

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



Fourteenth meeting of the Conference of the Parties  
The Hague (Netherlands), 3-15 June 2007

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Deletion of *Lynx rufus* from Appendix II.

*Lynx rufus* does not qualify for listing in any of the CITES Appendices. We, therefore propose to delete it from its current inclusion in Appendix II, previously listed in accordance with Article II, paragraph 2(b), and Criterion A in Annex 2 b.

B. Proponent

United States of America

C. Supporting statement

1. Taxonomy

1.1 Class: Mammalia

1.2 Order: Carnivora

1.3 Family: Felidae

1.4 Genus, species or subspecies, including author and year: *Lynx rufus*, Latham 1759

Potential subspecies: *L. r. baileyi*, *L. r. californicus*, *L. r. escuinapae*, *L. r. fasciatus*,  
*L. r. floridanus*, *L. r. gigas*, *L. r. oaxacensis*, *L. r. pallescens*,  
*L. r. peninsularis*, *L. r. rufus*, *L. r. superiorensis*, *L. r. texensis*, Hall 1981.

1.5 Scientific synonyms: *Felis rufus*, Jones et al. 1975, Tumlison 1987, Nowak 1999

1.6 Common names: English: bobcat, barred bobcat, bay lynx, bob-tailed cat, cat o' the mountain, cat lynx, catamount, lynx cat, pallid bobcat, red lynx, wildcat  
French: lynx roux  
Spanish: gato de monte, gato montés  
(Jackson 1961, McCord and Cardoza 1982, Anderson and Lovallo 2003)

1.7 Code numbers: A-112.007.001.024

## 2. Overview

*Lynx rufus* was included in Appendix II of CITES in 1977 along with all species of Felidae that had not already been listed. At CoP4 (Botswana, 1983), it was agreed by the Conference of the Parties that its continued listing was solely based on Article II, paragraph 2(b) to ensure effective control of trade in other felids. Monitoring of wild *Lynx rufus* populations since 1977 continues to demonstrate that the species is not threatened; harvest and trade are well regulated. *L. rufus* management programs in the United States and Canada are the most advanced management programs for commercial exploitation of feline furbearers. These programs ensure long-term sustainable use of the species and support its conservation.

This proposal is based on an analysis of recent information derived from three sources:

- a) A survey of all range countries for *Lynx* spp., conducted during 2005-2006 in support of the Review of the Appendices by the Animals Committee;
- b) A study by TRAFFIC North America (2006) of trade in *Lynx* spp., including a compilation of information on illegal trade in these species and an assessment of the potential for trade irregularities that are likely to occur due to the similarity of appearance among these species; and
- c) CITES trade data for *Lynx* spp. for the years 1980-2004 [from the CITES trade database maintained by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC)].

An analysis of information from these sources suggests that inclusion of *Lynx rufus* in Appendix II due to similarity of appearance to other felids is no longer warranted. The survey by TRAFFIC North America (2006) of North American and European fur industry representatives who deal with *Lynx* spp. suggests that international, European, Asian, and North American markets all seem to prefer both *L. rufus* and *L. canadensis* over other *Lynx* species. The survey of range countries, conducted by the United States for the review of the Appendices by the Animals Committee, as well as the trade data show that trade in *Lynx lynx* and *Lynx pardinus* is well controlled, especially by range countries. CITES data provide further support by showing that the level of trade in *Lynx lynx* and *Lynx pardinus* is minor relative to the level of trade in *L. rufus* and *L. canadensis*, and take from the wild of all *Lynx* species is highly regulated. Range country responses to the survey conducted for the Animals Committee indicate that range countries have implemented adequate domestic legislation as well as regulations, management, and enforcement controls to manage harvest of and trade in other *Lynx* species. Further, in the opinion of industry representatives, distinguishing *L. rufus* parts, pieces and derivatives from those of *L. canadensis* (the most similar felid) is not difficult and can be accomplished with limited experience and/or training (TRAFFIC North America 2006). To facilitate species identification, since 2003 the U.S. Fish and Wildlife Service (USFWS) has posted on its website and produced a brochure entitled "How to Avoid Incidental Take of Lynx While Trapping or Hunting Bobcats and Other Furbearers," which describes and illustrates distinguishing characters of bobcats and Canada lynx (*Lynx canadensis*) <http://www.fws.gov/international/animals/lynx.htm>.

