(English only / únicamente en inglés / seulement en anglais)

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA



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SUPPLEMENTARY INFORMATION ON THE ALOE FEROX (BITTER ALOE) TRADE AND INDUSTRY

This document has been submitted by South Africa in relation to proposal CoP18 Prop. 55.*

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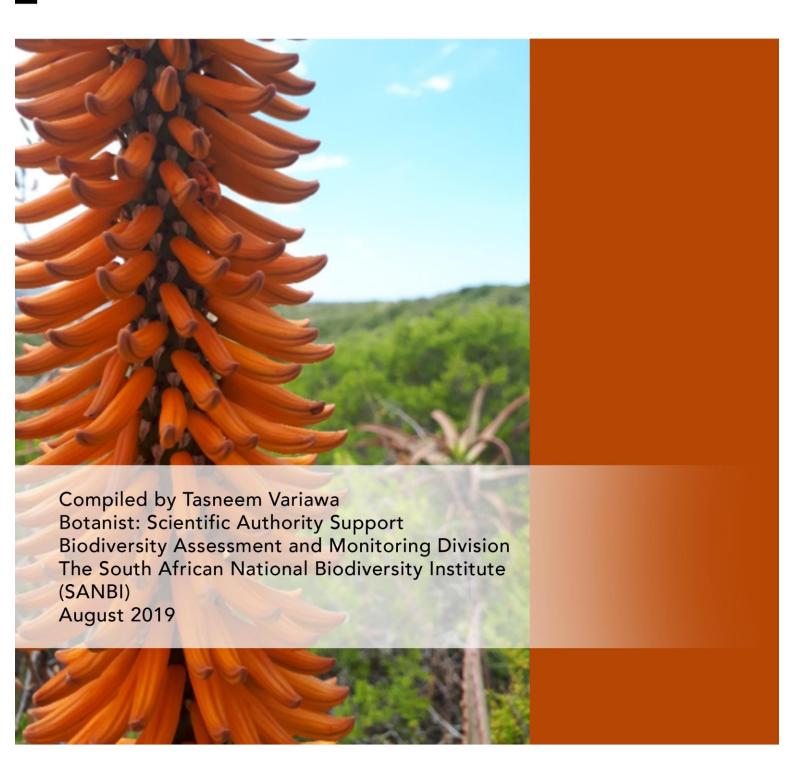








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The purpose of this document is to provide supplementary information to complement South Africa's *Aloe ferox* proposal (CoP18 Prop. 55). A number of key points are highlighted and additional information on the industry is provided.

Aspects of the trade

Commodities dominating the trade and demand for the wild resource

Aloe ferox is a popular medicinal plant in both domestic and international markets, with annual exports of crystalline bitters averaging around 380 000kg each year. The majority of the *A. ferox* material in trade is wild harvested in South Africa; minimally to completely processed; and exported to consumer countries around the world. South Africa remains the chief exporter of *A. ferox* raw materials and certain consumer goods. Countries including Argentina, Germany, Italy, the United Kingdom, Japan and the United States of America account for most imports. The species is exported in many different forms but extracts dominate the international trade in *Aloe ferox* by sheer volume (Fig.1).

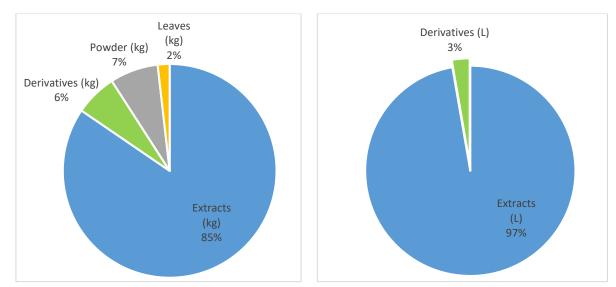


Figure 1: Charts indicating the *Aloe ferox* commodities exported from South Africa that **account for greatest volumes in trade** (in kilograms and litres). Derivatives account for a large number of export events (38%) but it is *A. ferox* extracts that dominate the trade by sheer volume.

Extracts refer to the initial substances that are obtained from the plant, i.e. the primary bitter latex (in liquid, crystal/granule form) that is extracted from the leaves directly in the field and minimally processed for direct export. This term may also be applied to the secondary inner leaf gel raw materials that are extracted from the already harvested leaves for further processing/use in end products (either locally or in importing countries). Derivatives, which comprise <10% of the volume of exports (Fig.1), is the term used most commonly in reference to the finished "end" products that contain varying amounts of the primary and/or secondary aloe leaf materials that are already packaged and labelled for direct consumption (see Appendix A for how South Africa reports on the various

commodities in the *Aloe ferox* trade). These products also contain varying amounts of other ingredients, whilst a large portion of the gross weight exported can be attributed to packaging materials.

Reporting errors in the CITES trade database

It has come to light that during the 2013-2015 period, large shipments of *Aloe ferox* extracts to Argentina were erroneously recorded as shipments of derivatives (Fig.2A), resulting in the total exports of derivatives from South Africa outweighing those of extract and powder during that period (Fig.2B). Original permits issued for these exports as well as discrepancies between the importer and exporter trade records for these years reveal the errors (Appendix B). It is suspected that some exports of extracts to other countries (including Germany and Italy) may have also been erroneously reported as shipments of derivatives during this period. Whilst the trade in *A. ferox* commodities has steadily increased over the past several decades, corrected data confirm that exports of extracts continue to dominate the international trade and the demand for the wild resources (Fig. 3).

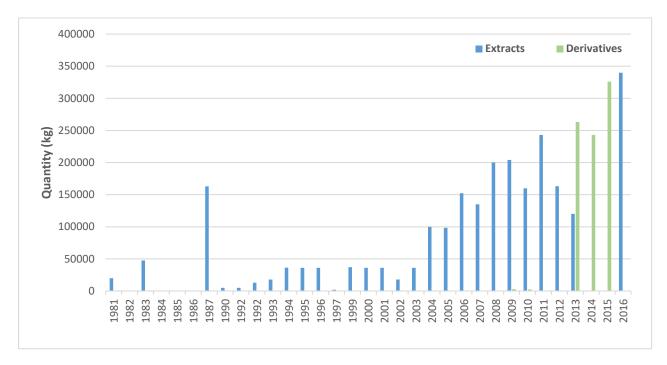


Figure 2A: Reported *Aloe ferox* exports to Argentina indicate reporting errors during the period 2013-2015. Large consignments of raw bitters were incorrectly reported as derivatives resulting in major inaccuracies in the data currently available on the CITES trade database.

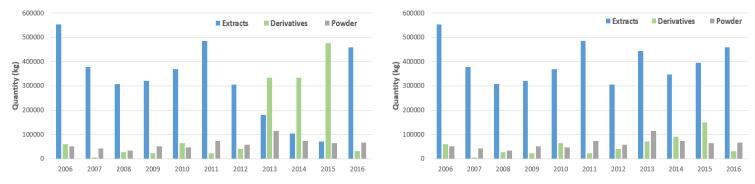


Figure 2B: Quantities (in weight) of the main *Aloe ferox* commodities in trade as reported by South Africa (left) and after reporting errors have been corrected (right).

