



## Species Factsheet 2: Brown bear (*Ursus arctos*)



Brown bear in the Kodiak National Wildlife Refuge in Alaska (Steve Hillebrand/USFWS)

### OVERVIEW

The brown bear is the most widely distributed of all bears and is widespread in the forests and mountains of North America, Europe and Asia with a relatively large global population that is currently stable. There are a number of sub-species.

The bears' principal range includes parts of Russia, the United States, Canada, the Carpathian region (especially in Romania), the Balkans, Sweden and Finland.

Brown bears are omnivorous and typically are solitary animals, except for females with cubs. However, at times certain populations do congregate; for example large gatherings occur during the Alaskan salmon spawning run. Dozens of bears may gather to feed on the fish to rapidly build up energy stores for their winter hibernation and they will eat as much as 40 kilograms of food each day.

The bears build winter dens for their hibernation and may lose as much as fifty percent of their body weight whilst hibernating. Pregnant females give birth during hibernation, in the den, usually to a pair of cubs. The cubs will remain with their mother for about two and a half years, during which time she will not become pregnant again.

## STATUS

Whilst not the most numerous bear species (that's the American black bear) the brown bear is the most widespread and, as such, is classified as of "least concern" on the IUCN Red List (International Union for Conservation of Nature). It is listed in Appendix II of CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora), however specific populations in Bhutan, China and Mongolia are listed in Appendix I. Whilst overall the population of the brown bear is categorised as "stable" this is not true of each individual population or subspecies. Of particular concern is the subspecies *Ursus arctos gobiensis*, the Gobi bear, listed as very rare in the Red Book of Mongolia.

## DATA

**Kingdom:** Animalia

**Phylum:** Chordata

**Class:** Mammalia

**Order:** Carnivora

**Family:** Ursidae

**Genus and species:** *Ursus arctos* (Linnaeus, 1758)

**Size:** At shoulder typically 0.9 to 1.5 metres, head-body length 1.5 to around 3.0 metres.

**Weight:** Male 135 to 635 kg, in excess of 775 kg recorded, female 80 to 250 kg.

**Life Expectancy:** In the wild around 20 to 30 years, up to 50 in captivity.

**Also known as:** Grizzly bear, Mexican grizzly bear (extinct), Kodiak bear, Marsican brown bear, Gobi bear, Atlas bear (extinct) and various other subspecies names (see below).

## DESCRIPTION

The genus (*Ursus*) and species (*arctos*) names of the brown bear highlight the fact that this is what most think of as the archetypal bear. In Latin and Greek respectively both names mean "bear"; so the brown bear is the BEAR BEAR. They are a large bear and have long, thick, fur with a distinct mane at the back of the neck. They have large, curved claws. The pelage varies from almost white through to almost black although brown predominates and Indian brown bears can be reddish. The United States subspecies *U. arctos horribilis* takes its common name of the grizzly bear from the often grey or white tipped fur which gives them a grizzled appearance.



Brown bear, Kodiak National Wildlife Refuge, Alaska (US Fish & Wildlife Service - Steve Hillebrand)

## RANGE

Brown bears are found in Afghanistan, Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Bhutan (possibly extinct), Bosnia and Herzegovina, Bulgaria, Canada, China, Croatia, Czech Republic, Estonia, Finland, France, Georgia, Greece, India, Iraq, Iran, Italy, Japan, Kazakhstan, Democratic People's Republic of Korea, Kyrgyzstan, Latvia, the Former Yugoslav Republic of Macedonia, Mongolia, Montenegro, Nepal, Norway, Pakistan, Poland, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Tajikistan, Turkey, Turkmenistan, Ukraine, United States (principally Alaska), and Uzbekistan. The brown bear is the most widely distributed of all bears.