The ready availability of legally acquired *L. rufus* in the market is a safeguard against the illegal take and trade of other *Lynx* species. Trade in *L. rufus* includes bodies, carvings, claws, feet, hair, garments, leather items, skin plates, skins, skin pieces, skulls, tails, teeth and trophies; however, skins are the most common and account for 83% of the *L. rufus* items in legal trade. Finally, CITES data show that the low volume of illegally traded *Lynx* spp. specimens does not suggest a major problem with illegal trade in *Lynx* species.

## 3. Species characteristics

### 3.1 Distribution

The bobcat is the most widely distributed native felid in North America, ranging from as far north as central British Columbia (55°N) and south to Oaxaca, Mexico (17°N). Currently, with the exception of Delaware, the bobcat can be found in all the contiguous United States; however, its distribution is restricted in Illinois, Indiana, Iowa, Michigan, Missouri, and Ohio (Woolf and Hubert 1998). Historically the bobcat was found in all 48 states in the United States (Young 1958).

### 3.2 Habitat

Bobcats are found in a wide variety of habitats, from bottomland forests in Alabama, United States, to arid deserts in Mexico, and from northern boreal forests in Canada to the humid tropical regions of Florida, United States. They generally prefer rough, rocky country interspersed with dense cover (Pollack 1951, Erickson 1955, Young 1958, Zezulak and Schwab 1979, Karpowitz 1981, Golden 1982). McCord (1974) snow-tracked bobcats in Massachusetts and found that roads, cliffs, spruce plantations, and hemlock-hardwoods were used most in relation to their abundance. He attributed the use of hemlock-hardwoods to high white-tailed deer (*Odocoileus virginianus*) (prey) densities and use of spruce plantations to abundant snowshoe hare (*Lepus americanus*) (prey) and protection from the wind. Similarly, Fuller et al. (1985) in Minnesota found a disproportionate use of coniferous areas, which also supported the highest densities of snowshoe hare and white-tailed deer, the bobcats' main prey in that region. Bobcats in Missouri preferred bluffs, brushy fields, and second-growth oak habitats (Hamilton 1982). Bluffs were apparently selected for social reasons as well as physiological advantages of cover, whereas brushy fields and areas of oak regeneration offered high densities of prey. In Wisconsin, lowland coniferous forests were consistently selected by both sexes during all seasons, although there were sex-related and seasonal differences in selection of other habitats (Lovallo and Anderson 1996). In Mexico, bobcats are found in dry scrub, coniferous forests, mixed forests of pine and oak, and tropical deciduous forests (27 April 2004 letter to K. Stansell, Assistant Director, International Affairs, USFWS from H. Benítez Díaz, Director of Outreach and International Affairs, National Commission for the Understanding and Use of Biodiversity, Mexico).

Although prey abundance is considered the most important factor in the selection of habitat types, protection from severe weather, availability of resting and den sites, dense cover for hunting and escape, and freedom from disturbance are also important factors in determining habitat use (Pollack 1951, Erickson 1955, Bailey 1974). Knowles (1985) found that bobcats in Montana generally selected habitat types with 52% or greater vertical cover. Although prey densities were highest in those types, she felt that cover was crucial for the bobcat's effective hunting by ambush and stalking. Similarly, Lovallo (1999) in Pennsylvania found that bobcats were strongly associated with eastern to southeastern exposures on 7-8° slopes. McCord (1974) felt that behavioral factors, such as hunting habits or social interactions, also dictate the temporal and spatial use of habitat types.

