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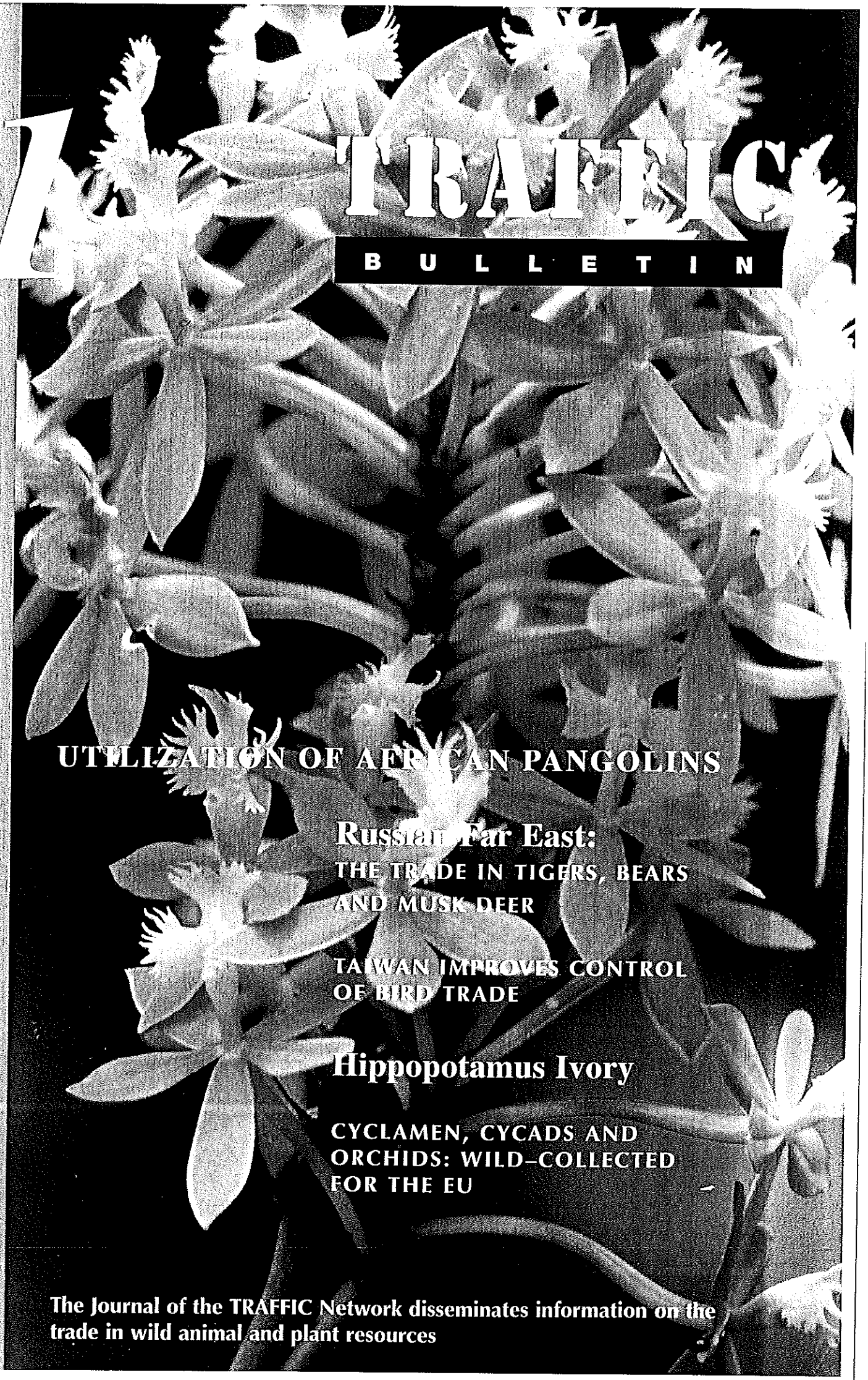

