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



Seventeenth meeting of the Conference of the Parties Johannesburg (South Africa), 24 September – 5 October 2016

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Delete *Bison bison athabascae* from Appendix II in accordance with the Precautionary measures in Annex 4 of CITES Resolution Conf. 9.24 (Rev. CoP16).

B. Proponent

Canada^{*}:

C. Supporting statement

1. <u>Taxonomy</u>

1.1	Class:	Mammalia	
1.2	Order:	Artiodactyla	
1.3	Family:	Bovidae	
1.4	Subspecies:	Bison bison athabascae (Rhoads 1898)	
1.5	Scientific synonyms:	Bos bison athabascae (Jones et al., 1992)	
1.6	Common names:	English: French: Spanish:	Wood bison, wood buffalo Bison de bois, bison des forets Bisonte americano de bosque
1.7	Code numbers:	A – 119.009.001.001	

There are two subspecies of American Bison (*Bison bison*): wood bison (*Bison bison athabascae*) and plains bison (*Bison bison bison*). Plains bison is not listed on the CITES Appendices.

2. <u>Overview</u>

The wood bison occurs in the wild in Canada and in the United States.

The wood bison was listed in Appendix I of CITES in 1975 and was transferred to Appendix II in 1997. The wood bison was placed in Appendix I before the adoption of the listing criteria. The transfer to Appendix II in 1997 was due to a rapidly-growing population and well-managed harvest such that international trade

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would not affect the species in the wild. It has now been almost 20 years since the transfer to Appendix II. The population has grown and harvest management continues to be strong. Trade is not a concern for the survival of the species.

This subspecies does not meet the criteria for listing on Appendix II under Annex 2a A of Res. Conf. 9.24 (Rev. CoP16), because wood bison does not have a small population, restricted area of distribution, or a declining population, and it is not near to meeting these criteria. See sections 3.1, 4.2 and 4.4 for more information.

The subspecies also does not meet criteria for listing on Appendix II under Annex 2aB of Res. Conf. 9.24 (Rev. CoP16) because there are measures in place for protection, management, monitoring and control to ensure that harvest will not threaten the species. The current threats to the species are addressed through management plans. The threats are not related to or exacerbated by international trade in wood bison. Illegal trade is not an issue. See sections 5, 6.4, 7.1, 8.1-8.3 for more information.

Precautionary measures of Annex 4 of Res. Conf. 9.24 (Rev. CoP16) indicate that when considering proposals to amend Appendix I or II, Parties should adopt measures that are proportionate to the anticipated risks to the species. Available information on wood bison indicates that this subspecies does not meet the criteria for CITES Appendix II. A de-listing would be in accordance with the Precautionary Measures of Res. Conf. 9.24 (Rev. CoP16), Paragraph A.4, because it has been well over the required two intervals between meetings of the Conference of the Parties since the subspecies was transferred from Appendix I to Appendix II (it has been seven intervals), and monitoring since this transfer indicates no adverse impact on the species. Additionally, wood bison will not qualify for inclusion in the Appendices in the foreseeable future because there are regulations in place under national and subnational laws and strong adaptive management to ensure that harvest and trade will not threaten wood bison.

3. <u>Species characteristics</u>

Wood bison occurs both in the wild and in captive herds. In Canada, there are currently nine herds of wood bison that are considered wild by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2013). COSEWIC is an independent body of experts established under the *Species at Risk Act* for identifying and assessing wildlife considered to be at risk of extinction in Canada. COSEWIC's determination of which herds are wild was based on the degree to which natural selection is permitted to operate relative to the degree to which humans actively manage breeding, survival, disease, behaviour and movements (COSEWIC 2013). These herds are considered relevant for conservation efforts and protection in Canada. There is additionally one small herd in Alaska in the United States that has recently been released from captivity and that is considered wild in the United States (Crane pers. comm. 2016).

Other wood bison are not considered wild. Most occur in commercial herds on farms or in zoos and wildlife parks (Section 8.4). There is a small population of wood bison in Russia (Siberia), well outside the natural range of wood bison (Section 11). These wood bison are not considered in detail in this report except as necessary to explain the situation for wild wood bison within its natural range.