## RECOGNISED SUBSPECIES\*

- ◆ Alaskan brown bear (*Ursus arctos alascensis*)\*
- ◆ Dall brown bear (*Ursus arctos dalli*)\*
- ◆ East Siberian brown bear (*Ursus arctos collaris*)
- ◆ Eurasian brown bear (*Ursus arctos arctos*)
- ◆ Gobi bear (*Ursus arctos gobiensis*)
- ◆ Grizzly bear (*Ursus arctos horribilis*)
- ◆ Himalayan brown bear (*Ursus arctos isabellinus*)
- ◆ Kamchatka brown bear or Far Eastern brown bear (*Ursus arctos beringianus*)
- ◆ Kodiak bear (*Ursus arctos middendorffi*)
- ◆ Marsican brown bear or Appenine brown bear (*Ursus arctos marsicanus*)
- ◆ Peninsular brown bear (*Ursus arctos gyas*)\*
- ◆ Sitka brown bear (*Ursus arctos sitkensis*)\*
- ◆ Stickeen brown bear (*Ursus arctos stikeenensis*)\*
- ◆ Syrian brown bear (*Ursus arctos syriacus*)
- ◆ Tibetan blue bear (*Ursus arctos pruinosus*)
- ◆ Ussuri brown bear or Amur brown bear (*Ursus arctos lasiotus*)

\* Many authorities recognise only two subspecies of brown bear in North America: the grizzly bear (*U.a. horribilis*) and the Kodiak bear (*U.a. middendorffi*). In 1918 Clinton Hart Merriam divided the North American brown bears into 86 subspecies based upon small physical differences, mainly relating to skull measurements. Today it is generally agreed that the bears of the Kodiak Archipelago form the subspecies, *Ursus arctos middendorffi*, and a number of experts believe that all other North American brown and grizzly bears can be included in the single subspecies *Ursus arctos horribilis*. However, some experts believe that there is still sufficient evidence to warrant classifying five further subspecies on the continent. To further complicate matters, recent research has questioned whether or not Kodiak bears are genetically different enough to warrant a separate subspecies classification (Talbot and Shields, 1996; Patekau et al., 1998; Paetkau et al., 1998). In this fact sheet we follow the theory that there is a total of seven subspecies in North America and, in addition to the grizzly and Kodiak bears, we have included the Alaskan (*U.a. alascensis*), Dall (*U.a. dalli*), Peninsular (*U.a. gyas*), Sitka (*U.a. sitkensis*) and Stickeen (*U.a. stikeenensis*) brown bears. These are marked in the above list with an asterisk. For more information on each of the subspecies, [see our website](#).

## EVOLUTION

As with all the bear species, the brown bear has a common ancestor in the racoon-sized dog-like predator, “*Cephalogale*” which inhabited the forests of Asia around 34 million years before the present. From this earliest ancestor of bears evolved the so-called “dawn bear,” a small, arboreal hunter notable for having teeth designed for grinding vegetation as well as for eating meat. A *Cephalogale*-like species gave rise to the genus *Ursavus* during the early Oligocene (30–28 million years before the present); *Ursavus* proliferated into many species in Asia and is ancestral to all living bears.

Around five million years ago the Etruscan bear (*Ursus etruscus*) appeared in Europe. This is the earliest known member of the genus *Ursus*, to which the brown bear belongs. Like the dawn-bear the Etruscan bear was a carnivore but its teeth had further evolved, becoming larger and flatter, indicating a diet that relied heavily on vegetation.

It was probably about 1.3 million years ago that the brown bear, *Ursus arctos* evolved from *Ursus etruscos* and appeared in what is now China (the oldest fossils found there are from about 0.5 million years ago).

## POPULATION HISTORY

Brown bears seem to have spread westwards from China into Europe around 250,000 years ago and then down into North Africa. Brown bear remains from the Pleistocene period are common in the British Isles, where it is thought they out-competed cave bears.

The species is believed to have arrived in Alaska, North America during one of the ice ages from northern Siberia via the Bering Land Bridge, probably around 100,000 years ago. Around 13,000 years ago it began to spread south down North America and on into what is now Mexico. It was not the first bear in the Americas and probably only began to move southwards after the extinction of *Arctodus simus*, the short-faced bear (believed to be the largest bear that ever existed).

Some palaeontologists believe that the Kodiak bear (*Ursus arctos middendorffi*) is the result of a separate migration of brown bears to North America from Kamchatka in Asia, these bears having broader skulls than those from northern Siberia. Brown bears were once present much farther east in North America than in historic times, as indicated by fossil remains in Ontario and Labrador in Canada and in Ohio and Kentucky in the United States.

