

**Ethnozoological Survey of the Indigenous Knowledge on the Use
of Pangolins (*Manis Sps*) in Traditional Medicine in
Lentsweletau Extended Area in Botswana**

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Ethnozoological Survey of the Indigenous Knowledge on the Use of Pangolins (*Manis Sps*) in Traditional Medicine in Lentsweletau Extended Area in Botswana

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Abstract

Animals have played an important role in human life from prehistory. Many animals are used in zootherapy worldwide. However, the zootherapeutic practices by some communities are not well documented and may be forgotten. An ethnozoological study to document indigenous knowledge on the utilisation of pangolins in traditional medicine in Lentsweletau area in Botswana was carried out. A formal questionnaire was administered to 37 informants. The informants were 70.27% males and 29.73% females. The 10.81% of the informants were traditional doctors. Only 67.57% of the informants knew pangolins. The study revealed that most of the informants currently under the age of forty years did not know pangolins. However, the community had several pangolin myths. Pangolins were used mainly in traditional medicine (79.41%) and rarely as bush meat (20.59%) in the past. The study showed that different body parts of pangolins were used as charms and in the treatment of various human ailments like cracked heels, epistaxis, hypertension and psoriasis. The commonly used parts in the treatment of human ailments were blood and scales. Tail, head, paws and whole body were mainly used in charms. Scales were used in both ailments treatment and in charms. It is evident that the indigenous knowledge on uses of pangolins is fading in the community hence the need for its documentation so that it can be preserved.

Keywords: Ethnozoology, indigenous knowledge, myths, pangolin, traditional medicine, zootherapy.

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Introduction

The use of animals and plants in traditional medicine by man comes from far and has been documented in many parts of the world. However, the use of medicinal plants is the most common and well documented worldwide. According to Marques (1997), 8.7% of the 252 chemicals selected as essential by the World Health Organization were derived from animals while 11.1% were derived from plants. The practice of treating human diseases by the use of therapeutics obtained from animals is termed zootherapy.

Zootherapeutic practices had been recorded in different parts of the world (for example Dedek and Aboyami (2006) reported zootherapeutic uses of wild vertebrates in south-western Nigeria; Alves *et al.*, (2009) reported zootherapy as an alternative medicine in South America; Alves *et al.*, (2010) reported 32 animal species used in traditional medicine in the city of Campina Grande, Paraíba State; Alves and Alves, (2011) discussed the use of animal-based remedies in Latin America; Alves and Souto (2011) discussed ethnozoology in Brazil; Ferreira *et al.*, (2012) investigated the trade in medicinal animals in North-eastern Brazil; while Kim and Song (2013) carried out a study on medicinal animals on Jeju Island, Korea). Many cultures still use animals to treat various human and livestock ailments. For example Yinfeng *et al.*, (1997) reported the use of wildlife in traditional Chinese medicine while Setlalekgomo and Setlalekgomo (2013) reported the use of tortoises and its parts in the treatment of several human ailments like high blood pressure and epigastric pains.

According to Alves (2012), a single species can be used in different ways by different societies. Among the animals used in therapeutics worldwide is a pangolin. There are several myths, beliefs and traditional medicinal uses of pangolins among various communities. Even though the medicinal uses of pangolins have been documented in many parts of the world including some African countries (Soewu and Ayodele, 2009; Soewu and Adekanola, 2011), information from many African communities is not well documented and the indigenous knowledge is fading with time. Cunningham and

Zondi (1991) found that Cape pangolins were overexploited for medicinal uses in South Africa. In Botswana, the information on the uses of pangolins on traditional medicine by different communities is scarce, hence the study. The present study investigated the indigenous knowledge on the traditional medicinal uses of pangolins and their myths in Lentsweletau extended area in Kweneng district of Botswana.

Materials and Methods

Study Site

The study was conducted in July 2013 at Lentsweletau village in Kweneng district of Botswana. The village is located at 24° 22' 47" S x 25° 51' 0" E, about 60 km north of Gaborone, the capital city of Botswana (Figure 1). The village has several hills and water bodies which provide habitats for a great biodiversity. The community of the area coexists with the biodiversity and have the indigenous knowledge on their utilisation. This indigenous knowledge system has to be documented so that it is not lost with time especially that some species are disappearing due to reasons such as habitat loss to the growing population.