The information presented in Section 3 is based on information provided within the COSEWIC status report that was used for the assessment of wood bison in Canada (COSEWIC 2013) and a global-level status survey of *Bison bison* by Gates et al. (2010) and references therein, unless otherwise indicated.

3.1 Distribution

Historically wood bison occurred over a large area in northern Canada and the United States (Fig. 1). Today, wild wood bison occur in 10 isolated wild herds which together represent an occupied habitat that is approximately the size of Iceland (just over 100,000 km²). They occur in the Canadian provinces and territories of Yukon Territory, Northwest Territories, British Columbia, Alberta and Manitoba; and in Alaska in the United States. Figure 1 shows the current distribution of Canada's wild wood bison population.



Figure 1. Approximate historical distribution of wood bison (grey shading) and the current distribution of wild bison (hatched lines). Sources: Data on current range of wood bison in Canada is from COSEWIC (2013). Data on current range of wood bison in the United States and original distribution of wood bison in North America is from Seaton pers. comm. (2016) and Alaska Department of Fish and Game (2016).

3.2 Habitat

Wood bison is a habitat generalist and prefers open habitats that contain the primary food sources: grasses and sedges. Forested areas are used primarily for thermal and escape cover or when summer flooding constrains the use of open habitats.

3.3 Biological characteristics

Bison is a polygynous species with mature males competing for mating opportunities during the breeding season. Males mature sexually at age two or three but are rarely successful in breeding in presence of older males. Reproductive success is influenced by physical maturity and experience. In small populations breeding dominance skews paternity and reduces genetic diversity.

Female bison typically give birth for the first time at age three or four and in some populations reproduce each year. They usually give birth to one calf—twins are rare—and calves are weaned at eight to 12 months of age. Fecundity declines after 13 years of age.

Survival of the young is much lower than that of adults but once they've reached adulthood, bison can live longer than 20 years in wild. Generation time is estimated to be eight years.

3.4 Morphological characteristics

The wood bison is the largest land mammal in North America. The body is tall and narrow. Its height is accentuated by vertical (spinous) processes of the thoracic vertebrae, and anchoring muscles and ligaments, which together form the hump. In males, the head is massive and it is likely used in

intraspecific combat. The head is highly protected by thick hair, a thick dermal shield, and a lattice of bony structures that isolate the cranium from the crown of the skull. Body size is sexually dimorphic with adult wood bison males and adult females weighing an average of 880 kg and 540 kg, respectively.

3.5 Role of the species in its ecosystem

The bison is a large grazing herbivore. Bison has been described as a foundation species (Freese et al. 2007), a keystone species (Knopf 1996) and a landscape transformer (Centre for Indigenous Environmental Resources Inc., 2008 as cited in COSEWIC 2013). When present in much larger numbers prior to European settlement, bison were the dominant herbivore in the Canadian grasslands. Habitat alteration caused by bison activities such as grazing, and soil disturbance caused by bison wallowing in the soil provides important habitat for many species of plants and animals that are now considered at risk due to habitat loss. Bison influence the structure, composition and stability of plant and animal communities.

4. Status and trends

4.1 Habitat trends

Agricultural and other land use, as well as increases in forest abundance (through fire suppression) in the north may have reduced the area of high quality habitat available to wood bison during the 20th century. Habitat loss associated with agricultural activities and urbanization is much less significant than that experienced by the southern subspecies, plains bison.

In Canada, large areas of potential wood bison habitat are unavailable for use by wood bison, because wood bison are prevented from expanding into these "control areas" to prevent disease transmission, hybridization with plains bison and to minimize conflict with agricultural use (Section 6.1). These limitations are not present to the same extent in the United States because the Alaskan herd is currently isolated and was founded with disease-free individuals, although there may be limitations on habitat due to conflicts with human use of habitat.

4.2 Population size

The most recent Canadian published national population estimate for wood bison is 7,642-10,458 individuals based on individual herd estimates completed between 2009 and 2013. Within this there are estimated to be 5,213-7,191 mature individuals (COSEWIC 2013). Wood bison are separated geographically into nine isolated herds in Canada, with about 60% of the wood bison population in one herd (Greater Wood Buffalo Meta-population), and six of the nine herds having fewer than 500 individuals. The newly-released wild population in Alaska (United States) numbered about 130 individuals as of October 2015 (Alaska Department of Fish and Game 2016).

