

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



Fifteenth meeting of the Conference of the Parties
Doha (Qatar), 13-25 March 2010

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Removal of *Lynx rufus* (bobcat) from Appendix II, as the species no longer merits listing as per Article II, paragraph 2(b), in accordance with Resolution Conf. 9.24 (Rev. CoP14), Criterion A in Annex 2b.

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 Species: *Lynx rufus*, Lapham 1852

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. superiorenensis*, *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: chat sauvage, chat sauvage de la nouvelle cosae,
loupcervier, lynx roux, pichou, pichu
Spanish: gato de monte
(Jackson 1961, Banfield 1987, McCord and Cardoza 1982)

1.7 Code numbers: A-112.007.001.024

* The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.

2. Overview

L. rufus was included in Appendix II of CITES in 1977 along with all species of Felidae that had not already been listed. The listings at this time occurred prior to the adoption of a format for proposals, and there was no clarification of whether *L. rufus* was listed in its own right or for similarity of appearance purposes. At CoP4 (Botswana 1983), it was agreed by the Conference of the Parties that this species' continued listing was solely based on Article II, paragraph 2(b) to ensure effective control of trade in other felids. Monitoring of wild *L. rufus* populations since 1977 continues to demonstrate that the species is not threatened; harvest and trade are well regulated. According to Nowell and Jackson (1996), *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 five sources:

1. 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;
2. A study by TRAFFIC North America (Cooper and Shadbolt 2007) 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;
3. CITES trade data for *Lynx* spp. for the years 2002 through 2006 [from the United Nations Environment Programme - World Conservation Monitoring Center (UNEP-WCMC) CITES Trade Database].
4. The outcome of a meeting held in Brussels in October 2008, which was jointly organized and convened by the United States and European Commission for the purpose of discussing the degree of illegal trade in *Lynx* spp. related to *L. rufus* look-alike concerns. Participants included management and law enforcement authorities of range countries of *Lynx* spp.
5. The results of a survey conducted by the Scientific Authority of the United States through researchers at Cornell University (2008) and in consultation with Canada and Mexico, for the purpose of estimating the *L. rufus* population size, distribution, and status throughout its range.

An analysis of information from these sources suggests that inclusion of *L. rufus* in Appendix II due to similarity of appearance to other felids is no longer warranted. The survey by TRAFFIC North America (Cooper and Shadbolt 2007) 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 Canada lynx (*Lynx canadensis*) over other *Lynx* spp. 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 Eurasian lynx (*Lynx lynx*) and Iberian lynx (*Lynx pardinus*) is well controlled, especially by range countries. WCMC data provide further support by showing that the level of trade in *L. lynx* and *L. pardinus* is minor relative to the level of trade in *L. rufus* and *L. canadensis*, and based on the *Lynx* spp. range country survey conducted for the Review of the Appendices by the Animals Committee, take from the wild of all *Lynx* spp. is highly regulated. Range country responses to this survey indicate that range countries have implemented adequate domestic legislation as well as regulations, management, and enforcement controls to manage harvest and trade in other *Lynx* spp. Further, in the opinion of industry representatives, distinguishing *L. rufus* parts, pieces and derivatives from those of *Lynx canadensis* is not difficult and can be accomplished with limited experience and/or training (Cooper and Shadbolt 2007). To facilitate species identification, the U.S. Fish and Wildlife Service (USFWS) has produced a web-based *Lynx* identification manual designed for use by CITES authorities and other enforcement officials. The manual has been designed as an aide in distinguishing full skins and skins lacking a head and tail of *L. rufus* and other *Lynx* spp.