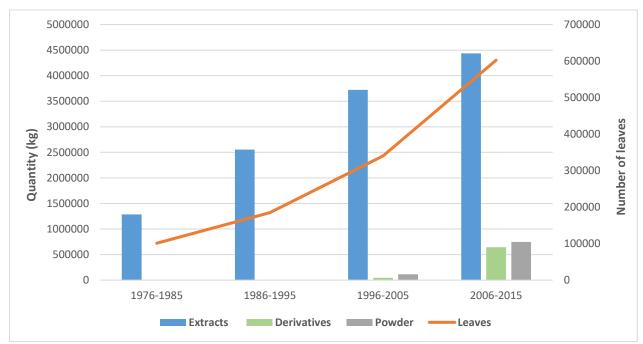


Figure 3: *Aloe ferox* material exported from South Africa between 1976 and 2015 (CITES Trade Database, UNEP World Conservation Monitoring Centre, Cambridge, UK), with reporting errors in the 2013-2015 period corrected. Actual trends show a steady increase in the amount of aloe materials exported as extract and powder whilst the later exports of derivatives is due largely to the development of the in-country processing and manufacturing of finished products made largely from secondary leaf materials.

Emergent trade patterns

Argentina and Germany have imported the greatest volumes of extract from South Africa since 1981. Germany has also been the major importer of *A. ferox* derivatives since finished products first appeared on the market in the early 2000s. Italy, the United Kingdom and Japan are all large importers of *A. ferox* extract, whilst the United States of America, Sweden and Switzerland are regular importers of derivatives (Table 1). More than 70% of South Africa's exports of *A. ferox* derivatives and, more than 50% of *A. ferox* extracts, were imported by EU Member States. The market for extract has been relatively stable since the year 2000. According to the Aloe industry, any fluctuations are related to droughts i.e. when less sap can be tapped from the aloes.

Table 1: Top 10 importing countries of *Aloe ferox* extracts (since 1981) and derivatives (i.e. finished products, since 2001) from South Africa. The remarkably high volumes of derivatives reported for Italy are most likely inaccurate and attributed to errors in reporting (i.e. extracts marked as derivatives) during the 2013-2015 period. (There may be some reporting errors for Germany in some years as well.)

E	EXTRACTS	DERIVATIVES			
Number of imports	Total Quantity	Number of imports*	Total Quantity*		
Germany – 110	Argentina = 2 460 806kg	Germany – 70	Germany = >100 000kg		
Japan – 56	Germany = 2 399 826kg	United States – 46	Italy = >100 000kg		
United States – 48	Italy = 1 688 421kg	Switzerland – 45	United States = ±76 000kg		
Great Britain – 44	Great Britain = 1 117 263kg	Great Britain – 45	Sweden = ± 33 000kg		
Italy – 42	Japan = 1 089 552kg	Belgium – 39	Switzerland = ±20 000kg		
France – 36	France = 371 729kg	France – 34	France = ±9 000kg		
Switzerland – 35	Thailand = 321 379kg	Netherlands – 34	China = ±8 000kg		
Argentina – 31	Canada = 284 819kg	Australia – 32	Turkey = ±8 000kg		
Canada – 21	United States = 211 389kg	Italy – 31	Spain = ±5 000kg		
Austria – 20	Spain = 96 544kg	Sweden – 31	Japan= ±5 000kg		

^{*}Countries that would benefit from the proposed amendment to Annotation #4.

Local trade

The demand for, and use of extracts within South Africa is limited to sales of raw materials (primarily the secondary leaf materials) to companies producing consumer goods that contain varying doses of the powdered gels or powdered bitter extracts. It is these finished products that are popular and more widely traded within the country as opposed to raw extracts. Historically, there have been several large companies involved in the extractions, preprocessing and trade of the valuable bitter and non-bitter components of the plant. Recent developments in the incountry production of consumer products containing these bitter/non-bitter components has resulted in an expansion of the industry, with a number of smaller companies involved solely in the production and sale of finished *Aloe ferox* products emerging within the last decade.

Local use and trade of the finished goods has largely been concentrated within local communities (closer to the farms and processing facilities) that have been reliant on the medicinal properties of *Aloe ferox* resources for years (particularly within the Xhosa culture). More recently, a range of finished products have become available online and are stocked within a number of local pharmacy and wellness stores (e.g. Dischem, Checkers and Wellness warehouse) across South Africa. There is a stable demand and supply of consumer goods within the country. Many companies trade their consumer goods overseas where health tonics, cosmetics as well as weight loss products are popular in the Asian, European and American markets. There remains great scope to expand the international markets in finished products given the large quantities of harvested leaf materials that are currently wasted (i.e. the leaves left in the field after the valuable bitter sap has been tapped). The potential for growth in the overseas markets is however largely constrained by the regulatory burden of the CITES listing as it currently appears. As a

result, the South African Aloe industry has been unable to successfully compete with the *Aloe vera* industry in spite of the known health benefits (Chen et al. 2012) and demand for *Aloe ferox* products in many countries around the world.

Seizures of finished products containing Aloe ferox material

Over the past 5-6 years many importing countries have seized shipments of *A. ferox* consumer products, including a large confiscation of more than 10 000 packages of weight loss pills by Canadian authorities in 2013 (WAPPRIITA 2013) and several smaller confiscations over the 2016/17 period (more than 200 bottles of pills by Belgium authorities and 165 individual seizures of small products containing *Aloe ferox* (i.e. pills and ointments) by Germany (more than 75% of which originated in countries other than South Africa)). Germany also seized more than 3000 pieces of consumer product in 2018 (IUCN and TRAFFIC 2019). Custom officials in the UK have also seized several small consignments of pills and other finished products (traded without CITES permits) from the United States of America (2017-2019). These products would have been produced from raw materials that would have already been regulated through legal imports into the USA. In most of these cases, seizures are small parcels of finished products which are ordered by private persons via the internet and shipped by post to the recipients. The regulation of these products has minimal benefit to the conservation of the species and instead takes away valuable time and resources from other important wildlife trade matters.

Aspects of the industry

Livelihood benefits of the Aloe ferox industry

The socio-economic benefits of the *Aloe ferox* industry in South Africa are widespread from the poorest people whose sole source of income is derived from Aloe tapping, to farm workers looking to supplement their income, as well as elderly part-time aloe tappers, their families and communities (Melin 2009; Kharika *et al.* 2013). Further empowerment of communities comes in the form of incorporating individuals into the processing chain where raw materials are further treated and incorporated into beverages, pharmaceuticals, cosmetics and other products for local and global markets (See more details here https://www.youtube.com/watch?v=AOF_mZkFFbY). Many rural women are employed in this industry and some have even become involved in the distribution phase, acting as local sales agents of products containing *A. ferox* within and around production areas. The species has been harvested for many, many years based on ancient sustainable harvesting practices that have been passed down among locals from generation to generation (Fig. 4; Newton and Vaughan 1996).



Figure 4: A timeline of *Aloe ferox* harvest showing how (from top left): the leaves are collected and packed in a circular orientation around a plastic covered hollow and left to drain. Based on ancient harvesting techniques, only the bottom rows of leaves are manually cut with a sickle about 3 to 4 cm away from the stem to ensure no damage to the vascular tissue and so that the leaves can seal properly and not incur any infection. In addition, the same hollows are used from one season to the next thereby limiting environmental degradation. The extracted sap is sold to companies who then boil and transform the sap into solid lumps (that can be ground to powder) for export/ use in the pharmaceutical/beverage industries. The drained leaf material is normally left behind in the field but in some instances, some of the drained leaves are also transported back to factories for further processing whereby the inner leaf parenchyma jelly is removed and transformed into gel or gel powder for export/ use in a number of health drinks and cosmetic products. The outer leaf rind may also be collected, dried and ground to powder for use in weight-loss teas. For more details visit: https://www.youtube.com/watch?v=KorEnTW2n9E (Photo credits: Organic Aloe and Rain Africa).