UTILIZATION OF AFRICAN PANGOLINS

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OCTOBER 1994

Recent Information on the Status and Utilization of African Pangolins

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Since 1985, CITES has been concerned with the question of the status of Asian pangolins of the genus Manis, *and the effects of utilization and commercial trade on their conservation. Much less attention has been focused on utilization of the four African con-specifics and its significance for their conservation. In response to concerns that the sources of supply of pangolins for Asian import markets might be shifting to Africa, the IUCN/SSC Trade Specialist Group[1] undertook a review of available information on the status and utilization of these species in order to elucidate the situation. Information was provided largely from two sources: by members of the IUCN/SSC Pangolin Specialist Group, and African CITES Scientific Authorities responding to a 1993 CITES Animals Committee questionnaire survey. There is little available information on international trade in the African species, presumably a consequence of their status under CITES[2], but knowledge obtained on utilization at national levels indicates certain similarities in use in Africa and Asia. Information on the biological status of all pangolin species is unconsolidated.*

Background

Covered in an armour of overlapping scales, pangolins are largely nocturnal mammals, adapted to a specialized diet of ants and termites. They have the unusual defensive posture of curling up into a tight ball. Of the seven species, three are Asian and four African.

Throughout Asia, pangolins have been traditionally utilized and traded, both for food and medicinal purposes (Corrigan and Inskipp, 1992). International trade appears to have focused primarily on the Malayan Pangolin *Manis javanica.* Pangolin scales are believed to possess medicinal properties effective in treating toxicosis, inflammation, scabies, rheumatic pain, and in promoting blood circulation and soothing aches and pains; the scales are often administered in the form of scale ash or as slices after being soaked in vinegar or oil and then roasted with hot sand. Scales are also used as an auxiliary agent in other pharmaceutical compounds. Nash (1992) reported that Vietnamese pharmacists indicate that both European and Asian buyers are increasingly interested in obtaining pangolin scales, supposedly as a cure for breast cancer.

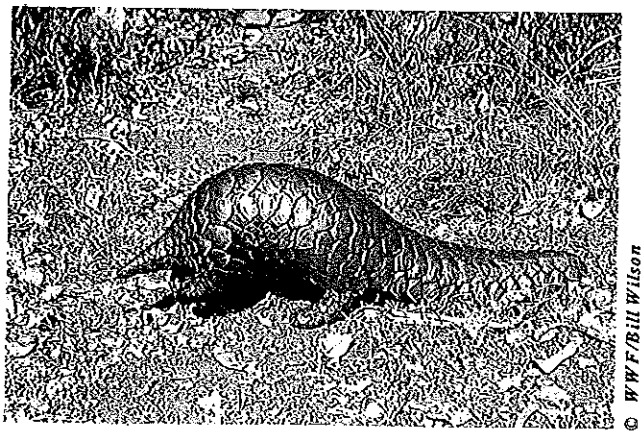
Taiwan was a major importer of pangolin scales during the 1980s (Anon., 1993a), but all pangolin species are now protected under the 1989 *Wildlife Conservation Law*, which prohibits all international and domestic trade in these animals. Pangolins also have protected status in several of the main importer and exporter countries, although trade continues.

South Korea (the Republic of Korea) remains the only country for which official statistics are available for imports of pangolin scales. In 1992, these totalled in excess of 11 t, the major exporters being recorded as China (7076 kg), Indonesia (1850 kg), Malaya [sic] (1000 kg), and Viet Nam (1026 kg). The total declared importation value was *circa* US$19/kg. Other importers in recent years (accounting for 16.5 t in 1991) were China, Singapore, and Thailand.

Fewer data are available to assess the status and utilization of African species of pangolins, but it is known that the animals are killed in large numbers throughout Africa, both for their scales and meat (Anon., 1992). It is hoped that this review will contribute to greater awareness of the use of African pangolins, the international trade in these species, and indicate the need to evaluate courses of action to ensure their conservation.

