
Closing down the illegal trade in rhino horn in Yemen

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Abstract

This study of Yemen's rhino horn trade showed that, for the first time since surveys started in 1978, no new rhino horns were being made into dagger (*jambiya*) handles in the Sanaa souk. This is a major conservation success as Yemen until recently was a main end-market for African rhino horn. Rhino horn traders complained that the government ban on rhino horn imports had harshly affected their business. Despite the lack of rhino horn on the Yemeni market, prices have not risen, strongly suggesting a sharp decline in demand. The wholesale price for rhino horn in Djibouti (which acts as an entrepot for Yemen) remains the same since the late 1990s at USD 700/kg, and the price offered for rhino horn by *jambiya* makers in the Sanaa souk is USD 1300/kg, slightly less than in the previous year. This is because Yemenis are not prepared to pay more for a *jambiya* with a new rhino horn handle as the per capita income in the country has continued to fall and people have become cautious about spending money. Furthermore, *jambiyas* with older rhino horn handles are still available. If customers have money to spare, they prefer *jambiyas* with older rhino horn handles, as compared with those having new rhino horn, as they regard these as more prestigious and a better investment. At the cheaper end of the market, more *jambiyas* with handles made of horn from the Indian domestic water buffalo are being made and offered for sale in Sanaa compared with five years ago as the human population steadily expands. Efforts to provide information on the plight of the rhino were initiated in Sanaa with posters and other educational materials dispersed in schools and public places as a start towards improving public awareness to reduce the demand for new rhino horn further.

Résumé

Cette étude du commerce de corne de rhino au Yémen a montré que, pour la première fois depuis le début des enquêtes en 1978, aucune nouvelle corne de rhino n'avait été transformée en manche de poignard (*jambiya*) dans les souks de Sanaa. C'est un succès majeur pour la conservation étant donné que le Yémen était jusqu'il y a peu une importante destination finale pour les cornes de rhinos d'Afrique. Les marchands de cornes de rhinos se sont plaints que le ban gouvernemental imposé sur les importations de cornes avait durement affecté leurs affaires. Malgré le manque de corne de rhino sur le marché yéménite, les prix n'ont pas augmenté, ce qui laisse supposer une diminution radicale de la demande. Le prix de gros des cornes de rhinos à Djibouti (qui sert d'entrepôt pour le Yémen) est resté constant depuis la fin des années '90, à US\$ 700/kg, et le prix qu'offrent les fabricants de *jambiyas* dans les souks de Sanaa est de US\$ 1300/kg, légèrement inférieur au prix de l'année dernière. La raison en est que les Yéménites ne sont pas disposés à payer davantage pour une *jambiya* avec un nouveau manche en corne de rhino étant donné que le revenu *per capita* a continué à baisser dans le pays et que les gens réfléchissent plus avant de dépenser leur argent. Qui plus est, il reste sur le marché des *jambiyas* avec de vieux manches de corne. Si les clients ont un peu d'argent de côté, ils préfèrent acheter ces derniers plutôt que ceux dont le manche est neuf parce qu'ils les considèrent comme plus prestigieux, et donc comme un meilleur investissement. Meilleur marché, on trouve à Sanaa des *jambiyas* dont le manche est fait de corne des buffle d'eau domestiqués en Inde, mis en vente en plus grand nombre qu'il y a cinq ans parce que la population s'accroît rapidement. On a fait des efforts à Sanaa pour fournir des informations sur le sort des rhinos, au moyen de posters et d'autres supports éducatifs distribués dans les écoles et les lieux publics, afin de commencer à améliorer la sensibilisation publique et de réduire ainsi davantage la demande pour des nouvelles cornes de rhinos.

Introduction

Since the early 1970s, Yemen has been the largest importer of rhino horn in the world (Martin et al. 1997), where the horn is used for the handles of traditional curved daggers. Small quantities of the horn are still being smuggled into Yemen from eastern and central Africa. It is thus important to continue pressure against the illegal rhino horn trade, encourage the use of alternative materials and monitor the *jambiya* (dagger) industry.

