CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

Other proposals

A. PROPOSAL

Transfer of all in Appendix II remaining European, Eurasian, Caucasian and Asian populations of *Ursus arctos* to Appendix I.

- In accordance with Article II 1. of the Convention.
- Meeting biological and trade criteria necessary for inclusion in Appendix I, as outlined in resolution Conf. 9.24.
- Applying the precautionary principle so that scientific uncertainty should not be used as a reason for failing to act in the best interest of the conservation of the species, as outlined in Resolution Conf. 9.24.
- To reduce problems of look-alike (See Sections C5 and C7).

THE TEXT OF THE PROPOSED AMENDMENT:

Appendix I	Appendix II
FAUNA	
MAMMALIA	
CARNIVORA	
Ursidae	
Ursus arctos	
Brown bear	
To be removed: *Ursus arctos isabellinus*	
himalayan brown bear	

INTERPRETATION

To be removed:
8. 202 + Populations of Bhutan, China, Mexico and Mongolia.

B. PROPONENT
Finland.

C. SUPPORTING STATEMENT

1. Taxonomy

1.1. Class: Mammalia

1.2. Order: Carnivora

1.3. Family: Ursidae

1.4. Genus: *Ursus*

Species: *U. arctos*

Since 1758, more than 250 specific and subspecific names have been proposed for recent and fossil brown bears (*Ursus arctos*). Many proposals, however, have been based on single specimens and are not scientifically valid (Kitchener 1994). The considerable uncertainty as to the true extent of subspeciation of *Ursus arctos* has led Servheen and Herrero to suggest that purported subspecies be more appropriately treated as geographical units or populations (in Anon 1992).

This proposal includes all populations and subpopulations of *Ursus arctos* in the Eastern Hemisphere (Europe and Asia), including those of the Middle East, and those of the Chukotka peninsula (Chukotskiy Polustrov) in the Russian far east.

1.5. Scientific synonyms: None

1.6. Common Names: English: brown bear
French: ours brun
Spanish: Orso pardo

2. Biological Parameters

2.1. Distribution:

The range of the brown bear is the most diverse of all the bear species, ranging from the northern arctic tundra, the boreal forests, and temperate forests, through to dry desert habitats. The species is found on three continents; Europe, Eurasia / Asia, and North America. A sub-species of the brown bear, *U. crowtheri*, which used to reside in the Atlas mountains of North Africa, became extinct in the late 1800s.

Human settlement, habitat change and centuries of persecution have already conspired to eliminate brown bear populations from 50-75% of their historic range, and continue to deplete remaining populations (Servheen 1990). Since the advent of firearms in the mid-1800s, range and population declines have been particularly rapid (Cowan 1972).

The species was formerly distributed across the whole of the European continent, and yet it is here that the brown bearÕs decline is most evident. It has long been extinct throughout almost all of the western Europe and has recently become extinct in a number of localities, such as at Vassfaret in central southern Norway (Elgmork 1994). The species is now restricted to a number of isolated units in Europe (Servheen 1990; Elgmork 1989; Rosler 1989) with no possibility of the re-establishment of continuous habitat (Sorensen 1990)**.**

Caucasian bear populations have long been isolated from others in European Russia and from those to the north west in the Balkans. Until the beginning of this century, bears inhabited the Caucasian forest zone of the Talysh mountains in the east, to Novrosiysk and Anapa in the west. Bear range is now restricted, however, to the mountain forests of the Main Caucasian Ridge, with a small handful of separate and isolated populations. Along the shore of the Black Sea, bear populations are severely fragmented and are expected to become extinct in the near future (Kudaktin and Chestin 1993).

In Turkey, although detailed population surveys have not been undertaken, it is clear that brown bear numbers have been decreasing outside of the core areas of Artvin, Hakkari, Tunceli and Erzincan (Mursaloglu 1989). The largest populations may be found in the east of the country (Umar 1994).

Very little is known about the current status of the species in the northern parts of Syria, Iran or Iraq, but it is expected to be restricted to the most remote of the mountain areas. Brown bears are thought to have become extinct in the Lebanon (Servheen 1990).

Another sub-species, *Ursus arctos leuconyx*, may be found in parts of Central Asia including northern Kazakhstan, Tajikistan and possibly Uzbekistan, but range is thought to be decreasing due to habitat destruction (Servheen 1990).

The brown bearÕs distribution still covers much of northern Eurasia, Siberia and the Russian Far East, but here too populations are becoming increasingly disjunct and insular (Kerley, Goodrich and Miquelle 1996; Servheen 1990).

2.2. Habitat availability:

The survival of the brown bear depends on the availability of all of its survival components within its home range (Bjarvall 1989). In Europe, Eurasia and Asia, populations of *Ursus arctos* are becoming increasingly fragmented as a result of human encroachment on their habitat (Servheen 1990).

The European brown bearÕs habitat is forest, particularly extensive, undisturbed and continuous forest (Elgmork 1989; Rosler 1989). Less than 1% of EuropeÕs original virgin forest remains, however, and large tracts of forested areas are scarce and rapidly vanishing (WWF Europe, 1996).

Competition for space between brown bears and humans is historic and ongoing. Current European populations reflect the cumulative impact of human encroachment, with bears usually only in mountainous or barren areas not far from, but previously seldom used by, humans. As the tourism and logging industries and their required infrastructures move into such areas, however, so habitat pressure on the few remnant populations will increase.

Elmork (1983), for example, reported a significant decrease in observations of bear and bear sign following construction of holiday cabins in bear habitat in central southern Norway. Similarly, Elmork (1989) has also shown that decreases in bear observations are correlated ($r = -0.84$) to an increase in the density of forest roads. Such pressures are already significant in the mountain ranges of the Pyrenees, the Cantabrians, the Carpathians and the Balkans and can be expected to increase.

In the Russian and former Russian Caucasus, bear range has contracted rapidly due to forest loss, extensive exploitation of mountain pastures and road construction. Kudaktin and Chestin (1993) suggest that 20% of the regionÕs forest has been lost in just 50 years. Felling of oak and chestnut stands has been particularly harmful to bear populations, since it has resulted in a decrease of food supply and a change in the bearÕs phenological rhythms.

Widespread felling of spruce in northern Turkey has destroyed prime bear habitat in the Black Sea region and resulted in large losses to the bear population (Umar 1994).

Northern Eurasia and Asia is characterised by forest habitat that is generally more intact than that in Europe, and consequently supports more contiguous bear populations. Utilisation of RussiaÕs forests has increased dramatically in recent years, as they have become more accessible to foreign interests.

Logging has been identified as a problem for many forests in the Russian Federation, including in the boreal region, the Kola-Karelian region, the Ural Mountains (where 75% of the forests have been destroyed), Zabaikal, Amur-Sakhalin and throughout Siberia (Krever, Dinerstein, Olsen, and Williams 1993, cited in Dudley, Jeanrenaud and Sullivan 1995). In the Russian Karelia, the Russian Academy of Sciences has calculated that logging of prime boreal forest is occurring at five times the sustainable level (Olsson 1995). Over half of KamchatkaÕs central conifer forests have been logged in the last 30 years (Newell and Wilson 1996).

Timber reserves in the Russian Far East are accessible to world markets via ports along the coast of the Sea of Japan and have attracted many buyers from countries of the Pacific Rim.

Logging of Korean Pine (*Pinus koreansis*) in the region has drastically altered the forestÕs structure and reduced the availability of pine nuts in the area, a key food source for bears. Furthermore, over-harvesting of salmon, a historic component of the bearÕs diet, has increased the dependency of bears on Korean pine nuts (Kerley, Goodrich and Miquelle 1996).

In Japan, populations of the Hokkaido brown bear (*Ursus arctos yesoensis*) have become increasingly fragmented, due to habitat loss and other pressures (Moll 1995, Servheen 1990).

2.3. Population status:

The brown bear is extinct in many European countries including Belgium, Denmark, Germany, Liechtenstein, Luxembourg, the Netherlands, Portugal, Switzerland and the United Kingdom. It is also thought to be extinct in the Lebanon (Servheen 1990).

Concern for the future of western EuropeÕs small, isolated bear populations has led to a number of detailed phylogenetic studies in recent years. These have greatly improved the understanding of relationships present in European bear populations and add an important new context for any population status reports.

European bears may be classified into a minimum of two genetic lineages, which represent historic separations during evolution of the species. Bears in Lapland, Finland, Russia, Estonia and Slovakia have been identified as belonging to a common mitochondrial DNA (mtDNA) lineage, which may be termed Ôthe eastern lineageÕ. All other European bears, except for those in the Caucasus, belong to a separate mtDNA lineage. This Ôwestern lineageÕ includes bears in southern Scandinavia, western and Mediterranean Europe and the Balkans. Romania is the only country in which there may be some overlap between the lineages (Kohn *et. al.* 1995; Randi *et. al.* 1994; Taberlet *et. al.* 1994).

Such understandings have profound implications for conservation. If a particular population of a species has been isolated during evolution, then it would be inappropriate to artificially introduce individuals of foreign stock in any attempt to boost an endangered population. For this reason, the conservation status of such populations should be considered individually, as well as for the species as a whole.

Estimates for bear populations across Europe, Eurasia and Asia are detailed in the table in Appendix A. European populations are grouped by genetic lineage, with the western lineage further subdivided into bear populations of the Iberian refugium and those of the Balkan refugium (after Kohn *et. al.* 1995; Randi *et. al.* 1994; Taberlet and Bouvet 1994). Populations are also shown by subspecies, where possible.

In all cases, it is the most recent population estimates available that have been adopted. Previous estimates recorded in the literature are shown where they provide an indication of population trends for a region. There are several countries in which knowledge of brown bear status is very poor.

Regional and continental population estimates are presented in the ÔOverall Summary TableÕ at the start of Appendix A. It has been calculated that there are only 210-230 brown bears remaining of the Iberian refugium, Western European lineage, and only 1650-2060 bears for the lineage as a whole.

The total brown bear population for continental Europe is estimated at between 10,390-11,200 bears. A population estimate for the Russian Federation has been derived by summing those presented for each region in Vaisfield and Chestin (1993). The total, between 95,400 - 101,400 bears is significantly lower than the 130,000 which the same authors had suggested, in Chestin *et. al.* (1992), using census data from 1989.

It total, it is estimated that there are between 110,905-120,715 brown bears within the area covered by the proposal.

Calculation of bear numbers, however, is notoriously difficult and prone to error. Chestin *et. al.* (1992), for example, have emphasised that there are no accurate methods for counting bears over large territories, while Servheen (1989) has highlighted the difficulties in assessing small bear populations in particular, such as many of those in Europe. Furthermore, ecological and cultural circumstances can often conspire to inflate population figures (see Section 4.2.1.). For this reason, conservation measures should always adopt a precautionary assessment of population data.

The brown bear was traditionally accorded special treatment by indigenous people of Hokkaido, the Ainu, who considered it as an important sustainer of life. In more recent years, however, the species has been exploited as a source of personal income (Moll 1995).

Captive Population:

The estimated captive population of European and Asian brown bears across the region is summarised in Table 1.

ive population of European and Asian brown bears.

Subspecies	Male	Female	Unknown	TOTAL
U. arctos*	118	176	5	299
U. a. syriacus**	18	30	5	53
U. a. isabellinus	10	6	0	16
U. a. beringianus	4	10	0	14
TOTAL	150	222	10	382

* Only 28% are of known origin

** Line possibly mixed with those of South European population.

(Kolter, Co-Chair of the EEP Bear Taxon Advisory Group)

Dr Lydia Kolter (*Pers. comm.* 1996), Co-Chair of the EEP Bear Taxon Advisory Group, has emphasised, however, the lack of knowledge concerning the genetic history of these captive populations. Since there is currently no functioning studbook for the species in Europe or Asia, it would be inappropriate to consider using the captive population for reintroduction´'s to the wild.