Distribution of African Pangolins

Two of the four African species of pangolins are arboreal, while two are ground-dwelling. Each occupies a somewhat different habitat and ecological niche. The ground pangolins live in burrows dug either by themselves or by other animals. In Africa, they are Giant Ground Pangolin *Manis gigantea* and Cape Pangolin or Temminck's Ground Pangolin *Manis temminckii.* The arboreal pangolins find shelter in hollow trees, the African species being the Long-tailed or Black-bellied Pangolin *Manis tetradactyla* and White-bellied or Three-cusped Pangolin *Manis tricuspis.*



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Cape Pangolin *Manis temminckii*

[1] *Now the Cambridge office of the IUCN Species Survival Commission.*

[2] *Cape Pangolin* Manis temminckii *is listed in CITES Appendix I; Giant Ground Pangolin* Manis gigantea, *Long-tailed Pangolin* Manis tetradactyla *and White-bellied Pangolin* Manis tricuspis *are listed in Appendix III by Ghana.*

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White-bellied Pangolins *Manis tricuspis*

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The Giant Ground Pangolin occurs in western and central Africa, from Senegal to central Gabon and Angola, east to northeastern Zaire, Uganda and Rwanda; its range may extend to western Kenya and Tanzania (Dorst and Dandelot, 1972). The species typically inhabits forests and savannas close to forests, in areas of good rainfall and high humidity not characterized by a long dry season. Swamps and moist river valleys are favourite areas in treeless grasslands, hills and at lower mountain altitudes (Mohr, 1961).

The Cape Pangolin is widely distributed in southern and eastern Africa, from South Africa, north through the savanna zone to Angola in the west, and possibly to Chad, southern Sudan, Kenya, Ethiopia and perhaps Somalia, to the east (Dorst and Dandelot, 1972). This is the only pangolin species found in southern Africa, where it inhabits dry bush country, particularly areas with light sandy soil.

The Long-tailed Pangolin occupies rainforests, particularly flooded forests, in the equatorial belt ranging from Senegal to northeastern Zaire, the extreme west of Uganda, and south-west to southwestern Angola, while the White-bellied Pangolin inhabits plantations and rainforests, particularly secondary forest, where ants and termites are common. The White-bellied Pangolin is the commonest pangolin of rainforest regions (Meester and Setzer, 1971). It is a lowland species and ranges from Senegal southward to southwestern Angola, eastward to northeastern Zaire, Uganda, western Kenya, northwestern Zambia, and possibly northern Mozambique (Anon., 1993b). *Manis tricuspis tricuspis* is found throughout the range of the White-bellied Pangolin except in Uganda where it is replaced by *M. t. mabirae.*

Biological Status

As a result of their shy and solitary nature and nocturnal habits, pangolins are rarely encountered by humans. The burrowing species are particularly difficult to locate owing to the fact that burrows usually reach a depth of several metres. A further factor complicating evaluation of the biology and ecology of these species may be rotation of burrow use, which has been documented for two of the species. Cape Pangolins in South Africa are reported to use up to ten burrows within an individual range, occupying each for one to two weeks at a time; a similar phenomenon has been observed for the Chinese Pangolin *Manis pentadactyla* (Goodyear and Li, 1993).

It is believed that pangolins are capable of breeding throughout the year, although this may be seasonally influenced in southern Africa, where Richardson (*in litt.*, 1994) suggests Cape Pangolins breed throughout the summer and produce young in October and November; parturition has been observed in December in southwestern Nigeria. Newton (*in litt.*, 1992) states that reproductive rates for the Cape Pangolin are low with only one young produced - rarely two (Nowak and Paradiso, 1983). A gestation period of 139 days was recorded by Van Ee (1978) in a captive female Cape Pangolin. Very little is known regarding the longevity of these species in the wild; one adult female Cape Pangolin radio-tagged in 1991 is still alive (Richardson, *in litt.*, 1994). In captivity Long-tailed and White-bellied Pangolins have lived for three years and Giant Ground Pangolins for four years.

Conservation and Legal Status of the Trade of African Pangolins

None of the seven pangolin species is listed as Threatened by IUCN (Groombridge, 1993). The three Asian species are included in CITES Appendix II and have been a focus of concern in the context of the CITES Significant Trade Project[3], as their biology, conservation status, and the extent to which they are utilized are too little known to determine the effect of international trade on populations.