Brown bears became extinct over 500 years ago in Belgium, Denmark, Ireland, Jordan, Luxembourg, Monaco, Netherlands, Tunisia, United Kingdom, and the Vatican. Extinction within the last 500 years has taken place in Algeria, Egypt, Germany, Hungary, Israel, Lebanon, Liechtenstein, Lithuania, Mexico, Moldova, Morocco, Palestine, Portugal, San Marino, Switzerland, and Syria. Reports in 2012 suggest that the bear is now extinct in Austria.

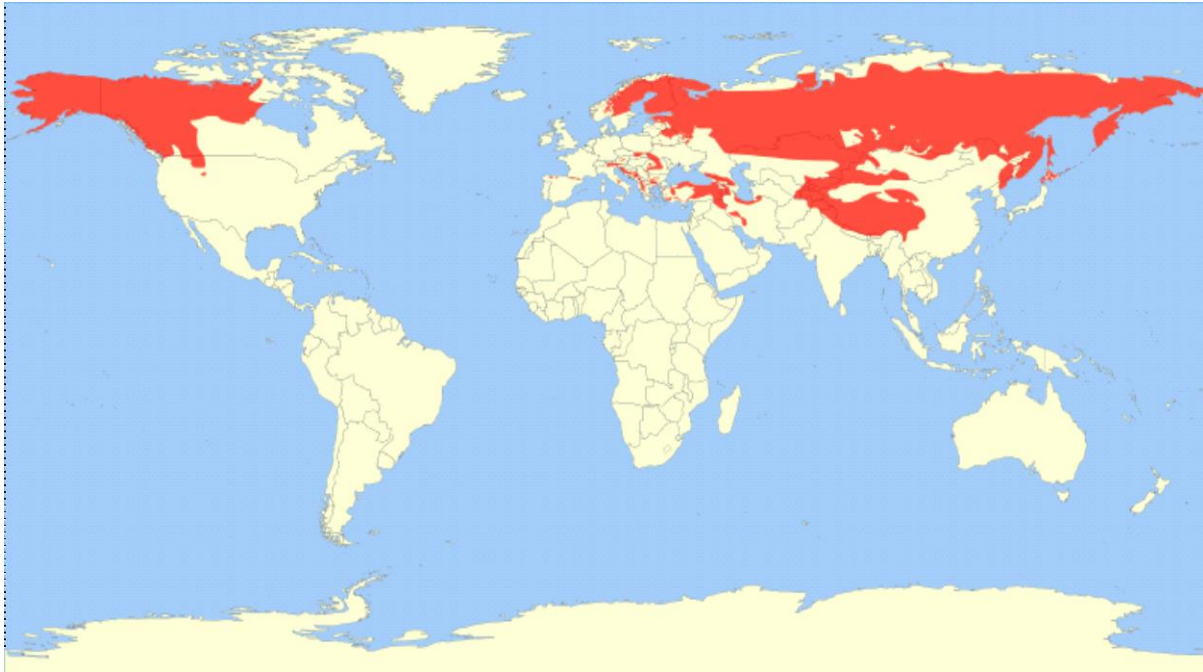
The present range of the brown bear is illustrated on the next page.

There is little agreement on classification of brown bears with up to 90 subspecies being proposed in some systems and as few as five clades identified by DNA analysis. The most commonly accepted fifteen subspecies are listed above.

## PRESENT GEOGRAPHIC RANGE AND POPULATION

The world population of *Ursus arctos* is thought to exceed 200,000 animals and is shown as “of least concern” in the IUCN red list. Some isolated populations and specific sub-species are however under threat and classed as “vulnerable”.