Processing and production of Aloe ferox extracts and derivatives within the country

The harvested materials are transported to processing facilities where they are pre-treated by hand and/or by machine in preparation for export, or are further processed within house, or are sold to smaller companies for use in a number of finished victuals, health and cosmetic products. The process always begins with the sap extract (Fig. 5). The sap contains the valuable (active) aloein/ barbaloin compounds and it is traditionally boiled and cooled into dried crystalline bitters (glassy and greenish-brown masses or small fragments) that may be further ground to powdered bitters (yellowish-brown powder). The ratio of liquid sap to bitters in solid/powder form is typically 2:1 (i.e. 1000kg sap = 500kg crystalline bitters/powder). These "Aloe ferox bitters" in all forms, are generally exported in bulk to be used largely in the pharmaceutical and alcoholic beverage industries. Some countries may also import large quantities specifically to isolate the useful compounds such as aloesin which is an efficacious skin lightener.

Some of the bitters may be sold locally in South Africa where they are incorporated into health supplements primarily for the treatment of digestive ailments (Fig. 5).

Whole leaf materials may be collected post sap harvest. Currently, between 1% and 20% of the harvested leaf materials are collected for further processing into a number of value-added products like gel, gel powder, pectin, whole/diced fillets and leaf fibre. These whole leaf products typically do not contain any of the bitter sap components and are used in a wide range of skin, hair and body care products. The fibre, pectin and fillets form the base ingredient for most of the *Aloe ferox* health drinks sold on the market.

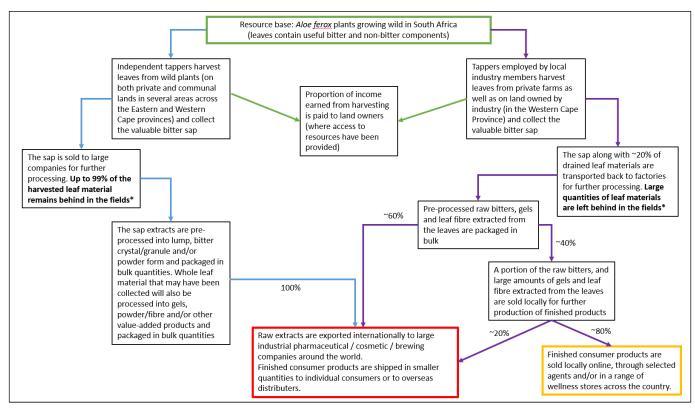


Figure 5: Flow chart of distribution and production lines within the *Aloe ferox* industry. Bulk of the harvest (up to ~70%) takes place within the left hand side of this production pathway (indicated by the blue arrows) primarily to supply large quantities of extract to the export market. *Large amounts of leaf material is currently discarded in the field. This material would be more fully utilised (i.e. converted into finished products) if the amended Annotation #4 is accepted at CoP18.

There are around 13-15 processing facilities in South Africa, the majority of which are situated in the Western Cape Province (85%). These facilities are involved largely in the harvest, pre-processing and bulk sale of *A. ferox* raw materials (i.e. extracts in solid, gel and powder form), with some involved in the production and sale of finished products (packaged for consumer use i.e. juices and cosmetics). There are a number of smaller companies involved only in the production and sale of finished products which mostly obtain their raw materials from these larger facilities (Appendix C). At present, it is estimated that more than 20 local companies are involved in the domestic and international sale of *A. ferox* raw materials and/or finished products containing *A. ferox* extracts.

Aloe ferox content in finished consumer products

The majority of the finished products including creams, lotions, gels, hair products, make-up, and some complementary herbal supplements contain minimal amounts of *A. ferox* materials (typically less than 40% and mostly secondary leaf extracts). Some finished products (such as juices, digestive fibre pills and some cosmetics) may contain higher concentrations of plant material but again this is primarily in the form of secondary leaf extracts (i.e. the products do not contain aloe bitters and are made of the inner gel part or outer leaf rind of the leaf – which is a waste/by-product of the crystal manufacturing process). Certain finished products do contain extracts from the raw bitter sap, although this too, is usually in minimal amounts less than 10% (e.g. soap bars, facial cleansers and some health tonics). There are only a few consumer products such as packaged whole bitter crystals and bitter powder or capsules containing large amounts of pure bitters. These products usually have a detoxifying or antiparasitic application and they are mostly popular in the local markets. With respect to actual data (rather than percentages) of *A. ferox* content contained in those products, there are some instances where actual values are available but not for all the ±50 different products available on the market. We have confirmed through research and liaison with almost all of the major producers that the *A. ferox* content within the majority of the finished products is minimal in addition to being secondary leaf materials.

Impact on the wild resource base

Processing ratios differ between companies and processing volumes have not been fully collated. In general however, anything between 5 and 25 leaves can be removed per plant (depending on size of individuals, larger plants (>1.5m) can have up to 60 leaves on them at a time) every 1-1.8 years. Depending on the leaf weight and external conditions, anything between 5 – 40ml primary sap extract is drained per leaf. Between two to three litres of sap typically provides 1kg of crystalline/powdered bitters. Thus on average, an estimated 2.8 million plants may be harvested per annum to produce an annual amount of ~380 000kg extract. There will however be considerable variation around this average due to several factors including but not limited to; differences in collection and processing ratios within the industry; environmental aspects; as well as regional differences in the amount and quality of plant materials harvested. Importers typically dictate the volumes required and industry supply is largely market driven. In terms of the secondary material used in finished products, approximately 300kg leaf gel or 250kg leaf fillets can be obtained from 500kg of leaves. Single leaves can weigh anything between 0.1 and 1 kg (depending on environmental conditions), though the average is around 600g at the time of harvest. Many companies involved with finished product manufacturing currently process less than 1000kg of leaf extracts each year. The finished product industry in South Africa is estimated to collectively utilise materials harvested from less than 100 000 plants per annum.

Sustainability of the Aloe ferox industry

Materials from hardy *Aloe ferox* plants have been harvested for several centuries. To this day, populations have been able to withstand ongoing harvest with the cyclic removal of a portion of leaves allowing sufficient time for plant recovery. Harvesting during certain periods (e.g. drought) are avoided. Veld management techniques and the preservation of seeds and younger plants are also encouraged to ensure long-term conservation of the resource and the industry's sustainability. The species is a prolific seed producer and has a weed-like ecology acting as a pioneer species in disturbed vegetation. In some previously degraded areas, the species is suspected to have become more abundant. Localised declines due to overharvesting, habitat loss and grazing are limited and the species remains common and abundant throughout its distribution range which is estimated to be around 168 000km².

Aloe ferox responds well to harvesting where sufficient control over offtake is instituted. Sustainable harvesting is common practise over most of the species range where collection occurs. The harvesting and processing of the plants has been historically centred in the Eastern and Western Cape Provinces where the species occurs most widely and abundantly (Melin, 2009). The majority of the companies involved in the harvesting and export of A. ferox raw materials and finished products are based in the Western Cape Province. Harvesters in this province are mostly active on private farm lands between Swellendam and Uniondale where access to, and harvest of the resource is controlled by land owners. Some companies have also invested in small plantations of A. ferox. Only a few companies (<5) are known to be active in the Eastern Cape Province where harvesting is less restrictive, occurring on communal lands in and around some of the major towns e.g. Seymore and Uitenhage. There have been several issues raised around the management of certain populations where overharvest has been noted around some of the larger towns particularly in areas close to roads, rural settlements and processing factories (Melin et al. 2017). The companies active in the Eastern Cape have taken on the responsibility of providing training on sustainable harvesting methods of the resource.