Methods

We collected information, sometimes with the help of informers, on various issues. Trade routes for rhino horn reaching Yemen from Africa were investigated to ascertain whether any new routes or new main buyers are emerging. Data were collected on the price of rhino horn, quantities coming into the country, numbers of *jambiyas* being made, numbers of workers and workshops, and the prices of *jambiyas* with different handles, mainly in Sanaa, the centre of the *jambiya* industry. Certain towns in the north and south of the country were also surveyed.

Alternative materials to rhino horn for dagger handles were promoted. A public awareness campaign was initiated on the plight of the rhino; pictures, posters, slide packs, and videos were distributed to schools and institutions.

We held discussions with the prime minister of Yemen, Dr Abdul Karim al-Iryani, concerning legislation to discourage further rhino horn trade. Penalties with a fine or a prison sentence are needed for people still found to be importing rhino horn or using new rhino horn to make *jambiya* handles, and the main Sanaa souk where *jambiyas* are made and sold should be inspected regularly to deter further use of new horn.

Results

Rhino horn trade investigations and monitoring

From discussions with the main *jambiya*-trading family in Yemen, we learned that Djibouti remains the major entrepot for rhino horn from eastern Africa to Yemen. Traders say that rhino horn can be smuggled from Mombasa by boat or by train from Addis Ababa to Djibouti. From there it is smuggled by boat across

the Red Sea to the Yemen coast and then transported by four-wheel-drive vehicle to Sanaa. Many goods are smuggled from Djibouti to Yemen, and rhino horn pieces can be easily concealed. Controls to prevent smuggling are weak, and the main trading family in Sanaa can buy rhino horn from Djibouti. In early 2001 the price the family offered was USD 700/kg. This is the same price as in 1999 (Vigne and Martin 2000). If the horn was brought directly to Sanaa, the family offered USD 1300/kg. From 1985 to 1997 the price for rhino horn in Sanaa remained between USD 1000 and USD 1200/kg but rose to USD 1400/kg in 1999 (see table 1). The price has stayed roughly the same despite the increasing scarcity of rhino horn on the market. Traders are unwilling to pay more than USD 1300/kg today in Sanaa, partly because of the poor economic climate of the country. According to Yemen government statistics, per capita income fell throughout the 1990s. In 1990 it was USD 696, in 1993 it was USD 409, and by 1999 it had fallen to USD 368 (Yemen 2000a). However, the Yemeni rial has remained stable at 165 to the US dollar since 1999.

No new main buyers of rhino horn have come onto the *jambiya* market in Sanaa. The industry continues to be dominated by one family based in Sanaa,

Table 1. Prices paid by the main *jambiya* merchants in Sanaa for raw rhino horn, 1980–2001

Year	Price per kilogram	
	Yemeni rials	US dollars
1980	3,500	766
1981	3,500	766
1982	3,600	788
1983	4,100	897
1984	4,300	782
1985	8,300	1122
1986	10,000	1031
1987	ca 12,000	ca 1039
1988	ca 12,400	ca 1035
1989	ca 13,000	ca 1040
1990	15,000	1042
1991	30,000	1220
1993	ca 60,960	ca 1200
1995	135,000	1200
1997	ca 152,400	ca 1200
1999	182,000	1400
2001 (Jan.)	214,500	1300

Source: surveys taken by the authors



A jambiya trader in Amran, north of Sanaa, holds up his own dagger, which he offered to us at USD 12,000.

which laments the loss of the rhino horn trade, blaming wildlife conservationists. Handles made from water buffalo horn, the only alternative substance this family claims it now uses, they say is far less profitable. Imported from India, one cut piece of water buffalo horn the size of a cigarette pack and weighing 150 to 250 g costs USD 0.25 to 0.50, and once made into a handle it is priced at only a dollar. Plastic pieces for handles imported from Taiwan, which a few craftsmen use, cost only USD 0.15 each before being crafted into a handle, so these too provide little profit. Rhino horn handles, apart from being valuable in themselves, were also used to provide extra profits as the waste was sold. The traders still are waiting for permission to sell their remaining large stocks of rhino horn chips and shavings, left over from the handle-making process, that they registered with the government in 1993. We learned, however, that an Indian businessman living in Hong Kong who also has enterprises in Oman and Dubai comes several times a year to Yemen to buy the highest quality chips from the main jambiya family in Sanaa for USD 600/kg. Powder is worth less than chips, because powder gets mixed with dirt during filing; the Indian trader buys it for USD 400/kg (table 2).