Study Animal

Pangolins are nocturnal mammals distinguished from other mammals by their protective layer of horny scales. They are of agricultural importance because they feed on ants and termites which are pests. They are often called scaly anteaters. Their front legs have long claws used for digging up ant and termite mounds. Males can weigh up to 15.9 kg.

Statistical Analysis

Data were collected using questionnaire that was administered to 37 randomly selected informants in Lentsweletau area. Verbal consent for the study was obtained from the informants. The main data captured in the questionnaire included demographic characteristics, whether informants knew pangolins or not, indigenous knowledge on the utilisation of pangolins and traditional beliefs about pangolins. The data were analysed using Microsoft Excel. Tables and figures were used to present summary statistics.

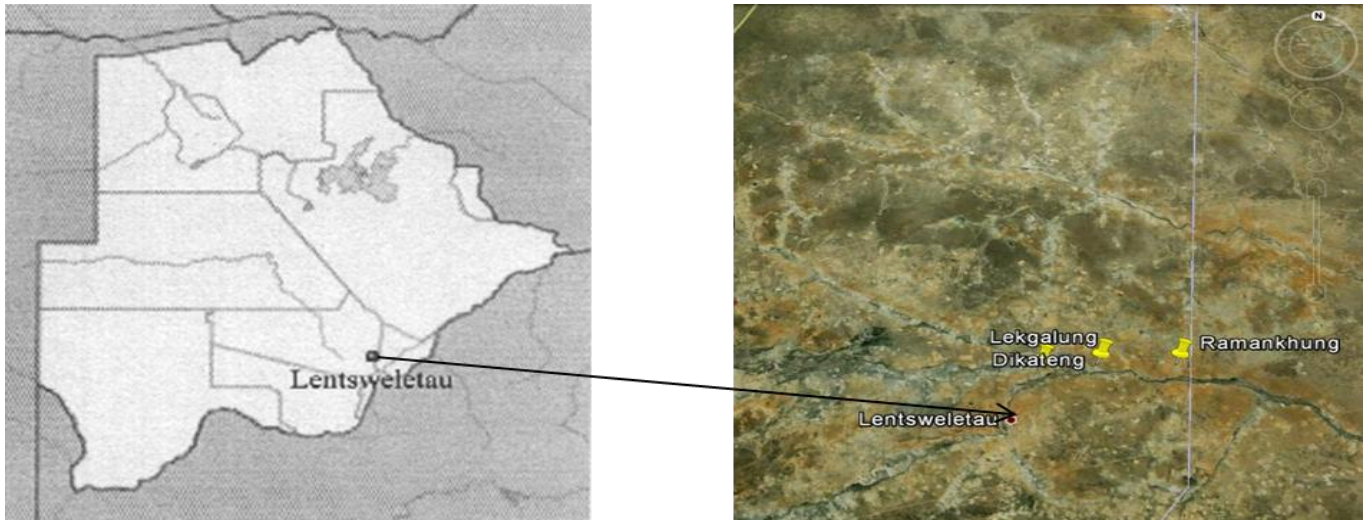


Fig. 1: Map of Botswana showing the location of Lentsweletau village and an aerial photograph showing Lentsweletau village and its surrounding ploughing areas.

Results and Discussion

The demographic characteristics of the informants are shown in Table 1.

Demographic Characteristics

Table 1: Demographic characteristics of the informants.

Variable n=37	Category	Overall %
Gender	Male	70.27
	Female	29.73
Occupation	Traditional doctor	10.81
	Villager	89.19
Age	20-30	13.51
	31-40	16.22
	41-50	32.43
	51-60	16.22
	61 and above	21.62

Out of the 37 informants interviewed in the present study, 70.27% were males and 29.73% were females (Table 1). The informants were traditional doctors (10.81%) and ordinary villagers (89.19%). All the traditional doctors were males. Most of the informants were aged between forty one and fifty years (32.43%).

Minority of the informants were in the age range of twenty to thirty years (13.51%).

Informants' Knowledge of Pangolins

Most of the informants knew pangolins while others had either heard of pangolins, seen pangolin's body parts or did not know the animal at all (Table 2).

