

Knowledge, Attitude and Practice of Custom Staffs on Illicit Wildlife Trafficking in Four Checkpoints of Northeastern Ethiopia

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Abstract: Wildlife trafficking is the exchange of wild animal and plant resources by the larger community. The study was conducted to assess the knowledge, attitude and practice of custom staffs on wildlife trafficking in four checkpoints of northeastern Ethiopia from October to December, 2016. The data was collected by preparing both open and closed ended questionnaire through interview. The sampling frame was designed taking individual checkpoint as a cluster and hence cluster sampling was used. Final sampling units from each cluster were taken using systematic sampling and a total of 54 individuals were selected from each cluster. The data was analyzed using descriptive statistics to understand the nature of the data for illegal wildlife trafficking. All (100%) of the custom personnel in the surveyed checkpoints responded that, priority of the enforcement targets was on contraband goods. The custom staffs responded that, lack of interagency cooperation is the most important challenge to effectively enforce wildlife trafficking in the checkpoints. About 45% of the custom staffs in Awash checkpoint responded that, poaching or illicit floral collection is somewhat a serious crime underlying conservation efforts. Furthermore, 60% of the custom staffs in Awash reported that, illicit export of wildlife is somewhat a serious problem. About 51.9% of the custom staffs do not know about the Convention on International Trade in Endangered Species (CITES). Furthermore, 50% of the custom staffs did not know the state legal frameworks on illicit wildlife trafficking practices. According to the custom staffs, inadequate collaboration between and among enforcement authorities affects the enforcement tasks of wildlife trafficking in Ashaita Galafi and Mille custom checkpoints. Majority (66.7%) of the custom staffs reported that, the custom checkpoints administration have no wildlife investigation manual prepared based on the guidelines of CITES and have poor community participation. Hence, integrating the monitoring process of wildlife trafficking with the proximal local community should be a focus of upcoming researches and community development efforts.

Key words: Smuggling • Transit • Awash • Monitoring • Poaching

INTRODUCTION

Wildlife trafficking is any sale or exchange of wild animal and plant resources by people [1]. Global trade in

illegal wildlife is potentially vast illicit economy, estimated to be worth billions of dollars each year impeding international efforts to conserve rare and endangered plants and animals [2]. Most plants and animals are

trafficked from developing countries to the western world [3, 4]. Globally, the recent illicit trade in wildlife is estimated to worth 50 to 150US\$ billion per year [5].

Wildlife trafficking is a transit crime that has wide-ranging implications for society. Not only does it severely affect the environment by impacting biodiversity, it also hampers social and economic development in many communities [3,6]. Furthermore, wildlife trafficking represents an increasing threat to national and global security [1] being run by sophisticated crime groups who use the profits for terrorism and rebel uprising [1,4]. Wildlife trafficking is linked to other serious crimes such as drug trafficking, arms trafficking, human smuggling and document counterfeiting [7]. It is often cited as a means to finance the more violent and destructive activities of criminal and terrorist organizations because of the major financial benefits derived from a relatively minimal time investment, low risks of detection and lack of serious punishment [8]. The huge profits made from illicit wildlife trade act as incentives to organized crime networks [9]. There is also growing evidence that noncompliant or militia groups in Africa use profits from the illegal sales of wildlife to fund terrorist activities [10].

Zimmerman [11] has identified three main types of criminals involved in wildlife trafficking: local farmers trying to supplement their incomes, mafia-style groups operating in developing countries and international smuggling rings. Wildlife crimes typically occur in remote rural regions characterized by low population density and diverse geographical features. These factors make it difficult for law enforcement authorities to solve illicit wildlife trafficking crimes and bring the executors of these offenses to justice [12]. Although, environmental laws and regulations provide a variety of enforcement mechanisms to curb illicit wildlife trade, enforcement mechanisms pose a huge challenge [13]. Inadequate financial, human resources and lack of institutional capacity are barriers to enforcing these environmental laws [14]. Wildlife crime is also linked with corruption at local, regional and international levels [8]. Poor detection of transboundary good by customs services plays a key role in facilitating the illicit trade of wildlife [14]. Markets for protected plants, animals and animal materials include Belgium, China, the Czech Republic, France, Hong Kong, Israel, Japan, Netherlands, Romania, Spain, the United Kingdom and Vietnam [14]. Without the commitment of customs and enforcement bodies in these countries and in the countries from which trafficking originates, the illegal trade in endangered species will continue [14]. The great concern for Africa is loss of security, revenue

from tourism, which creates jobs and contributes resources for national development [15]. All the while, some species are pressed towards extinction at 1000 times the natural rate [16].