The ready availability of legally acquired *L. rufus* in the market is a safeguard against the illegal take and trade of other *Lynx* spp. Trade in *L. rufus* includes bodies, carvings, claws, feet, garments, leather products, live animals, plates, skins, skin pieces, skulls, skeletons, specimens, tails, teeth, and trophies;

however, full pelts¹ represent the overwhelming majority of exports and accounted for 92% of the *L. rufus* items in legal trade between 2002 and 2006. Considering only the skin-related items (i.e., garments, leather products, plates, skins, and skin pieces), skins accounted for 95% of the legal trade in these *L. rufus* items. Finally, WCMC data show that the low volume of illegally traded *Lynx* spp. specimens does not suggest a major problem with illegal trade in *Lynx* spp. A survey of *Lynx* spp. range countries did not reveal any incidence of *L. lynx* or *L. pardinus* being illegally trafficked as *L. rufus* (AC24 Doc.10.3).

3. Species Characteristics

3.1 Distribution

L. rufus 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, *L. rufus* 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 *L. rufus* was found in all 48 states in the United States (Young 1958). *L. rufus* range in North America is approximately 8,708,888 km² including 6,186,819 km² (71% of range) in the United States, 1,702,545 km² (20% of range) in Mexico, and 819,524 km² (9% of range) in Canada (Roberts 2008).

3.2 Habitat

L. rufus 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, Zedulak and Schwab 1979, Karpowitz 1981, Golden 1982). McCord (1974) snow-tracked *L. rufus* in Massachusetts and found that roads, cliffs, spruce plantations, and hemlock-hardwoods were used most in relation to their abundance. *L. rufus* in Missouri preferred bluffs, brushy fields, and second-growth oak habitats (Hamilton 1982). 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, *L. rufus* is 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 *L. rufus* habitat use (Pollack 1951, Erickson 1955, Bailey 1974).

3.3 Biological characteristics

L. rufus is 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). The majority of *L. rufus* breeding occurs during February and March but varies with latitude, longitude, altitude, climate, photoperiod, and prey availability (McCord and Cardoza 1982). The gestation period in *L. rufus* 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 *L. rufus* kittens are normally 1:1. *L. rufus* generally produces 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 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 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 *L. rufus* indicates little impact on population size until harvest exceeded 20% of the population (Knick 1990).

¹ We use the term "full pelt" to refer to items coded as "skins" in the UNEP-WCMC CITES Trade Database, because in the database other items representing parts and pieces of pelts are coded separately.

3.4 Morphological characteristics

The pelage of *L. rufus* 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 *L. rufus* weights vary considerably throughout their range. As in other *Lynx* spp., *L. rufus* has 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). *L. rufus* 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, *L. rufus* is missing the second upper premolars, giving them 28 teeth instead of 30 typical of other members of Felidae (Ewer 1973). *L. rufus* has four functional toes on the front and hind feet (McCord and Cardoza 1982).

3.5 Role of the species in its ecosystem

L. rufus is one of several carnivores within the complex predator communities of North America. Because *L. rufus* occupies a wide variety of habitats, its role as a forest and farmland predator is varied. *L. rufus* is ecologically similar to *L. canadensis* particularly in terms of prey selection, and their ranges are rarely sympatric. Where *L. rufus* and *L. canadensis* ranges overlap, *L. rufus* typically out-compete *L. canadensis* unless excessive snow depth provides *L. canadensis* with a foraging advantage (Parker et al. 1983).

4. Status and trends

4.1 Habitat trends

During the last century, the range of *L. rufus* 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 *L. rufus* density in some areas, recent studies have documented increases in its density in suburban and developed areas of the eastern and mid-western United States (Woolf and Neilson 2001).

4.2 Population size

The current estimated *L. rufus* population in the United States is 1,419,333 to 2,638,738 (Roberts 2008). In 1981, using similar methodology it was estimated there were 725,000 to 1,017,000 (USFWS 1982). The U.S. *L. rufus* population has clearly grown considerably since that time. This population growth is likely a response to many factors including changing agricultural practices, range expansion, and habitat improvement programs (Woolf and Hubert 1998, Lovallo 2001). Numerous states within the United States independently estimate *L. rufus* populations by using a variety of methods, such as computer population models and life table analyses (Anderson and Lovallo 2003, Roberts 2008).