During our 14-day visit to Yemen in January 2001, we saw no new rhino horn being made into dagger handles—for the first time in 14 survey visits to Yemen since 1978. The production of new rhino horn handles has decreased to its lowest level since 1970. However, the growing human population in Yemen means that jambiya-making in general continues un-

abated. Yemen's population was 11.9 million in 1991, and by 1999 it had reached 17.7 million with an annual population growth rate of 3.5% (Yemen 2000b). The main trading family estimates that in the Sanaa old souk, 300,000 water buffalo horn, 30,000 wood and 4000 plastic handles are made each year. Half the 40 or so handle makers in the souk are members of this family or are employed by the family, and they employ another 40 or so blade makers. In January 2001, we counted 69 shops (half of which belong to this family) open at any one time in the Sanaa old souk and 101 workers making and repairing jambiyas (table 3). These figures have slightly increased in the last decade. This is because, although buffalo horn handles take far less time

Table 2. Wholesale prices of rhino horn shavings (chips and powder) in Sanaa, 1978–2001

Year	Price per kilogram	
	Yemeni rials	US dollars
1978	1,000	200
1983	1,000	219
1986	2,454	253
1990	4,896	340
1993	20,000–30,000	394–590
1994	38,500	500
1995	60,375	525
1999	84,500	650
2001 chips	99,000	600
2001 powder	66,000	400

Source: surveys taken by the authors

Table 3. Jambiya shops with craftsmen working on jambiya handles in the Sanaa old souk, 1971–2001

Year	Workshops (no.)	Craftsmen (no.)
1971	47	?
1983	41	61
1986	51	84
1989	57	87
1993	56	91
1994	65	92
1995	55	88
1999	59	100
2001 (January)	69	101

Source: surveys taken by the authors; for 1971, Dostal (1983)

to make than handles of rhino horn, the craftsmen are producing many more for the growing population, so they are kept employed, even if profits are not as great as when rhino horn was readily available. As expected, prices of daggers with different handles have remained about the same as two years ago (table 4).

In the main jambiya retail section of the Sanaa old souk, fewer shops were selling daggers in 2001 than in 1999. Several shops that previously sold rhino horn daggers are now selling men's Arabic cotton clothing instead. The tables that used to line the central area of this market displaying jambiyas with rhino horn handles have gradually dwindled in number over the last 10 years until there are none today. Most of the remaining retail shops now sell a mixture of rhino horn, water buffalo horn and a few plastic or camel nail daggers, whereas in the 1990s and before they sold predominantly rhino horn ones. Two shops are still selling jambiyas with the paler cream-coloured new rhino horn handles. These are less popular than the older rhino horn handles made in the 1980s or before and are thus harder to sell. Very few rhino horn jambiyas are sold outside the old souk. The shops outside the souk sell mostly jambiyas with handles made of water buffalo horn.

Although most of the jambiyas in Yemen are made in Sanaa, many towns, especially in the north, have retail outlets for them. Amran, which is just north of Sanaa, has three retail dagger shops in its souk selling almost entirely water buffalo horn jambiyas made in Sanaa. In addition, there are 19 rhino horn ones priced at 30,000 rials (USD 182) to one million rials (USD 6060). Another rhino horn jambiya that is supposedly 400 years old is priced at 2 million rials (USD 12,121). These shops in Amran are small and sell pistols and rifles as well. Most men in Amran wear jambiyas, and many carry guns also.

