Inclusion of Woolly Mammoth *Mammuthus primigenius* in Appendix II

Proponent: Israel

Summary: The Woolly Mammoth *Mammuthus primigenius* was the final surviving member of the *Mammuthus* genus, with the last known populations surviving on Wrangel Island, East Siberian Sea (around 3,700 years ago) and St Paul Island, Alaska (around 5,600 years ago). During the last glacial period (around 115,000–12,000 years ago), Woolly Mammoths were at their most widespread and were present across North America, northern Asia and Europe. Woolly Mammoth extinction is thought to have been caused by a reduction in suitable habitat due to temperature increases, combined with an increase in anthropogenic hunting pressure.

The current primary Woolly Mammoth commodity in trade is ivory, which is largely recovered from the permafrost in Siberia, where ivory has not become fossilised. Little is known about the trade in mammoth ivory, but it is thought that the main trade route is from Russia to Hong Kong SAR and then tusks are mostly exported to mainland China for processing. While information on the global trade in mammoth ivory is not available, import and export data from Hong Kong SAR and USA import data are presented below:

Hong Kong SAR customs data (between 2005-2016) report that:

- Hong Kong SAR imports on average 36,000 kg of mammoth ivory (raw tusks and/or unworked tusk pieces) annually, mostly from Russia.
- The majority of mammoth ivory is re-exported (on average 29,000 kg annually) to mainland China.

USA import data (between 1999–2013) report that:

- Average annual mammoth ivory commodity imports to the USA were 1,600 tusks, 800 kg and 120 pieces of tusk/ivory and 40,000 ivory carvings.
- The majority of these imports were from Hong Kong SAR.

Data on the origin of mammoth ivory traded by both Hong Kong SAR and the USA showed that although the vast majority of mammoth ivory traded was listed as originating in Russia, smaller volumes of trade were reported with origins where mammoth ivory is likely to be fossilised: mainly European countries, but small amounts reportedly originated from African Elephant *Loxodonta africana* range States (e.g. Chad, Gabon, Kenya, Mozambique and South Africa) and Asian Elephant *Elephas maximus* range States (e.g. China, Indonesia and Thailand).

The Supporting Statement makes it clear that this proposal is aimed to help regulation of trade in ivory from living elephants by preventing the laundering/mislabelling of ivory from extant elephant species as Woolly Mammoth ivory. Evidence from mainland China, Hong Kong SAR, Myanmar and the USA suggests that some vendors are mislabelling elephant ivory as mammoth ivory, but there is no comprehensive assessment to suggest how widespread this practice is.

The proposal of an extinct species for inclusion in the Appendices is unusual and CITES provisions for this are fairly limited. The Convention text does not preclude the listing of extinct species although *Res. Conf. 9.24 (Rev. CoP17)* states that “extinct species should not normally be proposed for inclusion in the Appendices”. When higher listings are considered, Annex 3 of *Res. Conf. 9.24 (Rev. CoP17)* states that “Parties are encouraged to note any extinct species in the higher taxon and to clarify whether these are included or excluded from the proposed listing”. The proponent goes on to argue that there are instances where the deletion of extinct species from the Appendices is discouraged, such as in Annex 4 Paragraph D of *Res. Conf. 9.24 (Rev. CoP17)*, which gives four situations where extinct species should not be deleted, including if “they resemble extant species included in the Appendices”.

When whole mammoth tusks are traded it is relatively straightforward to tell them apart from elephant tusks, as mammoth tusks display a twist whereas elephant tusks are generally straight. Cross sections which display Schreger lines can also be used to distinguish mammoth ivory (average Schreger line angle <90°) from elephant ivory (average Schreger line angle >115°). Identification becomes more of an issue for worked mammoth ivory, especially small pieces (carvings, pendants etc.) which may not display Schreger lines and can often be very difficult to tell apart from elephant

ivory. Instances of elephant ivory being painted or intentionally discoloured to appear as mammoth ivory have been observed. Fossilised mammoth ivory cannot be carved and therefore is not a substitute for elephant ivory for carvings or other processed items.