### 3.3 Biological characteristics

Bobcats are polygamous, seasonally polyestrous, and may experience up to three estrous cycles from March through June if not impregnated during ovulation (Pollack 1950, Crowe 1975a, Stys and Leopold 1993, Crowe 1975b). Each estrous cycle lasts approximately 44 days, with females in estrus 5-10 days (Crowe 1975a, Mehrer 1975). The majority of bobcat breeding occurs during February and March but varies with latitude, longitude, altitude, climate, photoperiod, and prey availability (McCord and Cardoza 1982). Yearling bobcats cycle later and generally have lower pregnancy rates than adults. The gestation period in the bobcat ranges from 63 to 70 days (Anderson and Lovallo 2003). Estimates of average litter sizes range from 1.7 to 3.6 kittens per litter, with a mean of 2.7 (Anderson 1987). Sex ratios of bobcat kittens are normally 1:1. Bobcats generally produce a single litter per year, but females are capable of producing a second litter if the initial litter is lost after parturition (Winegarner and Winegarner 1982, Beeler 1985, Stys and Leopold 1993). Survival rates of bobcat kittens are generally lower than that of adults and may be highly variable; estimates of annual survival range from 18% to 71% (Crowe 1975b). Kitten survival rates are directly related to prey abundance (Knick 1990). Adult bobcat survival rates range from 56 to 67%. Most causes of mortality are human related; legal harvest and vehicle-caused mortalities are most common. Research on bobcats indicates little impact on population size until harvest exceeded 20% of the population.

### 3.4 Morphological characteristics

The pelage of the bobcat varies from shades of buff and brown, spotted, and lined with dark brown and black. The crown is streaked with black, and the backs of the ears are heavily marked with black (Guggisberg 1975, Nowak 1999). The under-parts of the body are white with black spots (McCord and Cardoza 1982). The short tail has a black tip, but only on the upper side. Adult bobcat weights vary considerably throughout their range. As in other *Lynx* species, bobcats have a ruff of fur extending from the ears to the jowls. The ears may or may not be tufted (Nowak 1999). Adult males average 9.6 (6.4-18.3) kg, and adult females weigh 6.8 (4.1-15.3) kg (Banfield 1987). Total length (in mm) of males and females, respectively, is 869 (475-1,252) and 786 (610-1,092) (McCord and Cardoza 1982). Bobcat skulls can be identified by the presence of both a narrow presphenoid bone (< 6 mm) and a confluence of the hypoglossal foramen with the posterior lacerate foramen. As in a number of other short-faced cat species, bobcat are missing the second upper premolars, giving them 28 teeth instead of 30 typical of other members of Felidae (Ewer 1973). Bobcats have four functional toes on the front and hind feet (McCord and Cardoza 1982).

### 3.5 Role of the species in its ecosystem

Bobcats are one of several carnivores within the complex predator communities of North America. Because bobcats occupy a wide variety of habitats, their role as forest and farmland predators is varied. Although bobcats compete with other predators, there is no evidence that other predator species populations are directly related to bobcat density on the landscape. Bobcats are ecologically similar to Canada lynx, particularly in terms of prey selection, and their ranges are rarely sympatric. Where bobcat and Canada lynx ranges overlap, bobcat typically out-compete Canada lynx unless excessive snow depth provides lynx with a foraging advantage (Parker et al. 1983).

## 4. Status and trends

### 4.1 Habitat trends

During the last century, the bobcat's range has expanded into northern Minnesota (United States), southern Ontario (Canada), and Manitoba (Canada) as lumbering, fire, and farming has opened the dense, unbroken coniferous forests of these areas (Rollings 1945). Although increases in urban development may limit bobcat density in some areas, recent studies have documented increases in bobcat density in suburban and developed areas of the eastern and mid-western United States (Woolf and Neilson 2001).

### 4.2 Population size

In 1981, it was estimated there were 725,000 to 1,017,000 bobcats in the United States (USFWS 1982). Geographic expansion of bobcat range and notable increases in bobcat density during the past decade suggest that population size has likely increased since these estimates were produced (Woolf and Hubert 1998, Lovallo 2001). Numerous states within the United States independently estimate bobcat populations by using a variety of methods, such as computer population models and life table analyses (Anderson and Lovallo 2003).

The status of the bobcat in Canada is considered secure, (i.e., relatively widespread or abundant) (Wild Species 2005: <http://www.wildspecies.ca/wildspecies2005/search.cfm?lang=e&sec=9>). Anecdotal reports suggest that bobcats are relatively abundant in many areas of Mexico and can be found in developed areas (27 April 2004 letter from H. Benítez Díaz). A population assessment is currently being conducted to determine more precisely the status of Mexican populations of this species. Preliminary data collected in areas surveyed to date indicate that bobcats are present and not rare (3 March 2006 email from R. Medellín to R. Gabel).