Ethiopia has a relatively short history of dealing with environmental crimes. Currently, there are prominent encouraging efforts to reduce illegal trade of wildlife by signing international conservation and law enforcement conventions [17]. Nevertheless, Ethiopia is identified both as a source and a key trade hub for illegal ivory trafficking [17]. Ethiopia has signed the CITES convention which prohibits illegal wildlife trade on the 05/04/1989. Despite the fact that, wildlife trafficking still persists through border points of the country [17]. The Eastern part of Ethiopia is the most suspected land based transboundary locations for illegal wildlife trafficking outside the country. Owing this, the study will show the gaps on knowledge, attitude and practice of custom staffs on illicit wildlife trafficking in four checkpoints of northeastern Ethiopia.

MATERIALS AND METHODS

Description of the Study Area: The study was conducted in four custom checkpoints of northeastern Ethiopia. Mille custom checkpoint is found 162 km away from the capital city of Afar national regional state. The custom checkpoint is found within the highway heading from Southern Tigray, Wello province and the extended segment of Addis Abeba-Awash highway. Awash custom checkpoint is also found in Afar national regional state zone three. The people of Afar are predominately pastoralists; hence, their economy heavily relies on livestock and their products. Awash custom checkpoint is situated along the busiest roads in the country, which head to the port of Somalia (the “Addis-Somalia transport corridor”) and the port of Djibouti via Harar and Logia towns. Due to the town’s location, there is a lot of business activity [18]. Galafi custom checkpoint is found in Afar national regional state at 140 km away from the capital of the regional state. Galafi is the transit hub for 95% of import and export of good in the state social overhead capitals (Figure 1). Ashaita is a satellite custom checkpoint administered under Mille custom branch office. The custom checkpoint is placed along the illicit domestic animal genetic resource trafficking lines.

Methods of Data Collection: The target groups of this study were four custom and revenue authority staffs working in northeastern part of Ethiopia. The data was collected by preparing both open and close ended questionnaire for interview. Enumerators, with continuous

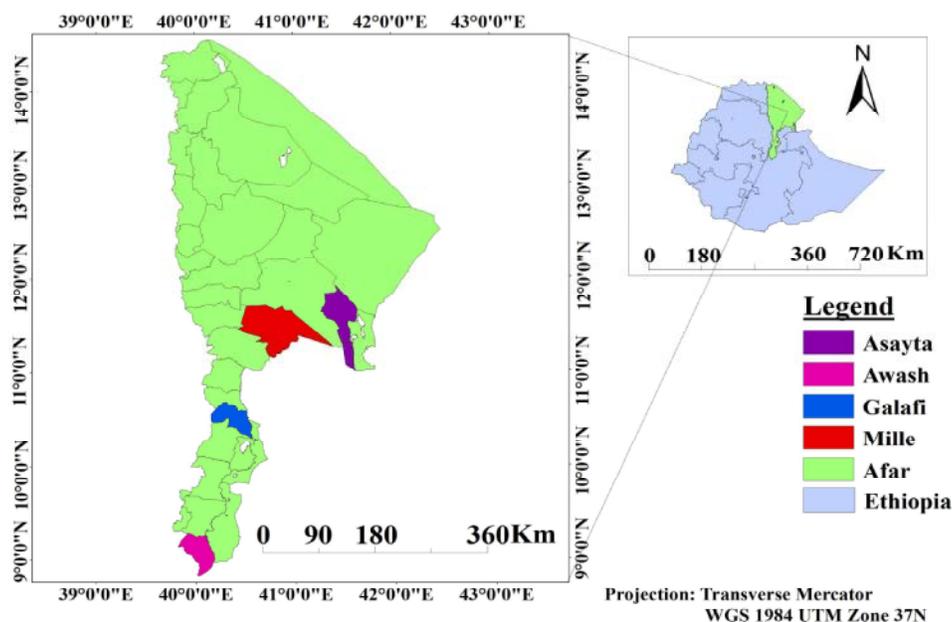


Fig. 1: Map of custom checkpoints of northeastern Ethiopia

supervision, were contacted each and every respondent face-to-face to get questionnaire filled. Furthermore, the consent of wildlife trafficking for law enforcement personnel was confirmed being fully informed of the study objectives prior to the interview. In order to avoid communication discrepancies between the data collector and the respondents, the questions were translated to Amharic.

The scaling of knowledge and attitude was done according to [19] who illustrates test of personality. This was followed by formulating problem statement, designing likert scale for rating, psychological judgment and factor analysis for possible modification of the questions [19]. The response variable of the study was the status of custom agents about wildlife trafficking practice that were sampled from the population. It was categorized as “practice wildlife trafficking and not practice wildlife trafficking”.