There are few legal provisions for regulation of trade in mammoth ivory. Although many countries have laws banning trade in ivory, this is mostly directed at elephant ivory.

Analysis: The Supporting Statement makes it clear that the purpose of the listing is to prevent illegal trade in living elephants by preventing the mislabelling of elephant ivory as mammoth ivory. Anecdotal evidence of elephant ivory being traded as mammoth ivory is found within the literature and surveys, but the scale of these substitutions is unclear and thought to be quite limited.

Some believe that mammoth ivory should be promoted as an alternative to elephant ivory as mammoths are already extinct, whereas others feel there should be a complete trade ban on all ivory including mammoth in order to close the potential for laundering of elephant ivory. The proponent does not take a position on this, clarifying that its intention is simply to improve documentation and regulation of mammoth ivory trade in support of the conservation of extant elephant species.

Res. Conf. 9.24 (Rev. CoP17) states in Annex 3 that “extinct species should not normally be proposed for inclusion in the Appendices”, but this does not definitively preclude their inclusion.

When traded as tusks or large pieces of tusk with a visible cross section, it is fairly straightforward to distinguish between elephant and mammoth ivory. Difficulties in identification occur with worked pieces of ivory, especially when they are small and the Schreger lines are not apparent. Given that USA customs data show high levels of international trade in mammoth ivory carvings, it would appear that the look-alike criteria in Annex 2b of *Res. Conf. 9.24 (Rev. CoP17)* would be met when non-fossilised mammoth ivory is traded in processed form.

Overall, the regulation of international trade in mammoth ivory through an Appendix II listing may help reduce opportunities for misdeclaration and/or laundering of elephant ivory. However, the extent to which this would contribute to a reduction of global illegal elephant ivory trade flows is unknown and likely to be limited. The Parties will need to weigh these potential benefits against the costs of regulation of significant legal mammoth ivory movements.

Other Considerations: *Res. Conf. 11.21 (Rev. CoP17) Use of annotations in Appendices I and II* indicates that only animal species listed in Appendix III can be annotated to specify the parts and derivatives covered by the listing. However, given the proposal to list an extinct species is somewhat unusual, if the Parties decided to list the species in Appendix II, it may be useful to consider restricting the proposal to whole tusks and the specimens of the species in the form in which they are traded that resemble elephant ivory and are hard to distinguish, namely worked ivory, which would help ensure that effective control of trade in elephants is achieved. Fossils and other artefacts including non-commercial scientific exchanges of mammoth parts (such as bones, skin, hair, and DNA) for research and education by museums and universities could be excluded.

Summary of Available Information

Text in non-italics is based on information in the Proposal and /Supporting Statement (SS); text in italics is based on additional information and/or assessment of information in the SS.

Range

The genus *Mammuthus* includes five extinct species in the family Elephantidae. This family also includes all the living relatives of the mammoths: the elephants. The family Elephantidae first emerged in Africa as tropical animals about 55 million years ago (mya); about 10 million years after the last dinosaurs. The earliest members of the genus *Mammuthus* emerged about 5 mya in Africa and mammoths spread to Europe as forest-living species about 3-4 mya, apparently via the Levant. From there, mammoths spread to northern and eastern Asia and to North America around 1.5 mya. They spread throughout North America into Mexico, and in Asia throughout Siberia, into Mongolia, China, Japan and India. Mammoth did not spread to South America.

The cold-adapted species, the Woolly Mammoth *M. primigenius*, is the source of almost all mammoth ivory in trade today. The species emerged around 0.5 mya in Europe. By the start of the last ice age around 100,000 years ago *M. primigenius* occurred throughout Europe, northern Asia, and most of North America, and eventually having a large distribution covering almost all of Europe from Portugal and Spain in the southwest, all across Central and Eastern Europe, to Mongolia, northern China, South Korea and Japan up to north-eastern Siberia, and including the American mid-west, and eastern Canada. Remains have also been found from the shelf regions of the Arctic Ocean and north-western Europe to the bottom of the Adriatic Sea and to the mountains of Crimea, Ukraine.