Anticipated impact of an amended Annotation #4 on wild populations

More than 80% of the harvested, drained leaves (and as much as 99%) are currently discarded as waste in the field, and it is thus highly unlikely that the exemption of finished products from CITES regulations would result in any additional harvesting of leaves from wild populations. Instead, it is anticipated that unused leaf materials (that are by-products of the Aloe bitter production) will be increasingly processed into a number of value-added consumer products. Leaves harvested to supply the international market with extracts and other raw products are more than sufficient to meet current and any future increased demand for finished products. Given the patterns and quantities of past and present leaf abandonment, it will take an enormous effort to use up the underutilized resources even if demand increases significantly. Furthermore, it is highly unlikely that additional leaves would be harvested solely for the production of finished products without making use of the valuable bitter sap (a kilogram of extract currently sells for around R35 and individual shipments of 40 000kg may bring in as much as R1 400 000 (~130 000 USD)

at a time), which is the primary export and remains the first commodity in trade. It is extremely unlikely that exports of finished products would ever surpass (in volume) those of aloe extracts (even current estimates of export in these derived products are an overestimate since the volumes reported often include substantial amounts of other ingredients as well as packaging materials). The likelihood of local companies starting to locally produce the finished products for which majority of the wild materials are exported (e.g. alcoholic beverages and pharmaceuticals) is particularly low owing to a number of substantial hurdles that would need to be overcome (e.g. competition from existing brand owners as well as compliance with international standards (of both product and facility) would require massive spending).

In 2010, following a study conducted by the Scientific Authority of Germany (PC18 Inf. 6), a similar case was put forward at CoP15 to have finished products of the widely traded *Euphorbia antisyphiltica* (i.e. Candelilla wax) exempted from regulation under CITES (CoP15 Prop. 25). Supporting data/information showed that once the Candelilla wax had been exported, the processing of finished products seemed to be without any conservation effect and that monitoring of these products was unnecessarily burdensome on regulatory authorities. In addition, it was proposed that the continued restrictions placed on the trade of these products would result in an eventual decline of Candelilla Wax activity in an area of Mexico where the socio-economic conditions remain difficult. The situation is similar for *Aloe ferox*. Regulations should be focused on the raw extracts (the dominant and first commodity in trade from the range State). The regulation of finished products, packaged and ready for retail trade, has limited conservation benefits.

[NB: It is important to note that South Africa as the proponent is not proposing to retain the definition of "finished products" as a substantive footnote to the annotation in the Appendices. The inclusion of this footnote in the original proposal was simply for information purposes.]

Consultations

The Kingdom of Lesotho was consulted at a Southern African Development Meeting (SADC) and indicated no objections to the proposal. *Aloe ferox* occurs in the southern parts of Lesotho, growing abundantly in the lower-lying areas (1350-1900 m) around the Quthing District, where conditions are generally hotter and drier than the rest of the country (Wybenga 2007). Local use of *A. ferox* plant material for medicinal purposes has been documented (Kose *et al.* 2015) but the scale is thought to be limited. The country's reported exports of the species have been minimal (only 10 live plants imported to South Africa in 2005, CITES Trade Database) and all current commercial harvest, processing and trade of wild *Aloe ferox* from the region occurs only within and from South Africa.

Safeguards

As a safeguard to ensure country-wide harvest sustainability, a monitoring plan and resource assessment of the wild resource will be implemented under the *A. ferox* Biodiversity Management Plan (BMP) that is currently being developed. The resource assessment will focus on a number of key activities including:

- conducting field surveys to estimate and map the relative abundance/density of *A. ferox* plants and subpopulation size structures within the area of occurrence;
- determining what proportion of the A. ferox population occurs in conservation areas, on privately owned land, on state land and in communal areas;
- determining the impacts of harvesting on the resource base and associated ecological systems;
- noting and quantifying any other potential threats impacting on subpopulations;
- designing a monitoring programme to monitor and evaluate the trends in the resource base and harvesting impacts.

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Appendix A: Identification and reporting of *Aloe ferox* parts and derivatives in trade by South African Management Authorities. (Finished products packaged and ready for retail trade – which would be exempted from CITES regulations if the proposal to amend Annotation #4 is successful – are indicated with an asterisk*.)

Aloe ferox product for export		trade term / description of		Units / quantity most often		
	produ	ct reported on permit	repor	ted		
第三人		Extracts Derivatives		Bags/boxes Bottles/cans		
		Powder		Kilograms (kg)		
		Leaves		Grams (g)		
	X	Live plants		Litres (I)		
		Dried plants Seeds	X	Millilitres (ml)		
		Stem/ stem fragments /		Number of parts/items		
		timber pieces	Other	:		
Aloe ferox plant	Other	:				
	Х	Extracts		Bags/boxes		
		Derivatives		Bottles/cans		
		Powder	Х	Kilograms (kg)		
		Leaves		Grams (g)		
		Live plants	Х	Litres (I)		
W 1		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/items		
		Stem/ stem fragments / timber pieces		: Sometimes smaller weight		
	Other	:		uid units is used (i.e. grams nillilitres).		
Bitter sap/latex in liquid or lump form						

	I	1		1		
	X	Extracts		Bags/boxes		
		Derivatives		Bottles/cans		
to the second		Powder	Х	Kilograms (kg)		
		Leaves		Grams (g)		
O THE STATE OF THE		Live plants		Litres (I)		
		Dried plants		Millilitres (ml)		
40,		Seeds		Number of parts/items		
Bitter sap in granule/crystalline form		Stem/ stem fragments / timber pieces		Sometimes smaller weight id units is used (i.e. grams		
	Other	:	and millilitres).			
The same of the sa		Extracts		Bags/boxes		
		Derivatives		Bottles/cans		
	Х	Powder	Х	Kilograms (kg)		
		Leaves		Grams (g)		
		Live plants		Litres (I)		
		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/items		
Bitter sap in powder form	Other	Stem/ stem fragments / timber pieces	or liqu	Sometimes smaller weight id units is used (i.e. grams illilitres).		
] n //		
and the second	X	Extracts		Bags/boxes		
AND LONG		Derivatives		Bottles/cans		
人们也不是没有了。		Powder	X	Kilograms (kg)		
		Leaves		Grams (g)		
		Live plants		Litres (I)		
		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/items		
Aloe ferox dried leaf fibre (tea)		Stem/ stem fragments / timber pieces		Sometimes smaller weight id units is used (i.e. grams		
	Other	:	and m	illilitres).		

	1 1		11	1		
	X	Extracts		Bags/boxes		
		Derivatives		Bottles/cans		
	X	Powder	X	Kilograms (kg)		
		Leaves		Grams (g)		
		Live plants		Litres (I)		
The same of the sa		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/items		
Aloe ferox leaf powder		Stem/ stem fragments / timber pieces		: Sometimes smaller weight units is used (i.e. grams		
	Other	:	and millilitres).			
		Extracts		Bags/boxes		
	Х	Derivatives		Bottles/cans		
		Powder	Х	Kilograms (kg)		
		Leaves		Grams (g)		
- 35		Live plants	Х	Litres (I)		
		Dried plants		Millilitres (ml)		
Aloe ferox inner leaf fillets		Seeds		Number of parts/items		
	Stem/ stem fragments / timber pieces Other:			: Sometimes smaller weight uid units is used (i.e. grams nillilitres).		
	Х	Extracts		Bags/boxes		
		Derivatives		Bottles/cans		
		Powder	Х	Kilograms (kg)		
POLES		Leaves		Grams (g)		
ALOE FEROX GEL PRESERVATIVE: PHENOXYETHANGLOS		Live plants	Х	Litres (I)		
BATCH: AG12/16 Exp: FEB 2013		Dried plants		Millilitres (ml)		
1 kg		Seeds		Number of parts/items		
Aloe ferox inner leaf gel in jelly form		Stem/ stem fragments / timber pieces		: Sometimes smaller weight uid units is used (i.e. grams		
	Other	:		nillilitres).		