The status of *L. rufus* in Canada is considered secure (i.e., relatively widespread or abundant) (CWS 2009). In the recent survey of the status of *L. rufus* in North America (Roberts 2008) none of the Canadian provinces reported that bobcats were currently in decline.

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 has recently been conducted to more precisely determine the status of Mexican populations of *L. rufus*. Estimates of population density in various localities monitored in Mexico during the project ranging from 0.05 to 0.53 /km² and are within the range of results reported in the United States, 0.09 - 1.53 /km² (AC24, Inf Doc 10).

The current status of the *L. rufus* population and distribution in North America appears to be healthy and significantly greater than the early 1980's (Roberts 2008).

4.3 Population structure

L. rufus 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. *L. rufus* is essentially solitary with direct social interactions being brief and infrequent. Exceptions include females with kittens and adult males and females during the breeding season (Bailey 1974, Rolley 1983).

Home ranges of *L. rufus* 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).

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). In follow-up studies in 2008, none of the states reported that *L. rufus* populations are declining, with the exception of Florida, a decline attributed to loss of habitat (Figure 1.) (Roberts 2008). Geographic expansion of *L. rufus* range and notable increases in *L. rufus* density suggest that population size has likely increased in the past decade (Woolf and Hubert 1998, Lovallo 2001, Roberts 2008).

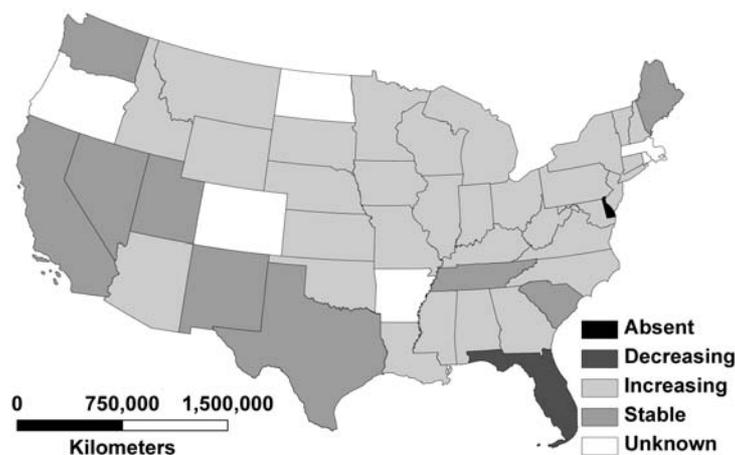


Figure1. Population trends in *L. rufus* populations in the United States.

Population trends in Canadian range provinces are reported as stable or increasing (Roberts 2008). Cyclic fluctuations related to prey abundance have been observed (Canadian Wildlife Service (CWS) 2009).

Current studies in Mexico reveal that *L. rufus* are widespread with moderate densities (AC24 Inf Doc 10), but historical data are not sufficient to assess how Mexico's populations have changed over time.

4.5 Geographic trends

Periodic national surveys of *L. rufus* abundance and distribution suggest continued geographic expansion of its populations throughout their range in the United States, particularly in mid-western and several mid-Atlantic States (Hon 1990, Woolf and Neilson 2001, Roberts 2008). Most notably, *L. rufus* 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 some localized populations of *L. rufus* in the United States have likely declined due to urbanization, only the state of Florida reports a state-wide decline. There are no widespread threats to U.S. *L. rufus* populations, which is in part due to the species' ability to exploit a wide variety of habitats.

There are no widespread acute threats to Canadian *L. rufus* populations. Some possible threats include decline in prey populations, loss of habitat, habitat alteration, and climate change (CWS 2009).

Some regions in Mexico have undergone drastic changes in vegetation that have affected the conservation status of several species. However, *L. rufus* is still present in regions with strong influence by human activities such as localized areas near Mexico City. Mexico reported that data obtained in their recent *L. rufus* population studies do not support a conclusion that the species faces extinction risk and are therefore not considered necessary for inclusion in the list of Species at Risk in Mexico (AC 24 Inf Doc 10).