Most populations of Woolly Mammoths went extinct after the last ice age ended, around 10 to 40 thousand years ago, yet remnant populations were still living until about 5,600 years ago on St. Paul Island in Alaska and even more recently, until about 3,700 years ago (around the year 1,650 BC), on Wrangel Island in the East Siberian Sea.

Woolly Mammoths were shown to have been at their most widespread during the most recent glacial period (Pelistocene) with a range of around 33,000,000 km ^{2} including in Europe, North America and Asia (Kahlke, 2015). Woolly Mammoth extinction is thought to have occurred due to the combination of climatic changes reducing suitable habitats and an increase in anthropogenic hunting pressure (Nogues-Bravo et al*., 2008).*

Inclusion in Appendix II to improve control of other listed species

A) Specimens in trade resemble those of species listed in Appendix II under Res. Conf. 9.24 (Rev. CoP17) Annex 2 a or listed in Appendix I

The species from which most mammoth ivory is currently in trade, the Woolly Mammoth *M. primigenius*, was about the same size as living African Elephants *Loxodonta africana*. Studies of bone development showed that Woolly Mammoths continued to grow throughout their life. Females were slightly smaller than males. Both male and female Woolly Mammoths grew tusks. Woolly Mammoths were born without tusks. Small milk tusks, only a few centimetres long, erupted at about six months age. After about one year they were replaced by the permanent tusks which grew continuously throughout life, at a rate of 5-15 cm per year. Woolly Mammoths apparently had a lifespan of about 60 years.

Only the tusks of the cold-adapted Woolly Mammoths have been used in recent decades for carving and for decoration. Recovered tusks from other species of *Mammuthus* are apparently too brittle to be used for carving. Unlike those of elephants, mammoth tusks have a twist, twisting in opposite directions with the tips eventually crossing in the centre. The largest known Woolly Mammoth tusk is 4.2 m long and weighs 84 kg. Typically, males' tusks reached a length of 2.4-2.7 m weighing less than 50 kg. Females' tusks are smaller, thinner, and less tapered, with a length of 1.5–1.8 m, weighing 9-11 kg.

Large, whole Woolly Mammoth tusks are distinguishable from elephant ivory by their shape (twisted and not straight), but worked mammoth ivory, especially small pieces, are difficult to differentiate from elephant ivory. Like living elephants, mammoths do not have enamel on their tusks.

One study has mentioned that mammoth ivory is graded from grades A to D and tusks are graded on their colour. The whiter (more similar to elephant ivory) a mammoth tusk, the higher the grading. Prices in 2011 were: USD 400/kg for grade A, USD 300/kg for B, USD 260/kg for C and USD 120/kg for D in Hong Kong SAR (Martin & Vigne, 2011).

Grade A mammoth ivory, nick-named "ice" by ivory carvers, can easily be passed off as elephant ivory as it looks so similar, especially when carved into small items. Unpainted cross sections can reveal cross-hatchings known as Schreger lines, which in mammoth ivory run through at a 90-degree angle rather than at a 115-degree angle as with elephant ivory. But this method does not work for carvings where the Schreger lines are not evident (such as small pieces that are not cross-sectioned).

It should be noted that an average of several of both the convex and concave Schreger lines should be used to identify if the ivory is from a mammoth or an elephant. It is also suggested that only the outer Schreger lines are used to identify the ivory (Espinoza & Mann, 2010). This suggests that it may be difficult correctly to identify mammoth ivory unless there is a clear cross section visible in the tusk. Smaller pieces or processed/carved ivory may be very difficult to tell apart from elephant ivory.

Mammoth ivory will occasionally display intrusive brownish or blue-green coloured blemishes caused by an iron phosphate called vivianite, whereas elephant ivory will not; however, this discoloration is often imperceptible to the naked eye.

Although these physical differences can in some cases provide a means of identifying mammoth ivory by expert enforcement officers, they are not always visible or obvious even to well-trained enforcement agencies tasked with determining the legality of items in international trade. In addition, elephant ivory in trade is sometimes painted or intentionally discoloured to make it appear older or more like mammoth ivory when in trade.