Table 4. Retail price of various types of handles of jambiyas for sale in Sanaa, 1978–2001

Year	Price per kilogram	
	Yemeni rials	US dollars
Plastic (newly made)		
1986	100–200	10.31–20.62
1990	70–100	4.86–6.94
1992	150 (average)	4 (average)
1993	200–250	3.94–4.92
1999	500 (average)	3 (average)
2001 range	500–1000	3.03–6.06
2001 average	860	5.21
Water buffalo horn (newly made)		
1984	100–400	18.18–72.53
1986	150 (average)	15.46 (average)
1987	150 (average)	13.04 (average)
1990	150–500	10.42–34.72
1992	150–450	4–12
1996	1125 (average)	9 (average)
1999	2000 (average)	12 (average)
2001 range	400–5500	2.42–33.33
2001 average	2219	13.45
Camel nail (newly made)		
1993	650–1000	12.80–19.69
1996	1875 (average)	15 (average)
1999	2500 (average)	15 (average)
2001 range	1500–2200	9.09–13.33
2001 average	1900	11.51
Rhino horn (newly made)		
1978	3000 (average)	656 (average)
1983	2000–8000	438–1,750
1990	5000–9000	347–625
1992	9000–25,000	240–667
1993	10,000–50,000	197–984
1996	39,375 (average)	315 (average)
1999	65,000 (average)	394 (average)
2001 range	35,000–120,000	212–727
2001 average	68,333	414

Source: surveys taken by the authors

Sadah, a town in the far north near the Saudi Arabian border, has a relatively large number of outlets selling and repairing daggers (table 5). Sadah receives fewer tourists than several years ago because of the tourist kidnappings that tribal men inflict to annoy the central government. We were escorted to and from Sadah by an army pickup truck carrying eight soldiers with automatic weapons, and during our investigations in the souk, we had an armed guard with us.

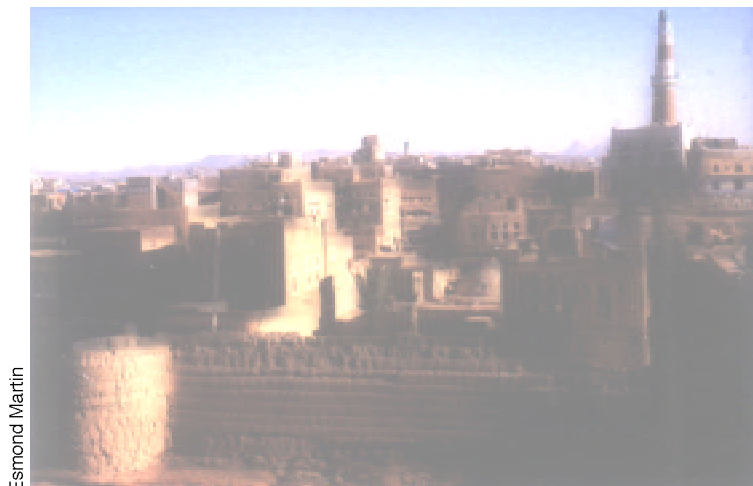
Table 5. Sadah jambiya shops and stalls, January 2001—survey details

Shops and pavement stalls	Average price	
	Yemeni rials	US dollars
Shops selling jambiyas		
Pavement stalls selling jambiyas		
Of these 38 retail outlets:		
Shops also making jambiyas		
Shops also repairing jambiyas		
Pavement stalls also repairing jambiyas		
Shops also polishing and shining blades		
Pavement stalls also polishing and shining blades		
Jambiyas for sale in the 33 shops		
Jambiyas for sale in the five pavement stalls		
Jambiya sale prices		
New buffalo horn jambiya	1,686	10
Old buffalo horn jambiya	16,433	100
New rhino horn jambiya	63,125	383

Source: survey taken by the authors

For much of the time, we were the only foreign visitors in the town. The jambiya business, which is not much affected by tourist fluctuations, increased until about five years ago and since then has remained stable.