	X	Extracts		Bags/boxes		
	Х	Derivatives		Bottles/cans		
		Powder	×	Kilograms (kg)		
		Leaves		Grams (g)		
		Live plants	×	Litres (I)		
		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/ite	ms	
Aloe ferox inner leaf gel in liquid form		Stem/ stem fragments /	0.1			
Albe Jerox Illiler lear ger ill liquid form		timber pieces		r: Sometimes smaller w uid units is used (i.e. gr	_	
	Other	•		millilitres).		
		Extracts		Bags/boxes		
PAREA MA	Х	Derivatives		Bottles/cans		
alor cubes		Powder	×	Kilograms (kg)		
The state of the s		Leaves		Grams (g)		
The same of the sa		Live plants	>	Litres (I)		
		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/ite	ms	
		Stem/ stem fragments /				
Aloe (inner leaf) edible jelly cubes*		timber pieces		r: For all of the readily		
rube (iiiiei leai) eaibie jeily eabes	Other:			gnizable derivatives the ber of each unit (i.e. 50		
				500ml bottles, tubes, tubs etc.) is also usually provided on the		
			-	nit. A <u>description</u> of the		
				men (i.e. tube if lip-ice paste etc.) is also inclu		
		Extracts		Bags/boxes	aca.	
	Х	Derivatives		Bottles/cans		
Simply Bitter C		Powder	X	Kilograms (kg)		
Aloe Ferox Live Life Sin Crystals		Leaves		Grams (g)		
		Live plants	Х	Litres (I)		
Motor With Digaria And Barrier State Barrier		Dried plants		Millilitres (ml)		
		Seeds		Number of parts/ite	ms	
		Stem/ stem fragments /				
BITTER		timber pieces		r: For all of the readily gnizable derivatives the		
PLANT BASED DIETARY SUPPLIE	Other	:	nun	<u>ber</u> of each unit is also		
Aloe bitters in crystaline/granule			-	ded on the permit. A		
form*			des	ription is also included.		

S.A. CAPE ALOE		Extracts		Bags/boxes	
POWDER	Х	Derivatives		Bottles/cans	
<u> </u>		Powder	Х	Kilograms (kg)	
		Leaves		Grams (g)	
		Live plants		Litres (I)	
DETOXIFIER 15g		Dried plants		Millilitres (ml)	
		Seeds		Number of parts/items	
		Stem/ stem fragments /			
		timber pieces		er: For all of the readily gnizable derivatives the	
Alex Areas	Other:			ber of each unit (i.e. 500 X	
BITTER POWDER				ml bottles, tubes, tubs etc.) is	
				usually provided on the	
Aloe bitters in powder form*			permit. A <u>description</u> of the specimen (i.e. tube if lip-ice or		
Aloe bitters in powder form				hpaste etc.) is also included.	
		T			
		Extracts		Bags/boxes	
	Х	Derivatives		Bottles/cans	
The same of the sa		Powder	Х	Kilograms (kg)	
OF LEBO		Leaves		Grams (g)	
AND COMPANY		Live plants	Х	Litres (I)	
		Dried plants		Millilitres (ml)	
		Seeds		Number of parts/items	
		Stem/ stem fragments /			
		timber pieces		er: For all of the readily gnizable derivatives the	
al@e unique	Other:			ber of each unit (i.e. 500 X	
				nl bottles, tubes, tubs etc.) is	
				usually provided on the	
DETOX SPORTS SERVICE S				nit. A <u>description</u> of the imen (i.e. tube if lip-ice or	
NEW THE STEEL AND THE STEEL AN				hpaste etc.) is also included.	
Health supplements containing Aloe				•	
powdered extracts*					

Bags/boxes		
Bottles/cans		
Kilograms (kg)		
Grams (g)		
Litres (I)		
Millilitres (ml)		
Number of parts/items		
er: For all of the readily		
ognizable derivatives the		
<u>nber</u> of each unit (i.e. 500 X		
ml bottles, tubes, tubs etc.) is usually provided on the		
mit. A <i>description</i> of the		
specimen (i.e. tube if lip-ice or		
thpaste etc.) is also included.		
•		
Bags/boxes		
Bottles/cans		
Kilograms (kg)		
Grams (g)		
Litres (I)		
Millilitres (ml)		
Number of parts/items		
er: For all of the readily		
ognizable derivatives the		
<u>nber</u> of each unit (i.e. 500 X		
ml bottles, tubes, tubs etc.) is		
usually provided on the		
permit. A <u>description</u> of the		
cimon /i a tubo if lin ica ar		
cimen (i.e. tube if lip-ice or thpaste etc.) is also included.		

	Extracts X Derivatives	Bags/boxes Bottles/cans
	Powder	X Kilograms (kg)
	Leaves	Grams (g)
Dtallywld Dtallywld	Live plants	X Litres (I)
nango orangi and aloe	Dried plants	Millilitres (ml)
ALOE JUICE	Seeds	Number of parts/items
Aloe ferox fruit juices*	Stem/ stem fragment timber pieces Other:	Other: For all of the readily recognizable derivatives the <u>number</u> of each unit (i.e. 500 X 500ml bottles, tubes, tubs etc.) is also usually provided on the permit. A <u>description</u> of the specimen (i.e. tube if lip-ice or toothpaste etc.) is also included.
alcare alloe ALOE TEA 20 weider Implies Voo Bogs 40 g	Extracts Derivatives Powder Leaves Live plants Dried plants Seeds Stem/ stem fragment timber pieces Other:	Bags/boxes Bottles/cans Kilograms (kg) Grams (g) Litres (l) Millilitres (ml) Number of parts/items ts / Other: For all of the readily recognizable derivatives the number of each unit (i.e. 500 X 500ml bottles, tubes, tubs etc.) is also usually provided on the permit. A description of the specimen (i.e. tube if lip-ice or toothpaste etc.) is also included.

		Extracts		Bags/boxes
alcane	Х	Derivatives		Bottles/cans
Bull align		Powder	Х	Kilograms (kg)
ALDE BITTER SOAP WATERLESS		Leaves		Grams (g)
CEANSER Pagamental Pagamental Pagamental		Live plants	Х	Litres (I)
manual state .		Dried plants		Millilitres (ml)
Aloe ferox cleansing cosmetics*		Seeds		Number of parts/items
		Stem/ stem fragments /		
		timber pieces		r: For all of the readily
	Other		1	gnizable derivatives the ber of each unit (i.e. 500 X
	Other	•		nl bottles, tubes, tubs etc.) is
				usually provided on the
				nit. A <u>description</u> of the
				men (i.e. tube if lip-ice or
			tootr	npaste etc.) is also included.
		Extracts		Bags/boxes
	х	Derivatives		Bottles/cans
alóe unique		Powder	х	Kilograms (kg)
A DE ROMEY		Leaves		Grams (g)
ALOE GE		Live plants	Х	Litres (I)
STATE OF THE STATE		Dried plants		Millilitres (ml)
		Seeds		Number of parts/items
Aloe ferox cosmetic gels*		Stem/ stem fragments /		
		timber pieces	Other: For all of the readily	
	0.1		1	gnizable derivatives the
	Other	:		<u>ber</u> of each unit (i.e. 500 X nl bottles, tubes, tubs etc.) is
				usually provided on the
			perm	nit. A <i>description</i> of the
				men (i.e. tube if lip-ice or
			tooth	npaste etc.) is also included.