L. rufus is not listed in the 2003 IUCN Red List of Threatened Species (IUCN 2003).

6. Utilization and trade

6.1 National utilization

L. rufus is 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 *L. rufus* harvests increased during 1976-1984, recent harvest levels in the United States have been comparable to those observed prior to CITES listing (36,674 harvested during 1997-1998 versus 37,026 harvested during 1975-1976) (Association Fish and Wildlife Agencies). Woolf and Hubert (1998) concluded that, based on harvest-associated data, it was unlikely that *L. rufus* populations were reduced during high harvest years; rather, these populations were thought to have remained stable.

In Canada, *L. rufus* is legally harvested in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, and Nova Scotia, resulting in 1,500 to 2,000 pelts per year, the majority from Nova Scotia (65%-70%), New Brunswick (20%), and British Columbia (10%) (CWS 2009). 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 *L. rufus* parts (taxidermy mounts, meat, teeth, tails, etc.) (CWS 2009).

In Mexico, *L. rufus* is primarily harvested as game, and exports are restricted to trophies (June 16, 2006, email response from Mexico to the Animals' Committee survey). *L. rufus* skins from Mexico and other subtropical climates are generally considered by the industry to be of low value and are not commercially in demand. Between 2005-2009 a total of 26 *L. rufus* were exported from Mexico, primarily as hunting trophies to the United States (AC24 Inf Doc 10).

6.2 Legal trade

From 2002 through 2006, approximately 380,158 *Lynx* spp. items² (bodies, live animals, parts, pieces, or derivatives) were legally traded according to export data provided in the UNEP-WCMC CITES Trade Database. Of these items, 282,613 (74%) were *L. rufus*; 94,770 (25%) were *L. canadensis*; 1,893 (0.5%) were *L. lynx*; and 538 (<0.5%) were *L. pardinus*; and 344 (<0.5%) were recorded as *Lynx* spp. Of the 380,158 legally traded items, 337,547 (89%) were skins. Of these skins, 259,553 (77%) were *L. rufus*; 77,388 (23%) were *L. canadensis*; 448 (<0.5%) were *L. lynx*; 157 (<0.5%) were recorded as *Lynx* spp.; and 1 (<0.5%) was *L. pardinus*. According to the same data from 2002 through 2006, 41 exporting or re-exporting countries legally exported *L. rufus* items. The range countries United States and Canada exported or re-exported the highest numbers of legal *L. rufus* items, accounting for 91% of the legal *L. rufus* items recorded. The United States exported or re-exported 172,954 (61%) of the items, and Canada exported or re-exported 84,745 (30%) of the items. The remaining 24,914 (9%) items were exported or re-exported by other countries, including the range country Mexico. However, from 2002 through 2006, Mexico only exported or re-exported 12 (<0.05%) *L. rufus* items.

² Data for skin pieces reported in kilogram (kg) units were converted to number (no.) units based on the average weight of pelts for that species, as per the methods described in Cooper and Shadbolt 2007.

6.3 Parts and derivatives in trade

Trade in *L. rufus* items include bodies, carvings, claws, feet, garments, leather products, plates, skins, skin pieces, skulls, skeletons, specimens, tails, teeth, and trophies; however, skins are the most common and accounted for 92% of the *L. rufus* items in legal trade from 2002 through 2006. Considering only the skin-related items (i.e., garments, leather products, plates, skins, and skin pieces), skins accounted for 95% of these items. According to TRAFFIC North America, from 2000 through 2004, skins comprised 96% of the *L. rufus* items legally exported from the United States during that time (E. Cooper, email pers. comm. 25 March 2008). Most *L. rufus* 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 pelts used for the production of fur garments. Spotted belly fur from *L. rufus* is generally used as a trim item on garments. From 2002 through 2006, the primary importers of *L. rufus* items were Canada, Italy, Greece, the United States, the United Kingdom, and Poland, accounting for 84% of *L. rufus* items that were reported exported during that time. Of the 280,749 *L. rufus* items exported during that time period, Canada imported 86,256 (31%) items, Italy imported 59,757 (21%) items, Greece imported 39,094 (14%) items, the United States imported 29,115 items (10%), the United Kingdom imported 11,675 (4%) items, and Poland imported 10,689 (4%) items.