2.4. Population trends:

In a large number of the European countries in which the brown bear still survives, the species is threatened with extinction (de Klemm 1989; Kohn et al. 1995; Mertzanis 1989; Taberlet and Bouvet 1994). Strong negative population trends in many European populations are associated with the multiple threats that impact on small, isolated bear populations.

Servheen (1995) has calculated, for example, that the highest sustainable mortality level for a viable bear population in Greece is 4%. The rate of human caused mortality (including poaching) that has been detected is more than double this at 9-12%. The actual rate is likely to be higher still. When added to natural mortality, the

data imply a strong negative population trend on Greek bear populations (Servheen 1995; Arcturous 1996).

The extinction, in the early 1990s, of one such small, isolated population has been documented by Elgmork (1994). Since 1991, tracking studies on snow in the spring and on roads in the summer, have failed to find any spoor of the Vassfaret bear population in central southern Norway.

Kudaktin and Chestin (1993) have reported that bear populations in the Russian and former Russian Caucasus, such as those in Georgia and Azerbaidzhan, have declined substantially over the last 20 years. This has been due to the combined impacts of habitat loss and over exploitation.

Macdonald (1995) considers that the brown bear populations in Europe are now so small and fragmented that it is highly likely the species will become extinct, irrespective of persecution.

Positive bear population trends were experienced across much of RussiaÕs northern regions, however, in the three decades 1960-1990. Depopulation in the countryside led to a significant decrease in hunting pressure, with the estimated bear population of the former USSR increasing from 105,000 to 130,000 as a result (Chestin *et. al.* 1992).

Vaisfield and Chestin (1993) highlight, however, that since it is hunting pressure that has, almost exclusively, determined brown bear numbers across much of the country in the past, the Ôcommercialisation of huntingÕ represents a significant threat to the population.

In the last decade, commercialisation of the species has indeed terminated positive population trends in most cases and critically reversed them in others. Vaisfield and Chestin (1993) expect the populations in the North East of European Russia and the Centre of European Russia to decrease over the next 8-10 years in response to such pressure. In the Volga-Kama region, a general ÔdeteriorationÕ of the bear population has been detected.

East of the Urals, however, commercialisation of the species has brought negative population trends that are more serious. In the North of the Russian Far East, for example, brown bear populations have experienced a 2-3 fold decrease in number (Zhelezov, 1993). In Kamchatka, 1,500 - 2000 brown bears were removed over the period 1991-1993 (Nikolaenko cited in Chestin and Poyarkov 1994) from a population estimated at 9000 in 1990 (Chestin *et. al.* 1992).

Population declines due to poaching have also been detected in the Altai and Sayans (Sobanskiy and Zavatskiy 1993), Middle Siberia (Zavatskiy 1993), the Yakutia (Mordosov 1993), the South of the Far East (Yudin 1993a), and in the Sakhalin and Kuril Island (Yudin 1993b).

2.5. Geographic trends:

Some western European brown bear populations are on the verge of extinction (Boscalgi 1994). The French bear population, for example, consists of around only 10 individuals in the Pyrenees (Kohn et. al. 1995). In Spain, there are two populations of around 50-70 bears in the Cantabrian mountains and in Greece, one population of 95-110 individuals resides in the Pindus mountains, while another of just 15-20 animals is located in the Rhodope mountains (Arcturos 1996). In the Italian Alps, there may be only one individual remaining (Simonic *pers. comm.* 1996).

The populations of these countries all face the multiple threats associated with small, isolated populations, as well as numerous other local threats (see section 2.7). These

conspire to suggest strong negative population trends. For even the most populous of the European populations, however, road construction, logging, tourism and other human activities continue to reduce the species range into smaller units.

Romania, for example, supports the second largest population of European brown bears, but existing roadways and limited continuous forest tracts have effectively isolated the Romanian populations from each other and from those in neighbouring countries (Ionescu 1993). Habitat encroachment has also led to an increasing degree of human-bear conflict in recent years, as habitat is used for orchards and other purposes. This has led to removal of problem bears.

Poland's small brown bear population consists of 80 to 90 individuals. It is restricted to the Carpathians, most specifically in the Bieszczady Mountains, and exists in an area that is intensely managed for wood, berry products, sport hunting and tourism (Gula 1995).

Scandinavian brown bear populations have a history of being hunted near to extinction (Servheen 1990; Swenson *et al* 1995). During the 1980s, the bear population in Finland was very dependent on immigration from the western Russia bear population. Hunting figures in Finland in 1980s were exceeding the sustainable level of the Finnish bear population and had led to an crarsh in the Finnish bear population if the immigration had stopped, due to hunting and other development in Russia (Pulliainen 1989). More recently, Finland has adopted a strict quota system for hunting and the bear population has more than doubled since 1991-92 (Veijo Miettinen, CITES Authority, *pers. comm.* 1996; Helle 1996). This recent history illustrates, however, the fragility of even the larger European brown bear populations.

Norwegian populations, totalling only 25-55 bears, are fully protected. In 1991, however, the extinction of the last regional population was reported (Elgmork 1994). It is estimated that there are now just 14 bears in central and southern Norway, all located on the Swedish border (Swenson *et. al*. 1995). All other bears are in the north of the country, and connect with populations in Finland.

In Sweden there are over 1000 bears, the females of which are concentrated into four isolated groups (Swenson *et al*. 1995). There has been some poaching here, but the extent is not known (Bjarvall, A. 1996 *pers. comm.*).

In their historic review of Scandinavian bear management policies, Swenson *et. al.* (1995) concluded that the conservation measures which have had the greatest effect were those that Ôreduced or eliminated the economic advantage of killing a bearÕ. The authors found this to be a ÔdisquietingÕ conclusion, in the current context of a world-wide trade in bear parts and the high economic value placed on hunted bears.

Bear populations in Croatia and Bosnia have also been affected by five years of war in the region. Huber (1993) has estimated that half of CroatiaÕs population may have been lost because of landmines, habitat loss, poaching and other disturbance. Even at the highest rates of reproduction, a population would require at least ten years with no hunting pressure to recover from such a decline, and 40 years if previous hunting levels were reduced by 75% (Huber 1993). Little is known about the impact of the war on the Bosnian bear population, but it is expected to have been more severe (Huber 1993).

The largest European bear populations may be found in northern European Russia. These populations steadily increased from 1960-90, due to a decrease in hunting pressure. In the last decade, however, illegal hunting has increased again,

motivated now by the Ôunprecedented increase in bile and hides pricesÕ (Vaisfield and Chestin 1993).

Further isolation between Russian populations, and from other European populations, can be expected, causing a decrease in range and genetic variation, compounded by the low reproductive rate of the species.

Caucasian bear populations have long been isolated from others in European Russia and from those to the north west in the Balkans. Until the beginning of this century, bears inhabited the Caucasian forest zone of the Talysh mountains in the east, to Novrosiysk and Anapa in the west. Bear range is now restricted, however, to the mountain forests of the Main Caucasian Ridge, with a small handful of separate and isolated populations. Through the 1980s and 1990s, poaching has increased dramatically, commensurate with the rising prices of bear viscera (Vaisfield and Chestin 1993). In the 1990s, ongoing conflicts in the region have caused bear mortality to rise further, since many are shot by troops in the woods (Chestin *pers comm.* 1996).

In Turkey, although detailed population surveys have not been undertaken, it is clear that brown bear numbers have been decreasing outside of the core areas of Artvin, Hakkari, Tunceli, and Erzincan. The decrease in forests, construction of roads allowing human invasion into previously secluded bear habitat, an increase in human population, the threat of the safety of humans and livestock, the destruction of orchards and the high prices paid for bear parts all result in the persecution of the bear in Turkey (Mursaloglu 1989).

2.6. Role of the species in its ecosystem:

The brown bear is EuropeÕs largest terrestrial mammal and a fundamental element in the biological heritage of the continent (Dendaletche 1989). Although the species occasionally frequents open tundra in North America, in Europe it remains faithful to the forest and forest meadow ecosystems (Bjarvall 1989), of which it is an integral component. Furthermore, the brown bear performs a number of ecological functions essential to the maintenance of EuropeÕs boreal, temperate and Mediterranean forest communities.

Giannakos, Hulme and Dunstone (1995), for example, have reported the role of brown bears in the seed dispersal of numerous tree and shrub species in the Rhodopi mountains of northern Greece. Since plants are sessile organisms, dispersal of seeds is vital for the maintenance of present populations, the colonisation of new habitats and for escape from local herbivores, or seed predators.

In the Rhodopi mountains, bears consume wild rose (*Rosa canina*), raspberry (*Rubus idaeus*), blackberry (*Rubus canescens*), wild apples (*Malus sylvestris*) and plums (*Prunus cocomilia*). Bears tend to concentrate their feeding activity on a single fruiting tree each night, often consuming the entire crop in one feed. This, in turn, causes bears to defecate a large number of seeds in a localised area, possibly a considerable distance away, thus facilitating the colonisation of new areas by the tree species.

Fruit species with larger seeds, such as plums and dogwood *(Cornus mas*), are likely to be particularly dependent on bears for their dispersal, since their size makes them too large to be swallowed by birds.

Digging activity by brown bears also impacts on lower botanical assemblages through modification of plant species distribution and abundance, landscape patch dynamics and soil nutrient cycling (Tardiff and Standford 1995; *In prep.*).

Digs tend to have significantly higher concentrations of plant-available (mineral) nitrogen than undug sites, but also contain a greater variance of nitrogen levels than undisturbed areas. Digging therefore creates not only forest meadow patches with higher concentrations of available soil nitrogen, but it also leads to greater heterogeneity of the nitrogen distribution within the patch (Tardiff and Stanford 1995; *In prep.*).

At the landscape scale, digging activity also varies spatially and temporally, creating a wide range of nutrient, moisture and disturbance conditions between available niche spaces. Brown bears thus perform an ecosystem function crucial for the maintenance of particular botanical assemblages, and it is likely that areas from which bears have been extirpated are now quite different (Tardiff and Stanford 1995; *In prep.*).

The role of the European brown bear as a predator varies greatly with the size of bear and prey population, the habitat and the locality. Where healthy populations of bears exist, however, the species can represent an important regulator of prey numbers, such as of moose in the European taiga (Danilov 1983).

Overall, the brown bear may act as a keystone species within the ecosystems which it inhabits (Dunstone, *pers. comm.*). The species clearly plays an important role in maintaining community structure, as a major seed disperser of numerous plant species, as an agent of disturbance and as a predator.

This has led ecologists in countries in which the brown bear no longer resides to speculate on what has been lost by its absence. Dennis (1995), for example, believes that Scotland will never again see a Ôtrue forestÕ if the Ômajor playersÕ, such as bears, are not present.

Further research may identify additional functions performed by bears in the maintenance of biodiversity.

2.7. Threats:

Competition between bears and humans for resources and space is the most insidious of threats faced by bears. It has resulted in a significant reduction of range and numbers for all bear species. As continuing resource demands are made on bear habitats, the level of competition between bears and humans can only be expected to increase (Servheen 1990).

Activities such as land development, agriculture, timber harvest, human settlement, tourism, road and rail construction are reducing and fragmenting brown bear habitats across the range of the species. When such human activities occur linearly, they have the potential to inhibit the passage of bears and other large carnivores across these zones, and to increase mortality of these animals as they attempt to move through, or live within, such disturbance areas (Servheen, Sandstrom and Meitz 1995; Servheen 1990).

In southern Scandinavia, for example, Elmork (1983) has reported a significant decrease in observations of bear and bear sign in bear habitat over a thirty year period. The decrease correlated to an increase in the number of holiday cabins and thus inversely related to a considerable increase in the chance of discovery. Elmork (1989) has also shown the negative impact on bears of an increasing density of forest roads.