As well as supplying jambiyas to men in this far northern region of the country, traders take some of the jambiyas across the border into Saudi Arabia to the town of Najran. This area was part of Yemen until 1934 when it was incorporated into Saudi Arabia after a war. In 1988 nearly 10% of the men in Najran, ethnically Yemenis, were wearing jambiyas. At that time 15 of the 27 small jambiya shops in Najran were repairing daggers and belts as well as selling them (Martin 1990). Sadah used to be famous for its Jewish silversmiths, some of whom decorated jambiya handles and sheaths. Today only one Jewish craftsman remains who works on silver for jambiyas; he makes silver bands for where the handle and blade meet. In and around the old walled souk, 38 shops and pavement stalls are selling jambiyas. Four of these shops also make jambiyas with water buffalo horn handles from pieces obtained from Sanaa (table 5).



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A medieval mud wall surrounds the old town of Sadah where the jambiya shops are to be found.

Three craftsmen said that until the early 1990s, they also made handles from rhino horn, and one claimed he had recently obtained rhino horn from the main trading family in Sanaa.

Most of Sadah's jambiyas are made in Sanaa and Dhamar. The former have wider handles while the latter have smaller handles that are often rounded at the top. The Bedu or rural people wear jambiyas with smaller handles. Dhamar craftsmen produce them not only for Sadah but also for the Shabwa region in southern Yemen.

In Shabwa, people prefer old jambiyas. The craftsmen refurbish the rhino horn handles by coating them in sesame oil and then polishing them for a long time to get a dark pinkish-brown colour and bring out the contrast of the grain. This work is carried out in Bayhan and Ataq, the administrative capital of Shabwa Province, where there are several dagger shops. A lot of men in Ataq are wearing jambiyas today. It is a town that is quickly expanding, because many people in the Gulf are sending money back to their homes there, and oil companies in Yemen employ people from the area. Although wearing a jambiya was banned in 1967 in South Yemen, the ban was lifted when it joined North Yemen in 1990, and more people are again wearing daggers. This is also the case in Upper Yaffa where



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This ancient gateway is still the main route into the medieval town of Sadah.

there are shops that repair and polish blades (Renaud Detalle, long-term resident political scientist, pers. comm. 1999 and 2001).

We visited Shihr on the south coast of Yemen, once a flourishing dhow port exporting dried and salted fish to East Africa. The people in this area were originally from the Hadramout farther north; some settled on the Kenya and Tanzania coast. The town today is small with little development and a small workforce. Most people remaining are elderly, and a survey of the men in the town revealed no one wearing a jambiya.

The beautiful island of Socotra is one of the most isolated and least visited places in the world. The prime minister of Yemen wished us to visit the island as external aid is coming in to develop the island's infrastructure. The government hopes to develop tourism, and this fascinating island would be an excellent site for eco-tourism and diving. Some conservationists call it the Galapagos of Arabia as it is so rich in endemic fauna and flora. The people are mainly traditional pastoralists living in the mountains in stone huts and caves, surviving on a diet mainly of dates, milk and imported rice. They are a peaceful people and know little of the outside world. They have never worn jambiyas. However, they do carry knives with handles made of goat horn for general use. As the development of the island progresses, such as the tarmacking of roads, not only may the fragile ecosystem be damaged, but also Yemenis from the north, who come to work on the island, may encourage the

Socotrans to emulate the power elite in Sanaa. They may even open a jambiya shop as occurred in Aden after unity (Vigne and Martin 2000).