	1	T	т-		
		Extracts			Bags/boxes
Aloe Ferox	Х	Derivatives			Bottles/cans
ecassic		Powder		X	Kilograms (kg)
IOTION		Leaves			Grams (g)
aloe scale		Live plants		Х	Litres (I)
CREAM 50 mt(1.76 ad)		Dried plants			Millilitres (ml)
\$ 9		Seeds			Number of parts/items
Aloe ferox skincare products*		Stem/ stem fragments /			
		timber pieces			For all of the readily sizable derivatives the
	Other:			_	er of each unit (i.e. 500 X
					bottles, tubes, tubs etc.) is
					sually provided on the
			-		. A <u>description</u> of the
				•	nen (i.e. tube if lip-ice or paste etc.) is also included.
				ootiip	aste etc., is also included.
[H		Extracts			Bags/boxes
	Х	Derivatives			Bottles/cans
alcare of the second		Powder		X	Kilograms (kg)
Aloe Jerox CLASSE TOLOG WASI TOLOG TOLO		Leaves			Grams (g)
NITH E		Live plants		Х	Litres (I)
SHAMPOD		Dried plants			Millilitres (ml)
BITTER 200 on 10.8 to 10.		Seeds			Number of parts/items
		Stem/ stem fragments /			'
Aloe ferox haircare*		timber pieces			For all of the readily
_	Other:			_	izable derivatives the er of each unit (i.e. 500 X
	Other.				bottles, tubes, tubs etc.) is
			а	lso us	sually provided on the
			-		A <u>description</u> of the
				-	nen (i.e. tube if lip-ice or paste etc.) is also included.
			"	σστημ	iaste etc.) is also iliciuueu.

		1		
		Extracts		Bags/boxes
	Х	Derivatives		Bottles/cans
Stion of the control		Powder	Х	Kilograms (kg)
alcare		Leaves		Grams (g)
aloe		Live plants	Х	Litres (I)
SPF 15 B F R R Y		Dried plants		Millilitres (ml)
Aloe ferox lip care*		Seeds		Number of parts/items
, ,		Stem/ stem fragments /		
		timber pieces		r: For all of the readily gnizable derivatives the
	Other	:	_	ber of each unit (i.e. 500 X
				nl bottles, tubes, tubs etc.) is
				usually provided on the
				nit. A <u>description</u> of the
				men (i.e. tube if lip-ice or npaste etc.) is also included.
			tooti	ipaste etc.) is also iliciuded.
О		Extracts		Bags/boxes
AB	Х	Derivatives		Bottles/cans
		Powder	Х	Kilograms (kg)
		Leaves		Grams (g)
Aloe Ferox: Aloe Ferox: CLASSIC CLASSIC		Live plants	Х	Litres (I)
RESIST-A-BUG SHAM-PET		Dried plants		Millilitres (ml)
Sugari Sugari		Seeds		Number of parts/items
		Stem/ stem fragments /		_
		timber pieces		r: For all of the readily
Aloe ferox pet care*	Other			gnizable derivatives the
	Other	•		<u>ber</u> of each unit (i.e. 500 X nl bottles, tubes, tubs etc.) is
				usually provided on the
				nit. A <i>description</i> of the
			-	men (i.e. tube if lip-ice or
			tooth	paste etc.) is also included.

Appendix B: Trade data analysis – South African CITES export permits VS the CITES trade data

Records on the export of *Aloe ferox* as reported by South Africa were assessed against the original CITES export permits. Several inaccuracies in the reporting of *Aloe ferox* exports were identified over the time period 2013 to 2017.

Appen	Species	Trade	Quantity	Unit	Importer	Permit	Year	Assessment
dix		term	-		-	number		
II	Aloe ferox	Derivatives	1.7kg		AR	131039	2013	Correct - Cosmetics
II	Aloe ferox	Derivatives	620g		AR	131375	2013	Correct - Cosmetics
II	Aloe ferox	Extract	40 000kg		AR	0136702	2013	Correct
II	Aloe ferox	Extract	40 000kg		AR	0136703	2013	Correct
II	Aloe ferox	Derivatives	40 000kg		AR	0136706	2013	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136707	2013	Incorrect - Extracts
II	Aloe ferox	Extract	40 000kg		AR	0136713	2013	Correct
II	Aloe ferox	Derivatives	40 000kg		AR	0136714	2013	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136716	2013	Incorrect - Extracts
II	Aloe ferox	Derivatives	20 000kg		AR	0136717	2013	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136722	2013	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136723	2013	Incorrect - Extracts

Assessment: Several exports of *Aloe ferox* bitter granules (raw products) to Argentina were reported inaccurately as derivatives. A total of **380 000 kg EXTRACTS** were exported to Argentina and less than 3kg of derivatives were traded to the country during this year.

Appen	Species	Trade	Quantity	Unit	Importer	Permit	Year	Assessment
dix		term				number		
II	Aloe ferox	Derivatives	3000kg		AR	0134584	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	20 000kg		AR	0136724	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136726	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	0136727	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	1kg		AR	144711	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	147751	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	147760	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	40 000kg		AR	147762	2014	Incorrect - Extracts
II	Aloe ferox	Derivatives	20 000kg		AR	147764	2014	Incorrect - Extracts
II	Aloe ferox	-	40 000kg		AR	147753	2014	Permit not captured
II	Aloe ferox	-	40 000kg		AR	147755	2014	Permit not captured

Assessment: All aloe materials exported to Argentina in 2014 were incorrectly reported as derivatives. Granulated pieces, crystals and lumps are all raw extracts and should be reported as such. According to the CITES trade data, a total of around 243 000kg of derivatives were exported to Argentina in 2014 but CITES export permits indicate that **EXTRACTS** amounting to 323 000kg were exported to the country during this period. No derivatives were exported. Some trade events were not reported and are thus missing from the CITES trade database.

Appen dix	Species	Trade term	Quantity	Unit	Importer	Permit number	Year	Assessment
II	Aloe ferox	DER	3000kg		AR	145540	2015	Incorrect - Extracts
II	Aloe ferox	DER	40 000kg		AR	147766	2015	Incorrect - Extracts
II	Aloe ferox	DER	40 000kg		AR	147769	2015	Incorrect - Extracts
	Aloe ferox	DER	40 000kg		AR	147770	2015	Incorrect - Extracts
II	Aloe ferox	DER	40 000kg		AR	147771	2015	Incorrect - Extracts

	II	Aloe ferox	DER	60 000kg	AR	147775	2015	Incorrect - Extracts
Γ	II	Aloe ferox	DER	40 000kg	AR	147778	2015	Incorrect - Extracts
	II	Aloe ferox	DER	20 000kg	AR	147779	2015	Incorrect - Extracts
	II	Aloe ferox	DER	40 000kg	AR	147780	2015	Incorrect - Extracts
	[]	Aloe ferox	DER	3000kg	AR	155640	2015	Permit not captured

Assessment: All aloe materials exported to Argentina in 2015 were incorrectly marked as derivatives. Granulated pieces and crystals are aloe raw extracts and should be reported as such. According to the CITES trade data, a total of around 326 000kg of derivatives were exported to Argentina in 2015, but this should be 326 000kg of EXTRACTS.