National utilisation
Historically mammoth ivory has been unearthed and sold domestically throughout its range. Domestic use is for decoration and jewellery only. The demand and use of mammoth ivory has been increasing over the past few decades, as it has become more available, especially since the beginning of the global moratorium on elephant ivory trade in 1989.

China is the main ivory (all types including elephant, mammoth, hippopotamus and walrus) manufacturing centre in the world and has also witnessed increased domestic use. A review of the market for elephant and mammoth ivory in Beijing and Shanghai (China) found that 90% (both elephant and mammoth) of purchases were for domestic customers, as opposed to the situation in 2002 when foreigners were the major consumers.

In another example, a recent review of the domestic mammoth ivory market in Macau SAR compared mammoth ivory sales from 2004 to sales in 2015, and found a fourfold increase in mammoth ivory sales over this period of time. China has announced a ban on domestic sales of elephant ivory, but this does not extend to mammoth ivory. *China's ivory ban came into force on the 31st December 2017* (Meijer et al., 2018).

Legal trade
International trade in mammoth ivory is not illegal in most countries and is poorly documented. Some studies have been carried out to attempt to estimate the quantities of mammoth ivory in international trade.

The major legal exporter of mammoth tusks is Russia. Mammoth tusk imports via Hong Kong SAR, one of the main trade routes into mainland China, have greatly expanded from an average of less than 9 tonnes per year from 2000 to 2003 to an average of 31 tonnes per year from 2007 to 2013. According to prices paid by some factories in Beijing, wholesale prices of mammoth ivory tusks have increased greatly recently due to the rise in demand in China.

The mammoth ivory trade route from Russia to Hong Kong SAR is thought to be the main trade route for mammoth ivory globally as there is no import tax to pay when the tusks arrive in Hong Kong SAR. Tusks are then exported to Guangzhou (mainland China), which has the two largest ivory manufacturing centres in southern China, where the ivory is carved (Esmond Martin & Vigne, 2011).

Hong Kong SAR customs data between 2005-2016 show:
- *total imports of mammoth ivory (raw tusks and/or unworked tusk pieces) of 430,000 kg, which averages 36,000 kg annually.*
- *Re-export data from Hong Kong SAR over the same time period shows total re-exports of mammoth ivory (raw tusks and/or unworked tusk pieces) of 350,000 kg, averaging 29,000 kg annually.*
- *Between 2005 – 2016 data shows that most of Hong Kong SAR's mammoth ivory is imported from Russia (395,000 kg) and most if its re-exports are destined for mainland China (330,000 kg), as per the traditional trade route mentioned above.*
- *Customs data from Hong Kong SAR also lists the origin of the specimen and imports predominantly originate from Russia (410,000 kg).*
- *10,000 kg of imports have origins that are not places where preserved mammoth ivory is found (e.g. the Netherlands and Germany were listed as the origin for a total of 8,250 kg of mammoth ivory imports)*
- *More than 1,000 kg of mammoth ivory imports were reported with the origin being an African Elephant range State (Mozambique, South Africa, Kenya or Chad).*
- *The destinations of 340,000 kg of mammoth ivory re-exports were China and Macao SAR.*

USA customs data between 1999-2013 from the U.S. Fish and Wildlife Service Law Enforcement Management Information System (LEMIS) shows total imports into the USA of 22,480 whole mammoth tusks, 1,625 mammoth ivory pieces, 11,608 kg of mammoth ivory pieces and 546,743 mammoth ivory carvings (full breakdown given in Table 1).
- *The origin of the mammoth ivory was also reported in the US trade data and small amounts of mammoth ivory were reported as originating in African Elephant range States (Nigeria, South Africa and Tanzania) and Asian Elephant range States (China, Indonesia and Thailand).*
- *Mammoth commodities (including non-ivory related commodities such as bone carvings, teeth and bones) imported into the USA from South Africa (including being reported as South Africa being the*

origin of the commodity), totalled 1,270 items have been exported from South Africa to the USA between 1999 and 2013.