Study Design: Sampling procedure was designed to collect primary data. The northeastern parts of Ethiopia do have four custom checkpoints, so the data was collected taking individual checkpoint as a cluster and hence cluster sampling was used. After determining the total sample size (n), proportional allocation to each cluster (that is, checkpoint) was done by further considering the amount of custom enforcement personnel’s on wildlife trafficking from each checkpoints. Final sampling units from each cluster were collected through systematic

sampling and a total of 54 individuals were selected from each cluster.

Methods of Statistical Analysis: The study uses descriptive statistics to understand the nature of the data for illicit wildlife trafficking. Inferential methods for detail analysis of the variables were also used. Different percentages values were calculated for the selected variables.

RESULTS

Socio-demographic Characteristic of the Interviewed Custom Staffs in Northeastern Ethiopia: The educational background of the interviewed custom and revenue authority staffs were bachelor of Art (BA) (65%, 60% and 70%), Galafi, Awash and Mille custom checkpoints respectively (Table 2). As well, 100% of the interviewed custom staffs in Ashaita custom checkpoint were grade 10th.

Priority of the Enforcement Targets on Wildlife Trafficking in Custom Checkpoints of Northeastern Ethiopia: All (100%) of the custom personnel in the surveyed checkpoints responded that, priority of the enforcement targets was on contraband goods than an illicit trade in wildlife (Table 3). The custom checkpoints located at the border point physical geography least importantly target illicit wildlife trafficking practices in their enforcement priority.

Table 1: Socio-demographic characteristic of the -interviewed custom staffs of northeastern Ethiopia

		Selected custom checkpoints									
		Galafi (n=20)		Awash (n=20)		Mille (n=10)		Ashaita (n=4)		Total (n=54)	
S/N	Variables	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	Age	28.50	3.086	28.10	4.610	32	4.372	48.75	8.139	30.5	6.876
2	Work Experience	5.57	2.932	5.9	2.511	6.55	4.524	13.25	11.587	6.44	4.507

Table 2: Educational background of the interviewed custom staffs in northeastern Ethiopia

		Selected custom checkpoints					
Nº.	Variables	Categories	Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	Total (n=54)
1	Educational Background	10 th	30	30	0	100	29.6
		11 th	0	5	0	0	1.9
		12 th	5	5	0	0	3.7
		BA	65	60	70	0	59.3
		LLB	0	0	20	0	3.7
	MA	0	0	10	0	1.9	

Table 3: Priority of the enforcement targets on wildlife trafficking in custom checkpoints of northeastern Ethiopia

Nº.	Contraband goods	Illicit trade in wildlife	Money laundering	Smuggling of counterfeit goods	Smuggling of illegal drugs	Smuggling of tobacco goods	Smuggling of weapons
Galafi	7.0	1.7	3.7	3.45	4.15	4.2	4.1
Awash	7.0	1.45	3.2	3.15	3.55	4.35	5.3
Mille	7.0	1.5	3.2	4.1	3.6	4.1	4.6
Ashaita	7.0	1.25	3.75	2.75	3.25	4.75	3.5

*7: Most important target; 1: least important target.

Table 4: Challenges of monitoring wildlife trafficking in custom checkpoints of northeastern Ethiopia

		Selected custom checkpoints			
		Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ranking
Enforcement challenges					
Lack of monitoring performance		3.5	3.8	1.4	2
Lack of resources		2.35	2.6	0.6	5
Lack of capacity		2.9	2.7	1.1	4
Lack of interagency cooperation		3.75	3.95	1.8	1
Lack of transparency		2.95	2.3	1.4	3

*5: Most important challenge, 1: least important challenge.

Challenges of Monitoring Wildlife Trafficking in Custom Checkpoints of Northeastern Ethiopia: The interviewed custom staffs ranked that, lack of interagency cooperation is the most important challenge to monitor illicit wildlife trafficking practices with the mean score of 3.95, 3.75 and 1.8 in Awash, Galafi and Mille checkpoints administration (Table 4). Lack of interagency cooperation, lack of monitoring performances and lack of transparency were ranked as 1st, 2nd and 3rd enforcement challenge in the custom checkpoint administration.

The degree of wildlife trafficking practices in custom checkpoints of northeastern Ethiopia: About 45% of the custom staffs in Awash custom checkpoint reported that, poaching or illicit floral collection is somewhat a serious

conservation crime. Almost half (60%) of the custom staffs in Awash checkpoint replied that, illicit export of wildlife is somewhat a serious problem (Table 5). Majority 70% of the enforcement personnel in Mille custom checkpoint responded that, they do not know whether illicit import of wildlife is a problem or not in the custom checkpoint administration.