Of the African species, the Cape Pangolin is the most studied and also of most conservation concern. Considered very rare in South Africa (Anon., 1978; Richardson, *in litt.*, 1991) and believed to be declining in most parts

[3]*The Significant Trade Project was established to identify CITES Appendix II species that are subject to trade that may be detrimental to their survival.*

of its range (Burton and Pearson, 1987), it is listed as Vulnerable in the South African Red Data Book (Smithers, 1986), and as Vulnerable in Namibia (Griffin, *in litt.*, 1994). In addition, it is listed as Endangered under the US *Endangered Species Act* and is in Appendix I of CITES.

The species is protected in some form throughout most of its range, legally so in 16 range states, of which 12 prohibit or regulate possession and/or national and international trade (Anon., 1986).

Of the three western African species, the White-bellied Pangolin is generally considered to be the most common (Meester and Setzer, 1971), although is believed to be declining in Ghana (Ankudey, *in litt.*, 1993) and Guinea (Satenin, *in litt.*, 1993) and close to extinction in Rwanda (Uwilingiyimana, *in litt.*, 1993). Giant Ground and Long-tailed Pangolins are believed to be quite rare (Hoyt, *in litt.*, 1992) and both species are thought to be declining throughout their ranges, Giant Ground Pangolin being extinct in Rwanda (Uwilingiyimana, *in litt.*, 1993) and Niger (Sessou, *in litt.*, 1993). Sodeinde and Adedipe (1994) concluded on the basis of bushmeat market surveys in southwestern Nigeria that Long-tailed and Giant Ground Pangolins have been extirpated from that region, while populations of White-bellied Pangolins are in decline.

All three western African species are protected in Nigeria under Schedule 1 of *Decree No. 11: Control of International Trade in Endangered Wild Fauna and Flora* (Sodeinde and Adedipe, 1994) and are totally protected in seven range states, where possession and/or national and international trade are prohibited or regulated (Anon., 1986). These three species are listed in Appendix III of CITES, for Ghana only. In addition, specific protective legislation with similar possession and trade laws as outlined above, occurs in seven other range states for White-bellied and Long-tailed Pangolins and in 13 range states for Giant Ground Pangolin (Anon., 1986).

All four African pangolin species are listed in Class B of the 1986 African Convention on Nature and Natural Resources.

No specific protection status is given to pangolins in Gabon, Gambia, Malawi, Mauritania, and Niger (although hunting is prohibited).

Sodeinde and Adedipe (1994) suggest that all pangolin species are susceptible to extinction (based on factors such as their taxonomic uniqueness, habitat and prey requirements, reproductive rates, population distribution, degree of habitat alteration, levels of hunting pressure, and economic/medicinal value). In southwestern Nigeria, the main factors responsible for the species' high susceptibility to extinction appear to be heavy hunting pressure and habitat alteration/destruction, although little is known of the habitat requirements of any African pangolin species. Sodeinde and Adedipe (1994) found few relict patches of forest remaining in Ogun State, southwestern Nigeria, and those protected as forest reserves appeared to be most popular for pangolin hunting. Indeed, in most range states forested habitats, in particular, are likely to be declining, and this may specifically affect populations of the arboreal species. However, in south-west Nigeria, it was frequently reported to Sodeinde and Adedipe (1994) that pangolins were caught in abandoned or little-used oil palm plantations amongst secondary forest, suggesting a capacity to adapt to altered habitats.

In addition to the factors already mentioned, the Cape Pangolin is believed to be vulnerable owing to the effects of pesticide poisoning (Van Ee, 1978; Cunningham and Zondi, 1991) and to electrocution on the lower wire of game farm fences (Anderson and Erasmus, *in litt.*, 1993).

Utilization and Trade

Although data on the exploitation of the African species are fewer than for Asian species, those which are available point to the popularity of pangolins in different parts of Africa for both food and traditional medicine (*muti* or *juju*) (Table 1). Coulson (1989) conducted a survey in Zimbabwe and documented 33 pangolin killings. Of these, 26 (79%) were deliberate: 19 were poachings for food, six were presentations to tribal chiefs for slaughter and one was killed by traditional healers.