In Croatia, Huber, Kusak and Frkovic (1995) have recorded bear mortality caused by traffic in just one region of the Republic. It is known that traffic killed at least 72 brown bears in Gorski Kotar in 32 years, 71% of which were killed on a railroad, 29% of which were killed on highways. In addition to these direct mortalities,

however, both of these incursions through bear habitat act as semi-pervious barriers to bear migration, gene flow and habitat availability.

Servheen, Sandstrom and Meitz (1995) consider population insularisation, the result of habitat encroachment, to be one of the major problems facing bear species. As detailed in the proposal for the inclusion of all bear species in Appendix II, passed at the eighth Conference of the Parties, insularisation of bears into small populations renders them more vulnerable to random genetic changes, inbreeding depression and local catastrophic events. Loss of genetic diversity reduces the capacity of the species to adapt to changing environmental conditions.

One of the least predictable, but potentially most serious environmental changes that may impact on bear populations over the coming years is that of climatic change (Peters and Lovejoy 1992). There are a number of mechanisms through which bear populations, and the ecological communities of which they are part, are likely to be affected as a result of the direct and indirect impact of climate change:

Ò... endangered species that exist only in reserves or other extremely limited habitats, are especially vulnerable to global vegetation shifts. Species that are already threatened by direct exploitation and habitat loss and degradation are likely to be particularly susceptible to new threats. ...altitudinal shifts brought about by increased temperatures would reduce or even eliminate the ranges of montane and alpine species, many of which are already relictualÓ

McNeely, Gadgil, Leveque, Padoch and Redford *et. al.* (1995)

Many of these factors apply, if not to all brown bear populations, to a large proportion of them. It can be reasonably assumed that climatic change may represent a significant threat to bear populations. Those that have already become fragmented and isolated by other human activities will be particularly susceptible.

Even in the absence of climate change, Servheen (1990) expects that the resulting limited resource diversity and lack of interconnection between sub-populations of bears will result in the extinction of some sub-populations.

These inherent conservation difficulties are exacerbated in Europe by classification of European bear populations into a minimum of two, and possibly three, distinct genetic lineages and evolutionary clades. This greatly limits the range of appropriate donor populations that could be used to help restock the smallest populations (Kohn *et. al.* 1995; Taberlet and Bouvet 1994).

As with other European populations, however, immediate threats to these small, isolated populations continue. In Greece, bears face extreme pressure from dam construction, road building associated with forest utilisation, the forest harvest itself and poaching (Arcturous 1996; Servheen 1996; Servheen 1990). In Spain, illegal hunting is a very serious problem, sufficient to jeopardise the future of the species (CITES Management Authority for Spain, *pers. comm.*).

Highway construction, hydropower development, the tourism industry and logging are increasingly isolating Russian populations (Pullianen 1989; Sorensen 1990). Shevchenko (1987) considered such activities to represent a major threat across the area of the former Soviet Union, where she considered the Òprospects are rather dismalÓ.

As humans move into bear habitat, so persecution of bears will increase. From 1981 to 1983, 42% of the 3,300 bears reported taken by hunters in the western portion of the Soviet Union were shot in oat fields while feeding on grain (Shevchenko 1987).

Furthermore, encroachment on bear habitats increases accessibility for illegal hunters.

A low reproductive rate and naturally low population density of *Ursus arctos* render the species susceptible to over-exploitation (Anon. 1992; Servheen 1990). Females do not attain sexual maturity until the age of 3-5 years, do not give birth to young every year and generally only give birth to two cubs at a time.

Furthermore, it has long been assumed that hunting of adult males has little or no negative impact on population growth, or that it actually increases production and survival of young (Miller 1990). More recent research on a small hunted brown bear population, however, suggests the opposite.

The previous assumptions were based on an observed increase in the number of young male bears, in response to high hunting mortality of adult males. Rather than representing an increase in the population, however, Wielgus and Bunnell (1994) have shown that the high numbers of young males actually represent higher numbers of immigrants, in response to fewer adult males.

The distinction has profound implications for female reproduction rates and litter sizes. Young immigrant males were associated with a decrease in the litter size amongst females. This was not only because of direct mortality of cubs by immigrant males (to bring females into estrus), but also because of avoidance of food-rich habitats by adult females due to the presence of the immigrant males, and the poor nutrition of adult females as a result.

This reinforces the concern that even contiguous bear populations are highly susceptible to over exploitation. In such a context, it is advisable to take all steps possible to eliminate unregulated exploitation of bear populations.

As documented in other sections of this proposal, the international trade in bear parts has led to over-exploitation of the species through much of its range in Europe and Asia. The development is extremely serious since, in most locations, population trends for the species have been determined mostly by the level of hunting pressure (Swenson *et. al.* 1995, Vaisfield and Chestin 1993). The precedent is one which Swenson *et. al*. (1995) find ÔdisquietingÕ in the current climate of growing trade in bear parts.

3. Utilisation and Trade

The demand for bears and bear parts in Asia was clearly established in the proposal for the Appendix II listing of *Ursus arctos*, as adopted at the eighth Conference of the Parties in 1992. Many bear parts are used in traditional medicine (TM) to treat a variety of ailments, but demand is greatest for the bile within its gall bladder. Bile is used as a cure for bacterial infections, inflammation, blood purification and digestive problems (Huang, J. 1995).

This demand has not decreased and prices paid for wild bear gall have risen significantly in most countries (Mills *et. al.* 1995). A recent TRAFFIC report (Mills *et. al.* 1995) has found that todayÕs market for bear gall bladders has increased outside south-east Asia, wherever there are bears. Furthermore, consumption has spread to Asian communities residing in Europe and North America (Investigative Network 1996; Doggett, J. 1995).

As noted in the proposal for the Appendix II listing of *Ursus arctos*, as adopted at the eighth Conference of the Parties (1992), differentiation between legal and illegal trade in bear products is complicated by the different degrees of national legal protection afforded to bear taxa, as well as their different status under CITES. In addition, quantification of trade in particular species is complicated by the form in which bears are marketed i.e. gall bladders, paws, etc. which are largely unattributable to individual species.

Numerous commentators (Knights 1996; Mills *et. al.* 1995; Galster *et.al*. 1995; Servheen 1990) have pointed to evidence that threatened and protected bear populations have been commercialised both locally and internationally through the loophole created by differing degrees of protection afforded to different bear taxa.

In addition, although it is possible to distinguish between Asiatic and North American bear species if a sample of blood or tissue is available, it is Ônext to impossibleÕ to undertake such an analysis where the only remains are a desiccated gall bladder (Espinoza, Deputy Lab Director, Forensics Laboratory, US Fish and Wildlife Service *pers. comm.* 1996). This is because bile acids degrade both the protein and the DNA molecules. Gall bladders may only be identified at species level if some liver tissue remains attached. It is relatively simple, however, to determine whether a gall, dried bile or liquid bile is from an Ursidae (Espinoza *per. comm.* 1996; Espinoza, Shafer, and Hagey 1995).

Since all bear species are listed on at least Appendix II of CITES, all international trade shipments of bears or bear parts involving Parties should be accompanied by CITES permits. Furthermore, these shipments should be registered with the appropriate Management Authority, in which case they should also appear in the annual reports of the Parties to the Secretariat. The *CITES Trade Database,* however, has records of just five single shipments of gall bladders for the years 1989-94, despite the widely acknowledged large scale nature of the international trade in galls. This provides a clear indication of the failure of the Appendix II listing of *Ursus arctos* to adequately monitor and regulate the trade in bear products. There are numerous ways in which loopholes in the Appendix II system are exploited and large quantities of bear products can be laundered.

3.1. National Utilisation:

Throughout most of Europe, Eurasia and northern Asia bears have historically been hunted for skins and meat, or as retribution for agricultural damage. In the Ukrainian Carpathians, bear fat has also been used historically as a medicine (Slobodyan 1993). As the brown bearÕs range has contracted in these regions, however, bears have became more highly valued as a trophy animal.

Shubin (1993) reports that bears were previously hunted in Western Siberia for their meat and fat, but hides were of almost no value. Hunting, particularly with snares, caused a decrease in the population (Shubin 1993).

Local people in Central Asia and Kazakhstan have a history of using bear bile and fat as a medicine, and of consuming meat, but official hunting of Tian Shan bears was banned in 1978 (Pazhetnov, 1993). Kudatin and Kosin (1991) have stated that the influence of hunting on bear population size, spatial and ecological structure cannot be overestimated, because of the selective nature of the activity. Influence will vary according to locality and the hunting method practised in a region.

The brown bear was traditionally accorded special treatment by indigenous people of Hokkaido, the Ainu, who considered it as an important sustainer of life. In more recent years, however, the species has been exploited as a source of personal income (Moll 1995).

3.2. Legal international trade:

Information on the legal international trade in *Ursus arctos* has been obtained from *CITES Trade Database*, which is updated by WCMC from the annual reports submitted to the CITES Secretariat (WCMC 1996). Since a significant proportion of the Parties to the Convention have failed to submit annual reports to the Secretariat, however, it would be misleading to consider the database a comprehensive representation of the legal

trade. In August 1996, for example, 42 parties had still failed to submit reports for 1994.

Data on legal shipments of *Ursus arctos* that originated in the range states of Europe and Asia, have been summarised below, by item traded, for the years 1989-94. Data for 1995-96 are not yet available.

3.2.1. Legal trade in live brown bears from Europe and Asia.

International trade in around 1400 European or Asian brown bears was reported to the CITES Secretariat for the years 1989-94. There are some records that do not give precise data, but information available has been summarised for the major countries of origin (or export if no record) in Table 3.2.1.

TABLE 3.2.1: Trade in live brown bears, originally from European or Asian countries, by Country of Origin (or Export if no record).

Country of Origin (export if no record)	1989	1990	1991	1992	1993	1994	Total
Soviet Union	*18*	*15*	*217*	*46*	*0*	*9*	***305***
Russian Federation	*-*	*-*	*-*	*166*	*209*	*286*	***661***
Czechoslovakia		12	22	32	2		**68**
Czech Repub.	-	-	-	2	41	78	**121**
Slovakia	-	-	-	2	1	2	**5**
Germany (including DD)	23	15	7	30	3	6	**84**
Japan			23				**23**
Australia			2	12	2		**16**
Belgium				2	8	5	**15**
Poland			8				**15**
Bulgaria				10	5		**15**
Switzerland		11	4				**15**
Netherlands					11		**11**
Others	9	12	8		16	11	**49**
Source country unknown	2	0					**2**
TOTAL	**52**	**65**	**291**	**302**	**298**	**397**	**1405**

Source: WCMC 1996

A large proportion of the brown bears in live trade are recorded as having come from captive populations, including the circus or entertainment sector.

There is an extremely clear pattern of increase in trade during the period. The Soviet Union and Russian Federation jointly represent the source of 69% of all live brown bears traded between 1989-94. The next largest is Czechoslovakia (including the Czech Republic and Slovakia) at only 14%.

3.2.2. Legal trade in hunting trophies of European and Asian brown bears.

The trade in brown bear trophies is summarised in Table 3.2.1.

TABLE 3.2.2: Trade in Brown Bear Trophies by Country of Origin (or Export if no record)

Country of Origin (export if no record)	1989	1990	1991	1992	1993	1994	Total
The Russian Federation	*0*	*0*	*0*	*73*	*0*	*424*	***1263***
The Soviet Union	*0*	*0*	*159*	*271*	*630*	*132*	***364***
Romania	0	2	7	4	1	60	**74**
Yugoslavia	4	11	1	0	0	0	**16**
Turkey	1	3	4	0	2	2	**12**
Bulgaria	0	0	7	2	0	0	**9**
Estonia	0	0	0	0	0	8	**8**
Finland	0	0	0	7	0	0	**7**
Others	1	4	2	3	2	8	**13**
Source country unknown	0	1	0	1	0	1	**3**
TOTAL	**6**	**21**	**180**	**361**	**635**	**635**	**1838**

Source: WCMC 1996

A clear pattern of increase can be observed over the period. The large volume of trade in trophies from Romania in 1994 but not in previous years can be explained by the fact that no reports were submitted for the country prior to 1994.