### Range by country with estimated population figures where known



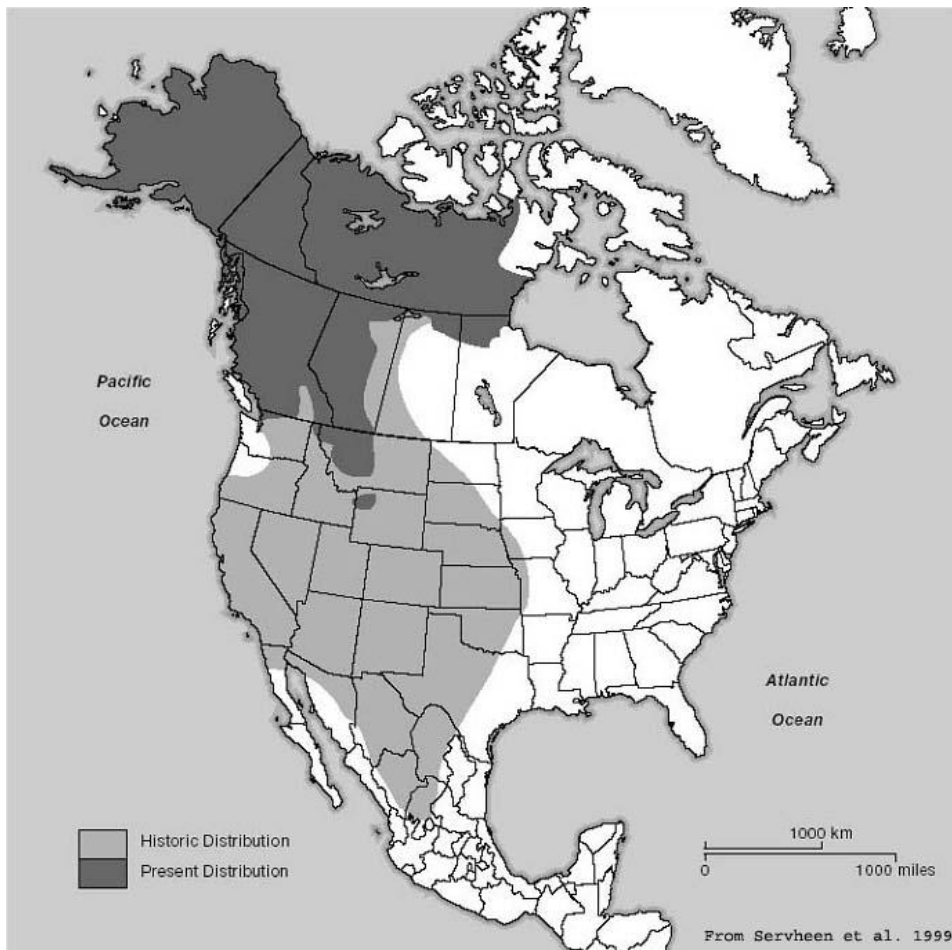
Current range of *Ursus arctos* (Hannu).

Brown bears are found across much of the northern hemisphere and below we have combined a list of their range by country with the available estimates of populations. These are shown in brackets and are based upon the most recent reliable information.

- ⇒ Afghanistan
- ⇒ Albania (250)
- ⇒ Andorra (reintroduced in 2003) (around 20 bears ranging through the Pyrennes)
- ⇒ Armenia( probably <500)
- ⇒ Austria (35 to 40 in the Alps, shared with Slovenia & Italy, but see article Brown bears extinct in Austria)
- ⇒ Azerbaijan (1,600)
- ⇒ Belarus (120 to 250)
- ⇒ Bhutan (possibly extinct)
- ⇒ Bosnia and Herzegovina (1,200)
- ⇒ Bulgaria (800)
- ⇒ Canada (25,000)
- ⇒ China (guessed at around 7,000)
- ⇒ Croatia (600 to 1,000)
- ⇒ Czech Republic (possibly only a few vagrants from neighbouring countries)
- ⇒ Estonia (440 to 600)
- ⇒ Finland (800 to 900)
- ⇒ France (<10)
- ⇒ Georgia (450 - probably declining)

- ⇒ Greece (150)
- ⇒ India (<1,000)
- ⇒ Iraq
- ⇒ Iran (500 to 1,000 in the Alborz Mountains with a smaller population in the Zagors Mountains)
- ⇒ Italy (40 to 50 in the Appenine Mountains plus 35 to 40 in the Alps, shared with Slovenia & possibly Austria {see above})
- ⇒ Japan (>2,000)
- ⇒ Kazakhstan
- ⇒ Kyrgyzstan
- ⇒ Latvia (20 to 40)
- ⇒ Macedonia (<200)
- ⇒ Mongolia (<500)
- ⇒ Montenegro (250)
- ⇒ Nepal
- ⇒ North Korea
- ⇒ Norway (8 to 21)
- ⇒ Pakistan (150 to 200 in seven fragmented populations)
- ⇒ Poland (100)
- ⇒ Romania (6,600)
- ⇒ Russian Federation (100,000, of which 36,000 in European Russia)
- ⇒ Serbia (60)
- ⇒ Slovakia (700)
- ⇒ Slovenia (320 to 400)
- ⇒ Spain (110 to 140)
- ⇒ Sweden (1,600 to 2,850)
- ⇒ Tajikistan
- ⇒ Turkey
- ⇒ Turkmenistan
- ⇒ Ukraine (400 to 970)
- ⇒ United States of America (33,000, the majority in Alaska)
- ⇒ Uzbekistan