The Knowledge of Custom Checkpoint Staffs on Illicit Wildlife Trafficking in Northeastern Ethiopia: Almost half (48.1%) of the interviewed custom staffs responded that, combating the illicit trade of wildlife is not a strategic concern in the surveyed checkpoints. About (51.9%) of the custom staffs do not know about CITES convention. About 50% of the custom staffs replied that, they did not

Table 5: The extent of wildlife trafficking in custom checkpoint of northeastern Ethiopia

S/N	Questions	Categories	Selected custom checkpoints (%)				Total (n=54)
			Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	
1	Poaching or illicit flora collection	Not an issue	15.0	15.0	10.0	100.0	20.4
		Not serious issue	25.0	10.0	0.0	0.0	13.0
		Don't know	0.0	5.0	30.0	0.0	7.4
		Somewhat serious	40.0	45.0	40.0	0.0	38.9
		Very serious issue	20.0	25.0	20.0	0.0	20.4
2	Illicit export of wildlife	Not an issue	45.0	0.0	10.0	100.0	25.9
		Not serious issue	10.0	10.0	10.0	0.0	9.3
		Don't know	10.0	10.0	0.0	0.0	7.4
		Somewhat serious	30.0	60.0	40.0	0.0	40.7
		Very serious issue	5.0	20.0	40.0	0.0	16.7
3	Illicit import of wildlife	Not an issue	35.0	0.0	10.0	75.0	20.4
		Not serious issue	25.0	40.0	0.0	0.0	24.1
		Don't know	25.0	35.0	70.0	25.0	37.0
		Somewhat serious	10.0	20.0	0.0	0.0	11.1
		Very serious issue	5.0	5.0	20.0	0.0	7.4
4	Illicit transit of wildlife	Not an issue	20.0	0.0	10.0	75.0	14.8
		Not serious issue	30.0	10.0	10.0	0.0	16.7
		Don't know	15.0	5.0	0.0	0.0	7.4
		Somewhat serious	25.0	65.0	60.0	25.0	46.3
		Very serious issue	10.0	20.0	20.0	0.0	14.8

Table 6: The knowledge of custom checkpoint staffs on illicit wildlife trafficking in northeastern Ethiopia

N ^o .	Questions	Categories	Selected custom checkpoints (%)				
			Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	Total (n=54)
1	Is combating the illicit trade in wildlife included in the custom checkpoint administration's strategic plan cascaded individually?	Yes	35	25	0	100	29.6
		No	45	55	60	0	48.1
		I don't know	20	20	40	0	22.2
2	Do you know about the Convention on International Trade in Endangered Species of Flora and Fauna and Convention on Biological Diversity?	Yes	30	30	10	0	24.1
		No	35	40	90	100	51.9
		I don't know	35	30	0	0	24.1
3	Do you know the legal frameworks about wildlife genetic resource conservation?	Yes	35	25	10	25	25.9
		No	30	45	90	75	50.0
		I don't know	35	30	0	0	24.1
4	When detecting suspicious specimens of endangered wild fauna and flora, which of the following actions will be taken?	Detain and notify the competent authorities	50	60	60	50	55.6
		Impose sanctions or fines	5	0	10	0	3.7
		Confiscate the specimens	25	5	0	0	11.1
		Investigate	20	35	30	50	29.6
5	Does the custom checkpoint administration carry out joint investigations with cross border checkpoint agents in wildlife trafficking?	Yes, as part of a permanent joint investigation unit	35	10	0	0	16.7
		Yes, last year, as part of a temporary joint investigation unit	0	5	0	0	1.9
		Yes, some years ago, as part of a temporary joint investigation unit	60	65	80	100	68.5
		No, has never participated in a joint investigation of this kind	5	20	20	0	13
6	Does the custom checkpoint administration carried out a joint investigation with other law enforcement agencies during the last 12 months?	Yes	45	35	40	50	40.7
		No	30	25	40	50	31.5
		I don't know	25	40	20	0	27.8
7	Which agencies did you worked with?	Military (Border Patrol Unit)	45	70	60	50	57.4
		Federal and Regional Police	5	0	0	0	1.9
		Wildlife Protection Agencies (EWCA & EBI)	40	15	10	50	25.9
		other	10	15	30	0	14.8
8	Do the staffs acquire any training in your custom checkpoint administration regarding combating the illicit wildlife trade?	Yes	20	30	50	75	33.3
		No	50	35	20	25	37
		I don't know	30	35	30	0	29.6

Table 6: Continued

N ^o . Questions	Categories	Selected custom checkpoints (%)				
		Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	Total (n=54)
9. What challenge most limits the custom checkpoint administration in cooperating with other relevant authorities, including foreign customs administrations?	Lack of a legal basis	15	5	10	50	13
	Lack of human and financial resources	70	70	90	25	70.4
	Lack of a communication channel	10	10	0	0	7.4
	Lack of mutual trust on joint investigation	0	5	0	0	1.9
	No incentive	5	10	0	25	7.4
10. Does your law enforcement unit receive CITES related technical assistance (e.g., identification of specimens) from relevant organizations authorized by CITES?	Yes	10	5	0	0	5.6
	No	55	60	90	100	66.7
	I don't know	35	35	10	0	27.8