Appen	Species	Trade	Quantity	Unit	Importer	Permit	Year	Assessment
dix		term				number		
II	Aloe ferox	EXT	40 000kg		AR	166644	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	147796	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	169557	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	147800	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	151053	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	151054	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	147789	2016	Correct
II	Aloe ferox	EXT	40 000kg		AR	147788	2016	Correct
II	Aloe ferox	EXT	20 000kg		AR	147790	2016	Correct
II	Aloe ferox	-	40 000kg		AR	147792	2016	Permit not captured

Assessment: A total of 380 000kg extract was exported from South Africa to Argentina in 2016. All exports were correctly reported as extracts. According to the CITES trade data, only 340 000kg was exported during this period and this is due to missing information. Permit number 147792 is missing from DEA's records and this trade event has thus not been included in the CITES trade data.

Appen	Species	Trade	Quantity	Unit	Importer	Permit	Year	Assessment
dix		term				number		
II	Aloe ferox	EXT	40000	KG	AR	173309	2017	Correct
II	Aloe ferox	EXT	500	G	AR	173429	2017	Correct
II	Aloe ferox	EXT	400000	KG	AT	151057	2017	Incorrect – this permit shows that 40 000kg extract was exported to Argentina.
II	Aloe ferox	EXT	400000	KG	AT	151058	2017	Incorrect – this permit shows that 40 000kg extract was exported to Argentina.
II	Aloe ferox	EXT	40000	KG	AT	151059	2017	Incorrect – this permit shows that 40 000kg extract was exported to Argentina.
II	Aloe ferox	EXT	40000	KG	AT	151062	2017	Incorrect – this permit shows that 40 000kg extract was exported to Argentina.
II	Aloe ferox	EXT	40000	KG	AT	151063	2017	Incorrect – this permit shows that 40 000kg extract was exported to Argentina.
	Aloe ferox	EXT	5760x1	L	AT	151131	2017	Correct

Appen dix	Species	Trade term	Quantity	Unit	Importer	Permit number	Year	Assessment
II	Aloe ferox	DER	1x3.506	KG	AT	172656	2017	Correct
II	Aloe ferox	DER	1x1.514	KG	AT	172688	2017	Incorrect – these products were exported to Australia (AU).
	Aloe ferox	DER	16x120	KG	AT	173312	2017	Correct
II	Aloe ferox	DER	1x796	G	AT	173319	2017	Correct
II	Aloe ferox	DER	1x1.028	KG	AT	173326	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	DER	1x912	G	AT	173330	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	EXT	3000	KG	AT	173440	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	DER	1x1.208	KG	AT	196652	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	DER	1x658	G	AT	196670	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	DER	1x1.1780	KG	AT	196678	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	POW	5	KG	AT	198088	2017	Incorrect – these products were exported to Australia (AU).
II	Aloe ferox	DER	10x75	KG	AT	198107	2017	Correct
II	Aloe ferox	DER	215x1720	KG	CN	172657	2017	Uncertain– amounts to ~369 800kg cosmetic products. Perhaps the quantity is 215 x 1.720kg.
II	Aloe ferox	DER	1x2.942	KG	CN	172670	2017	Correct
II	Aloe ferox	DER	1x798	G	CN	172696	2017	Correct
II	Aloe ferox	DER	1x8.258	KG	CN	173325	2017	Correct
II	Aloe ferox	DER	1x3.590	KG	CN	173332	2017	Correct
II	Aloe ferox	DER	1x2.870	KG	CN	196659	2017	Correct
II	Aloe ferox	DER	1x1.096	KG	CN	196672	2017	Correct
II	Aloe ferox	EXT	2	KG	CN	198067	2017	Correct

Assessment: There are many reporting errors for 2017. Firstly, the larger exports reported to Austria were actually exports to Argentina and they were not in as high quantities as initially reported. 40 000 kg and not 400 000kg was exported to Argentina on several occasions in 2017. A total of 240 500kg Extracts was exported to Argentina in 2017. Several exports to Australia were also incorrectly reported as exports to Austria. Austria only imported 5760 litres of Juice and ~2000kg cosmetic products (derivatives) in 2017. Another trade event that stands out as being unlikely is the large export of ~369 800kg derivatives (in the form of cosmetic products) to China. The CITES trade data for 2017 do not correspond to the CITES permit data owing to these errors.

Appendix C: Information on companies forming part of the *Aloe ferox* Industry of South Africa

			Company C	Operations	Company	Products	Prod	luct market	
Company Name	Company location	Material Acquisition	Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Major Aloe ferox traders / in	dustry member	S							
Organic Aloe (www.organicaloe.co.za)	Albertinia, Western Cape (WC)	Leaves harvested from wild plants on private land and from reestablished plantations owned by the company. Around the Albertinia region	√	√	Aloe ferox bitters (Bitter Crystals and Bitter Powder), Aloe ferox Liquid Gelly, Aloe Ferox Gel Powder, Aloe ferox dry leaf fibre	Aloe ferox health and fruit Juices as well as Aloe ferox tea	98%	<2%	If they harvest around 20 000kg of leaves at a time, only 4000-8000kg are collected for further processing (i.e. 20% - 40%). The company processes between 90 000kg – 170 000kg of leaves per year
African Aloe (www.africanaloe.com / www.natureshealth.co.za)	Uniondale, WC	Materials supplied by private farm owners and the company also owns 1600ha of certified organic farmland in the Uniondale region	√	√	Aloe ferox bitter extract (lump, crystals and powder), Aloe ferox leaf powder/fibre, Aloe ferox inner fleshy fillets, Aloe ferox leaf gel in jelly and liquid form	Aloe ferox health juices			Supply local and international markets - No further information available
African Cures and Schibuna Aloe CC (www.schibuna- aloe.co.za / www.africancures.co.za)	Port Elizabeth and surrounds, Eastern Cape (EC)	Aloe materials are wild harvested on the company's own farm as well as from surrounding farms in the Karoo region of the Eastern Cape (Somerset East, Willowmore, Jansenville, Stytlerville)	√	√	Aloe ferox bitters (in liquid, lump, granule and powder form)	Small range of complementary health products with primarily detoxifying and anti-oxidant properties called "Prosit"	60%	40%	The company processes approx. 90 ton per annum of Aloe ferox crystal/powder
Aloe Extracts CC (www.aloe-extracts.co.za)	Uniondale, WC	Secondary leaf materials purchased from Aloe Trust		✓	Aloe ferox leaf gel	Range of Aloe ferox flavoured juices and complementary health products	40%	60%	The products contain between 25-30% raw Aloe Ferox leaf gels and the company is able to process around +/- 3000kg leaves = 12,000 lt Juice per year

	•		Company C	perations	Company Products		Product market		
Joseph Hamo	Company location	Material Acquisition	Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Major Aloe ferox traders / industr	stry members			<u> </u>					
JJ Sauerman Aloe (www.sauermanaloe.com) WC	bertinia, 'C	Harvested materials from private lands within and around the Albertinia/Mossel Bay region. Also own a private farm of 150ha	√		Bulk Supplier and Exporter of Aloe Ferox - Crystals (Lump), Powder, and Granules			100%	
Her Otto's Aloes WC	erbertsdale, /C	Harvest materials on private farms between Uniondale in the little Karoo (WC) and Willowmore (EC)	✓		Aloe ferox bitters in lump, granule and powder form			100%	No further processing of leaves, sell around 250 tons of crystals per annum on average
	ossel Bay / eorge, WC		✓	√				100%	
Uni KALOES / Aloe Trust WC	niondale,	Harvest materials on private lands between Uniondale and Willowmore	√		Aloe bitters in lump, granule or powder form, Aloe ferox leaf fillets, Aloe ferox leaf powder		50%	50%	The company currently only collects around 1% of the harvested leaves for further processing
Gowar Enterprises (www.gowarenterprises.co. Graza)	rahamstown -C	Obtain harvested materials from wild plants harvested by tappers within some regions of the Eastern Cape	✓		Aloe products in bulk for the pharmaceutical as well as the homeopathic industry including; Aloe ferox bitter extract in liquid, lump, crystal and powder form; Aloe ferox dry leaf powder and Aloe ferox inner fleshy fillets. Also deal with raw materials of other plant species		20%	80%	Mr Gowar supplies around 5 local companies with raw bitter product of small quantities. Says market for secondary material is small at the moment