4.3 Population structure

Herds comprise a mixed group of cows, calves and sub-adults. Mature bulls are solitary or form small groups and will join the herd during breeding season (Government of Yukon 2015). As is typical for polygynous species such as bison, females are the most abundant age class in the population and the ratio of males to females can exceed 50:100 when there is no selective hunting pressure (Gates et al. 2010). The proportion of females determines the size of the youngest age class in the population.

4.4 Population trends

Based on the carrying capacity of historical habitat, it was estimated that approximately 168,000 wood bison were present in northwestern Canada in 1800 (although this may have been an underestimate). Heavy exploitation by European settlers nearly eliminated the subspecies, coinciding with the rapid decline and eventual extirpation from Canada of plains bison. By the early 1900s, there was only one remnant herd of about 250 wood bison in the world. A detailed account of this history is provided in COSEWIC (2013) and references therein.

After the population low of the early 1900s, herds of wild bison grew rapidly through intensive protection and active recovery efforts. There are natural fluctuations in the herd sizes; sometimes the

fluctuations comprise large proportions of small herds. Fluctuations result from factors such as disease (e.g., anthrax), severe winters that result in starvation, or mass drowning (Section 5).

4.5 Geographic trends

Historically there has been a massive contraction of range of the wood bison. Wood bison disappeared from Alaska entirely by the early 1900s (Alaska Department of Fish and Game 2016), and only a few small herds persisted in Canada. Wood bison occupy a small fraction of their historical range (Fig. 1).

The geographic range is not currently declining but wood bison are generally prevented from expanding into areas where there may be increased risk of disease transmission, hybridization with plains bison, and conflict with other land uses (e.g., agricultural use). When permitted to expand their range, wood bison occupy new territory rapidly. For example, after being reintroduced into the area, the Mackenzie herd grew to cover almost 10,000 km² in 20 years (Gates et al. 1992).

5. Threats

The most significant concern for wood bison population maintenance and growth is bacterial disease. including anthrax, bovine tuberculosis, and brucellosis (British Columbia 2002; Mitchel and Gates 2002; Northwest Territories Environment and Natural Resources 2010; Government of Canada 2015). These diseases can affect other wildlife, domestic livestock and humans (Northwest Territories Environment and Natural Resources 2010). Anthrax is a lethal infectious bacterial disease that occasionally affects populations (especially the Wood Buffalo National Park Meta-population, which comprises about 60% of the wild population), when certain environmental conditions are met. Bovine tuberculosis and brucellosis are also prevalent in the Wood Buffalo National Park Meta-population. This herd is considered "diseased" with about 50% of the animals infected with bovine tuberculosis and 30% with bovine brucellosis (Northwest Territories Environment and Natural Resources 2010). Bovine tuberculosis and brucellosis can cause death, but more common are sub-lethal effects that can lower population growth rates especially in combination with other threats such as severe weather, predation or human harvest (Northwest Territories Environment and Natural Resources 2010). Treatment of bison infected with bovine brucellosis is possible with courses of antibiotics, and anthrax can also be treated with vaccinations (CFIA 2011; CFIA 2013), but such methods are impractical for herds of wild animals. There is no proven way to eliminate bovine tuberculosis from infected individuals and the disease often lies undetected until it reaches an advanced stage (CFIA 2012).

These diseases are a concern for population maintenance and growth as they can result in both natural population declines in small isolated populations and in deliberate harvest as a management response to disease. Such culling serves to limit the spread of disease to uninfected herds or domestic cattle through removal of individuals found in "control areas" between diseased and disease-free herds (Section 4.1). Controlled, planned removal may occur in the future as a means to manage disease risk, and could significantly reduce the size of one or more of the wild herds (COSEWIC 2013).

Harvest with the purpose of limiting population growth occurs for reasons other than disease control. The intent of such harvest includes ensuring no hybridization between wild wood bison and either plains bison, farmed bison or cattle. Harvest also occurs for management of human-bison conflict when bison are road hazards or are competing with other land-use needs (COSEWIC 2013). For these reasons, "Hunting and Population Control," and "Disease" are listed as the highest threats facing wood bison by COSEWIC (2013).