Table 7: The attitude of custom checkpoint staffs on illicit wildlife genetic resource trafficking in northeastern Ethiopia

N ^o . Questions	Selected checkpoints									
	Galafi (n=20)		Awash (n=20)		Mille (n=10)		Ashaita (n=4)		Total (n=54)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1 The existing legislation to prevent wildlife crime offences is satisfactory	3.5	1.469	2.80	1.609	3.5	1.650	2.25	1.893	3.15	1.595
2 Wildlife crime is insignificant crime	1.65	1.089	1.95	1.395	2.2	1.317	1.25	0.500	1.83	1.225
3 Officials involved in wildlife law enforcement take or solicit bribes to ignore the relevant offences	3.8	1.152	3.05	0.999	2.3	1.160	4	1.155	3.26	1.216
4 Inadequate capacity is the challenge of effective wildlife law enforcement operations	3.65	1.424	3.40	1.314	2.3	1.350	3.75	1.258	3.52	1.328
5 Inadequate collaboration between and among enforcement agencies affects the enforcement	4	1.451	3.40	1.536	4.50	0.972	4.25	1.500	3.89	1.436
6 The jurisdiction of the custom authority towards wildlife trafficking is satisfactory	2	1.257	2.55	1.395	2.90	1.197	1.25	0.500	2.31	1.315
7 The duties and responsibilities of each custom office to monitor wildlife trafficking is clearly defined and understood by the staff	2.3	1.261	2.60	1.392	2.40	1.075	3.25	1.500	2.50	1.285
8 The custom checkpoint is dedicated to monitor wildlife trafficking based on the enforcement of CITES and access and benefit sharing laws	2.6	1.569	2.55	1.432	2.60	1.430	4.50	1.000	2.72	1.510
9 Wildlife trafficking offences are at the attention of checkpoint custom administration authorities	3.25	1.446	2.60	1.429	2.50	1.080	4.25	1.500	2.94	1.433
10 Plants are a lower priority in your custom checkpoint enforcement authorities	2.9	1.832	3.25	1.410	3.60	1.430	1.75	1.500	3.07	1.612
11 Custom checkpoint staffs are obliged to check import and export of wildlife and their derivatives in my checkpoint	4	1.338	3.50	1.395	4.30	1.059	4.75	0.500	3.93	1.301

*1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree.

Table 8: Extent of wildlife trafficking practices within custom checkpoints of northeastern Ethiopia

N ^o . Questions	Categories	Selected custom checkpoints (%)				
		Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	Total (n=54)
1 Does the custom checkpoints administration have wildlife investigation manual prepared based on the guidelines of CITES?	Yes	15.0	10.0	0.0	0.0	9.3
	No	65.0	55.0	80.0	100.0	66.7
	I don't know	20.0	35.0	20.0	0.0	24.1
2 Does the custom checkpoints administration law enforcement agents deployed strategically in important locations?	Yes	60.0	40.0	30.0	100.0	50.0
	No	30.0	40.0	60.0	0.0	37.0
	I don't know	10.0	20.0	10.0	0.0	13.0
3 Does custom documents are cross-checked against the actual contents of shipments in the custom checkpoint administration?	Yes	80.0	85.0	80.0	25.0	77.8
	No	5.0	5.0	20.0	0.0	7.4
	I don't know	15.0	10.0	0.0	75.0	14.8
4 Does the custom checkpoints administration use informants to support wildlife trafficking intelligence system?	Yes	70.0	60.0	40.0	100.0	63.0
	No	20.0	25.0	20.0	0.0	20.4
	I don't know	10.0	15.0	40.0	0.0	16.7
5 If the answer for question number 8 is "YES", what are the types of informants being used by the custom checkpoint administration?	Confidential informants	35.0	40.0	60.0	0.0	38.9
	Public informants	45.0	30.0	20.0	100.0	38.9
	Special employees	20.0	30.0	20.0	0.0	20.4
6 Who is responsible in managing investigations of CITES related offences in the custom checkpoint administration?	EBCI	20.0	5.0	10.0	0.0	11.1
	EWCA	55.0	60.0	30.0	100.0	55.6
	Federal Supreme Court	15.0	30.0	50.0	0.0	25.9
	ECRA	10.0	5.0	10.0	0.0	7.4
7 Does the custom checkpoints administration have specialized unit or departments exclusively working in illicit wildlife trafficking?	Yes	15.0	5.0	0.0	0.0	7.4
	No	70.0	75.0	90.0	100.0	77.8
	I don't know	15.0	20.0	10.0	0.0	14.8
	Yes	35.0	25.0	40.0	75.0	35.2