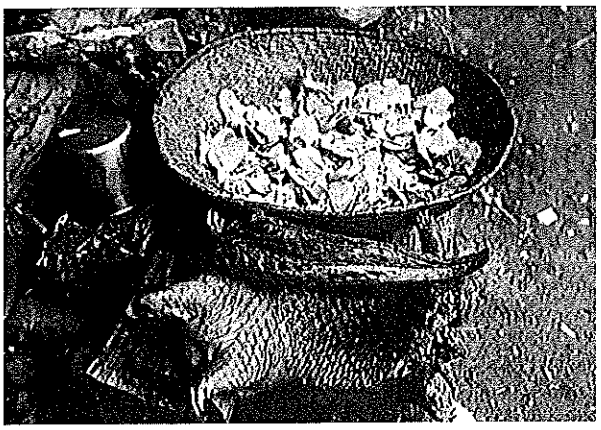
Use in traditional medicines and rituals

The definition of traditional medicine in this context includes both that which is used as a medicine *per se* (i.e., to be consumed, inhaled or applied), and that used as a charm or talisman (e.g., a scale pendant around the neck used to prevent malaria, or scales used to induce rains). In addition, pangolins are widely believed to have other magical properties, including the ability to converse with tribal chiefs, which was reported from Mozambique, for example. It is also believed that bad luck ensues if pangolin blood is spilt in a village; hence pangolins are slaughtered over receptacles to prevent this. Smoke from burning pangolin scales is believed to repel Lions and improve the health of cattle.

In an extensive survey of the literature and of medicinal markets throughout southern Africa, Cunningham and Zondi (1991) found that the use of animal parts and derivatives for traditional medicine was not only generally "dynamic" but also quite "homogeneous" in the use of certain species parts and derivatives. Further, they found that pangolins were among the species most consistently used for traditional medicine throughout Africa. They concluded that, in South Africa, overexploitation of Cape Pangolin for medicinal use was occurring, and that this exploitation was increasingly focused on core conservation areas. In addition, they considered this species vulnerable to other threats, such as habitat loss and use of insecticides, and identified the species as being one of the highest conservation priorities in South Africa.

Range State	Reported uses	References
Botswana Cape Pangolin*	Illegally used as a traditional medicine to cure persistent nose bleeding. Smoke from burning scales used to improve the health of cattle.	Masuky, *in litt.*, 1993 Anon.,1993; Kingdon, 1974
Chad 2 species	Local consumption for food. Used as medicine against malaria.	Daboulaye, *in litt.*, 1993
Ethiopia Cape Pangolin	Scales used as "spoons" by chiefs of Agnuak tribe in Gambella.	Rombaye, *in litt.*, 1993
Ghana 3 species	Scales burnt by some tribes to keep away evil spirits and also for use in soup.	Ankudey, *in litt.*, 1993
Guinea 3 species	Multiple uses as food and traditional medicines.	Sagnan Satenin *in litt.*, 1993
Malawi Cape Pangolin	Scales used as a medicine for good luck. Live pangolins are a sign of good rains.	Mkanda, *in litt.*, 1993
Mozambique Cape Pangolin	Scales used as medicine to bring good luck. Live pangolins are a sign of either famine or abundance and can converse with tribal chiefs.	Mahanjane, *in litt.*, 1993
Namibia Cape Pangolin	Used in rain-making and as a popular magical charm. A popular food delicacy.	Griffin, *in litt.*, 1993 and 1994
Niger Giant Ground Pangolin	Uncontrolled exploitation for traditional medicine.	Sessou, *in litt.*, 1993
Nigeria 3 species	Used as food, medicine, as a source of income. Most valuable as medicine.	Sodeinde and Adedipe, 1994
South Africa Cape Pangolin	Used as food, but unpopular owing to its fattiness. Used as a medicine to prevent nosebleeds and rheumatism. Also used as a "love potion".	Newton, *in litt.*, 1994 Richardson, *in litt.*, 1994
Tanzania 2 species	Scales used in rain-making and against nose-bleeding.	Kingdon, 1974
Uganda 4 species	Smoke from burning scales used to ward off Lions in Acholi.	Kingdon, 1974
Zimbabwe Cape Pangolin	Presented to chiefs/kings for reward. Various body parts have medicinal or magical properties and the flesh is regarded as a delicacy. Thought to bring rains.	Anon., 1992 Newton, *in litt.*, 1992

Table 1. Uses of pangolins in Africa.
Sources: Respondents to CITES Animals Committee questionnaire, and other sources.
* Identification of Cape Pangolin may also refer to other species within range.