			Company C	Operations	Company	Products	Prod	luct market	
Company Name	Company location	Material Acquisition	Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Major Aloe ferox traders / in	dustry member	S							
De Villiers Aloe Exporters (https://za.linkedin.com/in/w entzel-lombard-43b7b653)	Port Elizabeth, EC	Materials collected from wild plants in the Eastern Cape via agreements with local communities	√		Aloe ferox sap extracts and crystals		<1%	99%	
KHULANI ALOE VERA EXTRACTION CC	Port Elizabeth, EC	Materials collected from wild plants in the Eastern Cape	√		Aloe Ferox Bitter Crystals and Powder, Aloe Ferox Raw Juice				
KP Botanicals (www.kpbotanicals.co.za)	Knysna, WC		✓						
Parceval (Pty) Ltd (www.parceval.co.za)	Wellington, WC		✓						
Afrigetics Botanicals (www. afrigetics.com)	Knysna / George, WC	Purchase bulk raw materials from KP botanicals (sourced from Mossel Bay/Albertinia & Uniondale / Eastern Cape Regions)	✓		Aloe ferox bitter materials. Also deal with raw materials of other plant species.		<2%	98%	Afrigetics are a marketing and sales company and they are not involved in any harvesting/processing of Aloe materials. They simply purchase preprocessed materials and sell them in bulk both locally and internationally
Bio-solve (www.bio-solve.co.za)	Tyger Valley, WC	Crystalised bitters purchased from larger processing facilities in the Eastern Cape	√		Pure Aloesin extracted from the bitter sap of Aloe ferox leaves (in crystal form)			100%	Start-up company, not involved directly in the harvesting and processing of raw materials

			Company C	Operations	Compan	y Products	Prod	luct market	
Company Name	Company location	Material Acquisition	Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Major Aloe ferox traders / ir	ndustry member	S							
PurAloe (www.puraloehealth.com)	Tyger Valley, WC			✓		Aloe ferox health juices and supplements			
TimJan (www.timjanwonderjuice.co. za)	Bonnievale, WC	Purchase bitters from local farmers in the Herbetsdale, Albertinia and Uniondale regions of the south Western Cape		√	Aloe ferox Health tonic Miracle Drink		90%	10%	The company uses the bitter sap in the TimJan product and each 750ml bottle of product contains only 8% of raw bitters. The company estimates that they use up to 1000 kg raw bitter juice per year when available
Totally Wild (Pty) Ltd (www.aloe247.co.za)	Cape Town,	Secondary Aloe ferox raw materials purchased from Organic Aloe and other suppliers		·		Range of digestive and fruit drinks as well as Aloe ferox skincare gel	30%	70%	The company currently uses around 165kg of leaf gel and around 20kg of pectin to produce 3000 (100ml) tubes of skin gel and ~60 000L of juice respectively each year.
Aloe Ferox (Pty) Ltd (https://af.co.za)	Albertinia, WC	Materials harvested from company owned plantations only		√		A wide range of Skincare and health supplements	98%	2%	
House of Aloes t/a Alcare (www.aloe.co.za)	Albertinia, WC			✓		Alcare' range of wellness products and cosmetics			
Aloe Unique (www.aloeunique.co.za)	Cape Town, WC	Raw Aloe ferox materials purchased from Organic Aloe PTY Ltd in Albertinia and African Aloe PTY Ltd in Uniondale		✓		A wide range of skincare, health and body care products. Less than 5% of the company's sales are based on the bitter extracts of the Aloe ferox plant.	40%	60%	Aloe Unique's major trade is focussed on the Asian market and at the same time, they are registering their product range for the EU market.

			Company (Operations	Co	ompany Products	Prod	luct market	
Company Name	Company location	Material Acquisition	Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Major Aloe ferox traders / in	dustry member	s							
Phyto Afriq (www.phytoafriq.com)	Cape Town, WC			✓		Aloe ferox+ skincare product			Products available locally and overseas - No further info available
Simply Aloe (www.brunel.co.za/simply- aloe-skin)				√		Skin, body, hair, health and sun care product range made with organic Aloe ferox leaf gel	100%		
The Natural Aloe Skincare Company (www.natraloe.co.za)	Cape Town, WC	Purchase certified Organic Aloe Ferox gelly and Aloe ferox juice from African Aloe (Pty) Ltd		✓		Wide range of skin, body and hair care products made with Aloe ferox leaf extract	99%	Some exports to Namibia, Botswana and Swaziland	
Companies that produce a	range of finished	d skincare products, many of which	contain <i>Aloe fer</i>	ox but many of	f which contain o		oe ferox n	naterials	
Rain Africa (https://shop.rainafrica.com)	Swellendam, WC	Pre-processed raw materials are purchased from Organic Aloe (for the aloe ferox powder/gel) & Aloe Exports Trust (for the leaf extracts & bitter sap)		✓		Range of skincare and hygiene products made with Aloe ferox leaf extracts and other plant species materials. Certain products may contain powdered bitter extracts but in very low quantities	80%	20%	Estimates of trade are based on entire product range and not just on those products that contain Aloe ferox materials. The company uses around 600kg of Aloe ferox leaf extract per year
Nat'sure (www.nat- sure.co.za)	Pretoria, Gauteng			√		Small range of Aloe ferox gels and health products	100%		
Kalahari Lifestyle (www.kalaharilifestyle.com)	Johannesbur g, Gauteng			✓		Wide Range of skincare and spa products made with Aloe ferox leaf gel			Products available locally and overseas - No further info available

Company Name	Company	Material Acquisition	Company Operations		Company Products		Product market		
			Pre- processing and/or sale of raw materials	Production and sale of finished products	Extracts	Derivatives	Local	International	NOTES
Companies that produce a range of finished skincare products, many of which contain Aloe ferox but many of which contain other plant products and no Aloe ferox materials									
Africology (www.africologyspa.com)	Strijdom Park, Gauteng			√		Wide Range of skincare and spa products made with Aloe ferox leaf gel			Products available locally and overseas - No further info available
Rafaa Health Products (www.rafaahealth.com)	Pretoria, Gauteng	Purchase pre-processed leaf materials from African Aloe		✓		Small Range of health drinks and skincare products	100%		
Elixir Fusion (www.elixirfusion.co.za/)	Steenberg, Cape Town			√		Wide Range of skincare products made with Aloe ferox leaf gel	100%		
Smaller companies that use Aloe ferox in one/two of their finished products but mostly have a much larger range of other products that do not contain any Aloe ferox materials									
Mr Cape 99% Aloe gel		·		✓		•			
Back 2 Nature (www.sa-back2nature.com)				✓					
Naturals Beauty (https://naturalsbeauty.co.z a/)				✓					
Umuthi Botanicals (www.umuthi.co.za)				✓					
Escentia products (www.essential-oils.co.za)				✓					
Flora Force (www.floraforce.co.za)				✓					