Table 2: The informants' responses to whether they knew pangolins or not.

Variable n=37	Frequency (%)
Yes	67.57
No	16.22
Heard of it	8.11
Seen its body parts	2.7
Read about it	5.4
Total	100.00

From the study, it was evident that indigenous knowledge on the utilisation of pangolins in traditional medicine among young informants was less than that among older informants. This agrees with the findings of Lohani (2011) in central Nepal and Chinlapianga *et al.*, (2013) in Northeast India. The fading of the indigenous knowledge on the utilisation of pangolins in traditional medicine among young informants may be attributed to the fact that pangolins are rare nowadays and are protected by the law. The other reason may be that western medicine is readily available nowadays to treat most of the ailments which pangolins were used to cure in the past. In the current study, one of the informants who did not know pangolins but had

seen the parts of the animal used in traditional medicine was a young traditional doctor. Even though the younger traditional doctor did not know pangolins, he knew parts of pangolins which were used in traditional medicine. The indigenous knowledge of traditional medicine had been passed from elders to him, therefore conserving the indigenous knowledge system.

Traditional Beliefs Associated with Pangolins

Many stories and myths generated from the relationships between animals and man had been passed from generation to generation. Traditional beliefs recorded in the present study are listed in Table 3.

Table 3: Myths held by the informants about pangolins.

Myth	% Frequency
Bad omen if accidentally seen walking during the day and it does not curl its body when it sees people.	57.13
Bad omen if seen walking with two legs.	14.29
If a pregnant woman crosses the spoor (trail) of a pangolin, she would give birth to a baby with scaly skin.	14.29
If one accidentally treads on pangolin spoor (trail), he/she would have cracked heels.	14.29
Total	100.00

The most common belief (57.13%) was that it is a bad omen if one accidentally meets a pangolin walking during the day and it does not roll up its body. However, in Malawi, live pangolins were regarded as a sign of good rains while in Mozambique they were a sign of either famine or abundance (Bräutigam *et al.*, 1994). In the present study, it was believed that if a pregnant woman crossed a trail of a pangolin, she would give birth to a baby with a scaly skin. It was also believed that if one accidentally trod on the trail of a pangolin, he/she would have cracked heels. The scaly skin and the cracked heels could then be treated traditionally using pangolin scales mixed with herbs. According to Challender and Hywood (2012), the Shona people of Zimbabwe believed that offering pangolins to a spirit medium will bring them protection and wellbeing. Different cultures have different traditional beliefs on different animal species.

Uses of Pangolins

The study revealed that the community of Lentsweletau area had a wealth of indigenous knowledge on the uses of pangolins. However, the informants made it clear that pangolins were no longer used since they were rare and were protected by the law. In the past, pangolins were used as bush meat (20.59%) and different body parts of pangolins were used in traditional medicine (79.41%) by indigenous people. Pangolins were used in traditional medicine to cure several human ailments as well as being used in charm making.

Indigenous Knowledge on Medicinal Uses of Pangolins

According to the current study, eight human ailments could be traditionally treated by zootherapeutic products derived from pangolins (Table 4). The most frequently recorded ailment was epistaxis (54.54%) followed by hypertension (13.63%), cracked heels (9.08%) and lastly

psoriasis, heart attack, persistent cough, internal parasites and asthma (each 4.55%). The use of pangolins in traditional medicine was mostly associated with the treatment of blood and heart related diseases. However, other diseases like persistent cough, internal parasites and asthma were reported. In Ijebu province in Nigeria, pangolins were used in various preparations to treat forty-two conditions (Soewu and Ayodele, 2009). According to Livingston (2005), persistent cough (thibamo) occurs if an infant is born in an abnormal position and the baby and the parents are not treated traditionally. The baby might die and/or one of the parents could develop a persistent cough. In the current study, the disease was said to be treated by the use of pangolin's scales mixed with other ingredients. It was not revealed what body parts of pangolins or how the animal was used to treat

internal parasites in children. Heart and lungs were burnt and the asthmatic patient made to inhale the smoke. The animal lungs were mostly used because an asthmatic person has problems with lungs. The patient inhaled the smoke so that it reached the lungs quickly and relieved the patient. Different communities worldwide seem to use different animal parts to treat different human ailments. For example, in India, meat, bile and scales of Indian pangolins were used to treat splenomegaly, muscle stiffness and as appetiser respectively (Chinlamianga *et al.*, 2013).