***Table 1**. USA trade data from the U.S. Fish and Wildlife Service Law Enforcement Management Information System (LEMIS) for import of mammoth ivory commodities between 1999 and 2013.*

Year	Number of Whole Tusks	Total Ivory Pieces		Number of Ivory Carvings
		Number of	Weight (kg)	
1999	79	-	-	456
2000	1	-	-	515
2001	139	-	-	169
2002	172	-	-	19,187
2003	17,894	-	1,620	27,209
2004	94	4	5,152	4,182
2005	967	258	1,889	78,499
2006	1,103	44	1,874	113,212
2007	183	295	856	159,100
2008	63	387	217	15,549
2009	49	120	-	15,816
2010	153	463	-	98,972
2011	649	15	-	4,028
2012	161	16	-	4,835
2013	773	23	-	5,014
TOTAL	**22,480**	**1,625**	**11,608**	**546,743**
Top Three Exporters				
1	Hong Kong SAR (21,746)	Hong Kong SAR (551)	Russia (11,303)	Hong Kong SAR (486,804)
2	Indonesia (333)	Indonesia (418)	Germany (300)	Indonesia (46,426)
3	South Africa (126)	Germany (321)	Indonesia (5)	Taiwan POC (9,990)
Top Three Origins				
1	Russia (20,696)	Russia (890)	Russia (11,303)	Russia (435,481)
2	Hong Kong SAR (1,048)	USA (666)	Germany (300)	Hong Kong SAR (65,066)
3	USA (320)	South Africa (30)	USA (5)	USA (33,090)

Reports have found evidence of elephant ivory being sold as mammoth ivory and although most Chinese buyers claim to prefer elephant ivory, many are not able to distinguish between carved pieces of mammoth and elephant ivory. A recent study published on the US ivory market provides examples of actual cases in the USA where elephant ivory was sold under the claim that it was mammoth ivory, such as a felony conviction in New York of a Manhattan-based antiques merchant for intentionally mislabelling illegal elephant ivory as “carved mammoth tusks”.

Evidence has also been presented from the USA that reports 55 imported carvings (from Hong Kong SAR), declared as mammoth ivory were in fact a mixture of both mammoth and elephant ivory (HSUS, 2002).

A report in 2011 showed that some vendors in southern China were selling elephant ivory as mammoth ivory, but the proportion of this mislabelling is unknown (Vigne & Martin, 2011).

Recent reports have also suggested that Chinese tourists in Myanmar are purchasing elephant ivory products which are mislabelled as mammoth ivory (Lucy Vigne & Martin, 2018).

There is no empirical evidence showing the amount/proportion of elephant ivory that is traded under the guise of mammoth ivory, many of the reports referenced are based on single events of elephant ivory being sold as

mammoth ivory, although it is clear these substitutions are occurring, the level to which they are happening is unknown.

Parts and derivatives in trade
There is apparently only a relatively small demand for commercial international trade in parts and derivatives of Woolly Mammoths other than carved ("worked") mammoth ivory. There are collectors and traders who specialise in trade of fossils and other artefacts and a review of some of their web sites shows that their trade in mammoths is mostly in whole tusks, with some availability of Woolly Mammoth hair, bones and molar teeth, too. These parts and derivatives are deemed not to have an impact on elephant ivory trafficking.

There are non-commercial scientific exchanges of mammoth parts (such as bones, skin, hair, and DNA) for research and education by museums and universities.

Actual or potential trade impacts
The rationale for listing Woolly Mammoth in Appendix II is the potential trade impact of mammoth ivory on living elephants. Listing the species in Appendix II will put the onus upon exporting countries to make proper identification and determination of legal acquisition before issuing export permits (according to Article IV of the Convention). Exporting countries will need to make sure that specimens marked as mammoth ivory are indeed mammoth ivory and not elephant ivory.

The legal mammoth ivory trade has other impacts: permanent ecological damage is caused during the work to unearth them in the tundra regions of Siberia. The digging is done using very high-pressure water pumps (like those used on fire trucks) run by large petrol engines, to pound away at the permafrost and gouge out whole hillsides and deep pits in the ground. This work causes irreversible ecological damage to the permafrost with run-off polluting the streams and rivers.