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Pangolin scales are prized in Asia and Africa for their purported medicinal properties.

In Namibia, where Cape Pangolin scales are linked with ritualistic uses such as rain-making and are worn as magical charms (Griffin, *in litt.*, 1993), a recent apparent escalation of capture and trade in pangolins prompted a public statement of concern by the country's Acting Permanent Secretary of Wildlife, Conservation and Tourism (see *TRAFFIC Bulletin* 14(1):6). Although there is no open market in the country, there is some evidence of specimens' being exported illegally to Zimbabwe, Zambia, and South Africa. In addition, recent reports of high prices for pangolins in Namibia has stimulated trade between southern Angola and northern Namibia (Griffin, *in litt.*, 1994).

In southwestern Nigeria, recent research by Sodeinde and Adedipe (1994) has highlighted the economic importance of pangolins for use in traditional medicine or *juju* (despite legislation prohibiting hunting of these species). White-bellied Pangolin is almost exclusively the species involved (Long-tailed Pangolin being much rarer). Sodeinde and Adedipe report that medicinal use appears to be more important than that for food. Following market surveys and interviews with hunters, they recorded that pangolin scales and other parts were worn as charms and ornaments and also processed into medicinal compounds, whilst the flesh is eaten and also used for *juju*. Pangolins are usually provided live to the markets by hunters, forest reserve workers, employees of timber dealers, and secondary buyers. An average of 24 animals was estimated as being supplied each month to the markets in Ogun state, with a total of 142 recorded between November 1988 and April 1989. In the Omo Forest Reserve results indicate that of those mammals hunted regularly, the White-bellied Pangolin was the least abundantly caught (Table 2).

Many of the reported medicinal properties of pangolin parts are based on the use of scales and their derivatives; consequently the value of scales (as opposed to meat) appears to be very high. In 1993, in Pretoria, South Africa, the scales of Cape Pangolin were being sold at *circa* US$15 each (Newton and Mulliken, *in litt.*, 1993) and in Namibia live pangolins were valued at US$150 (Griffin, *in litt.*, 1993).

Use as bushmeat

Use of pangolin meat for food has also been widely recorded throughout Africa. Several long-term studies into trade and use of bushmeat have recently given some indication as to how important pangolin meat is in the local bushmeat market, particularly in relation to other species commonly utilized for food.

In Nigeria, Anadu *et al.* (1988) identified Long-tailed and White-bellied Pangolins as the second-most expensive bushmeat, selling in 1982 for 7.55 Niara (US$4.72 in 1982) a kg. In contrast to these findings, Colyn *et al.* (1987) reported, on the basis of their bushmeat market surveys in Zaire, that pangolins figured among the least frequently captured groups of animals for bushmeat, representing only 1.7% of the total number of species recorded. They attributed this both to the animals' elusive nature and to the fact that, in some areas in Zaire, consumption of pangolins is considered a taboo, the result being that they are rarely sold outside villages. They estimated that consumption of pangolins is much higher in rural areas (*circa* 21% of the bushmeat diet, as opposed to 3.3% in urban centres). The results of their observations over the period September 1980 to January 1984 are shown in Table 3.

Species		Capture frequency (%)	Total catch	Average catch per hunting trip: per collection centre	Average catch per hunting trip: per hunter
Bushbuck	*Tragelaphus scriptus*	17	348	5.80	0.39
Maxwell's Duiker	*Cephalophus maxwelli*	17	356	5.93	0.40
Red-flanked Duiker	*C. rufilatus*	14	171	2.85	0.19
Grasscutter	*Thryonomys swinderianus*	13	243	4.05	0.27
B-tailed Porcupine	*Atherurus africanus*	13	118	1.97	0.13
White-bellied Pangolin	*Manis tricuspis*	11	110	1.83	0.12

Table 2. Frequency of capture and other indices of abundance of pangolins and other mammals caught in the Omo Forest Reserve, southwestern Nigeria, by hunters in the Omo area, February-July 1990. *Source: adapted from Sodeinde and Adedipe, 1994.*