6.4 Illegal trade

Due to the relatively small data-set of illegal trade figures provided by the UNEP-WCMC CITES Trade Database between 2002 and 2006, we present summary data from TRAFFIC North America's analysis of illegal trade spanning the years 1980 through 2004 (Cooper and Shadbolt 2007). Following a summary of this analysis, we provide a summary of data reported for the years 2005 and 2006, as provided by the UNEP-WCMC CITES Trade Database.

Between 1980 and 2004, a total of 3,568 *Lynx* spp. items (parts, pieces or derivatives) were seized as illegal, based on the UNEP-WCMC CITES Trade Database (Cooper and Shadbolt 2007). 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. 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 Russia, Italy, Finland, United Kingdom, Hong Kong, Mexico, Australia, Austria, Portugal, Spain, Chinese Taipei, Japan, New Zealand, United Arab Emirates, and an unknown country. Illegal *Lynx* spp. items were recorded for 25 exporting/re-exporting countries. Of the 3,568 *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, Russia, Italy, France, Hong Kong, Brazil, China, Armenia, Pakistan, South Africa, Afghanistan, Denmark, Israel, Kuwait, Netherlands Antilles, Nigeria, and Poland. Again, the majority (87%) of these items were *L. rufus*.

In the years 2005 and 2006, based on export data from the UNEP-WCMC CITES Trade Database, 193 *Lynx* spp. items (bodies, live animals, parts, pieces, or derivatives) were reported to be seized as illegal³. Of these items, 179 (93%) were skins. All of the 179 skins were of *L. rufus* exported from the United States. Four of these skins were exported to Canada, and 175 skins were exported to Hong Kong.

³ Consistent with the methodology provided in TRAFFIC North America 2006, we excluded source code "I" (illegal) data that had corresponding purpose codes "E" (educational) and "S" (scientific).

6.5 Impacts to look-alikes

In response to a recommendation made in the Felidae working group and adopted by the 23rd Animals Committee, a meeting was organized for the management, customs, and law enforcement authorities of the *Lynx* spp. range countries to discuss possible problems of illegal trade of those species. Case studies of illegal trade in *L. lynx* and *L. pardinus* were also discussed. The primary impetus for this meeting as directed by the 23rd Animals Committee was to address the look-alike issue with *Lynx* and to discern if the concerns about *L. lynx* and *L. pardinus* potentially entering in trade as *L. rufus* are actual or hypothetical.

Discussions revealed that in most cases the illegal poaching of *L. lynx* and *L. pardinus* is related to predator control to protect livestock and game animals. No documented incidents were reported of *L. lynx* or *L. pardinus* being entered into trade as *L. rufus* (AC24 Doc 10.3).

Several European Union (EU) countries indicated concerns that a simple delisting could allow *L. lynx* to enter trade more easily if there is no document trail for *L. rufus* entering international trade. One possible option that received significant discussion involved down-listing *L. rufus* to CITES Appendix III and having the EU maintain it on their Annex B. This combined approach would allow for the retention of CITES documentation for shipments of *L. rufus* leaving the United States and other exporting countries and entering EU Member States. The paperwork received on the EU side would not change.

6.6 Actual or potential trade impacts

The small volume of illegally traded *Lynx* spp. items does not suggest a major problem with illegal trade in *Lynx* spp. (Cooper and Shadbolt 2007).

Canada is confident that current regulatory and management practices guard against potential threats from trade demand and that *L. rufus* and *L. canadensis* in Canada are not adversely impacted by trade.