#### 4.3 Population structure

Bobcat population sex ratios are directly related to levels of harvest. Harvest records indicate that in exploited populations males are taken more frequently in the younger age cohorts whereas females constitute a larger percentage of the older cohorts (Crowe and Strickland 1975, Fritts and Sealander 1978b, Brand and Keith 1979, Parker and Smith 1983). The proportion of young animals (< 2 years old) in a population is closely related to the intensity of harvest. Unexploited populations are largely composed of older individuals, whereas younger animals dominate exploited populations. This may result from increased reproduction and higher adult mortality. Bobcats are essentially solitary with direct social interactions being brief and infrequent. Exceptions include females with kittens and adult males and females during the breeding season. Three social classes appear to exist in all populations: residents, transients, and kittens. Most adults are considered residents and generally abide in a single home range. Transients are frequently yearling individuals dispersing from their natal home ranges and are generally distinguished from adults by their lower weight and shorter total body length. Kittens (< 1 year old) include all individuals still under maternal care (Bailey 1974, Rolley 1983).

Home ranges of bobcats in the northern latitudes are considerably larger than those from the south, probably due to lower prey populations, increased thermal demands, and larger body size in the north. Average male home ranges are generally two to three times larger than those of females, although some studies have reported size differences as large as four to five times (Hall and Newsom 1976, Major 1983, Witmer and DeCalesta 1986). Female home range size may be more closely tied to prey availability, while male range size is more influenced by the number of mating opportunities (female home ranges) within his range. Most studies have reported significant intersexual overlap of home ranges with varying degrees of intrasexual overlap. Generally, adult female home ranges are exclusive of other adult females, whereas adult male home ranges may extensively overlap each other and encompass the ranges of two or three females. Land tenure in bobcats appears to be based on prior rights with little displacement apart from changes created by mortality. Vacancies created by the death of resident individuals, whether from harvest or natural mortality, are filled either by transient bobcats or by adjacent residents.

#### 4.4 Population trends

As of 1996, populations in the United States were considered stable in 22 States and increasing in 20 States, with no States reporting overall declines (Woolf and Hubert 1998). As of 2001, several mid-western and eastern States continued to report population increases (Woolf and Neilson 2001). Geographic expansion of bobcat range and notable increases in bobcat density during the past decade suggest that population size has likely increased in the past decade (Woolf and Hubert 1998, Lovallo 2001).

Population trends in Canadian range provinces are reported as stable or increasing. Cyclic fluctuations related to prey abundance have been observed (C. Loughheed, Canadian CITES Scientific Authority, email pers. comm. 22 December 2006).

Current studies in Mexico are expected to be completed in 2007, and data may be available for discussion at CoP14.

#### 4.5 Geographic trends

Periodic national surveys of bobcat abundance and distribution suggest continued geographic expansion of bobcat populations throughout their range in the United States, particularly in mid-western and several mid-Atlantic States (Hon 1990, Woolf and Neilson 2001). Most notably, bobcat populations have expanded their ranges in Illinois (Bluett et al. 2001, Woolf and Hubert 1998), Missouri (Erickson et al. 1981), Nebraska (Landholt and Genoways 2000), and Pennsylvania (Lovallo 2001), as well as Indiana, Michigan, and Ohio (Woolf and Hubert 1998).

## 5. Threats

Although bobcats adapt to a wide variety of habitat conditions, loss of habitat to urbanization is the current threat to populations in the United States. Woolf and Hubert (1998) suggested that recent expansions of bobcat populations in the midwest have resulted from increased forestation during recent decades.

There are no widespread acute threats to Canadian bobcat populations. Some possible threats include decline in prey populations, loss of habitat, habitat alteration, and climate change. (30 January 2006, letter from the Canadian Wildlife Service to the USFWS).

The bobcat is not listed in the 2003 IUCN Red List of Threatened Species (IUCN 2003).

## 6. Utilization and trade

### 6.1 National utilization

Bobcats are legally harvested in 38 states of the United States, where harvest levels have varied due to changes in pelt value and fur harvest intensity for other species. Although bobcat harvests increased during 1976-1984, recent harvest levels in the United States have been comparable to those observed prior to CITES listing (34,937 harvested during 1995-1996 versus 35,937 harvested during 1975-1976). Woolf and Hubert (1998) concluded that, based on harvest-associated data, it was unlikely that bobcat populations were reduced during high harvest years; rather, these populations were thought to have remained stable.