3.2.3. Other items in trade

Trade in other brown bear parts is summarised in Table 3.2.3.

TABLE 3.2.3.: Trade in other brown bear parts, involving European or Asian countries, for years 1989-94

Item Traded	1989	1990	1991	1992	1993	1994	Total
Carcass / Specimens	6	9	18	3	6	71	**113**
Skins	4	21	88	64	169	201	**547**
Meat (kg)	3360	3800	0	211	700	0	**8071**
Skulls	2	9	10	1	15	19	**55**
Claws					12		**12**
Carvings				3			**3**
Teeth				46	183	73	**298**
Gall Bladders (kg)			19			17	**36**
Derivatives (Boxes)						20,000	**20,000**

Source: WCMC 1996

There is a dramatic increase in trade in carcass and specimens in 1994. This primarily represents a single shipment of 63 carcasses to Japan, from wild Romanian bears, presumably for consumption. In 1991, the carcasses of 12 bears were shipped from Sweden to Norway.

There has been a dramatic increase over the period in trade of brown bear skins from European and Asian countries.

The *CITES Trade Database* has records of just five single shipments of gall bladders for the years 1989-94, despite the widely acknowledged large scale of the international trade in galls. This provides a clear indication of the failure of the Appendix II of *Ursus arctos* to adequately monitor and regulate the trade in bear products. The shortcomings of the data are further evidenced when individual cases are examined:

- In 1994, 957 grams of galls, claimed to be of Russian origin, were exported from China to South Korea. There is no record of such an import to South Korea.
- In 1994, there were 2 shipments of galls from Russia into China, one of 1 kg, one of 15 kg. No record of the import has been reported. Mills (1995) suggests an average weight of 60g per gall, while Knights (1996) suggests 128g. These would imply that the two shipments represent between 8 - 16.5 galls and 117 - 250 galls respectively.

3.3. Illegal trade:

The IUCN / SSC Bear Specialist Group have stated that the trade in bear gall bladders is a significant threat to the survival of a number of bear species, including brown bear populations in Asia (Servheen 1995). Several reports (Mills and Servheen 1991; Mills *et. al.* 1995) have concluded that the Asian demand for bears and bear parts plays a significant role in the illegal trade of bear parts.

Illegal trade in brown bears and brown bear products occurs across the European and Asian continents. The *CITES Trade Database* has records of seizures containing brown bear products originating from the Czech Republic, Romania, Turkey, the Soviet Union / Russian Federation and Yugoslavia, even though reports for 1994, for example, have not yet been received from 42 of the Parties to the Convention.

Many more incidents of illegal trade have been reported in other literature, and are detailed below.

The Russian Federation.

Russia has experienced a rapid increase in illegal wildlife trade in recent years, following the collapse of the Soviet Union (TRAFFIC 1994; Chestin and Poyarkov 1993). A period of general and economic instability, improved trade relations with a number of Asian countries and rapid economic growth in those countries, has led to a major increase in poaching and smuggling (De Meulenaer, Director of TRAFFIC Europe, quoted in Ames 1996; Chestin and Poyarkov 1993).

Although utilisation of bears is legal in Russia and regulated through a licence system, entire carcasses are increasingly being found with only their gall bladders removed, with other once-valuable parts left behind (TRAFFIC 1994; Vaisfeld and Chestin 1993). In 1993, trade in bear bile was detected across the whole Russian

Federation (Chestin 1994) to supply a number of illegal export channels. Poachers are now employing snowmobiles, land cruisers, helicopters, horses and dogs to hunt bears and supply the market (Galster, LaBudde and Kelly 1995).

Igor Chestin of the Moscow State University has referred to trade in brown bear in Russia as ÒprolificÓ. In 1993, 1 kg of galls sold as bear galls in an attempt to satisfy the demand, were actually human gallbladders taken from morgues (Chestin 1995).

The data held at WCMC on the *CITES Trade Database* clearly indicate the role of the Soviet Union and the Russian Federation in the global illegal trade in brown bears and brown bear parts. Of all seizures containing brown bears or brown bear viscera reported to the CITES Secretariat for the years 1989-94, the Soviet Union or the Russian Federation is reported as the origin or country of export for 52% (data from WCMC 1996).

The Russian Far East.

Poaching of brown bear and illegal trade in bear parts is at its most severe in the Russian Far East, due to the proximity of the traditional markets for bear products. Brown bears in the region were hunted for galls, for use in TM, during the last century, but all private trade in wildlife products was banned in 1917.

An influx of Chinese and Korean timber workers to the region in the 1950s and 60s, however, resulted in a re-establishment of the demand for bear gall bladders (Chestin 1995). The demand was primarily exploited by individual opportunistic traders over the subsequent decades, but following the collapse of the Soviet Union, bear parts are being increasingly sold through organised groups (TRAFFIC 1994). It is widely reported that the Russian Mafia is heavily involved in the countryÕs illegal wildlife trade (Galster *et. al.* 1995).

In 1994, gall bladders were selling for US $3-5 per gram in the Russian Far East (Chestin 1995). TRAFFIC (1994) reports that galls and other bear parts are sourced by the organised groups through at least two tiers of middlemen. The first tier includes those that maintain close contact with hunters and live in the proximity of the source habitats. Other middlemen travel from one area to another sourcing bear viscera.

The second tier may include some of these Ôtravelling middlemenÕ, but purchases are more generally made by individuals based in the cities. It is these middlemen that organise export, either by themselves or through other organisations. They also take orders direct from Asian customers and, in turn, place them with known hunters. One TRAFFIC investigator met a hunter who had received an order for one to two kilograms of bear gall bladders from a middleman who wanted to sell them on to his Chinese customers (TRAFFIC 1994).

Advertisements placed in local newspapers indicate that one or two major organisations have a monopoly of the purchase and export market for bear gall bladders. Illegal export utilises all forms of transport possible, over land borders, by sea and by air (TRAFFIC 1994).

Resources available for border controls have fallen greatly in Russia since 1991. One military checkpoint near Polkovnitsa which was once patrolled by fifty borderguards now

has a staff of only seven (Galster *et.al.* 1995). TRAFFIC (1994) states that wildlife parts are being carried across all of the five checkpoints in Primorsky Kray, into China and possibly into North Korea. Small and lightweight bear parts, such as galls, are easily smuggled across on the person, on freight trains and cargo trucks. Chinese traders have crossed the border to buy items on the Russian black market, either from middlemen or direct from hunters. There have also been reports of Korean timber workers smuggling shipments of wildlife contraband across the border in freight trains transporting timber (TRAFFIC 1994).

In addition, it is known that some Chinese traverse Lake Hanka, which straddles the Sino-Russian border of Primorsky, to poach bears in the forests to the north. Russian rangers have found large holes dug in the forest where bear parts, other wildlife contraband, or even poachers can be hidden. In 1994, ten Chinese men were caught on the lake, proceeding to Vladivostok, from where they were intending to fly to Italy (Galster *et. al.* 1995). It is also reported that some Customs staff may be involved in the trade (TRAFFIC 1994).

Cargo and, to a lesser extent, passenger ships represent a popular means of smuggling wildlife from the Russian Far East, particularly if the end destinations are Japan, South Korea, Viet Nam or Singapore (Galster *et. al.* 1995, TRAFFIC 1994). A range of large and small ports are available, such as Vladivostok, Slavunka, Preobrajenie, and Terney in Primorsky Kray, and Sovetskay Gavan, Nikolaevsk-on-Amur, Vanini, and others in Khabarovsky Kray (TRAFFIC 1994). A brown bear skin was seized from a South Korean in January 1993, as he was trying to smuggle it out of the country.

Chestin and Poyarkov (1994) have reported heavy trading by Russian sailors and fishery employees, who smuggle galls from Russia since they are easy to hide, and then sell them abroad, primarily in Japan, realising a 2000% profit.

Small, light and valuable items, such as gall bladders, are also smuggled by air. Koreans have been caught smuggling galls through Khabarovsk airport. TRAFFIC (1994) reports that tourist agencies in Khabarovsk and Vladivostok organise trips to South Korea, China, Japan and south east Asia, which often guarantee an arrangement whereby Customs controls are bypassed. Russian tourists have been known to sell galls in Korea, and it is thought a significant quantity may be smuggled in this way.

Bear parts from the Russian Far East are also being illegally exported to North America and Europe, as well as south east Asia. In July 1995, for example, a Armenian Russian arriving at Los Angeles from Moscow was found to be carrying 19 large bear galls. The galls had yet to dry properly and between seizure and forensic testing shrank from 1,300 grams to 1,139 grams. DNA testing of tissue residue on the galls, which the smuggler claimed to be from Siberia, showed them to be from brown bears (US FWS Special Agent, Herb Curry, 22/2/96, quoted in Knights 1996).

In September 1995, in Anchorage, Alaska, sixty galls were found in a shipment of reindeer antlers from Magadan Siberia, bound for Los Angeles (Phillips 1995 cited in Investigative Network 1996).

The Urals, Middle and Western Siberia.

Shubin (1993) has reported that the prices of hides, meat, fat and gallbladders have increased in Western Siberia, and that attempts to regulate shooting through a licensing system have not been successful. It has also proved impossible to control poaching in the Baikal region (Ustinov 1993).

In northern Mongolia, local herdsmen have described a significant decline in bear populations following 3-4 years of intensive poaching, even in the most remote locations. Demand exists for galls, paws and skins in the region (Bennett 1996a; 1996b).

Central Asia.

In the summer of 1994, bear galls were selling for US $3-4 per gram in the Altai, while in Kazakhstan they would reach prices of US $8 per gram (Chestin 1995).

Galster *et. al.* (1995) have reported the existence of a number of illegal export channels that smuggle wildlife goods, particularly furs and skins, from western Siberia and Central Asia westward into Europe.

European Russia.

Trade in bear parts is also well established west of the Urals, in European Russia. Advertisements offering skins and galls are regularly placed in Moscow newspapers (Chestin *pers. comm.*). Gall bladders found for sale in Moscow and St. Petersburg were probably destined for Asian communities living in Europe (Chestin *pers. comm.*). Officials at the Russian Ministry of Environment have indicated that more than half of the estimated $1 billion worth of rare animals and animal parts sold in Europe derive from the former Soviet Union (Galster, LaBudde and Kelly 1995).

There have been incidents of whole bear skins being imported to Norway from the Russian Federation without CITES permits (Directorate for Nature Management, *pers. comm*.). Skins of Russian brown bears were also seized by Spanish authorities in 1993, while in 1992, illegal hunting trophies from Russian bears were seized in Germany (WCMC 1996).

The Caucasus.

There is some evidence of a significant trade in bear skins in Turkey, with possibly between 200-300 bears being shot each year for the trade (Gernant Magnin quoted in Jenkins 1993). Poaching has also been reported by Umar (1994). The *CITES Trade Database* records a seizure in the United States in 1993 of two illegally imported hunting trophies from Turkish brown bears (WCMC 1996).

It is also probable that, in some regions of Turkey, bears are being poached for their galls. Such viscera would be exported to the Russian Caucaus, including Georgia, where bear poaching has been driven by a dramatic increase in prices available for bear products. Black market prices for skins, fat and gall bladders have all experienced a ten fold increase in their value, within just a 7-10 year period (See table 3.3.1).

Table 2.

The increase in prices for bear products on the Ôblack marketÕ in the former Russian Caucasus, (in roubles).