Policies to encourage alternatives and publicity against using rhino horn

For the demand for new rhino horn to remain low in Yemen and to avoid an increase in price (which would encourage more poaching of rhinos in Africa) we initiated a publicity campaign on the rhino's plight and on the importance of using alternative materials. We held press interviews and gave photographs to journalists on rhino poaching and the rhino horn trade. Posters with Arabic captions covering as-



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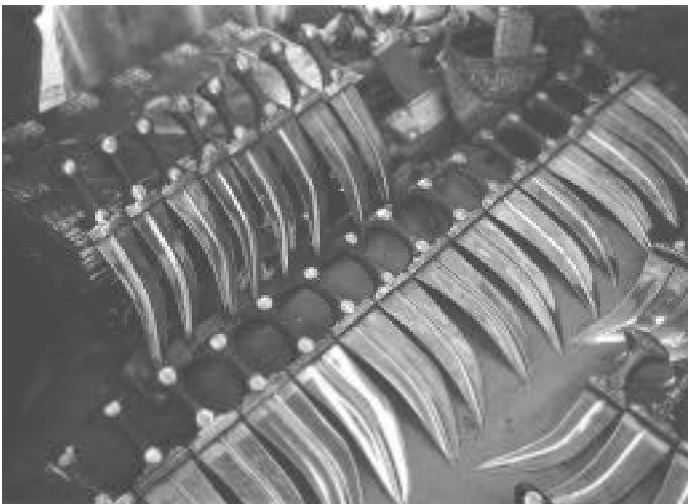
Only one Yemeni Jewish craftsman remains working as a silversmith in Sadah, making silver bands that cover the join of the handle to the blade.

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A Sadah jambiya craftsman drills holes into a water buffalo horn handle, which has the curved top that is typical of the Sadah style.

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A Sadah pavement stall displays an array of jambiyas of various styles and materials, showing mostly water buffalo horn and some rhino horn handles.

pects of rhino conservation were framed and hung at some of Sanaa's museums and institutes. The Environment Protection Council (EPC) of the Yemen government displayed posters in 10 large schools where EPC has started environmental clubs. Exhibit boards were made for EPC to use for posters at meetings and conferences. The display of these posters was organized by Sadek Yahia al-Osaimi, the EPC manager for public awareness. Among the pictures on these

posters was a copy of the photograph of the religious edict or *fatwa* written by the grand mufti, which stated that killing rhinos was against the will of God. Enlarged photographs were framed of a prestigious jambiya with an expensive agate handle for EPC to display in various ministries to encourage the use of this valuable alternative to rhino horn. Slide packs on the rhino horn trade with captions were given to EPC. These are to be shown at the 10 schools and at various institutes. EPC also was given copies of a WWF video in Arabic on the rhino horn trade in Yemen, and EPC agreed to organize the showing of this video on Yemeni television. Other ideas for posters and more educational materials were discussed for future visits. There are close to two million people in Sanaa alone, but few know about the effect of Yemen's rhino horn trade on Africa's rhino population because they lack information.

During a meeting with us at his office, the prime minister of Yemen telephoned the governor of Sanaa, Hussein al-Maswari, about our wish to hang posters at the zoo, one of the few public recreational places in the city. When we visited the zoo with Mr al-Maswari, we brought him five posters, which he agreed to frame and hang near the main gate. These are the only posters so far to be hung in the zoo. The zoo authorities also asked for leaflets and brochures on rhinos and other animals, as at present they have none. The zoo attracts many visitors, who can now start to learn about the plight of the rhino through information supplied at the zoo. The governor of Sanaa also agreed to build a lecture room

at the zoo, and we gave him slide packs and a video to show to visitors when such an education centre is built. The zoo is still being developed, and this year the government has allocated 40 million rials (USD 242,424) to spend on expansion.

Postcards of rhinos were given to various craftsmen and traders in Sanaa's old souk to increase their awareness about the rhino. During discussions with the main traders in the souk, they explained that they

need a comparable alternative to rhino horn, one that would give them more profit. Although agate handles are an expensive alternative, they can break if dropped so are less popular for daily wear. Craftsmen thus need another material as a substitute for rhino horn pieces with a similar appearance and texture to meet the demand for a substance that is durable as well as attractive. The material need not be horn shaped but should have filaments similar to the keratin in rhino horn. Craftsmen carve a handle out of a piece of horn no larger than a cigarette pack, and traders would welcome any suitable substitute material in this shape now that rhino horn is so scarce. The merchants also

said they would like customs duty (tax) to be removed from their large imports of Indian domestic water buffalo horn, to make this alternative material more profitable for them. EPC agreed to organize a workshop in Sanaa to discuss alternative materials.