Table 8: Continued

N ^o . Questions	Categories	Selected custom checkpoints (%)				
		Galafi (n=20)	Awash (n=20)	Mille (n=10)	Ashaita (n=4)	Total (n=54)
8 Are the results of investigations, prosecutions and court decisions shared among the relevant enforcement agencies that handed over the case in question?	No	15.0	20.0	30.0	25.0	20.4
	I don't know	50.0	55.0	30.0	0.0	44.4
9 Does the custom checkpoint administration employ community policing	Yes	40.0	35.0	10.0	75.0	35.2
	No	40.0	50.0	80.0	25.0	50.0
	I don't know	20.0	15.0	10.0	0.0	14.8
	Manually	30.0	0.0	0.0	50.0	14.8
10 How is wildlife trafficking information recorded in the custom checkpoint administration?	Electronically	20.0	5.0	10.0	0.0	11.1
	Not recorded	5.0	55.0	50.0	0.0	31.5
	I don't know	45.0	40.0	40.0	50.0	42.6
11 Are plants specimens a target when investigating illicit wildlife trafficking of shipments in the custom checkpoint administration?	Yes	35.0	15.0	10.0		20.4
	No	65.0	85.0	90.0	100.0	79.6

know the state legal frameworks on wildlife genetic resource trafficking practices. About 55.6% of the custom staffs detain and notify the competent authorities while they detect suspicious specimens of endangered wild fauna and flora (Table 6).

In conducting joint investigations with other authorities, 100% of the partners of the custom enforcement personnel were federal police and military (border patrol unit) than other authorities in all the surveyed custom checkpoints. This might be because the federal police forces usually have the broadest and strongest investigation powers along with custom checkpoint administration.

The Attitude of Custom Checkpoint Staffs on Illegal Wildlife Trafficking in Northeastern Ethiopia:

According to the interviewed custom staffs, inadequate collaboration between and among enforcement authorities affects the enforcement process of wildlife trafficking in Galafi and Mille custom checkpoints (Table 7). The custom staffs of Awash checkpoints perceived that, they are obliged to check import and export of wildlife and their derivatives. The custom checkpoints staffs of Ashaita were dedicated to monitor wildlife trafficking based on the enforcement rules of CITES and access and benefit sharing laws (Table 7).

Majority of the custom staffs in all the surveyed custom checkpoints reported that, there is no wildlife investigation manual prepared based on the guidelines of CITES.

Wildlife Trafficking Practices Within Custom Checkpoints of Northeastern Ethiopia:

Majority (66.7%) of the custom staffs reported that, the custom checkpoints administration have no wildlife investigation manual prepared based on the guidelines of CITES. About 50% of the custom staffs replied that, custom enforcement

staffs are deployed strategically in important locations within the physical geography of the custom checkpoints administration. Majority 77.8% of the custom documents are cross-checked against the actual contents of shipments (Table 8). Majority of the custom staffs in Galafi, Awash and Mille custom checkpoints are bachelor of art degree holders.

DISCUSSION

All (100%) of the custom staffs in Ashaita custom checkpoint are grade 10th (Table 1). This might be due to the staff turnover across the country custom checkpoints. Likewise, there are no staffs graduated in areas of biodiversity conservation enabling to working on illicit wildlife trafficking aspects in all the surveyed custom checkpoints of northeastern Ethiopia.

All custom staffs replied that, the first enforcement target of the surveyed custom checkpoints is on contraband goods. Galafi custom checkpoint has a relatively good wildlife smuggling priority during the enforcement targets followed by Mille and Awash custom checkpoints. Despite the fact that, illicit wildlife trafficking is the least prioritized enforcement target in Ashaita custom checkpoint (Table 3). This might be associated with the less emphasis given by the government to bio genetic resources and poor mainstreaming practices of wildlife conservation by mandated organization in the custom sector. Similar studies conducted in Western Central Africa (BurkinaFaso, Guinea, Sierra Leone, Cameroon, Liberia, Togo, DR Congo, Nigeria, Ghana, Sao Tome and Principe), American region (Argentina, Guyana, Panama, Venezuela, Brazil, Dominican Republic, Haiti, Paraguay, Chile, Ecuador, Jamaica, Peru, Colombia, Guatemala, Mexico, Uruguay), East and South Africa (Angola, Lesotho, Mozambique, Tanzania, Botswana, Madagascar, Seychelles, Uganda, Burundi, Malawi, South

Africa, Zambia, Kenya, Mauritius, Swaziland, Zimbabwe) custom checkpoints reflected a higher importance of priority of the enforcement targets on tax evasion [20]. Furthermore, the importance of illicit wildlife is relatively low in central Africa, America region, East and south Africa [20]. Although many customs administrations placed a lower priority on combating illicit wildlife trade, they do include it in their strategic plans. This probably reflects the growing concern of customs administrations on illegal wildlife trade activities. As well, custom checkpoints located at border point of northeastern Ethiopia least importantly target wildlife trafficking in their enforcement priority.