In Canada, bobcats are legally harvested in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, and Nova Scotia, resulting in 1500 to 2000 pelts per year, the majority from Nova Scotia (65%-70%), New Brunswick (20%), and British Columbia (10%) (C. Loughheed, Canadian CITES Scientific Authority, email pers. comm. 22 December 2006; 30 January 2006, letter from the Canadian Wildlife Service to the USFWS). The purpose of the harvest in Canada is almost exclusively for the collection of pelts for the fur trade. There is a small amount of trade in other bobcat parts (taxidermy mounts, meat, teeth, tails, etc.) (30 January 2006, letter from the Canadian Wildlife Service to the USFWS).

In Mexico, bobcats are primarily harvested as game, and exports are mainly trophies (16 June 2006, email response from Mexico to the Animals Committee's survey).

### 6.2 Legal trade

Between 1980 and 2004, approximately 1,424,960 *Lynx* spp. items (parts, pieces or derivatives) were legally traded according to data provided in the CITES trade database. Of these items, 887,498 (62 %) were parts, pieces or derivatives of *L. rufus*; 434,377 (30 %) were *L. canadensis*; 98,564 (7 %) were *L. lynx*; 2,438 (< 1%) were recorded as *Lynx* spp.; and 2,083 (< 1%) were *L. pardinus*. Of the 1,424,960 legally traded items, 1,104,485 (78%) were skins. Of these skins, 738,462 (67%) were *L. rufus*; 275,579 (25%) were *L. canadensis*; 88,195 (8%) were *L. lynx*; 1,940 (< 1%) were recorded as *Lynx* spp., and 309 (< 1%) were *L. pardinus*. According to the same data between 1980 and 2004, 37 exporting or re-exporting countries (including two entries for which the country was listed as "unknown or various countries") legally exported *Lynx rufus* items. The range countries United States and Canada exported or re-exported the highest numbers of legal *Lynx rufus* items, accounting for 95% of the legal *Lynx rufus* items recorded. The United States exported or re-exported 724,830 (82%) of the items, and Canada exported or re-exported 115,490 (13%) of the items. The remaining 45,643 (5%) items were exported or re-exported by other countries, including the range country Mexico. However, between 1980 and 2004, Mexico only exported or re-exported 417 (< 0.05%) *Lynx rufus* items (TRAFFIC North America 2006).

### 6.3 Parts and derivatives in trade

Trade in *L. rufus* items include bodies, carvings, claws, feet, hair, garments, leather items, plates, skins, skin pieces, skulls, tails, teeth, and trophies; however, skins are the most common and accounted for 83% of the *L. rufus* items in legal trade between 1980 and 2004. Most bobcat pelts exported from North America are handled through a small number of major fur distributors in Canada and the United States. The vast majority of furs are exported as prepared pelts used for the production of fur garments. Spotted belly fur from bobcats is generally used as a trim item on garments. From 1980 to 2004, the primary importers of *L. rufus* items were Germany, Greece, Italy, Canada, the United States, and Switzerland, accounting for 80% of *L. rufus* items imported during that time. Germany imported 326,642 (37%) items, Greece imported 97,382 (11%) items, Italy imported 95,108 (11%) items, Canada imported 86,362 (10%) items, the United States imported 54,012 (6%) items, and Switzerland imported 45,794 (5%) items (TRAFFIC North America 2006).

### 6.4 Illegal trade

Between 1980 and 2004, a total of 3,568 *Lynx* spp. items (parts, pieces or derivatives) were seized as illegal, based on the CITES trade database (TRAFFIC North America 2006). This is an average of only 143 items per year, and represents only 0.2% of the total (legal and illegal) trade during this time period. Of the 3,568 *Lynx* spp. seized, 3,119 (87%) were parts, pieces, or derivatives of *L. rufus*; 223 (6%) were *L. canadensis*; 210 (6%) were *L. lynx*; 15 (< 1%) were recorded as *Lynx* spp.; and 1 (< 0.1%) was *L. pardinus*.