Although Yemenis are a traditional people, they are also adaptable. Changes have occurred in recent years in men's dress. For example, the jambiya sheath and belt for the two major northern tribes, the Bakil and the Hashid, were brown and green respectively, but now these are mixed, especially in town, as are the black and red headscarves. Certain drivers working for the main tour company in Sanaa recently sold

their inherited rhino horn jambiyas to buy their tourist vehicles. They had been happy to purchase instead jambiyas of good quality old water buffalo horn with silverwork, which they had seen when visiting the Hadramout.

Legislation and law enforcement

No rhino horn has been confiscated or intercepted by Yemeni officials in the last few years, partly because the Yemenis are still waiting for the CITES authorities to train them in law enforcement. Sadek al-Osaimi of EPC is responsible for CITES management in Yemen and he inspects the Sanaa old souk personally at every Idd. Idd is the time to buy new jambiyas for the celebrations after Ramadan and after the Haj. He has seen no new rhino horn on the market.

After our discussions with the prime minister about introducing penalties for the possession and use of new rhino horn and having inspections to enforce the regulations, the prime minister said he would talk to the minister of Supply and Trade during a cabinet meeting while we were in the country. Unfortunately, the prime minister developed a high fever and could not attend the meeting. He agreed to follow up the issue as soon as possible.

As customs officials are not yet trained to recognize rhino horn, Dr Yusuf Abdulla of the General Organization for Antiquities, Museums and Manuscripts, which helps to protect Yemen's antiquities from

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Because of the current risk of kidnappings in the far north of Yemen, an army escort accompanied us on the long journey from Sanaa to Sadah and back.

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Straight knives with handles made of goat horn are worn on the island of Socotra.

illegal export, suggested he could help to train them to intercept the horn. He has six officers working for him at the airport.

Conclusions and recommendations

The study shows that little rhino horn is now coming into Yemen. Quantities have been dwindling over the past few years. Yet prices for rhino horn have not risen because of the decline in demand. Jambiyas with new rhino horn handles are not as popular because people prefer the older ones, but they are not so readily available now.

This research trip is the first in which we found no new rhino horn being made into jambiya handles in Yemen. This is very encouraging for the future of eastern African rhinos. Although water buffalo horn handles take far less time to produce than rhino horn handles, the numbers of craftsmen working in the Sanaa old souk have slightly increased because more handles are now being produced for the expanding population. Thus, few craftsmen have lost their jobs as a result of the extreme shortage of rhino horn.

The demand for jambiyas, mainly with water buffalo horn handles, continues elsewhere in the country such as in the far north, especially in Sadah, and in some regions of the south where development is most prevalent, such as Ataq. Most of the jambiyas are made in Sanaa, Dhamar and Taiz with craftsmen in other towns mainly carrying out repair work.

The plan to implement a new public awareness campaign to bring information to Yemenis about the plight of the rhino because of the rhino horn trade was willingly accepted by all concerned. Yemenis are keen for educational materials. Awareness is lacking, and all the posters, slide packs, videos, postcards and framed photographs were widely distributed in Sanaa. To do a fuller and more effective campaign, many more posters and other materials are required in Sanaa and other main towns, along with regular showings of the video on television.

Efforts to introduce new legislation on penalties and inspections for the possession and use of new rhino horn were unsuccessful and follow up is needed with the prime minister and the minister of Supply

and Trade. The government has been agreeing to bring in this new legislation since the early 1990s. The delay indicates the difficulties in passing legislation, let alone enforcing it. It took many years to encourage the government to join CITES, which Yemen finally did on condition that international support and training were forthcoming. But this has still not happened. The government is aware of its limitations, and with no international wildlife conservation body based in Yemen to give assistance, the issue of the rhino horn trade falls near the bottom of the government's priority list. Constant reminders and assistance to the government on laws and their enforcement are necessary if they are to be effective.

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