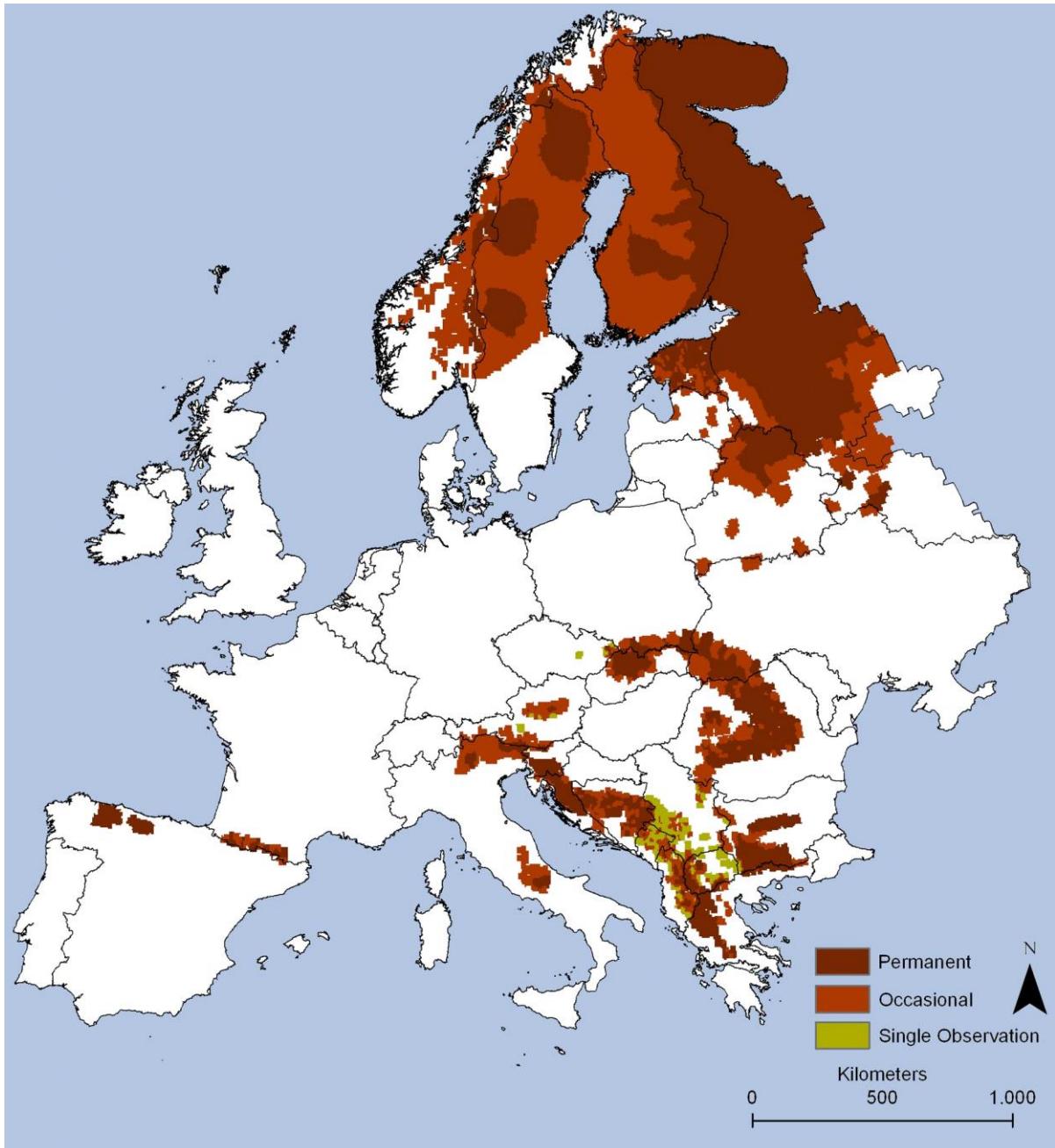
Excluding European Russia there are thought to be around 14,000 brown bears in Europe and excluding Asian Russia there are thought to be around 30,000 in Asia.