The results of the present study are consistent with a study conducted by Kaaria and Muchiri [14] in East Africa, revealing that, there is little institutional capacity to mobilize and link activities effectively within and between sectors. For example, there is insufficient coordination between national law enforcement agencies and wildlife law enforcement agencies in combating illicit wildlife trafficking. Moreover, lack of monitoring performance is also the second leading enforcement challenges. This might be related with the less emphasis given to wildlife trafficking during prioritizing enforcement targets. Furthermore, lack of transparency regarding wildlife smuggling among the custom staffs is the other challenge. This is in agreement with a study carried out by Environmental investigation Agency [21], which noted, efforts are being repeatedly undermined by a series of fundamental failures, which include inadequate regulations, insufficient penalties, judicial failure, lack of governance and weak cooperation between agencies, both at national and international level. In cases where a number of different enforcement agencies have shared responsibility for enforcing ivory controls, the potential for confusion and inaction is enormous unless cooperation protocols are established [21].

Poaching or illicit floral collection is somewhat a serious issue in Awash custom checkpoint administration. This might be possibly related with the proximity to Awash national park and being a hub for both Djibouti and Somali transit routes. In agreement with this study a survey conducted by Chang-Ryung [20] noted that, customs administrations of middle East and North Africa and American and Caribbean regions, perceive illicit wildlife trade activities as more serious conservation crime than the customs administrations in the other regions. East and South Africa region customs administrations perceived that, illicit exports are more serious than illicit imports [20].

The custom staffs of northeastern Ethiopia perceived that, inadequate collaboration between and among enforcement agencies affect the enforcement process of wildlife trafficking in Galafi and Mille custom checkpoints (Table 7). This might be associated with the poor institutional synchronization of the efforts to halt illicit wildlife genetic resource trafficking. As well, the custom staffs perceived that, they are obliged to check import and export of wildlife and their derivatives in Awash custom checkpoint. This implies that, the custom staffs are interested to enforce the rule in a manner to regulate illegal activities. However, the working system does not encourage staffs to undertake the enforcement process of wildlife trafficking affairs.

All (100%) of the custom checkpoints staffs of Ashaita were dedicated to monitor wildlife trafficking based on the enforcement of CITES and access and benefit sharing laws (Table 7). This is consistent with a study reported by Chang-Ryung [20] reflecting that, customs administration approaches to protect wildlife and tackle illicit wildlife trade activities are encapsulated in customs enforcement of south and central Africa. All (100%) of the custom staffs of Ashaita checkpoint have wildlife investigation manual prepared based on the guidelines of CITES.

Majority 80% of the custom staffs in Mille checkpoint responded that, they don't have illicit wildlife trafficking investigation manual prepared based on the guidelines of CITES. This might be due to the poor emphasis given by the institutes authorized to monitor wildlife trafficking. All (100%) of the custom staffs in Ashaita custom checkpoint responded that, the administration uses public informants support as wildlife trafficking intelligence system. This can be associated with the role of the local community in collecting pertinent information of conservation crime significance. Based on the informants, 100%, 90%, 85% and 65% plants specimens are not a target when investigating illicit wildlife trafficking of shipments in Ashaita, Mille, Awash and Galafi custom checkpoints respectively. This might be due to the poor awareness of each custom checkpoint administration on plant genetic resource and lack of the intended knowledge on identification of economically important, endangered and endemic plant genetic resources of the country.

CONCLUSIONS

It was concluded that illicit wildlife genetic resource trafficking is not a priority in northeastern Ethiopian custom and revenue authority branches offices.

Moreover, the surveyed custom checkpoints did not include illicit wildlife genetic resource trafficking issues in their institutional strategic plan. Likewise, the fundamentals and legal knowledge of the custom officers is not in a way to halt illicit wildlife genetic resource trafficking. The situational analysis of the problem being surveyed was assessed in the light of CITES, state legislation, world custom organization, authorizing state organizations, Ethiopian wildlife law and body of scientific literature. In view of that, the overall situation is not in a way to effectively halt the wildlife genetic resources from illicit trafficking. Moreover, the present institutional structure is not in way to tackle and systematically patrol susceptibility and vulnerability of the custom checkpoints against illegal wildlife genetic resource trafficking. In an effort to address the problem being observed, areas of intervention should be devised in the light of training, research, policy, legal, harmonization with pertinent sectors. This can be effective when stakeholders within the catchment, regional sectors, Ethiopian wildlife conservation authorities and Ethiopian biodiversity institute work in collaboration.