The practice of limiting the size of isolated herds purposefully limits the growth potential of the existing wild population in Canada and constrains possible natural or deliberate movement of animals between herds, thus impeding gene flow and reducing genetic diversity (COSEWIC 2013).

6. Utilization and trade

6.1 National utilization

National use of wild wood bison in Canada consists primarily of hunting for food and trophies, and to a lesser extent, collection of scientific samples for monitoring and research. Regulated hunting is used as a tool to manage the size of wild herds for control of disease, to prevent hybridization with plains bison, to prevent contact with captive herds and to manage human-bison conflict. Animals from the Elk Island Herd may be sold for use as breeding stock on farms (captive individuals) when not required for recovery or (re-) introduction efforts.

There is currently no national use of the recently-reintroduced population of wood bison in the United States, although sustainable hunting is anticipated in the management plan (Alaska Wood Bison Management Planning Team 2015).

6.2 Legal trade

Two sources of information were used to analyze legal trade in wood bison: the CITES trade database and Canada's CITES Electronic Permitting System (CEPS). They show the same general patterns of trade since the subspecies was transferred to Appendix II in the late 1990s, as described below. However, CEPS was used to obtain a more accurate number of exports from Canada for the most recent five years (2010-2014) because it allowed determination of the origin for individual specimens in trade (whether "wild" herds or bison from control areas), and it also allowed tracking of multiple trade events for the same individual (e.g., skin in one shipment and meat in another).

Trade originating outside of Canada is either re-export of preconvention specimens as part of a travelling exhibition or export of live captive bred animals either between zoos or as part of a travelling exhibition. There is no export from the Alaskan herd in the United States.

Export of wild wood bison from Canada is low over the five-year period, and falls into three primary categories: (a) live animals exported to Russia and the United States (Alaska) to establish or reestablish wood bison populations (60 individuals); (b) Scientific specimens (teeth) exported to international laboratories for research and conservation monitoring activities (117 specimens); and (c) sport-hunted wild bison exported as meat, skins, skulls with horns feet, tails or taxidermy mounts (16 individuals).

Wood bison from control areas were exported as skins or taxidermy mounts (8 individuals).

6.3 Parts and derivatives in trade

See Section 6.2.

6.4 Illegal trade

Canada has no record of the illegal export of wild wood bison in the past 15 years, which is as far back as records are readily available.

Laundering of wild bison as captive-bred bison is not an issue in Canada because of strict controls in place. In addition, laundering could result in serious consequences for a cattle farmer and for the entire Canadian cattle industry if a diseased individual from a wild herd were to be added into a captive-bred herd (a farm herd). Bovine brucellosis and bovine tuberculosis, which are found in some wild bison herds, are reportable diseases (CFIA 2015), and the Canadian cattle industry (which regulates farmed wood bison) is considered to be free of these diseases (Northwest Territories Environment and Natural Resources 2010). A disease outbreak could result in destruction of affected herds and potentially the industry-wide banning of bovine trade by importers, which would have severe financial consequences. Disease-free breeding stock is readily available from farmers or cattle auctions.

6.5 Actual or potential trade impacts

Removing wood bison from CITES controls will not impact wild wood bison because harvest and trade are adequately regulated by national and subnational legislation for the protection of the subspecies in the wild, in both Canada and the United States. These protections are independent of CITES controls.

7. Legal instruments

7.1 National

COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is an independent body of experts responsible for identifying and assessing wildlife considered to be at risk of extinction in Canada. Such species are eligible for protection by the government under the Species at Risk Act. COSEWIC first assessed wood bison as Endangered in 1978, and changed the status to Threatened in 1988 as a result of a succeeding recovery program. The Threatened status was reaffirmed in 2000. In 2013 the species was reassessed as a species of Special Concern because of ongoing increases in population size and the establishment of two new wild herds. Species of Special Concern are species that no longer meet the COSEWIC biological criteria for Threatened but still require protection because of a combination of biological characteristics and identified threats (COSEWIC 2013).