Brown bears in North America (Map supplied by USGS Northern Rocky Mountain Science Center)



Kodiak brown bear (*Ursus arctos middendorffi*) at Frazer Lake Weir, Kodiak National Wildlife Refuge, Alaska. (Steve Hillebrand, US Fish & Wildlife Service)



Brown bears in Europe (Map supplied by the European Commission)

### HABITAT

*Ursus arctos* inhabits a broader and more diverse range of habitats than any other bear species. They are found from as high as 5,000 metres in the Himalaya down to sea-level in a number of regions. They survive successfully in icy conditions and deserts, in forests and on tundra, in meadows and on coastlines. Their main requirements are dense cover in which to shelter, usually by day, and in cooler regions suitable places in which to build winter dens for hibernation. It seems likely that increasing encroachment by humans has caused brown bears to favour wooded and semi-wooded habitats whereas historically they would have favoured open or semi-open country at least as much.



## DIET

Brown bears are truly omnivorous with a diet varying from habitat to habitat and from season to season. Although they generally have a reputation as fearsome predators this is largely untrue; in most cases the majority of their diet is of vegetative origin and can include grasses, sedges, forbs (flowering plants), nuts, berries, fruits, roots, tubers and bulbs. In addition, and depending upon location, they also consume small mammals, reptiles, honey, insects and fish (notably salmon).



Brown bear feeding on salmon in the Kodiak National Wildlife Refuge  
(US Fish & Wildlife Service)

## **SOCIAL BEHAVIOUR**

Generally solitary, brown bears will come together in large numbers where there are plentiful supplies of food and will establish a hierarchical structure in such cases. During breeding single males and females pair up and may spend several weeks together. The longest lasting social grouping of brown bears is that between a mother and her cubs which may last for up to 42 months.

## **LIFE CYCLE**

Mating takes place from May to July and most brown bears enter a state of hibernation or partial hibernation during the colder winter months. The young are born in January, February or March, usually in the winter den. Litters typically consist of two or three cubs although larger numbers and single cubs have been observed. During the three to four years that the cubs remain with the mother she will not become pregnant again. Cubs are weaned at anything between 18 to 30 months but will eat a variety of other foods during this time. Females are usually sexually mature at four or five years, males at five or six, but the bears are not fully grown until they are around ten years old. In the wild they can live for up to thirty years but average life expectancy is considerably lower, perhaps lower than ten years in a number of instances.

For more specific descriptions of habitat, diet and life cycle please refer to the individual pages for each subspecies of brown bear and to the reading list.

## **CURRENT SITUATION**

Probably the single greatest threat to the brown bear populations of the world is habitat loss. These bears require large areas of wilderness and their habitats are threatened by development, forestry, mining and oil prospecting, road building, climate change and increasing recreational use. A knock-on effect of the destruction is increasing fragmentation of brown bear populations and sub-populations leading to reduced breeding opportunities and a resultant reduction in genetic diversity.

*Ursus arctos* also faces a number of other threats, many of them directly or indirectly linked to habitat loss. Whilst the species is wide-ranging with a relatively large world population, there are a number of populations which are under threat due to low numbers and to their proximity to humans and the resultant conflict. Road and rail building, the development of agriculture and forestry, and poaching (often for body parts) are also significant issues in a number of areas.

Hunting is also a threat particularly where robust population estimates have not been obtained, often because the finance for the necessary research has not been forthcoming. Even where populations are relatively well documented hunting quotas may not take illegal killing into account and bears killed by poachers may often be as great as or greater than the legal "harvest".