In addition, some scientific knowledge that could be reaped from mammoth remains and from other artefacts of paleontological interest that are unearthed (including remnants of other pre-historic animals like sabre-toothed cats, Woolly Rhinoceros and others), is lost to science in this process.

Additional Information

Conservation, management and legislation
National
Many countries have laws regulating or banning ivory trade, but in all the ones we are aware of this is directed at elephant ivory. India is the only country known to ban import and export of mammoth ivory. We were not able to obtain information on domestic laws concerning mammoth ivory from all countries, but we found out information about a few. For example, some countries are currently working to amend their regulations to include mammoth ivory within their definitions of ivory. Trade in mammoth ivory is not illegal in the European Union. Canada regulates trade in mammoth ivory as a "fossil" or as ancient relics as part of their antiquities or cultural property laws. Federal law in the USA does not regulate mammoth ivory trade. However, many States in the USA have State laws banning or regulating trade in ivory, and in some of these States the definition of ivory also includes mammoth ivory.

China's elephant ivory ban came into force on the 31st December 2017. Prior to the ban, a market survey of 50 accredited ivory outlets in 22 cities in China showed that 12 stores had changed their business to trade in mammoth ivory and 38 had closed (Zhao et al., *2017). Research looking into ivory (all types) consumption and consumer perception towards the ivory ban in China showed that across 15 cities, incidences of ivory purchases had declined significantly since the implementation of the ivory ban (Meijer* et al., *2018).*

Hong Kong SAR will also adopt an ivory ban which will come into force in 2021, but concerns have been raised that as mainland China accounts for 90% of Hong Kong SAR's ivory (all types) purchases that this will enable a four-year overlap where large amounts of laundering may occur with elephant ivory being smuggled into mainland China under the guise of being mammoth ivory (Cheung et al*., 2017; Martin & Vigne, 2015).*

It has been reported that mammoth tusk hunters require Russian government permits to sell mammoth ivory, but many hunters circumvent this legislation and continue hunting without permits (Farah & Boyce, 2019).

International: It may be argued that the UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects (Rome, 1995) could possibly relate also to mammoth specimens that have been "stolen" (i.e., unlawfully excavated and/or exported). The UNIDROIT Convention enables Parties to demand restitution from other Parties regarding stolen objects which include also "specimens of fauna, flora, minerals and anatomy, and objects of paleontological interest".

Artificial propagation/captive breeding
Media reports claim that there are projects to try to clone or "revive" Woolly Mammoths using ancient DNA, such as the project by Prof. George Church at Harvard University in the USA. If successful, Woolly Mammoths (or a mammoth-elephant hybrid) could possibly be reintroduced into the wild in the future. A site in northern Siberia has been proposed for them.

Implementation challenges (including similar species)
It would not be possible to perform a non-detriment finding (NDF) on mammoth ivory as an extinct species. CITES permits would need to be issues on the basis of a Legal Acquisition Finding only.

Potential risk(s) of a listing
The inclusion of Woolly Mammoth in Appendix II could set a precedent that could lead to future proposals of other extinct prehistoric species such as the Woolly Rhinoceros Coelodonta antiquitatis*. Proposals such as these could detract from CITES' aim of ensuring that international trade in specimens of wild animals and plants does not threaten their survival.*

Potential benefit(s) of listing for trade regulation
Given the issues with some of the origins of mammoth ivory explained above (in both US and Hong Kong SAR customs data) a CITES listing means Parties would be required to report imports and exports of Woolly Mammoth ivory which would enable an understanding of the scale and nature of the mammoth ivory trade.

Other comments
The SS states that listing the Woolly Mammoth in Appendix II is not intended to stop trade in mammoth ivory but rather to facilitate documentation of the international trade in mammoth ivory in order to better understand it and its implications for living elephant populations.