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

7. Legal instruments

7.1 National

L. rufus hunting and trade is regulated domestically throughout its range (Nowell and Jackson 1996). In the United States, *L. rufus* is 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 (Woolf and Hubert 1998).

Harvest of *L. rufus* 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 *L. rufus*, it must be demonstrated that harvest rates are less than the natural renewal rate of the wild population affected (June 16, 2006, email response from Mexico to the Animals' Committee survey). In Mexico, harvesting on *Lynx rufus* has been approved only for game hunting purposes through Units for Management and Conservation of Wildlife (UMA). The same legislation established measures for controlling problematic individuals, and specimens are generally captured and relocated for recovery, research or environmental education purposes; to date, no lethal control of specimens has been allowed (7 October 2009 letter from Alejandra Garcia Naranjo, CITES Coordinator, CONABIO, Mexico, to Rosemarie Gnam, Chief, USFWS Division of Scientific Authority).

In Canada, *L. rufus* 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 (CWS 2009). 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 (CWS 2009).

7.2 International

L. rufus 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 harvest of *L. rufus* have implemented measures to control harvest intensity through regulations that dictate season length, methods of take, bag limits, and/or 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 *L. rufus*, 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. Quotas are in place in British Columbia, New Brunswick, and Nova Scotia, and are set based on harvest statistics and prey abundance surveys (CWS 2009).

In general, the harvest rate in Mexico is about 1 specimen per 4,000 hectares. The specific harvest rate is determined according population surveys using olfactory attractors (June 16, 2006, email response from Mexico to the Animals' Committee survey).

8.2 Population monitoring

Although population size is difficult to estimate for *L. rufus* 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 *L. rufus* populations. Examples of such data include, but are not limited to, scent-station surveys, winter track counts, geographically referenced harvest data, collection of vehicle-caused mortalities, hunter and trapper questionnaires, biologists' opinions, hunter sighting surveys, and incidental captures by trappers (Anderson and Lovallo 2003). Other population parameters are estimated through the collection of age and reproductive data from hunter and trapper harvested animals.

In addition, in Canada evaluations of prey abundance are conducted (CWS 2009). 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 (Jan. 30, 2006, letter from the Canadian Wildlife Service to the USFWS).

In Mexico, populations are monitored using scent station surveys. Recently a population assessment has been conducted to determine the status of Mexican *L. rufus* populations using tracking with automatic cameras, combined with statistical methods for capture-recapture analysis. This technique considers a combination of distinct characters in the fur to differentiate between individuals captured in the photographs (R. Medellin, AC24 Inf Doc 10).

The majority of jurisdictions in North America that reported monitoring methods utilized multiple methods, including harvest data analysis, hunter surveys, scent/sign stations, public sightings, population models, snow track surveys, incidental harvest, and vehicle collision analysis. Of 45 jurisdictions reporting, 25 utilized more than one method. About 73% of the jurisdictions that reported use harvest data analysis for monitoring (Roberts 2008).

8.3 Control measures

8.3.1 International

L. 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 *L. rufus* from CITES, the parties agreed to include the species 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 *L. rufus* is removed from CITES Appendix II, the other *Lynx* spp. will continue to be listed, and CITES permits will continue to be required for trade in the other *Lynx* spp. Listing *L. rufus* as an CITES Appendix III species would allow for the retention of CITES documentation for shipments of *L. rufus* leaving the U.S. and other exporting countries and entering EU Member States.

8.3.2 Domestic

According to Nowell and Jackson (1996), *L. rufus* 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 *L. rufus* in their respective regions. In the United States, 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 *L. rufus* and are well-versed in State and Federal laws regarding the harvest, transport, and sale of *L. rufus* and its 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 trade of *L. rufus* 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 (CWS 2009).

In Mexico, *L. rufus* exports are restricted to trophies (June 16, 2006, email response from Mexico to the Animals' Committee survey). Between 2005-2009 an average of 5 *L. rufus* per year were exported from Mexico, primarily as hunting trophies to the United States (AC24 Inf Doc 10).