## **THE FUTURE**

Overall the future for the brown bear looks positive but continued vigilance will be required to ensure that the situation does not deteriorate. The world recession is already hitting public spending hard in many areas and it seems likely that research and management of bears could be hard hit in a number of cases. Of particular concern are the management of hunted populations, anti-poaching and smuggling operations and the work to conserve isolated and threatened populations of bears.

Brown bears are legally hunted in Alaska, Canada, Japan, Russia and in parts of eastern and northern Europe. If hunts are based upon accurate and up to date population research and also take into account other possible adverse effects upon the population (e.g. poaching, traffic fatalities, loss of habitat) then these populations should be safe. However,

management of hunted populations requires guaranteed long-term funding which may increasingly be under threat in the current economic climate.

CITES restricts the trade in brown bears and their body parts. Despite its illegality the market for brown bear gall bladders and other parts seems to be increasing. It is imperative that all states which either have a brown bear population or an illegal trade in bear parts, provide increasing priority and funding to the investigation and prosecution of poachers, traffickers and retailers.

Threatened populations, such as those in Afghanistan and the Gobi, will become extinct in the foreseeable future unless current efforts towards their conservation are continued and increased. It seems likely that the future of these bears will increasingly come to rely upon the efforts of non-governmental organisations, conservation groups and charities.

## **CONSERVATION**

Whilst some individual populations of brown bears face conservation issues unique to them, there are a number of critical factors which are common to all:

- Habitat destruction and fragmentation
- Conflicts with humans (predominantly food-related)
- Poaching (coupled in some populations with unsustainable levels of hunting)
- Climate change and its effect upon the ecology of bear habitat

Below we detail some of the initiatives already taking place, together with those additionally required, to ameliorate these issues.

### **Habitat protection and restoration**

All bears are wide-ranging and excepting the polar bear, brown bears have the largest ranges of all; needing large areas of undisturbed habitat if they are to thrive. With a rapidly growing human population the pressures on brown bear habitat are significant in many of the places where they are found. Direct pressure from human habitation is not often significant as brown bears are usually found in very remote areas. However, indirect pressure caused by logging, clearance of land for agriculture, mining and oil drilling is a serious problem in many places. Given the requirement for extensive ranges, habitat fragmentation can be just as serious an issue as wholesale habitat destruction.

### **Reduction in conflicts through education and design**

Brown bears do not often come into contact with humans on what might be described as “human territory”, that is in towns and villages. Conflicts usually occur in wilderness areas where humans either come into contact with bears accidentally or as part of their work in forestry, agriculture, oil prospecting or mining.

### **Fighting poaching and the illegal trade in bears and their body-parts**

Brown bears are illegally killed for their gall bladders and paws which are highly valued ingredients in traditional Chinese medicine. They are also poached for their skins, which are used as rugs or wall-hangings. Undercover investigations indicate that a dried gallbladder can be worth up to \$30,000 and a single serving of bear paw soup can cost \$1,400. Worldwide trafficking of bear parts is valued at around \$2 billion a year.

Several thousand brown bears are killed illegally in northern Russia each year to supply these illegal markets. Whilst steps are being taken to apprehend the poachers this is dangerous and difficult work, given the nature of the terrain where the poaching takes place and the high financial stakes involved. If the trade is to end more attention, and funding, needs to be directed towards ending the demand for brown bear bile, paws and hides.

In the UK Operation Charm is a unique partnership working to stop the illegal trade in bears and other endangered species in London. Launched by the Metropolitan Police it works by using a combination of enforcement and crime-prevention initiatives including the raising of public awareness of the issues. The ultimate aim is to end the consumer demand which drives the trade and threatens the survival of brown bears and other endangered species all over the world.

### **Ameliorating the effects of climate change**

The amount of vegetation in the world, and the way it is spread across the planet, has changed significantly in the last three decades and much of this is due to the changing climate. Historically when foodstuffs failed or became locally extinct brown bears were able to relocate into new ranges, but this is becoming increasingly difficult due to habitat fragmentation. With approximately 85-95 per cent of their diet coming from vegetation, brown bears are particularly vulnerable. Fish, most notably salmon, are significant components of some brown bear population's diets and seem likely to become increasingly susceptible to the changing climate. In the short to medium term the best way to ameliorate these effects is to restore and protect existing habitat and to create corridors between areas of habitat. In the longer term it is to be hoped that the effects of climate change can be halted and, ultimately, reversed.