Year	*Skin*	*Fat per litre*	*Gall bladder*
1980	50-100	25	-
1981	50-100	25	-
1982	250-300	30-40	-
1983	250-300	30-40	-
1984	250-300	30-40	-
1985	400-600	40-50	100-150
1986	500-700	50	150-200
1987	1000-1500	80-100	150-200
1988	1000-1500	80-100	150-200
1989	1500-1800	100	250
1990	2500-4000	150-200	500
1991	4000-7000	250	500-700
1992	10000-15000	500	1000-1500

(Vaisfield and Chestin 1993)

Galster *et. al.* (1995) have reported that the Chechen of the northern Caucasus are involved in the illegal wildlife trade. They have also suggested that there is an established trade in skins and furs across the Black and Caspian Seas.

Europe.

Incidents of poaching and illegal trade in bear products are also being increasingly detected in Europe, despite a European brown bear distribution characterised by small, isolated populations.

In the Slovak republic, for example, whole cadavers of bears have been found with their skin removed (Agency for Environment, CITES Scientific Authority for Slovak Republic, *pers. comm.*). In Poland, it has become more difficult to control poaching, even though each case is extremely serious for a population of around just 60 bears (Gula quoted in Peyton 1995). In addition, bear skins, illegally imported from Russia, have been found for sale on Polish streets and small markets (Gula, *pers. comm.*).

WCMC (1996) records that illegally imported hunting trophies from Romanian bears have been seized in Spain. In addition, there is evidence that German sport hunters circumvent their domestic legislation prohibiting the import of trophies from

Romanian bears by passing them through Russia first (German Scientific Authority, *pers. comm.*).

In 1992, US authorities seized bear goods which had been imported from Austria. The origin of the items was not known (WCMC 1996).

In Greece, TRAFFIC has found whole brown bear pelts for sale, one of which was offered for US $430. It is also reported that in the Balkan region generally, and also in Turkey, adult bears are sometimes killed and their cubs sold to the entertainment industry, or as pets (De Meulenaer and Gray 1992). With a Greek brown bear population of around 100 individuals, separated into three isolated populations, this trade could be having a severe impact on the species if Greek bears are being utilised.

ARCTOS (1996) have also reported the illegal trade in bear cubs from Albania across borders. Although Albania is not yet a Party to CITES, most of the bordering countries are. Illegal trade into Greece provides an opening into the whole EU.

The CITES Scientific Authority for Spain has reported that illegal hunting of bears is important enough to jeopardise the future survival of the species in Spain. Bears are sometimes shot during Ôillegal hunting partiesÕ, after which trophies may be sold (CITES Scientific Authority for Spain, *pers. comm,*).

In 1990, an attempt to smuggle 50 kilograms of bear meat, and 5 whole carcasses from Sweden was uncovered (Directorate for Nature Management *pers. comm).* In Sweden itself, bear poaching occurs, but the extent is unclear (Bjarvall, *pers. comm.*).

Markets for illegal trade in European and Russian bear viscera.

Evidence has been presented of an established, and growing illegal trade in bear parts throughout the range countries of Europe, Eurasia and northern Asia. These continents are increasingly cited as the original source of bear parts in the illegal trade.

The official import statistics for the Republic of Korea, for example, show no bear bile having been imported from either Russia or Italy during the 1970s or 1980s, but indicate 1780 kg and 550 kg to have been imported from each country respectively, during the period 1990-1993. Over the same period, the statistics also show the declining importance of more traditional sources, such as Japan and Taiwan (Republic of Korea Customs Administration, cited in Mills 1995; Mills *et. al.* 1995).

The same pattern has also been evinced by surveys of pharmacies and medicine stalls in South Korea. In 1991, for example, surveys found no galls on sale that were claimed to be from Russia (Mills and Servheen 1991), where as in 1995 Russia was mentioned as a source by eight of 23 retailers claiming to sell bear gall bladders. Furthermore, some merchants indicated that they now prefer gall bladders from Russia over those from China (Mills *et. al.* 1995). Knights (1996) reports that Russian galls now dominate the South Korean market, and are smuggled in by Russian tourists, clothes dealers, sailors and mafia operators.

In 1995, Russian galls were being offered in South Korea for between US $10 to US $167 per gram in one survey (Mills *et. al.* 1995), and for between US $18 to $80 per gram, or from US $260 up to US $4000 per gall in another (Knights, 1996).

Similar surveys of TM stores in Macau indicated a much greater availability of bear gall bladder in 1995 than in a previous survey in 1990. Of 43 stores visited, 34 (79%) said they had galls. In a worrying development, three stores claimed that their bear galls or other products had come from Europe (Mills *et. al.* 1995)..

In February 1995, bear galls and medicines containing bear derivatives were seized in Auckland, New Zealand (Moyle 1996).

TRAFFIC have found gall bladders for sale in the Chinese town of Heihe, on the Sino Russian border, allegedly from Russian bears. Investigators were offered galls for around US $90 (or an estimated US $1.50 per gram), and were told that there were six or seven available (Mills *et. al.* 1995).

Furthermore, investigators in Vancouver, Toronto, and New York City have been offered galls with Russian labels said to have come from the Russian Far East (Knights 1996).
In February 1995, bear galls and medicines containing bear derivatives were seized in Auckland, New Zealand (Moyle 1996).

A further concern is that there are many indications of an increasing demand for bear products in countries in close proximity to the most endangered populations. In Sweden, for example, the Environment Protection Agency, the CITES Scientific Authority for Sweden, has received calls from Asian residents asking how gall bladders can be obtained (Bjarvall, *pers. comm*.).

In the Netherlands, which has no resident brown bears, a recent seizure of several thousand kilograms of TM products in February 1996, included items labelled as containing bear (CITES Enforcement Team, *pers. comm*.).

In March 1993, Belgium customs officials seized two brown bear skins from a Belgian citizen as they were leaving Antwerp harbour by car. He had received the skins from a seaman friend on a Romanian ship (TRAFFIC 1993). In 1995, raids on 30 medicine shops in 7 cities found products from Appendix I and II species including bear.

In the United Kingdom, bear products were found on sale in London, Liverpool, Manchester and Birmingham in August 1994. In February 1995, raids by British police on 12 pharmacies in London, Manchester and Birmingham identified manufactured medicines purporting to contain bear bile, and pig galls being sold as bear. In one shop, bear bones were also found. In December 1995, a large quantity of TMs were seized in a warehouse in west London, some of which were labelled as bear bile.

Several factors make enforcement of the current Appendix II listing of the brown bear very difficult. Bear gall bladders look like pig bladders, and without the help of laboratory tests can be easily passed off as such (see Section 5).

The current listing also facilitates for the continued illegal use of Appendix I bear species. Since bear derivatives cannot be distinguished by species, permits for the trading of Appendix II species can be used for Appendix I species.

CITES annual reports on bear products are incomplete. There is no record listed from any exporting country that equals the amount of bear products recorded as imported into the Republic of Korea from 1975 through 1993 (Mills *et.al.*1995).

A shipment of 18 kg of gall bladder was exported from Russia to South Korea in 1991. At an average weight of 60 grams per gall (Mills *et. al.* 1995), this represents 300 hunted bears. Although the shipment was reported to the Secretariat by Russia, the CITES Management Authority in Korea has no record of it having arrived (Mills *et.al*. 1995).

3.4. Actual or potential trade impacts:

The international trade in bear parts has led to a serious impact on global bear populations, with brown bear populations in Asia one of the most seriously affected (Servheen 1995). Impacts are likely to increase as high prices continue to provide an incentive to poach bears, and as access to bear habitat increases.

Bear populations can be maintained by careful management of human caused mortality. Small, isolated populations have limited ability to sustain human caused mortality at any level. The trade in bear bile caused an increasing and unmanaged kill of bears. This kill is not controlled or managed as to the sex and age of wild bears killed, nor is it limited to the area where the kill occurs. ...the potential for excessive kill is high. (Servheen 1995)

The trade has impacted on bear populations throughout eastern and far-eastern Russia, but certain locations have attracted particular attention. The Koni Peninsula on the coast of the Sea of Okhotsk near Magadan has historically held one of the highest densities of brown bears in Russia. It is easily reached by motorboat and helicopter, however, making the population extremely vulnerable to poaching. Large quantities of snares have been found in the Koni Reserve (Kretchmar, M. 1995a).

Revenko (1993) has reported a dramatic increase in bear poaching in Kamchatka. It is expected to be highly unsustainable, since 1,500 - 2000 bears are already harvested annually by the indigenous domestic reindeer keepers living in the region. Census studies have now detected a decline in the Kamchatka bear population (Revenko 1995), with some reports suggesting around 50% of the peninsula's bears lost in the last two-three years.

Kretchmar (1995b) has also reported that poaching of bears for gall bladders and skins is highly developed in the far north-eastern strip of tundra in Chukotka. The small population of brown bears in the area, numbering fewer than 500, displays a number of characteristics unique amongst the species, but it may be lost before it can be further studied (Kretchmar 1995b).

Zheleznov (1993) has reported that brown bears in the North of the Far East have experienced a 2-3 fold decrease in number.

A number of reports indicate that demand for bear viscera, fuelled by the illegal international trade, is impacting on bear populations in Central Russia and Western Siberia. In the Altai and Sayan, for example, bear populations were healthy enough at the end of the 1980s to allow hunting by foreigners. A rapid increase in the value of bile, however, caused the number of bears to decrease rapidly, requiring an urgent end to all hunting (Sobanskiy and Zavatskiy 1993). Shubin (1993) has documented a similar situation in Western Siberia.

3.5. Captive breeding or artificial propagation for commercial purposes (outside country of origin):

In some Asian countries, particularly China, bear farms have been established in an attempt to increase the supply of bear products entering the market.

In 1990, Mills and Servheen (1991) reported there to be around 8000 bears in bear farms across China. At this time, farmed bile was available for US $2 per gram, while galls alleged to be from wild bears were offered at US $9 per gram to US $12 per gram, leading Mills and Servheen to conclude that the ÔabundanceÕ of farmed bile had not eradicated the market or high value for gall bladders from wild bears.

By 1994, the number of bears in ChinaÕs farms had increased to around 10,000, producing an estimated 10,000 kg of bile per year (Guo 1995). Bear farming has a high profit potential, which is likely to encourage marketing of bear products. This in turn, will lead to expansion of the market, commercial demand and use of bear products (Servheen 1995).

Servheen (1995) considers that much of this increased demand will be satisfied by the capture of live bears from the wild, or in the poaching of wild bears.

The impact, however, will not be restricted to those countries in which bear farms are present, but may impinge on all bear populations. This, he adds, is most likely to occur where law enforcement preventing poaching is limited in scope, or ineffective, such as throughout much of the former Soviet Union.

Mills *et. al.* (1995) have found farmed bear bile openly for sale in the duty free shopping area of Beijing International Airport, even though export of this product would be a clear infraction of CITES (M. Koyama, CITES Secretariat, cited in Mills *et. al.* 1995).

Servheen (1995) has concluded that bear farming is likely to increase and legitimise the use of a product that will continue to come from wild bears and therefore negatively impact their populations.

4. Conservation and Management

4.1. Legal Status

4.1.1. National:

Information on the legal status of the brown bear has been summarised, by individual range state, in Column 2 of Appendix B.

The species is strictly protected in most European countries. In all other range states of Europe, the Caucasus, and Asia, hunting is regulated through a licence system.

4.1.2. International:

The brown bear is currently listed in Appendix II of CITES, and of the Bern Convention on the Conservation of European Wildlife and Natural Habitats. Populations of *Ursus arctos* in China, Mongolia, Bhutan and Mexico are listed as Appendix I, the latter of which is believed to be extinct. In addition, one subspecies *(Ursus arctos isabellinus)* is listed on Appendix I.

4.2. Species Management

4.2.1. Population Monitoring:

Information on population monitoring programmes has been summarised, by individual range state, in Column 3 of Appendix B.

Servheen (1990) has emphasised the importance of population monitoring for bear conservation. As well as providing a basic understanding of species status, accurate monitoring is necessary for measuring the response of populations to particular management programmes.

Calculation of bear numbers, however, is notoriously difficult and prone to error. There are no accurate methods for counting bears over large territories, partly due to the animalÕs solitary habits (Chestin *et. al.* 1990). Assessments of small populations are particularly erroneous (Servheen 1989).