The "look-alike provision"
Paragraph 2 of Article II of the Convention on "Fundamental Principles" explains the reasons why a species should be listed in Appendix II, as follows:
2. Appendix II shall include:
(a) all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilisation incompatible with their survival; and
(b) other species which must be subject to regulation in order that trade in specimens of certain species referred to in sub-paragraph (a) of this paragraph may be brought under effective control.

Sub-paragraph (a) clearly explains that the goal of Appendix II is to prevent extinction of species that are or may be threatened due to trade, while sub-paragraph (b) provides for the listing of "look-alike" species in Appendix II even if not they are not threatened. Sub-paragraph (b) adds the notion that "other species" shall be listed in Appendix II when it will assist with the "effective control" of trade in those species threatened with extinction. It is important to note that no biological criteria are attached to sub-paragraph (b) and as such, the requirement that a species be "threatened with extinction" does not apply here. The criteria for inclusion of species under sub-paragraph (b), are listed in Annex 2b to *Resolution Conf. 9.24 (Rev. CoP17)*, as follows:

"Species may be included in Appendix II in accordance with Article II, paragraph 2 (b), if either one of the following criteria is met:
A. The specimens of the species in the form in which they are traded resemble specimens of a species included in Appendix II under the provisions of Article II, paragraph 2 (a), or in Appendix I, so that enforcement officers who encounter specimens of CITES-listed species are unlikely to be able to distinguish between them; or
B. There are compelling reasons other than those given in criterion A above to ensure that effective control of trade in currently listed species is achieved."

These criteria have led to the nick-naming of Article II, sub-paragraph (b) of the Convention as "the lookalike provision", and they have been used in the past for listing a number of species.

Listing an extinct species
According to the SS, CITES legal experts have determined that there is nothing in the Convention or Resolutions against listing an extinct species. The SS also notes that at CoP17 (Johannesburg, 2016), Israel submitted a working document on trade in mammoth ivory. In the Secretariat's comments to that document, they wrote that regulating mammoth ivory trade "may appear to fall outside of the legal scope of the Convention". The

Secretariat's comment did not consider whether an extinct species could be listed under Article II, paragraph (2)(b) of the Convention and as such does not provide an actual legal analysis. A full review of the Convention and of *Resolution Conf. 9.24 (Rev. CoP17)* on "Criteria for Amendment of Appendices I and II" shows instead that the listing of Woolly mammoth in Appendix II fully conforms to the Convention.

Resolution Conf. 9.24 (Rev. CoP17) on "Criteria for Amendment of Appendices I and II" addresses the inclusion of extinct species in the Appendices in a few places, as follows:

First, Annex 3 of *Resolution Conf. 9.24 (Rev. CoP17)* states that "Extinct species should not normally be proposed for inclusion in the Appendices. Extinct species already included in the Appendices should be retained in the Appendices if they meet one of the precautionary criteria included in Annex 4.D." This suggests that extinct species should not generally be listed in the Appendices; it does not explicitly state that such species should never be listed. The Resolution states that extinct species should be retained in the Appendices if there is a precautionary necessity. Furthermore, Annex 3 to *Resolution Conf. 9.24 (Rev. CoP17)* also recognises that in species listing proposals "Parties are encouraged to note any extinct species in the higher taxon and to clarify whether these are included or excluded from the proposed listing."

In addition, Annex 4 on "Precautionary measures", Paragraph D calls for retention of extinct species in the CITES Appendices in any one of four circumstances:
1. they may be affected by trade in the event of their rediscovery; or
2. they resemble extant species included in the Appendices; or
3. their deletion would cause difficulties implementing the Convention; or
4. their removal would complicate the interpretation of the Appendices.

Wider views on the mammoth ivory trade

There is a basic dichotomy of thought regarding the regulation of mammoth ivory trade in terms of its impact on living elephants. One view holds that mammoth ivory trade should be banned along with the trade in elephant ivory so as to prevent laundering of elephant ivory. Under this view, great emphasis should be put on demand reduction by teaching consumers not to use any ivory. An alternative view holds that mammoth ivory trade should be promoted as an alternative to elephant ivory, since mammoths are extinct anyway.

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