### **LINKS**

[Animals Asia](#) works to end the barbaric bear bile trade, which sees over 10,000 bears – mainly *U. thibetanus* (Asiatic black bears, also known as moon bears) but also *Helarctos malayanus* (sun bears) and *U. arctos* (brown bears) – kept on bile farms in China, and around 2,400 in Vietnam.

[How to Live with Bears](#) provides information about brown bears and their habitats in Bulgaria with the aim of contributing to awareness and conservation.

[National Wildlife Federation](#) actively works to help grizzly bears and make sure people and bears can peacefully co-exist.

[Pays de l'Ours-ADET](#) is working to restore a viable population of brown bears in the Pyrenees (website in French).

[The Scandinavian Brown Bear Research Project](#) started in Sweden in 1984 and since 1987 the project has been a joint Scandinavian project with financing from both Sweden and Norway. Field activities take place in these two study areas with the main goals being to understand the ecology of the Scandinavian brown bear, to provide the scientific basis for the management of the species in Sweden and Norway, and to provide information to the general public.

[The Vital Ground Foundation](#) helps preserve the threatened grizzly bear, other animals, plants, and natural communities through the conservation of habitat and wildlife linkage areas.

[IUCN Red List of Threatened Species: \*Ursus arctos\*](#)

[WWF: Brown bear](#)

[Operation CHARM](#)

## FURTHER READING

**The Brown Bear (*Ursus arctos*) in Europe: decline, present distribution, biology and ecology.** Paper presented to the 1972 International Conference on Bear Research and Management. [Click here to open pdf document.](#)

**Track of the Grizzly** by Frank C Craigshead, Jr. (Sierra Club, 1979). Something of a classic and still well worth reading, this is a personal account of a ten-year study of the grizzlies in and around Yellowstone Park.

**The Grizzly Manifesto: In Defence of the Great Bear** by Jeff Gailus (Rocky Mountain Books, 2010). Small enough to put in your pocket, this book packs a hard punch in support of the wild brown bears in Canada. Highly recommended.

**Mark of the Grizzly** by Scott McMillon (Falcon Publishing 1968). Documents eighteen attacks by grizzly bears. Not to everyone's taste but has useful lessons for travelling in grizzly country; not least the fact that is THEIR country and not ours.

**The Grizzly Bear** by Thomas McNamee (Lyons Press updated edition 1997). The natural history of *Ursus arctos horribilis* told on a month by month basis. Excellent.

**The Grizzly** by Enos A Mills (Comstock Editions 1973). First published in 1919 and rightly described as a classic study of animal behaviour.

**Grizzly Years** by Doug Peacock (Henry Holt & Co, 1990). Part natural history, part autobiography and a heartfelt testimony for the grizzly bear and its habitat. Recommended.

**In the Presence of Grizzlies** by Doug & Andrea Peacock (Lyons Press, 2009). Previously published as "The Essential Grizzly". Biology, politics, psychology are all covered in this look at man's relationship with the grizzly and vice versa.

**Learning to be Wild** by Charlie Russell & Maureen Enns Hutchinson, 2003). A book that isn't about American grizzlies! Mainly photographic, this is an excellent chronicle of Russell's work with three Kamchatka bear cubs rescued from Moscow Zoo.

**California Grizzly** by Tracy I Storer & Lloyd P Tevis, Jr. (California, 1996). First published in 1955 this book remains as relevant as ever. Arguably the definitive account of the now extinct California grizzly and the conservation lessons we and our politicians need to learn.

**Grizzly Bears** by Gary Turbak (Colin Baxter Photography, 1997). Excellent introduction to the brown bears of America and their history.

**Brown Bears (Wildlife Monographs)** by Chris Weston (Evans Mitchell Books, 2010). A "photo-book" but with informed text and it's not just about grizzlies!

## CITATIONS

McLellan, B.N., Servheen, C. & Huber, D. (IUCN SSC Bear Specialist Group) 2008. *Ursus arctos*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.2. <[www.iucnredlist.org](http://www.iucnredlist.org)>

Large Herbivore Network - <http://www.lhnet.org/brown-bear/>

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