Furthermore, population estimates are often based on reports obtained from hunters or park rangers. There are a number of reasons why it might be in the interest of such individuals to inflate population numbers; the hunter to increase bag limits, the ranger to increase the perception of a well managed reserve. In Slovakia, for example, population estimates as represented by the Official Hunting Statistics, have consistently been higher than those offered by conservation biologists (Sorensen 1990).

Population figures can also be inflated because individual animals may sometimes be counted twice, once in each administrative or monitoring unit. A unified monitoring programme for southern Scandinavia, for example, estimated fewer bears in the region than when southern Norway and southern Sweden monitored their bear populations separately (Swenson *et. al.* 1995).

In the Russian Federation, additional logistical problems are encountered in communicating census data across the huge territory of the country. According to GLAVOHOTA officials, more than a third of their hunting regions have yet to submit information of bear populations for 1995 (Yuli Gubar, GLAVOHOTA, *pers. comm.* 1996).

For these reasons, it is appropriate to adopt the precautionary principle during assessments of brown bear populations. Scientific uncertainty should not be used as a reason for failing to act in the best conservation interests of the species (as agreed by the Ninth Conference of the Parties; Conf. 9.24.)

4.2.2. Habitat conservation:

Some degree of protection and control of natural ecosystems, and the habitats they contain, exists in every country included in this proposal. It has often been socio-economic and political factors, and not conservation priorities, however, that have historically been the most important considerations in the establishing and siting of protected areas (World Conservation Monitoring Centre 1992).

In his study of EuropeÕs small and isolated bear populations, for example, Zunino (1989) has concluded that the boundaries of the continentÕs protected areas have almost always been drawn to satisfy economic reasons, rather than to specifically meet the ecological needs of bears.

Although several initiatives have recently been launched in an attempt to ensure a comprehensive representation of ecosystems and habitats within a European protected areas network, it may still be a number of years before this is actually achieved.

It has been extremely difficult to source information that is specifically concerned with the protection of habitats that support the brown bear. Although data on protected area coverage are available for each state, it would be misleading to list since it will include data on protected areas that are not bear habitat.

European Union.

The EU Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43) of 21st May 1992 requires member states to apply Ôspecial conservation measuresÕ to natural and semi-natural habitats

threatened in the Community, independently of the species they contain. It also requires, however, for such measures to be taken for the habitats of species listed in Annexes I and II of the directive, which in turn include those protected under the Bern Convention, one of which is *Ursus arctos*.

The protection of such habitats is to be achieved through the establishment of a pan-European network of ÔSpecial Areas of ConservationÕ (SACs), known as Natura 2000. Member states must propose a list of sites to the Commission within three years of the notification of the Directive (de Klemm and Shine 1993).

Countries not members European Union

Information on conservation of bear habitats elsewhere in Europe is limited.

Kudaktin and Chestin (1993) have highlighted the absence of any reserves in the Caucasus that contain all altitudinal belts of the mountains. This is essential for a protected area if it is to support the existence of bears throughout the year. Furthermore, the collapse of the USSR has led to a shortage of funding for the small protected areas of the Caucasus, causing a number of wildlife problems in the region.

In Bulgaria, it is estimated that 75% of the countryÕs bear population resides outside the countryÕs Protected Areas (Spassov 1995).

In Slovakia, a forty year old act provides for the creation of a network of protected areas. Five national parks represent 4% of the RepublicÕs territory.

The Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats of 1979 (the Bern Convention) does not mention protected areas, but merely requires its Parties to take appropriate and necessary measures to ensure the conservation of the habitats of wild flora and fauna species, especially those that are listed as fully protected in Appendices I and II to the Convention (de Klemm and Shine 1993). (*Ursus arctos* is listed in Appendix II of the Bern Convention).

The Russian Federation

In the Russian Federation there are several categories of protected area.

Nature reserves (or ÔzapovedniksÕ) are areas of strict protection in which only scientific research is allowed. There are 82 zapovedniks, which are administered by the Ministry of Environmental Protection and

Natural Resources and occupy 1.42% of RussiaÕs territory (Global Environment Division 1996).

Russias' National Parks represent 0.38% of the territory and reflect ecological, historical or aesthetic value. Limited tourism, agriculture and grazing are allowed within them and environmental education is promoted.

4.2.3. Management measures:

Information on management programmes has been summarised, by individual range state, in Column 4 of Appendix B. A number of regional trends are evident, as are their varying degrees of effectiveness for the conservation of brown bear populations.

The management of western EuropeÕs small, isolated brown bear populations, for example, has been based primarily on hunting prohibitions and the establishment of protected areas. This has not been enough, however, to conserve populations (Zunino 1989). Bear populations in France, Italy, Spain and Greece have all experienced declines in recent years, as their low numbers make them highly susceptible to a variety of threats.

Attempts to gradually bolster the Pyrenean population began in the spring and summer of 1996 with the release of three bears from Slovenia (Camarra 1996). Bears were sourced from a population of the Balkan refugium, since no population of the Iberian refugium would have been able to withstand offtake.

Brown bear populations in southern Scandinavia have historically fluctuated in direct relation to management policies (Swenson *et. al*. 1995). Over-hunting in the first half of this century led to the extinction of the species in Norway and its near extinction in Sweden. Since then, protection measures have facilitated the gradual recovery of the Scandinavian bear population, although six isolated populations have become extinct (Swenson *et. al.* 1995).

Between 1987-91, the harvest rate in Sweden reached the maximum sustainable level and would have prevented further population increase. Furthermore, it is thought that illegal kills could equal those of the legal harvest (Swenson *et. al.* 1994). A revised quota system was adopted in 1992, which included female harvest quotas. Harvest rate is still considered to be a major factor influencing population trends (Swenson *et. al.* 1995).

In the 1980s, bear hunting in Finland was not regulated by a licence system and the bear population became Ôclosely dependent on immigration ratesÕ across the Russian-Finnish border (Pulliainen 1990). In the 1990s, however, a strict quota system was adopted for northern Finland while in the south of the country licences are distributed to hunting groups. The annual catch is between 40-60 bears. Since 1991-2, bear populations in Finland have nearly doubled

(Veijo Miettinen, CITES Authority, *pers. comm.* 1996; Helle 1996).

The bear is fully protected in Poland and Belarus. In both Slovenia and the Ukraine shooting is only allowed of ÔnuisanceÕ bears (Simonic, *pers. comm.*; Slobodyan 1993).

In Romania the bear is hunted under licence, but only in season. A quota for each of the 426 hunting areas is determined on the basis of a Ôdiagnostic keyÕ which defines how suitable an area is for bears. In addition, there is strict protection of females with cubs, a ban on keeping bears in captivity and supplementary feeding of some bear populations in spring and autumn (Ionescu 1994).

In the Russian Federation bears are hunted for the meat, the skin, the fat and the gall (Sergei Pazhetnov, *pers. comm.* 1996). Hunting is prohibited within the 82 ÔZapvednikiÕ or strictly protected areas, but elsewhere allowed under a licence system.

The Department of Hunting Resources (GLAVOHOTA) collects information on brown bear populations through its network of hunting inspectors, and then issues hunting licenses for around 3% of the population. According to GLAVOHOTA officials, however, more than one third of the hunting regions did not submit information on local bear populations last year. Furthermore, it is thought that poaching increases mortality to Ôat leastÕ 10% of the population (Yuli Gubar, GLAVOHOTA bear specialist, *pers. comm.* 1996). GLAVOHOTA figures indicate that the Russian bear population has fallen from 130,000 in 1990 to 109,000 in 1996. At this rate of decline, the whole Russian population could be lost in the next 30 years.

In recognition of the poor conservation status of European bears, WWF-Europe has recently included them as one of the key species in its ÔLarge Carnivore InitiativeÕ. This will involve the preparation and implementation of a species action plan and the development of an Umbrella Conservation Strategy for Large Carnivores in Europe, Ôwhile the opportunity still existsÕ (WWF-Europe 1996).

4.3. Control Measures

4.3.1. International Trade:

The brown bear is currently listed in Appendix II of CITES, and of the Bern Convention on the Conservation of European Wildlife and Natural Habitats. Populations of *Ursus arctos* in China, Mongolia, Bhutan and Mexico are listed as Appendix I, the latter of which is believed to be extinct. In addition, one subspecies *(Ursus arctos isabellinus)*is listed in Appendix I.

4.3.2. Domestic measures:

All populations of brown bear are listed in Annex A of the new EU implementation and enforcement regulations for CITES. This provides the whole species with a listing, within the EU, equivalent to CITES Appendix I.

All trade in brown bear parts is also prohibited in the Republic of Belarus.

5. Information on Similar Species

Several species of the family Ursidae are listed in Appendix I of CITES, including the Asiatic black bear (*Ursus thibetanus*), the sun bear (*Helarctos malayanus*), the spectacled bear (*Tremarctos ornatus*) and sloth bear (*Melursus ursinus*). Brown bear populations in China, Mongolia and Mexico are also listed in Appendix I. The polar bear (*Ursus maritimus*) and the American black bear (*Ursus americanus*) are listed in Appendix II.

Populations of Asian bears have already been decimated by habitat loss and the demand for body parts (Investigative Network et al. 1996; Mills et al. 1995). Trade demands for the bears, especially in the form of the traditional medicine market, do not discriminate between European populations and those found in Eurasia, Asia or North America.

In the Russian Far East, there is widespread poaching of both black and brown bear for their galls. The Asiatic Black Bear is listed in Appendix I of CITES. Vladimir Aramileva, of the Olga Bay research station in Primorsky Kray (*pers. comm.* 1996) estimates that at least as many black as brown bears are hunted in the region. In 1990, there were estimated to be 5000 black bears in the region, but now thought to be only 3500 - 4000 black bears. To the poacher, it does not matter which species of bear is hunted, but it is generally easier to hunt the black bear since it resides in more accessible territory (Vladimir Aramileva). If traders are found with galls from black bears, they merely claim that they are from brown bears.

By uplisting all European and Asian bears to Appendix I, look-alike problems involved in the enforcement of Appendix I listings for brown bears in China and Mongolia will be eliminated.

6. Other Comments

Range states in the European Union were consulted in the Scientific Working Group meeting of the CITES Committee 18 November 1996. Support for the proposal was unanimous from these states. Estonia, Poland and Bulgaria have also supported the proposal. Consultation with other range states is ongoing.

7. Additional Remarks

At the eighth Conference of Parties, all bear species not already listed in Appendix I were placed in Appendix II in an attempt to control the growing international trade in bear parts.

Bear species of east and south-east Asia have already been severely depleted by the trade, due to the proximity of the traditional markets for bear products. All species in this region are listed in Appendix I of CITES.

As these populations have become depleted, however, changes of supply and demand have crossed regional and even continental boundaries and led to the unsustainable exploitation of other bear species and populations.

The uplisting of all European and Asian brown bear populations to Appendix I will provide the species with the level of protection necessary to hinder the expanded trade in bear parts to other regions.

By prohibiting all international trade in Asian species also the look-alike problems involved in the enforcement of the Appendix I listings will be eliminated.

In recognition of the serious global problem of conservation of bears caused by the continued illegal trade in parts and derivatives of bear species, the issue has recently been addressed as a matter of urgent concern by the CITES Animals Committee and the Standing Committee and by the Asian Regional Meeting of CITES.