Wood bison is currently listed on Schedule 1 of Canada's Species at Risk Act (SARA) as a Threatened species based on the COSEWIC assessment of 2000. This status may be changed to Special Concern following the 2013 reassessment by COSEWIC (COSEWIC 2013) and consultation by the Government of Canada, which is currently in progress.

Wild wood bison is protected in all the provinces and territories in which it occurs, under jurisdictional wildlife acts. The laws control hunting and other activities such as capture or harassment. The enforcement of existing laws has proven effective against unauthorized activities. Bison that occur in national parks are also protected under the Canada National Parks Act and similar protection is provided by provinces and territories in designated wildlife management areas.

In the United States, wood bison is listed as a Threatened species under the Endangered Species Act. A federal rule from 2014 designates wood bison in Alaska as a nonessential experimental population which means that certain kinds of "take" (including hunting) are allowed as a management tool in the conservation of the species (Alaska Wood Bison Management Planning Team 2015).

7.2 International

Wood bison *(Bison bison athabascae)* was listed on CITES Appendix I in 1975 and transferred to Appendix II at the 10th Conference of the Parties in 1997.

8. <u>Species management</u>

8.1 Management measures

In Canada, wild wood bison herds are managed by provinces and territories. Within national parks they are managed at a federal level by Parks Canada. Plans for the recovery and management of wood bison have been published in all range jurisdictions except Manitoba (Harper et al. 2000, Northwest Territories Environment and Natural Resources 2010, Parks Canada 2010, Government of Alberta 2011, Government of Yukon 2012) and a National Recovery strategy is expected to be posted on the *Species At Risk Act* Public Registry in 2016. Specific management goals may vary with jurisdiction. However, in general, recovery goals aim to ensure long term viability of wood bison in the wild, control/eradicate disease from the Greater Wood Buffalo Meta-Population, provide opportunities for human use and appreciation of wood bison, address conflicts between wood bison and humans, and address land use and ecosystem considerations within wood bison range. In general, the management for wood bison engages local communities which promotes species stewardship, addresses human-wildlife issues and is effective against illegal trade (IUCN SULi et al. 2015).

Where hunting is permitted within the context of the management plans, hunting is regulated through permits issued by the provincial or territorial wildlife management agency. In "control areas" (See section 4.1), hunting permits are not required because the purpose of the controls areas is for them to remain as bison-free zones. Control areas where risk of disease transfer is high are regularly surveyed and if animals are found, local First Nations communities or outfitters are requested to remove them (Government of Yukon 2012, Northwest Territories Environment and Natural Resources 2010, Government of Alberta 2011).

In the Yukon Territory, Northwest Territories, and Alberta, the management plans allow hunting and this is consistent with recovery plans for the subspecies. Hunting of wood bison is not permitted in British Columbia except for a small First Nations harvest undertaken in cooperation with the province. Hunting is generally not allowed in Manitoba; however, the Skownon First Nation has occasionally received a permit to remove a problem animal (B. Joynt, pers. comm., as cited in COSEWIC 2013).

In the United States, the Alaska Department of Fish and Game has primary management responsibility for leading and implementing the wood bison restoration effort, in cooperation with the United States Fish and Wildlife Service. A primary goal of the wood bison management plan is to establish and manage the herd for long-term viability. Although hunting is not currently permitted for this newly-established herd, hunting will likely occur in the future at a level that allows for growth and expansion of the wood bison population in Alaska (Alaska Wood Bison Management Planning Team 2015).

8.2 Population monitoring

A key component of bison management plans is regular population monitoring to assess progress in meeting recovery goals. Population counts of bison are typically estimated using total counts made during line-transect surveys in winter from low-flying aircraft (COSEWIC 2013). Bison congregate and use open habitats during this time of year (e.g., Bradley and Wilmshurst 2005, Hegel et al. 2012; in COSEWIC 2013), and do not run away when approached by aircraft (Fancy 1982, in COSEWIC 2013). The survey method is used on the assumption that most or all of the bison are seen during the surveys. Total counts are thus minimum counts and they lack confidence limits. Other methods used include strip line transects or mark-resight methodology (COSEWIC 2013). These methods result in an estimate with sampling variance.