The pangolin parts recorded in the present study included blood, scales, heart, stomach and lungs. The parts could be used raw, dried, ground or burnt. Scales and heart were the most frequently recorded, followed by blood, lungs and stomach (Figure 1).

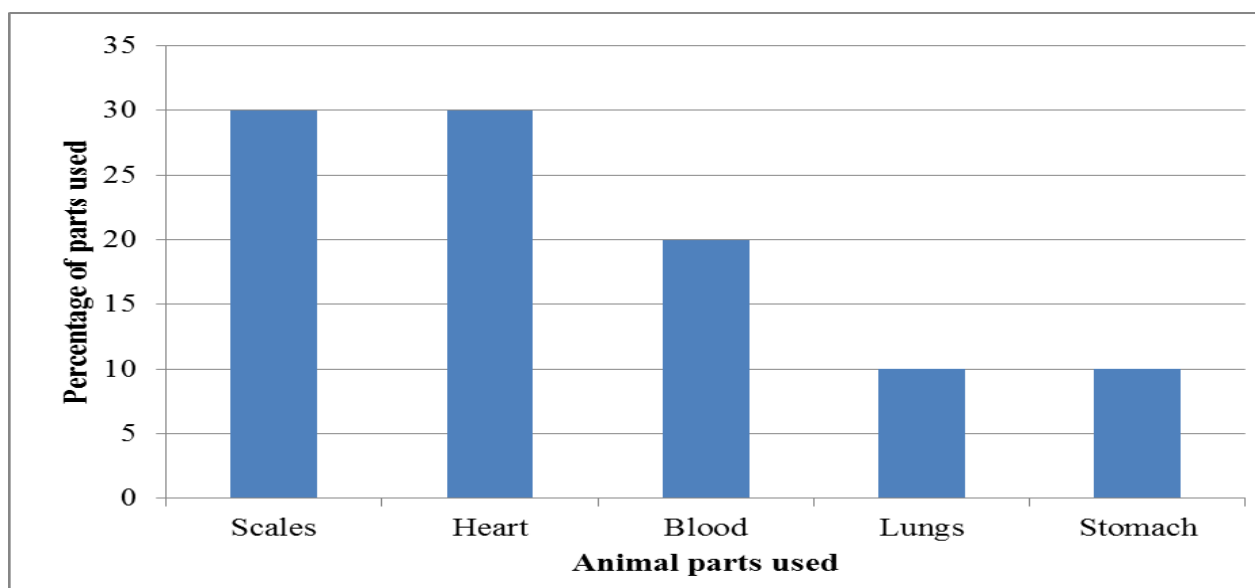


Fig. 2: Percentage of pangolin parts used for medicinal purposes.

Table 4: Human ailments treated, their frequency, animal parts used in the traditional medicine practices and their method of preparation and application.

Human ailment treated	Frequency (%)	Animal part used	Method of preparation and application
Hypertension (High blood pressure)	13.63	Blood and scales	Scales ground, mixed with blood and other medicines, burnt, patient inhales smoke, ashes ground and applied to the head and face.
Epistaxis (Nose bleeding)	54.54	Blood	Pangolin's blood mixed with other medicines, blood from the nose dripped on the mixture, which is burnt and patient inhale the smoke. Ground ashes applied on the face and head.
Psoriasis (skin disease)	4.55	Heart	Heart burnt, dried, ground, mixed with other medicines and

ETHNOZOOLOGICAL SURVEY OF THE INDIGENOUS KNOWLEDGE ON ...

Heart attack	4.55	Heart	Heart burnt, dried, ground, mixed with other medicines and taken orally.
Cracked heels	9.08	Scales	Scales mixed with other medicines, burnt and cracked heels held above the smoke.
Persistent Cough (thibamo)	4.55	Scales	Scales burnt together with other medicines and the patient inhales the smoke.
Internal parasites in children	4.55	Stomach	Stomach contents are dried, ground and mixed with medicinal plants and taken orally.
Asthma in children	4.55	Heart and lungs	Heart and lungs burnt and the patient made to inhale the smoke.