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APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

Overall Summary Table of Brown Bear Populations included in Proposal for Uplisting:

		Lowest estimate	Highest estimate
SECTION 1	**Bear Populations of the Western European Lineage**	**1650**	**2060**
Comprising:	Bears of Iberian refugium	(210)	(230)
	Bears of Balkan refugium	(1440)	(1830)
SECTION 2	**Bear Populations of the Caucasus and northern Middle East**	**5115**	**8115**
SECTION 3	**Bear populations of the Eastern European Lineage (not including those in Russia)**	**8740**	**9140**
Comprising:	Bears of the Carpathians	7480	7540
	Bears of the Fennoscandia	1260	1600
SECTION 4	**Bear Populations of the Russian Federation and Central Asia**	**95,400**	**101,400**
Comprising:	Bears of European Russia (West of Urals)	26,600	27,100
	Bears of Central Asia and Kazakhstan	2000	3000
	Bears of Siberia	44,500	47,000
	Bears of the Russian Far East	22,300	24,300
SECTION 5	**Bear Populations in other Eurasian and Asian countries (not including those already listed in Appendix I)**	**Unknown**	**Unknown**
TOTAL	**NUMBER OF BROWN BEARS INCLUDED IN PROPOSAL**	**110,905**	**120,715**

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

SECTION 1: Bear Populations of the Western Lineage

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
1(a) POPULATIONS OF THE WESTERN LINEAGE (IBERIAN REFUGIUM)				
Total for Western lineage	***(Iberian refugium)***		***210-230***	
Spain			**50-70**	
Total in Country				
• Cantabrian Mountains • West Cantabrian Mnts. • East Cantabrian Mnts.	Iberian refugium Iberian refugium Iberian refugium	1994, 1994, 1992	50, 60-70, ca.70,	Tablerlet *et.al.* 1994; Clevenger *et.al.* 1994; Clevenger *et.al.* 1992
France			**10**	
Total in Country			10	
• Pyrenees	Iberian refugium	1995, 1994, 1994, 1993	<10, 5-8, 9-13, ca.10	Kohn *et.al.* 1995; Tablerlet *et.al.* 1994; Randi *et.al.* 1994, Tablerlet *et.al.* 1994
Southern Scandinavia			**150**	
Total in region		1995	150	Taberlet et. al. 1995
• Norway	Iberian refugium (Female conc. area 'S')	1995	7	Taberlet et. al. 1995
• Sweden	Iberian refugium (Female conc. area 'S')	1995	144	Taberlet et. al. 1995

1(b) POPULATIONS OF THE WESTERN LINEAGE (BALKAN REFUGIUM)

Total for Western lineage	***(Balkan refugium)***		***1440-1830***	
Italy			**80-100**	
Country				
• *Trentino / Brenta*	Balkan refugium	1995, 1994, 1993	2-3, 10, 5-10	Kohn *et.al.* 1995; Randi *et.al.* 1994; Randi 1993
• *Abruzzo*	Balkan refugium	1994, 1993	70-80, 80-100	Randi *et.al.* 1994, Randi 1993
• *Tarvisio*	Balkan refugium	1996	? 1-2	Simonic *pers. comm.* 1996
Austria			**20-25**	
Country	Balkan refugium	1996	20-25	CITES Sci. Auth *pers. comm.*
• *Calcareous Alps* (S. Lower Austria)	Balkan refugium	1996	10-12	CITES Sci. Auth *pers. comm.*
• *Carinthia*	Balkan refugium	1996	15	CITES Sci. Auth *pers. comm.*
• *Calcareous Alps* (S. Upper Austria)	Balkan refugium	1996	1-2	CITES Sci. Auth *pers. comm.*
THE FORMER YUGOSLAVIA			**550-800**	
Former Country	Balkan refugium	1980s	<1600-2000	Former hunting organisations in Huber 1990
Slovenia			**450-500**	
Country	Balkan refugium	1996	450-500	MAFF, Rep. of Slovenia, *pers.comm.*
Croatia			**100-300**	After Huber 1996 *pers. comm.*
Country	Balkan refugium	1996	100-300	Huber 1996 *pers. comm.*
		1980s	350	Hunting organations in Huber 1990
Bosnia			**?**	
Country	Balkan refugium	1996	?	Huber 1996 *pers comm.*
Yugoslavia			**?**	
• Serbia	Balkan refugium		?	
• Montenegro	Balkan refugium		?	

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

Albania	Balkan refugium	1995	No info. avail.	
Macedonia	Balkan refugium		No info. avail.	
Bulgaria	Balkan refugium		**700-800**	
Country	Balkan refugium	1995	700-800	Spassov 1996
		1989	850	Rosler 1989
		1986 / 87	700-750	Spiridnov and Spassov 1990; Sorensen 1990
		1981	600	Sorensen 1990
		1979	400	Rosler 1989
		1961	450	Sorensen 1990
		1954	440	Rosler 1989
		1934	340	Rosler 1989
		1930	300 ,360	Rosler 1989; Sorensen 1990
• *Central Balkan Range; (Zlatitsa-Teteven to Tryavna Mountains)*	Balkan refugium	• 1996	• 200-220	Spiridnov 1996 *pers. comm.*
• *Rila*	Balkan refugium	• 1996	• 150	Spiridnov 1996 *pers. comm.*
• *Pirin*	Balkan refugium	• 1996	• >100	Spiridnov 1996 *pers. comm.*
• *Western Rhodope*	Balkan refugium	• 1996	• 200-220	Spiridnov 1996 *pers. comm.*
Greece			**110-130**	
Country	Balkan refugium	1995		Arcturos 1996
• Rhodope mnts.	Balkan refugium	1995	15-20	Arcturos 1996
• Pindus mnts.	Balkan refugium	1995	95-110	Arcturos 1996
• Dinara mnts.	Balkan refugium			

SECTION 2: Bear Populations of the Caucasus and the northern Middle East

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
Total for the Caucasus and northern Middle East:			**5115-8115**	
Russian Caucasus			**3115**	
Region	Ursus arctos syriacus?	1983 1972	3115 3293	Kudaktin and Chestin 1993
• *Azerbaidzhan*	•	• 1983	• 680	Kudaktin and Chestin 1993
• *Armenia*	•	• 1983	• 600	Kudaktin and Chestin 1993
• *Georgia*	•	• 1983	• 600	Kudaktin and Chestin 1993
• *Dagestan*	•	• 1983	• 200	Kudaktin and Chestin 1993
• *Chechnya and Ingushetya*	•	• 1983	• 210	Kudaktin and Chestin 1993
• *Northern Oesitiya*	•	• 1983	• 60	Kudaktin and Chestin 1993
• *Kabardino-Balkariya*	•	• 1983	• 65	Kudaktin and Chestin 1993
• *Stavropol*	•	• 1983	• 250	Kudaktin and Chestin 1993
• *Krasnodar*	•	• 1983	• 450	Kudaktin and Chestin 1993
Turkey			**2000-5000**	
Country		1994 1993 1989	4000-5000 2000-5000 No info. available	Umar 1994 in Jenkins 1993 Mursaloglu 1989
• *Artvin*		1989	No info. available	Mursaloglu 1989
• *Hakkari (and Cilo and Sat mountains)*		1989	No info. available	Mursaloglu 1989
• *Tunceli / Erzincan*		1989	No info. available	Mursaloglu 1989
Lebanon			**0**	
Country		1989	Thought to be extinct	Servheen 1990
Syria			**?**	
Country		1983	Possibly a few in northwest of country, in Latakia.	Khalaf 1983 in Servheen 1990
Iraq			**?**	
Country		1983	Possibly a few in Kurdistan mountains in the northeast of country	Khalaf 1983 in Servheen 1990

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
Iran			?	
Country		1967	Possibly a few in the Zgros mountains to the west, and Elburz mountains to the north.	Lay 1967 in Servheen 1990

SECTION 3: Bear Populations of the Eastern European Lineage (not including those in Russia)

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
Total for the Eastern Lineage, Eurasian Population:			***8740-9140***	
3(a) The Carpathian Bear populations			**7480-7540**	
Total Carpathian			7000	Gula 1995
Poland			**80-90**	
Country		1995?	80-90	Gula 1995
• *Bieszczady Mnts*		• 1995?	• 60	Gula 1995
Slovak Republic			**400-450**	
Country		1953	200	Rosler 1989; Hell 1990.
• *West Carpathians*		• Late 1980s	• 400-450 (Cons. bio's)	Rosler 1989; Hell 1990.
		• 1960s / 70s	• 315- 482	
Czech Republic		? No info. avail.	Some individuals recently recolonised parts of Moravia	Hell 1990
Hungary		n/a	Occasional visitors from Slovak Repub. and Romania, but usually shot, as with indiv. in 1984	Hell 1990
Romania			**6300**	
Country		1993	6300	Ionescu 1994; Georgescu 1994
(including bears from Balkan population)		1988	7780	
		1950	850	
		1940	1000	
Ukrainian Carpathians			**700**	
Region		1978	<973 *"Decreased since this time"*	Slobodyan 1993
Oblast :				
• *Zakarpatskaya*		• 1978	• 530	Slobodyan 1993
• *Frankovskaya*		• 1978	• 311	Slobodyan 1993
• *Chernovitzkaya*		• 1978	• 20	Slobodyan 1993
• *Lvovskaya*		• 1978	• 112	Slobodyan 1993

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
3(b) The Fennoscandian Bear Populations			**1260-1600**	
Norway			**35-50**	
Total in Country		1996	25-55	Swenson *pers. comm.* 1996.
(excluding Finnmark)		1995	14, 10-20	Swenson et.al. 1995; CITES Sci. Auth. *pers. comm.* 1996
• *Female conc. area: Nn*	Eastern Lineage	1995	• 1	Swenson et.al. 1995
• *Female cono. area: Ns*	Eastern Lineage	1995	• 0	Swenson et.al. 1995
• *Female conc. area: M*	Eastern Lineage	1995	• 6	Swenson et.al. 1995
Finnmark	Eastern Lineage	1996	6-11	CITES Sci. Auth.*pers. comm.*
Sweden			**525-850**	
Total in Country		1996	1000-144 = ca. 850	Swenson *pers. comm.*
		1995	525	Swenson et. al. 1995
• *Female conc. area: Nn*	Eastern Lineage	1995	• 82	Swenson et.al. 1995
• *Female conc. area: Ns*	Eastern Lineage	1995	• 131	Swenson et.al. 1995
• *Female conc. area: M*	Eastern Lineage	1995	• 312	Swenson et.al. 1995
Finland			**700**	
Total in Country	Eastern Lineage	1995	700	CITES Scientific Authority *pers. comm.*
		1986	450	Pulliainen 1990
		1970	150	
Estonia			**500-600**	
Total in Country	Eastern Lineage	1996	500-600	CITES Sci. Auth. *pers. comm.*
		1960s	<100	
Belarus			**120**	
Total in Country	Eastern Lineage	1996	120	CITES Man. Auth.