Species	Enano	Ubilo	Total no. observed
Giant Ground Pangolin *Manis gigantea*	9	1	10
Long-tailed Pangolin *Manis tetradactyla*	2	1	3
White-bellied Pangolin *Manis tricuspis*	81	11	92
Total	92	13	105

Table 3. Observations of the sale of pangolins in rural areas outside Kisangani, Zaire, September 1980-January 1984. *Source: Colyn* et al., *1987*

In Gabon, a total of 120 White-bellied Pangolins and 23 Giant Ground Pangolins were observed for sale at four bushmeat markets throughout the country during 1993 (Steel, 1994) (Table 4). Although pangolins were consistently one of the least commonly sold meats, comprising less than five per cent of the total sales overall, consumer demand was relatively high. According to traders, White-bellied Pangolin meat was the third-most requested item, and of 206 consumers interviewed, 10% regarded pangolins as their preferred type of bushmeat. Consequently, the price of White-bellied Pangolins at the Libreville markets was one of the highest of all items on sale (CFA 1154/kg = *circa* US$4). In addition, Steel (1994) found that most bushmeat did not pass through the formal markets but was bought either directly from hunters in roadside villages or from urban vendors working from home. However, only five White-bellied Pangolins and two Giant Ground Pangolins were observed for sale at the roadside during Steel's survey.

In South Africa, Cape Pangolins are used as bushmeat, but do not seem to be popular, owing to their fattiness, which is regarded as unpleasant (Newton, *in litt.*, 1994).

International trade in African pangolins

CITES annual reports and Customs declarations for the period 1980 to 1992 provide some evidence of international trade in all the African pangolins, albeit in relatively small quantities, either as live animals, dead bodies, trophies, carvings, scales, skins or leather goods (Table 5).

The majority of these declarations (*circa* 75% of all transactions) involved the exportation of 152 live pangolins from Togo to the USA over a period of nine years. These transactions were believed to be largely for the zoo trade (R. Hoyt, pers. comm., 1991), despite the fact that pangolins are not popular zoo animals, owing to difficulties in keeping them alive, their nocturnal and, in the case of the terrestrial species, burrowing habits. The exportation of 25 live White-bellied Pangolins from Togo to Japan in 1990 is also likely to have been for the zoo trade.

It should be noted that non-implementation of CITES provisions for Appendix III species may have accounted for trade in African pangolin species being unreported to CITES. In addition, the nature of the trade in pangolins (i.e. often in scales and other small parts) may account for trade being undetected and, therefore, unrecorded. This has been the case consistently with respect to the extensive trade in the three related Asian species: Malayan Pangolin *M. javanica* primarily, but also Chinese Pangolin *M. pentadactyla* and, possibly, Indian Pangolin *M. crassicaudata* listed in CITES Appendix II. In addition, misreporting of trade in Cape Pangolin from Lao PDR, indicated in Table 5, provides evidence of the identification problems surrounding pangolin species.

Customs statistics available for Taiwan and South Korea show that total imports of pangolin scales to these two countries peaked at *circa* 15 600 kg per year in 1987 (Anon., 1993a). In South Korea, prices per kilogramme of pangolin scales have risen continuously since 1982, and the general trend in volume of scales and number of sources has been upwards, suggesting that the trade in scales is expanding and may be having a deleterious effect on wild populations of these species. In the light of this, of great concern was a single record in 1990 of imports into South Korea of 100 kg of pangolin scales from Madagascar (Table 5), where no pangolin species occur. This suggests the possibility that as Asian species become more scarce, dealers may be turning to African species to satisfy the Asian market. Whether international trade in African pangolins extends beyond Africa, in particular to Asian markets, is not really known. Pangolin scales in Asia are cheap (US$7 a kg) and are abundant in Asian markets (Loh, *in litt.*, 1993). As already mentioned, pangolin scales sell for *circa* US$15 each in Pretoria, South Africa; therefore, there would appear to be little financial incentive to export them.