Of the 3,568 *Lynx* spp. items seized as illegal, 3,039 (85%) were skins, 205 (6%) were teeth, 93 (3%) were garments, 72 (2%) were fur plates, and the other 159 (4%) seized items were tails, bodies, skin pieces, trophies, skulls, skin/leather items, claws, feet, and unknown items. Of the 3,039 *Lynx* spp. seized skins, 2,818 (93%) were *L. rufus*, 135 (4%) were *L. lynx*, 80 (3%) *L. canadensis*; and 6 (< 1%) were recorded as *Lynx* spp.

Illegal *Lynx* spp. items were recorded for 20 importing countries and territories. Of the 3,568 *Lynx* spp. items seized, 37% were imported into the United States, 20% into Poland, 19% into Switzerland, 10% into Denmark, 6% into Germany, 3% into Canada, and the remaining 5% of the items were imported into the Russian Federation, Italy, Finland, the United Kingdom of Great Britain and Northern Ireland, Hong Kong SAR (China), Mexico, Australia, Austria, Portugal, Spain, Chinese Taipei, Japan, New Zealand, the United Arab Emirates, and an unknown country. Illegal *Lynx* spp. items were recorded for 25 exporting/re-exporting countries. Of the 3568 *Lynx* spp. items seized, 39% were exported/re-exported from the United States, 20% from Germany, 14% from the United Kingdom, 7% from Mexico, 6% from Japan, 4% from Canada, and the remaining 11% were exported from unknown countries, the former USSR, Greece, India, the Russian Federation, Italy, France, Hong Kong SAR, Brazil, China, Armenia, Pakistan, South Africa, Afghanistan, Denmark, Israel, Kuwait, the Netherlands Antilles, Nigeria, and Poland. Again, the majority (87%) of these items were *L. rufus*.

### 6.5 Actual or potential trade impacts

The volume of illegally traded *Lynx* spp. items does not suggest a major problem with illegal trade in *Lynx* spp. (TRAFFIC North America 2006).

Canada is confident that current practices guard against potential threats from trade demand, and the bobcat in Canada is not adversely impacted by trade.

Neither domestic nor international trade constitutes a threat to populations *L. rufus*.

## 7. Legal instruments

### 7.1 National

Bobcat hunting and trade are regulated domestically throughout its range (Nowell and Jackson 1996). In the United States, bobcats are currently classified as game or furbearer species and subsequently harvested through regulation in 38 States. The species is further protected by continuous closed hunting seasons in nine States and is classified as a State endangered species, and thus fully protected in Indiana, Ohio, New Jersey, and Iowa. Bobcats are classified and protected as a State threatened species in Illinois.

Harvest of the bobcat in Mexico is regulated by the General Law of Wildlife and the General Law of Ecological Balance and Environmental Protection. Both establish that prior to harvesting bobcat, it must be demonstrated that harvest rates are less than the natural renewal rate of the wild population affected. (16 June 2006, email response from Mexico to the Animals Committee's survey). According to Nowell and Jackson (1996), in Mexico, bobcat hunting is regulated in five States, and shooting suspected livestock predators is permitted on a limited basis.

In Canada, the bobcat is classified as a furbearer species and is managed regionally by the provinces and territories. The species is harvested in seven of eight range provinces under provincial regulation. Harvest is prohibited in Quebec (C. Loughheed, Canadian CITES Scientific Authority, email pers. comm. 22 December 2006). Like all vertebrates in Canada, felid species are legally protected through various provincial and territorial wildlife acts. Under these acts, certain uses of wildlife are allowed under specific regulations and only with the provision of licenses or permits. Generally, without such a license, the catch, possession, trade, disturbance, or destruction of wildlife is prohibited. Jurisdictions require mandatory trapper education and mandatory reporting of all take (intended or incidental) as a condition of licensing (30 January 2006, letter from the Canadian Wildlife Service to the USFWS).

### 7.2 International

The bobcat is listed in CITES Appendix II due to similarity of appearance to other listed felids.

## 8. Species management

### 8.1 Management measures

In the United States, the 38 States that allow bobcat harvest have implemented measures to control harvest intensity through regulations that dictate season length, methods of take, bag limits, and mandatory reporting. Additionally, many States use individual permits (9 States) or statewide harvest quotas (4 States) to limit the annual harvest (Woolf and Hubert 1998). States periodically review species harvest programs to account for new findings and current advice from experts in their region. Trade in skins or other specimens from captive-bred animals is not common, but where legal, is monitored by State authorities. Sustainable harvest rates are most often determined by using population models or life table analyses based on population demographic data collected annually from harvested samples. Managers generally consider 20% to be the maximum sustainable annual harvest rate for bobcats, and age structure analyses, such as adult-to-yearling ratios, have been developed to estimate changes in harvest rates over time (Knick 1990).