Way forwards:

- The custom checkpoint staffs capacity and professional composition should be academically upgraded. Furthermore, there should be wildlife trafficking monitoring personnel responsible for issues pertinent to illicit wildlife trafficking in all the surveyed custom checkpoints of northeastern Ethiopia.
- Ethiopian biodiversity institute should work to shift the least enforcement priority given by custom staffs towards illicit wildlife genetic trafficking through community campaigns or other communication and legal frameworks.
- The Ethiopian Wildlife Conservation Authority should deploy pertinent professionals to monitor the conservation crime problems at each custom checkpoints of northeastern Ethiopia.
- The listed enforcement challenges should be addressed via harmonization and multi-stakeholder forum on reducing illicit wildlife genetic resource trafficking within the custom checkpoint administration.
- The poor institutional synchronization is leading to have less institutional collaboration between and among enforcement authorities. Hence, multi-stakeholder integration should be taken as a means of enhancing the enforcement process of illicit wildlife trafficking in the area

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REFERENCES

1. IFAW, 2008. Criminal Nature: The Global Security Implications of the Illegal Wildlife Trade. Report, Yarmouth Port, MA: International Fund for Animal Welfare. pp: 1-36.
2. Pervaze, A. and S. Liana, 2013. International Illegal Trade in Wildlife: Threats and U.S. Policy. Congressional Research Service, pp: 3-12.
3. Warchol, G.L., 2004. The international illegal wildlife trafficking. *Crim. Justice Stud. J. Crime Law Soc.*, 17(1): 57-73.
4. Dalberg, 2012. Fighting illicit wildlife trafficking: A consultation with governments. Report. Gland (Switzerland): WWF.
5. UNEP, 2014. UNEP Year Book 2014: Emerging Issues in our Global Environment. United Nations Environment Programme, Nairobi.
6. Sollund, R., 2011. Expressions of speciesism: the effects of keeping companion animals on animal abuse, animal trafficking and species decline. *Crime, Law and Social Change*, 55(5): 437-451.
7. Channing, M., 2017. Transnational Crime and the Developing World. *Global financial integrity*, pp: 1-166.
8. United Nation Office on Drug and Crime, 2012. The use of the Internet for Terrorist Purposes, pp: 2-158.
9. David, K., 2012. The role of the Kenya wildlife service in protecting Kenya's wildlife. *The George Wright Forum*, 29(1):74-80.
10. Nellemann, C., R. Henriksen, P. Raxter, N. Ash and E. Mrema, 2014. The Environmental Crime Crisis – Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources. A UNEP Rapid Response Assessment. United Nations Environment Programme and GRID-Arendal, Nairobi and Arendal.

11. Zimmerman, M.E., 2003. The black market for wildlife: combating transnational organized crime in the illegal wildlife trade. *Vanderbilt J. Transnatl. Law* 36: 1657-1689.
12. Eliason, S.L., 2012. Trophy poaching: A routine activities perspective. *Deviant Behavior*, 33(1): 72-87.
13. United Nation Office on Drug and Crime, 2016. World wildlife crime report; Trafficking in protected species, pp: 1-100.
14. Kaaria, D. and M. Muchiri, 2011. Ninth International Conference on Environmental Compliance and Enforcement, pp: 204-208.
15. Jean de la, C.N., 2011. The impact of globalization on Africa's development: Rwandan tourism as Key to Mobilize Revenue and Investment, pp: 1-17.
16. Pimm, S., C. Jenkins, R. Abell, T. Brooks, J. Gittleman, L. Joppa, P. Raven, C. Roberts and J. Sexton, 2014. The biodiversity of species and their rates of extinction, distribution and protection. *Sci.*, 344: 987-997.
17. National Ivory Action Plan for Ethiopia, 2014. Ethiopian Wildlife Conservation Authority (2014). Technical report, pp: 4-5.
18. Habte, Dereje. July, 2008. Assessment of the Distribution of At-risk Populations and HIV/AIDS Referral Services in Ethiopia: Baseline Assessment for Mobile HIV Counseling and Testing Program in Afar Region. Bethesda, MD: Private Sector Program-Ethiopia, Abt Associates Inc.
19. Lousi, 2001. The psychologist book of personality test. 1 edition. John Wiley & Sons. Network, pp: 1-222.
20. Chang-Ryung, H., 2014. A survey of customs administration perceptions on illegal wildlife Trade. *Research paper*, 34: 1-21.
21. Environmental investigation Agency, 2004. The Enforcement Imperative: Combating the illegal trade in ivory.