Species	Libreville	Port Gentil	Oyem	Makokou	Total
Giant Ground Pangolin *Manis gigantea*	20	-	3	-	23
White-bellied Pangolin *Manis tricuspis*	77	1	39	3	120
All pangolins	97	1	42	3	143

Table 4. Observations of the number of pangolins for sale in major bushmeat markets in Gabon during 147 market visits from November 1992 to December 1993. *Source: Steel, 1994*

Whilst there is little evidence of trade in pangolin scales for the traditional medicine trade across African borders, Cunningham and Zondi (1991) document widespread movement between countries for other similarly used animal products. Sessou (*in litt.*, 1994), however, reported illegal cross-border trade in pangolin scales between Nigeria and Niger, while an increasing number of confiscations of live Cape Pangolins in Namibia in 1993 was believed to be in response to increased demand for rain-making tokens throughout drought-ridden southern Africa. If it is not already occurring, the potential for international trade in pangolin scales within Africa exists and is likely to increase as pangolins become scarcer in particular countries or regions where demand is acute.

Conclusions

Although both ecological and economic data on African pangolin species remain sparse, it is clear that, in countries where field studies and research into national utilization of pangolins for food and medicinal purposes have been carried out, some species are becoming more threatened. Continued loss of habitats, especially for the forest-dwelling species, coupled with commercialization of the bushmeat trade in some areas (Anadu *et al.*, 1988) and their importance as traditional medicines throughout Africa, is likely to increase these threats.

Most of the recent studies outlined in this review point to the importance of pangolins for food and medicine on a local and regional scale within Africa. Although international trade within Africa has not been comprehensively investigated, it seems highly likely that not all pangolin derivatives for sale in regional markets are of domestic origin. In addition, it is possible that some international trade to countries outside continental Africa exists, and this may prove to be an additional cause for concern.

Recent attempts to elucidate the population trends of some species have shown them to be decreasing locally. These perceived decreases are more worrisome in the light of the low reproductive potential of the species, coupled with relatively high hunting pressure and increased habitat destruction. Already the situation in Nigeria and South Africa is such that most pangolins on the market are thought to have been taken from protected areas (Cunningham and Zondi, 1991; Sodeinde and Adedipe, 1994).

Species	Year	Export	Import	Term	Quantity
Manis spp.	1985	Togo	USA	Live	12
	1986	Togo	Poland	Live	2
		Togo	USA	Live	4
	1987	Togo	USA	Live	5
	1989	South Africa	USA	Carvings	15
	1990	Madagascar	South Korea	Scales	100 kg
Giant Ground Pangolin *Manis gigantea*	1984	Togo	USA	Live	4
Long-tailed Pangolin *Manis tetradactyla*	1986	Cameroon	France	Skin and leather	1
	1990	Congo	France	Dead	1
		Togo	USA	Live	35
		Togo	USA	Live	13
		Togo	USA	Live	55
White-bellied Pangolin *Manis tricuspis*	1985	Togo	USA	Live	3
		Central African Republic?	Trophies		1
	1986	Togo	USA	Live	15
	1987	Congo	France	Bodies	1
		Togo	USA	Live	4
	1988	Congo	France	Dead	1
		Congo	Italy	Dead	1
		Congo	Sweden	Dead	1
		Liberia	USA	Live	2
	1989	Congo	Sweden	Dead	1
	1990	Togo	Japan	Live	25
		Nigeria	USA	Live	1
Cape Pangolin *Manis temminckii*	1985	Congo	France	Dead	1
		South Africa	USA	Dead	1
		South Africa	USA	Dead	1
	1990	Lao PDR	USA	Skins*	226

Table 5. Summary of international trade in African pangolin species reported in CITES and South Korean Customs statistics.
* the 1990 record of 226 Cape Pangolin skins exported from Lao PDR to the USA was, in all probability, of misidentified skins of one of the three Asian pangolin species. *Source: Anon., 1994; South Korean Customs statistics*

There remains a real need for field assessment of the population status of each species in different habitats, incorporating more comprehensive study of population parameters and ability to withstand current levels of hunting pressure. Likewise, more in-depth research into levels of hunting pressure and utilization of pangolin species, both nationally and within Africa as a whole, are needed.

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Cape Pangolin *Manis temminckii* adopting a defensive posture