In Canada, harvest control measures are similar. The species may be harvested only during a small part of the year in all jurisdictions. The harvest season ranges from as early as 1 November to the end of February, or up to four months of the year (Jan. 30, 2006, letter from the Canadian Wildlife Service to the USFWS). Quotas are in place in British Columbia, New Brunswick, and Nova Scotia and are set based on harvest statistics and prey abundance surveys (C. Loughheed, Canadian CITES Scientific Authority, email pers. comm. 22 December 2006).

In general, the harvest rate in Mexico is about one specimen per four thousand hectares. The specific harvest rate is determined according population surveys using olfactory attractors (16 June 2006, email response from Mexico to the Animals Committee's survey).

## 8.2 Population monitoring

Although population size is difficult to estimate for bobcats due to their cryptic and primarily nocturnal behavior, numerous indices have been employed by U.S. State and Canadian provincial furbearer managers to determine range, occupancy of habitats, and geographic and numeric trends in bobcat populations. Examples of such data include but are not limited to collection of vehicle-caused mortalities, hunter and trapper questionnaires, geographically referenced harvest data, employee opinion, hunter sightings, archer sightings, incidental captures by trappers, scent-station surveys, and winter track counts (Anderson and Lovallo 2003).

In addition, in Canada evaluations of prey abundance are conducted (C. Lougheed, Canadian CITES Scientific Authority, email pers. comm. 22 December 2006). In all Canadian jurisdictions, there is a system of zoning (through management regions), with each monitored and regulated according to local conditions. Nova Scotia and New Brunswick require carcass submission for collection of biological data to monitor such indices as condition, productivity, and age structure in the populations (30 January 2006, letter from the Canadian Wildlife Service to the USFWS).

In Mexico, populations are monitored using scent station surveys. Currently a population assessment is being conducted to determine the status of Mexican bobcat populations (16 June 2006, email response from Mexico to the Animals Committee's survey).

## 8.3 Control measures

### 8.3.1 International

The bobcat (*Lynx rufus*) was included in Appendix II of CITES in 1977 along with all species of Felidae that had not already been listed. In response to a proposal submitted at CoP4 by the United States and Canada to remove the bobcat from CITES, the Parties agreed to include the bobcat under Appendix II due to its similarity of appearance to other felids listed under the Appendices (as per Article II, paragraph 2(b) of CITES). If the bobcat is removed from CITES, the other *Lynx* species will continue to be listed, and CITES permits will continue to be required for trade in the other *Lynx* species.

### 8.3.2 Domestic

According to Nowell and Jackson (1996), bobcat management programs in the United States and Canada are the most advanced management programs for commercial exploitation of feline furbearers. The management programs ensure long-term sustainable use of the species and support its conservation. Agencies with jurisdictional authority employ qualified and specialized wildlife biologists to provide management and harvest recommendations for bobcats in their respective regions. In the United States, other scientists, agency personnel, and the public review management recommendations prior to being adopted. State and Federal agency wildlife law enforcement personnel are trained to identify bobcats and are well versed in State and Federal law regarding the harvest, transport, and sale of bobcats and bobcat parts.

Canada has employed a system of mandatory provincial/territorial export permitting in all jurisdictions which facilitates tracking of movement of wildlife (or parts, such as pelts) between jurisdictions within Canada, thereby assuring and corroborating reliability of numbers from harvest reporting within the jurisdictions. As the exports are primarily whole pelts, identification of species is relatively simple and accurate. Any look-alike concerns in the bobcat trade are thus not likely to arise in Canada at the whole pelt level. Canadian protections for the bobcat under provincial/territorial wildlife acts would remain in place if the bobcat were de-listed from CITES, as they are not dependent on listing in the CITES Appendices. Thus continued listing in the Appendices is not needed

to safeguard Canadian populations of this species (30 January 2006, letter from the Canadian Wildlife Service to the USFWS).

#### 8.4 Captive breeding

In the United States, some States allow and regulate captive rearing and propagation of bobcats for commercial purposes. However, current international trade of bobcat pelts is dominated by wild fur harvests from North American countries.