Table 5: Indigenous knowledge on the uses of pangolins other than in the treatment of human ailments.

Utilisation	% Frequency	Pangolin parts used	Method of preparation and application
Protection of one's life against bad luck or any form of evil.	2	Fat	Fat mixed with medicines.
Protection of one's homestead against bad luck or any form of evil.	1	Nose	Nose mixed with other medicines.
Protection of a kraal or livestock against evil spells and predators.	2	Head	Head buried at the entrance of the kraal. Paws mixed with other medicines in a horn.
Protection for a ploughing field and crops against any form of evil brought about by witchcraft.	2	Paws Scales	Scales mixed with seeds before ploughing. Blood dried, ground and mixed with seeds.
Traditional medicine used as a form of attraction for lovers, customers, etc. (mmitisa or leswalo).	1	Blood Scales	Scales kept in a wallet or in a safe in a business area.
To determine the gender of new borne calves for cattle.	1	Whole body	Animal body buried in the centre of the kraal.
Bag for carrying the divination objects used by traditional doctors (ditaola).	1	Skin	

Pieces of pangolin carcase were reported to have been used in divination and charms for good luck, protection and safety by the Awori people (Soewu and Adekanola, 2011). In the present study, different parts of pangolins were said to be used in the protection of human beings, man's homestead and his livestock. For human protection, it was said that pangolin's fat was mixed with other medicines and applied to the whole body. Paws were combined with medicines in an old cow's horn and buried in the kraal for the protection of livestock against unseen evil influences. Alternatively, the head of the pangolin was buried in the centre of the kraal. Unlike in the current study, the Awori people used pangolin's head in the treatment of mental

illness, kleptomania and in preparing charms for good luck (Soewu and Adekanola, 2011). In the present study, pangolin's nose was combined with other medicines and used to protect one's homestead against bad luck or any form of evil brought about by witchcraft.

Pangolin scales were reported to cure several human ailments listed in Table 4 as well as to be used in making charms (Table 5). Other than treating human ailments, the scales were used in making leswalo or mmitisa (attraction medicine) where they were kept either in a wallet or in a safe in a business area. The function of mmitisa or leswalo was to make one attractive to others or to bring wealth or attract customers to a business.

According to Semenya and Letsosa (2013), another function of leswalo was to make witches blind to the prosperity of the person receiving the treatment and, therefore, forgetful of their jealousy and destructive impulses. The use of pangolins in boosting sales and wading off evil forces had also been reported in Nigeria (Soewu and Ayodele, 2009). It was also believed that smoke from burning scales repel lions and improve health of cattle (Bräutigam *et al.*, 1994). Walsh (2007) reported the use of pangolin scales in the making of good luck or protective charms particularly to protect hunters and their camps against wild animals, park rangers and other agents of misfortune, as well as to magically stupefy animals that are being hunted in Tanzania.

In the current study, a pangolin body could be buried in the centre of the kraal to determine gender of the newly born calves. The gender would depend on whether the animal was buried facing upwards or downwards. In South-western Nigeria, a whole animal was used in rituals performed during the foundation laying stage of new buildings (Soewu and Adekanola, 2011). The skin of pangolin was used to carry ditaola (the divination objects used by traditional doctors) by traditional doctors in this study.

Conclusion

The present study has revealed that the community of Lentsweletau. The community has a rich body of indigenous knowledge on the utilization of pangolins. Like in other countries, pangolins were selectively hunted for use in traditional medicine. Eight human ailments were traditionally by the use of pangolin products. The number of human ailments traditionally treated by zootherapeutic products derived from pangolins shows that pangolins deserve a special attention. Pharmacognosy investigations are required to find out the bioactive components in pangolins so as to better understand this indigenous knowledge system. Pangolins were also said to be used in charm making. The study has also shed light on the vanishing ethnozoological knowledge of pangolins in younger generations. It is therefore imperative that this indigenous knowledge system be documented and preserved for future generations.

However, the community should be sensitized on the importance of biodiversity conservation.

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