SECTION 4: Bear Populations of the Russian Federation and Central Asia

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
Total for Russian Federation			***95,400-101,400***	
EUROPEAN RUSSIA (West of the Urals)				
Total for European Russia			***26,600-27,100***	
North West European Russia			**6000-6500**	
Total in region		1993	6000-6500	Danilov, Tumanov, and Rusakov 1993
• *Karelia*		1993	• *2500-2700*	Danilov, Tumanov, and Rusakov 1993
• *Leningrad*			• *1500-1700*	Danilov, Tumanov, and Rusakov 1993
• *Novgorod*			• *1000*	Danilov, Tumanov, and Rusakov 1993
• *Pskov*			• *400-500*	Danilov, Tumanov, and Rusakov 1993
• *Murmansk*			• *200-400*	Danilov, Tumanov, and Rusakov 1993
North East European Russia			**10,800**	
Region		1991	10800	Vaisfield 1993
• *Arkhangelsk*		• 1991	• 4300	Vaisfield 1993
• *Vologda*		• 1991	• 3700	Vaisfield 1993
• *Komi Repub.*		• 1991	• 2800	Vaisfield 1993
The Centre of European Russia			**5300**	
Region		1989 1982	5300 2071	Pazchetnov 1993
• *Bryansk*		• 1989	• 0	Pazchetnov 1993
• *Vladimir*		• 1989	• 0	Pazchetnov 1993
• *Ivanovo*		• 1989	• 200	Pazchetnov 1993
• *Kaluga*		• 1989	• 0	Pazchetnov 1993
• *Kostroma*		• 1989	• 2300	Pazchetnov 1993
• *Moscow*		• 1989	• ? A few individuals recently	Pazchetnov 1993
• *Ryazan*		• 1989	• 0	Pazchetnov 1993
• *Smolensk*		• 1989	• 200	Pazchetnov 1993
• *Yver*		• 1989	• 1800	Pazchetnov 1993
• *Tula*		• 1989	• 0	Pazchetnov 1993
• *Yaroslavl*		• 1989	• 800	Pazchetnov 1993

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
The Volga-Kama Region			**4503**	
Region			4503	Loskutov, Pavlov and Puchkovskiy 1993
• *Kirov*		Early 1990s?	1740	Loskutov, Pavlov and Puchkovskiy 1993
• *Udmurtiva*		Early 1990s?	813	Loskutov, Pavlov and Puchkovskiy 1993
• *Bashkiria*		Early 1990s?	• 1900	Loskutov, Pavlov and Puchkovskiy 1993
		1950s	• 800-1000	
		1700s	• 4000-5000	
CENTRAL ASIA and KAZAKHSTAN			**2000-3000**	
Region	*Ursus arctos leuconyx*	1993	2000-3000	Zhiryakov and Grachev 1993
SIBERIA				
Total for Siberia:	***Ursus arctos***	**44,500**	**47,000**	
The Western Siberia			**?**	
Region		1993	No data on population structure	Shubin 1993
		"Will take not more than five years to destroy this bear population if harvest intensity remains the same as it is now"		
The Altai and the Sayans			**14000**	
Region		1993	14000	Sobanskiy and Zavatskiy 1993
• Altai and Salair mountains		• 1993	• 6000	Sobanskiy and Zavatskiy 1993
• Sayan mountains		• 1993	• 8000	Sobanskiy and Zavatskiy 1993
The Middle Siberia			**15000**	
Krasnoyarskiy kray		1980	15000	Zavatzkiy 1993
The Baikal Region			**7500-8000**	
Region		1993	7500-8000	Ustinov 1993
Yakutia			**8000-10000**	
Region		1993	8000-10000	Mordosov 1993

APPENDIX A: Summary Table of European, Eurasian and Asian Brown Bear Populations

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
THE RUSSIAN FAR EAST				
Total for Russian Far East			**22,300-24,300**	
The North of the Far East			**10000-12000**	
Region		1993	10000-12000	Chernyavskiy, Krechmar and Krechmar 1993
The South of the Far East			**12,200**	
Region		1993	12,200	Yudin 1993
• Amurskaya	*Ursus arctos beringianus*	• 1993	• 120	Yudin 1993
• Khabarovskiy	*Ursus arctos beringianus*	• 1993	• 400	Yudin 1993
• Primorskiy	*Ursus arctos beringianus*	• 1993	• 350	Yudin 1993
Kamchatka			**8,000-10,000**	
Region		1991 1987	8000-10000 12000-14000	Revenko 1993
Sakhalin and Kuril Islands				
Region		1991	2100	Yudin 1993

SECTION 5: Bear Populations in other Eurasian and Asian countries (not including those already listed on Appendix I)

LOCATION OF POPULATION	GENETIC LINEAGE or SUB SPECIES	YEAR of SURVEY or PUBLICATION	POPULATION SIZE	REFERENCE
Total for 'Others'			?	
Pakistan			?	
• Mountains of north-west, on Chinese border		1996	Highly endangered. Around 25 bears on the Deosai Plains	Miller and Schwartz 1996
India				
• Confined to Protected Areas in Himachal Pradesh		1986	Seen only very rarely	Servheen 1990
Democratic People's Republic of Korea		-	Nothing known about status. Possibly in north east.	Servheen 1990
Japan	*U. a. yesoensis*	1995	Number unknown. Persists only in increasingly isolated sub-populations on Hokkaido. Rapid downward population trend reported.	Moll 1995; Aoi 1985 in Servheen 1990

APPENDIX B: Conservation and Management

RANGE STATE	SECTION 4.1.1. Legal Status (National)	SECTION 4.2.1. Population Monitoring	SECTION 4.2.3. Management Measures	SECTION 4.3.2. Control Measures (Domestic)	REFERENCES
ALBANIA (not CITES party)	Strictly protected, under Rep. of Albania law No. 7875.	Monitoring undertaken every year by track counts.	-	All trade in bear parts prohibited.	Fenelon Hoxha, Gen. Directorate of Forestry and Pastures, *pers. comm.* 1996; Fatmir Lacej, Dept. of Forest Protection and Hunting, *pers. comm.* 1996.
ARMENIA (Russian Fed. serves as Man. Auth.)	Protected, but permission for hunting occasionally given.	State Game Department.	-	-	Kudaktin and Chestin 1993
AUSTRIA	Fully protected	Monitoring by WWF Austria, assisted by Huntsman Association of Carinthia and Styria.	Brown bear re-establishment programme.	EU Member State	Manfred Pockl, CITES Sci. Auth. for Lower Austria, *pers. comm.* 1996
AZERBAIJAN (Russian Fed. serves as Man. Auth.)	Protected, but permission for hunting occasionally given.	State Game Department	-	-	Kudaktin and Chestin 1993
BELARUS	Bear listed in Belarusian Red Data Book as a rare species. Fully protected.	-	-	Export of bear viscera or derivatives prohibited.	V. M. Podolyako, Deputy Minister, Min. of Env. *pers. comm.* 1996.
BOSNIA (not a CITES party)	-	-	-	-	-
BULGARIA	Since 1st January 1993 (according to the Bern Convention) the bear is offered strict protection under the Nature Conservation Act.	-	Only 'problem' animals are shot, with special permit. Normally around 3-9 animals a year.	-	Profirov and Spiridonov *pers. comm.* 1996; Spassov 1995; Spiridonov and Spassov 1990; Rosler 1989.
CROATIA (not CITES party)	Still game species but plans for greater protection.	Radiotelemetry study since 1981, by Croatian brown bear study group. Regular spring counts by hunters at baiting stations.	12 year study identified major threats. Educational and legal campaigns for greater protection. Landmines serious threat to population.	Hoping to join CITES in near future.	Jasminka Radovic, State Agency for Protection of Cultural and Natural Heritage, *pers. comm.* 1996; Djuro Huber, Uni. of Zagreb, *pers comm.* 1996; Huber 1993; Frkovic 1993.

APPENDIX B: Conservation and Management

ESTONIA	The bear is an official game animal.	Status monitored by Board of Forests.	Hunting regulated by special licenses, to 5% of population. Suplementary feeding in some regions.	-	Mati Kalal, CITES Sci. Auth., *pers. comm.*, 1996.
FINLAND	-	Network of about 700 hunters and reindeer herders who send their predator observations to the Finnish Game and Fisheries Research Institute.	-	EU Member State.	
FRANCE	Fully protected.	-	Re-introduction programme commenced spring / summer 1996.	EU Member State	Camarra 1996.
GEORGIA	Protected, but permission occasionally given.	-	-	-	Kudaktin and Chestin 1993
GREECE	Fully protected.	Undertaken by ARCTUROUS, Greek NGO	-	EU Member State	ARCTUROUS 1996
IRAN	-	-	-	-	-
ITALY	Fully protected	-	-	EU Member State	Maximo Letri, CITES Sci. Auth. *pers. comm.* 1996.
JAPAN	Legal protection minimal. Bear hunted for sport and as a pest.	-	Mano (1987) reports hunting year round with no restriction on age, sex or reproductive status of bears taken. Creation of bear management system planned, however.	-	Mano 1987 and Aoi 1985 cited in Servheen 1990; Moll 1995.
MOLDOVA	-	-	-	-	-
NORWAY	Bear received complete protection in 1973.	Scandinavian Brown Bear Project.	-		
PAKISTAN	Bear protected under wildlife conservation acts of the provinces.	Undertaken by the Himalayan Wildlife Project, an NGO.	Strict protection.	-	Miller and Schwartz 1996; Chaudhry 1995.
POLAND	Fully protected	Population surveys undertaken annually.	Problem bears shot very rarely. Compensation paid to	-	Dobrowolski and Krzeminski *pers. comm.* 1996.

			farmers for damages to crops, livestock and beehives.		
ROMANIA	Bear hunted under special licence, but only in season. Strict protection of females with cubs, and a ban from keeping bears in captivity.	-	Quota for each of the 426 hunting areas determined on basis of a 'diagnostic key' which defines how suitable an area is for bears. Supplementary feeding of some bear populations in spring.	-	Ionescu 1994.
RUSSIAN FEDERATION	Hunting of brown bear strictly prohibited within the 82 'Zapvedniki' or strictly protected areas. Elsewhere, hunting allowed under a licence system. All hunting of Asiatic black bear (*Ursus thibetanus*) prohibited.	Dept. of Hunting Resources (GLAVOHOTA) collects information on bear populations through network of hunting inspectors. In 1996, however, more than a third of the hunting regions have not submitted information. GLAVOHOTA population figures indicate brown bear population declined by 21,000 over last six years.	Official licences are issued for 3% of the brown bear population. Poaching, however, is thought to bring mortality to 'at least' 10%. . Licences cost around 250,000 roubles each, but for foreign hunters they are more expensive at $500. 664 brown bears were killed by foreign hunters in 1993.	Hunting licences come with a coupon that enables the hunter to officially dispose of the meat and the skin. There is no coupon for the gall, so there is no official control over its possession or sale within Russia. Licences for foreign hunters allow export of whole trophy including skin, head and gall.	Igor Chestin, Moscow State Uni., *pers. comm.* 1996; Boris Novikov and Yuli Gubar, Head of Admin. and bear specialist, GLAVOHOTA, *pers. comm.* 1996; Victor Bogolov, bear and wolf specialist. *pers. comm.* 1996; Vladimir Aramiliev, bear specialist, Primorskiy Kray, *pers. comm.* 1996; Global Environment Division 1996.
SLOVAKIA	Bear listed in category V (vulnerable) of 'Sozological list of fauna of Slovakia'.	Population estimated by collating reports from hunters and managers. Information will only be approximate. Analysis of heavy metal content in bears.	Regulated hunt of 10% of population allowed.	-	Jan Cibula, CITES Sci. Auth., *pers. comm.* 1996.
SLOVENIA, (Rep. of) (Not CITES party)	Proclaimed by government decree to be a natural feature of special interest which must be protected throughout Republic.	Monitoring by hunting rangers and hunters; time, place, est. weight, height, size, colour of pelt, and possible other signs, size of paw. Also counts at feeding stations, and telemetry research project.	Killing only permitted as part of planned cull of for nuisance individuals. Around 40 animals p.a.	Only the skin and head considered as a trophy in licensed hunting.	Anton Simonic, Min. of Agric. Forestry and Food, *pers. comm.*, 1996.
SPAIN	Fully protected.	Many research projects, including census through annual monitoring of females with young. Genetic studies	-	EU Member State	CITES Sci. and Man. Auth's, *pers. comm.* 1996

		also being undertaken.			
SWEDEN	Hunting regulated.	Scandinavian Brown Bear Project.	Revised quota system adopted in 1992, which included female harvest quotas. 30-35 shot p.a.	EU Member State.	Anders Bjarvall, CITES Sci. Auth. *pers. comm.* 1996; Swenson*et. al.* 1995; Swenson *et. al.* 1994.
TURKEY	Game animal	None	Small number of legal kills by foreign trophy hunters, but 'laws and regulations hardly being implemented'.	-	Umar 1994
UKRAINE (Russian Fed. serves as Man. Auth.)	Strictly protected	-	Licenses issued very rarely, only for nuisance bears.	-	Slobodyan 1993
YUGOSLAVIA (Serbia and Montenegro)	-	-	-	-	-