#### 8.5 Habitat conservation

Because bobcats thrive in a wide variety of habitats throughout their range, State, Federal, and private lands containing these habitats are able to sustain the current distribution.

#### 8.6 Safeguards

A survey of North American and European fur industry representatives that deal with *Lynx* spp. suggests that international, European, and Asian markets all seem to prefer both *L. rufus* and *L. canadensis*. Further, in the opinion of industry representatives, distinguishing *L. rufus* parts, pieces, and derivatives from those of *L. canadensis* is not difficult and can be accomplished with limited experience and/or training. However, it was noted that Customs and wildlife enforcement officers may need to be provided with further identification training (TRAFFIC North America 2006).

Fur industry representatives consulted speculated that, if *L. rufus* were delisted, market demand might increase or remain the same, but likely would not decrease (TRAFFIC North America 2006). Also, as stated previously, the harvest of *L. rufus* is carefully managed on a sustainable basis in the United States and Canada.

The ready availability of legally acquired *L. rufus* in the market is a safeguard to the illegal take of and trade in other *Lynx* species. Also, range countries have implemented adequate domestic legislation and regulations, management, and enforcement controls to manage harvest of and trade in other *Lynx* species.

### 9. Information on similar species

Several species have been identified as similar in appearance to bobcat, including the Canada lynx, Iberian lynx (*Lynx pardinus*), and Eurasian lynx (*Lynx lynx*). Characteristics of the pelage and skull can be used to clearly distinguish bobcats from other members of the genus *Lynx*. For example, Canada lynx can be distinguished visually from bobcats by their large furry pads, slightly shorter tail, longer black ear tufts, and black margins along the ear (> 2.5 cm), as well as a less defined spotting on the coat. While the tail of the bobcat is banded on the upper surface only, the tail of the other *Lynx* species ends in a black tip that completely encircles the tail (Guggisberg 1975, Nowak 1999, Lariviere and Walton 1997). The upper body of the bobcat is generally yellowish or reddish brown, whereas the pelage of the Canada lynx is generally grayer, and the belly, legs, and feet are grayish to buff white and often speckled with brownish black spots, particularly on the inside of the legs (McCord and Cardoza 1982). Although the Division of Scientific Authority's consultation with the USFWS National Fish and Wildlife Forensics Laboratory has revealed that pieces of bobcat skins cannot be distinguished from the other *Lynx* species, data in the CITES database from 1980-2004 show that the majority (78%) of trade in *Lynx* species consists of skins. Since skins are almost always auctioned as dry skins (not tanned yet) with fur out and are almost always complete, including the ears and tail (M. Lovallo, pers. comm. email to M. Cogliano 29 December 2006), the skins should not present a look-alike problem because the bobcat can be reliably distinguished from other *Lynx* species by the ears and tail, as described above.

Bobcat skulls can be identified by the presence of both a narrow presphenoid bone (< 6 mm) and a confluence of the hypoglossal foramen with the posterior lacerate foramen. Canada lynx skulls have an inflated presphenoid bone and the hypoglossal and posterior lacerate foramina are separated (Jackson 1961). Additionally, Ommundsen (1991) identified three other morphometrics that can be used to distinguish skulls: the number of minor palatine foramina ( $\geq 2$  in bobcat, < 2 in Canada lynx),

the height of the post-orbital process of the jugal (larger than the space in the rim in bobcats and smaller than the space in the rim for Canada lynx), and most significantly the angle of the infra-orbital foramen (the long axis is nearly horizontal in the bobcat and intersects the nasal bone, whereas it is closer to vertical in the Canada lynx). Likewise, in *Lynx lynx*, the infra-orbital foramina is disposed almost vertically (Novikov 1962).

To facilitate species identification, since 2003 the USFWS has posted on its website "How to Avoid Incidental Take of Lynx While Trapping or Hunting Bobcats and Other Furbearers," which describes and illustrates distinguishing characters of bobcats and Canada lynx (*Lynx canadensis*) (<http://www.fws.gov/international/animals/lynx.htm>).

#### 10. Consultations

The United States has consulted with the bobcat range countries of Canada and Mexico, and information from these range countries has been incorporated throughout this proposal.

#### 11. Additional remarks

None.

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