8.3 Control measures

8.3.1 International

Import of wood bison into the United States is regulated under the Endangered Species Act as a Threatened species, which means that import for non-commercial purposes is allowed but import for commercial purposes is prohibited. This restriction does not apply to captivebred (farmed) wood bison hybrids, which can be imported into the United States for commercial purposes.

8.3.2 Domestic

Wood bison are legally protected through provincial, territorial and federal legislation. Under these acts, certain uses of Canadian wildlife are allowed under specific regulations and only with the provision of licenses or permits. Generally, without such a license, the catch, possession, trade, sale, disturbance or destruction of wildlife is prohibited. There are exceptions for wood bison from control areas (Section 5). Hunters are made aware of the regulations through the annual publication of Hunter Regulation summaries. There is high confidence in the effectiveness of these measures.

8.4 Captive breeding and artificial propagation

In addition to occurring in nine wild herds in Canada, and in one wild herd in Alaska (United States), there are many wood bison that occur in captivity. The majority of these are located on bison farms distributed throughout Canada as well as in several zoos and wildlife parks. The Canadian Bison Association (CBA) represents the bison industry in Canada and provides guidance on such issues as best management practices, farm food safety, market and trade, animal health, identification and traceability, bison registration and other developmental initiatives. The Canadian Bison Association estimates that in the spring of 2014 there were 135,000 farmed bison (*Bison bison*) in Canada, of which 2.2% (3000) were wood bison and approximately 38% (51,000) were wood bison x plains bison hybrids (Kremeniuk pers. comm. 2014).

Farmed bison (*Bison bison*) are regulated as cattle by provinces and territories under their Agriculture Acts. At the national level farmed bison are regulated under the Health of Animals Act and Health of Animal Regulations, which regulate all aspects of disease control, including import and export of animals and animal products, identification and traceability of animals and the control and eradication

of disease. Since 2001 it has been mandatory to identify all farmed bison with a Radio Frequency Identification Device that is specific to bison from herd of origin until slaughter or export, as part of a trace-back system designed for the containment and eradication of animal disease.

8.5 Habitat conservation

Bison habitat that occurs in national parks is protected under the Canada National Parks Act and similar protection is provided by provinces and territories in designated wildlife management areas.

8.6 Safeguards

Management and protection for wild wood bison in Canada is independent of the listing in CITES because wood bison are protected and adaptively managed under existing provincial, territorial and federal legislation. Similarly, the United States has measures for management and protection of wild wood bison that are independent of a CITES listing.

9. Information on similar species

Bison bison (plains bison subspecies) is a Threatened species in Canada (COSEWIC 2013). It is not listed on CITES. Adults of the two subspecies of American bison, wood bison and plains bison, can be distinguished by size, cranial, skeletal and external morphology. However, captive-bred individuals of both wood bison and plains bison are primarily traded as juvenile bison, which is the optimal age for meat quality and financial return on investment (Kremeniuk pers. comm. 2014). At this life stage it is difficult to distinguished visually. However, there is no conservation concern for wild plains bison associated with a de-listing of wood bison because the strict farming industry regulations already apply equally to both subspecies and laundering of wild individuals of either subspecies through bison farms is extremely unlikely.

10. Consultations

The United States was consulted by electronic mail dated 12 February 2016, especially to obtain information about the recently-released herd in Alaska. They provided a management plan for the Alaska wood bison herd and information about regulations associated with this herd under the Endangered Species Act. Information they provided has been incorporated into the proposal where relevant.

Russia was consulted because they have an extra-limital population of wood bison by electronic mail dated 23 February 2016 (see section 11). No response was received.

11. Additional remarks

Wood bison introduction into Russia: Wood bison is not a species native to Russia. However, wood bison is the closest living relative to the extinct bison indigenous to sub-Arctic Siberia, *Bison priscus*. In 1997, a proposal was made by the Sakha Republic (Yakutia) to introduce and establish a wood bison herd in Sakha, with the intent of establishing a population of a large grazing herbivore in Siberia, and to enhance the ecological integrity of the landscape (Parks Canada 2013). To date, 90 wood bison from Elk Island National Park in Canada have been translocated to Yakutia in three shipments of 30 animals each occurring in 2006, 2011 and 2013. The initial introduction is documented in Safronov et al. (2012).

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