8.4 Captive breeding and artificial propagation

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

8.5 Habitat conservation

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

There are no specific natural protected areas designed for *L. rufus* in Mexico, however, several protected areas, that are located along this species' distribution range, protect *L. rufus* and its habitat. These protected areas cover up to 5,427,928 hectares (ha) as follows:

- 4,292,237ha of Biosphere Reserves (El Vizcaíno, Sierra La Laguna, Mapimí, Sierra de Manantlán, Tehuacán-Cuicatlán, El Pinacate y Gran Desierto de Altar),
- 426,064ha of National Parks (San Pedro Mártir, Cumbres del Ajusco, Desierto de los Leones, Iztaccihuatl-Popocatepetl, Nevado de Toluca, Lagunas de Zempoala, Cumbres de Monterrey, Cofre de Perote, Pico de Orizaba), and

- 709,627ha of Protection Areas of Fauna and Flora (Cañón de Santa Elena, Maderas del Carmen, Corredor Biológico Chichinautzin, Sierra de Ajos Bavispe).

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 *Lynx canadensis* is not difficult and can be accomplished with limited experience and/or training. To facilitate species identification, the USFWS has produced a web-based *Lynx* identification manual designed for use by CITES authorities and other enforcement officials. The manual has been designed as an aide in distinguishing full skins and skins lacking a head and tail of *L. rufus* and *Lynx* spp. and will also be available in a hard-copy format.

Fur industry representatives report that if *L. rufus* were delisted, market demand might increase or remain the same, but likely would not decrease (Cooper and Shadbolt 2007). 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 and trade of other *Lynx* spp. Also, range countries have implemented adequate domestic legislation and regulations, management, and enforcement controls to manage harvest and trade in other *Lynx* spp.

9. Information on similar species

Several species have been identified as similar in appearance to *L. rufus*, including the *L. canadensis*, *L. pardinus*, and *L. lynx*. Characteristics of the pelage and skull can be used to clearly distinguish *L. rufus* from other members of the genus *Lynx*. For example, *L. canadensis* can be distinguished visually from *L. rufus* 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 *L. rufus* is banded on the upper surface only, the tail of the other *Lynx* spp. ends in a black tip that completely encircles the tail (Guggisberg 1975, Nowak 1999, Lariviere and Walton 1997). The upper body of *L. rufus* is generally yellowish or reddish brown, whereas the pelage of the *L. canadensis* 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 USFWS Division of Scientific Authority's consultation with the USFWS National Fish and Wildlife Forensics Laboratory has revealed that some pieces of *L. rufus* skins cannot be distinguished from the other *Lynx* spp., according to data provided by the UNEP-WCMC Trade database, between 2002 and 2006, the majority of trade (89%) in *Lynx* spp. items 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 *L. rufus* can be reliably distinguished from other *Lynx* spp. by the ears and tail, as described above. It is highly unlikely that pieces of *L. lynx* or *L. pardinus* could enter illegal trade in quantities significant enough to impact populations.

L. rufus 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. *L. canadensis* 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 (≥ 2 in *L. rufus*, <2 in *L. canadensis*), the height of the post-orbital process of the jugal (larger than the space in the rim in *L. rufus* and smaller than the space in the rim for *L. canadensis*), and most significantly the angle of the infra-orbital foramen (the long axis is nearly horizontal in *L. rufus* and intersects the nasal bone, whereas it is closer to vertical in the *L. canadensis*). Likewise, in *L. lynx*, the infra-orbital foramen is disposed almost vertically (Novikov 1962). Trade data indicates that trade in *Lynx* spp. skulls is not significant.

To facilitate species identification, the USFWS has produced a web-based *Lynx* identification manual designed for use by CITES authorities and other enforcement officials. The manual has been designed as an aide in distinguishing full skins and skins lacking a head and tail of *L. rufus* and other *Lynx* spp. and will also be available in a hard-copy format.

10. Consultations

The United States has consulted with the *L. rufus* 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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