthma, back pain, blood pressure, bone inflammation, ear pain, fibroid, head ach, infertility, parturition, piles, rheumatism, sexual tonic and ulcers (Soewu and Ayodele, 2009; Dixit *et al.*, 2010; Kulkarni and adwait, 2011; Mishra *et al.*, 2011; Bagde and Jain, 2013; Betlu, 2013; Chinlampianga *et al.*, 2013; Vijayakumar *et al.*, 2015a; Vijayakumar *et al.*, 2015b; Altaf *et al.*, 2017; Yeshi *et al.*, 2017; Altaf *et al.*, 2018). If the scale of this species used as necklace than it will be good omen for this person. Similar finding were reported by Altaf *et al.* (2017).

Table 1: Status of Indian Pangolin (*M. crassicaudata*) in selected sites of Pakistan.

Study areas	**Relative Abundance**
Margalla hills national park, Islamabad	0.82191781
Ayubia national park, Abbottabad	0.02739726
River Jhelum	0.05479452

River Chenab	0.04109589
Uchali Complex, Khushab District	0.02739726
Daphar Forest, Mandi Bahauddin	0.02739726

Table 2: Traditional uses of Indian Pangolin in the selected sites of Pakistan.

Traditional uses	Description
Superstitious	If the scale of this species used as necklace than it will be good omen for this person.
Ethno-medicinal uses	This species scales are used topically male potential, feet swelling and warts.

Conclusion: During the study concluded that Indian pangolin has threats and declined very rapidly due to deforestation, conflicts and ethnomedicinal uses of this species.

Acknowledgements: Authors are highly thankful for the coordination and help in data collection.

Availability of data: We have included all relevant data in the manuscript that were collected during the field survey.

Authors' contributions: Iftkhar designed this study and data are collected by Umair, Iftkhar, Bashir, Afsheen, Aslam and Ijaz. Umair and Abbasi helped in data write up and statistical analysis; Adil critically analysis this article and approved as final manuscript.

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