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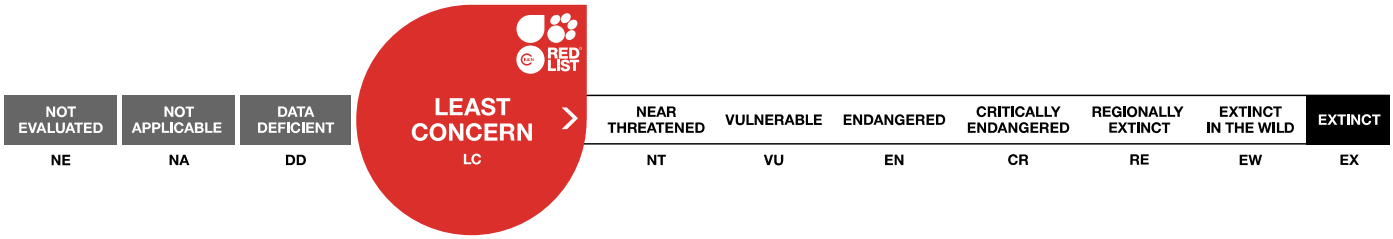
Lynx lynx, Eurasian Lynx

Amendment version

Assessment by: von Arx, M.



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Mammalia	Carnivora	Felidae

Scientific Name: *Lynx lynx* (Linnaeus, 1758)

Regional Assessments:

- Global
- Mediterranean

Infra-specific Taxa Assessed:

- Lynx lynx ssp. balcanicus

Common Name(s):

- English: Eurasian Lynx
- French: Lynx, Lynx Boréal
- Spanish; Castilian: Lince, Lince Boreal
- Mongolian: Evroasiin Shiluus, Shiluus Mii

Taxonomic Notes:

Currently, the following six subspecies of the Eurasian Lynx are proposed (von Arx *et al.* 2004, Breitenmoser and Breitenmoser-Würsten 2008, Kitchener *et al*. 2017):

- Northern Lynx *L. l. lynx*: northern Europe and western Siberia (Scandinavia, Finland, Belarus, Baltic states, European part of Russia, Ural, Siberia east to the Yenisei River).

- Carpathian Lynx *L. l. carpathicus*: Carpathian Mountains.

- Balkan Lynx *L. l. balcanicus*: Balkans (Albania, Macedonia, Montenegro, Kosovo).

- Caucasus Lynx *L. l. dinniki*: Caucasus Mountains south to Turkey, Iraq and Iran, formerly also in the Kopet-Dag, Turkmenistan.

- Turkestan Lynx *L. l. isabellinus*: Central Asia (Turkmenistan, Afghanistan, Pakistan, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, China, India, Nepal, Bhutan).

- Siberian Lynx *L. l. wrangeli*: Siberia east of the Yenisei River (Russia).

Three further subspecies have been described that need further investigation and clarification:

- Altai Lynx *L. l. wardi*: Altai Mountains (Russia, Kazakhstan, China, Mongolia).

- Baikal Lynx *L. l. kozlovi*: Central Siberia, from the Yenisei River to Lake Baikal.

- Amur Lynx *L. l. stroganovi*: Russian Far East, Ussuri and Amur territories, North Korea, northeastern

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China (Manchuria).

Assessment Information

Red List Category & Criteria: Least Concern ver 3.1

Year Published: 2020

Date Assessed: May 25, 2018

Justification:

European regional assessment: Least Concern (LC)
EU 28 regional assessment: Near Threatened (NT) The Eurasian Lynx is abundant in the northern and eastern part of its range. There are 8,000-9,000 lynx (number of individuals) present in Europe excluding Russia and Belarus (LCIE in prep., Chapron *et al.* 2014) and this number has been stable since the last regional assessment in 2007. The European subpopulation doubles to 17,000-18,000 individuals when taking European Russia into account where in 2013 roughly 9,200 lynx were estimated (Monitoring and supervision centre for game animals and their habitats (CentrOkhotControl) and with help of V.V. Rozhnov 2014). Consequently, the species is classed as Least Concern at the European level. The lynx population within the EU Member States remains small. With an estimated 7,000-8,000 total individuals it is below the population size threshold for Vulnerable under Criterion C (10,000 mature individuals). It does currently not meet the subcriteria, though. However, some of the larger subpopulations (Scandinavian and Baltic) have shown declining trends in the past decade and if this trend persists, the lynx population within the EU could meet Criterion C1 in the near future. Consequently, it is assessed as Near Threatened at the EU level. Continued conservation measures are required to ensure the recovery of the species. This is particularly true for the Critically Endangered Balkan lynx subspecies, but also for the reintroduced populations in Western and Central Europe (Alpine, Vosges-Palatinian, Jura, Bohemian-Bavarian-Austrian, Dinaric) which are still small and are classified as Endangered or Critically Endangered. Additionally, the recent negative trends in some of the larger autochthonous subpopulations (Scandinavian and Baltic) have to be reversed. Note: The assessment of the subpopulations is mainly based on total population size (number of lynx individuals) or number of independent individuals (adults and subadults, based on capture-recapture estimates by means of camera trap surveys extrapolated to the distribution area of the subpopulation) as these are the estimates usually available from the range countries. The number of mature individuals is, however, lower than these numbers, which was taken into account when assessing the Category. **1. Jura**
Endangered (D). Lynx numbers in the Jura Mts. have increased to c.140 independent individuals and the range has expanded. It however still qualifies as Endangered under Criterion D because the subpopulation size is below 250 mature individuals. In recent years, a few male lynx from the Jura Mts. have dispersed to neighbouring regions (e.g. the Black Forest in Germany). However, there is too limited immigration of lynx from neighbouring subpopulations, e.g. the Alps, into the Jura subpopulation to provide a sufficient demographic rescue effect. Therefore, the Red List Category is not adjusted for connectivity. **2. Vosges-Palatinian**
Critically Endangered (C1, D). The Vosges-Palatinian subpopulation is on the verge of extinction. Numbers had dropped from 30-40 lynx in 2005 to 1-3 ten years later which is a reduction of 91% (CR Criterion C1 (25% reduction in 4 years) in addition to Criterion D for the very small population size). Since 2011, two individuals have been detected in camera-trap surveys and one collared individual from the EU LIFE project "Reintroduction of lynx in the biosphere reserve Palatinian Forest" has been

observed in France. In the frame of this EU LIFE project, a few individuals are being released into the Palatinian Forest in Germany. Nine individuals were released in 2016-2017, with a total of 20 lynx planned to be released. However, as the reintroduction only started in 2016 and there was a continuing decline throughout the years before, Critically Endangered under Criteria C and D is still considered valid. There is so far too limited immigration from the Jura Mts. to provide a demographic rescue effect.

3. Alpine

Endangered (D). The subpopulation has slightly increased to c. 163 individuals, which is however still small and the subpopulation remains Endangered. In addition, the increase was partly due to the foundation of stepping stone subpopulations through translocations of lynx. So far the subpopulation is not receiving any relevant immigration from neighbouring subpopulations which are all also small and having conservation problems themselves (e.g. Dinaric subpopulation). The Alpine subpopulation itself is fragmented into four smaller subpopulations in the Western and Eastern Alps. Consequently, the Red List Category is not adjusted. **4. Bohemian-Bavarian-Austrian**

Critically Endangered (D). The distribution of the Bohemian-Bavarian-Austrian subpopulation has stagnated since the late 1990s (Magg *et al.* 2016). The subpopulation has decreased from an estimated 75 individuals in 2005 to c.50 individuals in 2006-2011. In the past few years, it has slightly recovered to 60-80 independent individuals in 2015 and numbers seem to stabilize. 60-80 independent individuals correspond to about 45-60 mature individuals, which is just around the threshold (50 mature individuals) for Endangered under Criterion D. Considering the previous long-term negative trend and that limiting factors have not yet been reversed (Magg *et al.* 2016) suggests however a precautionary approach (thus taking into account the lower population estimate of less than 50 mature individuals) and classification as Critically Endangered. Neighbouring lynx subpopulations are small and threatened, and there are barriers to dispersal, consequently, no rescue effect from them can be expected and the Red List Category is not adjusted.

5. Dinaric

Endangered (D). The subpopulation size in total has been rather stable in the past decade at around 130 individuals, however, it has decreased in the northern part of its range. Besides a high level of human-caused mortality (Sindicic *et al*. 2016), problems of inbreeding have been noticed due to the very few founder individuals released in 1973 (Sindicic *et al.* 2013). The subpopulation is isolated and no rescue effect can be expected. It is assessed as Endangered under Criterion D. Efforts are on the way to reinforce the subpopulation with lynx from the Carpathians in the frame of the EU LIFE project "Preventing the Extinction of the Dinaric-SE Alpine Lynx Population Through Reinforcement and Long-term Conservation"). **6. Carpathian**

Least Concern. The Carpathians host one of the largest continuous lynx subpopulations in Europe. The overall number is about 2,100-2,400. Overall it appears to be rather stable, although in certain regions numbers have decreased, either reflecting a real trend (e.g. Ukraine and Bulgaria) or due to better monitoring systems in place which proved that previous numbers were overestimated (e.g. Slovakia, Kubala *et al.* 2017). When considering the number of mature individuals, the threshold for Near Threatened under Criterion D is almost met. A careful monitoring of the situation (which requires the implementation of better monitoring systems in many of the range countries) and a re-assessment within a few years are recommended. **7. Scandinavian**

Vulnerable (C1). The Scandinavian subpopulation has a large range (AOO over 450,000 km²) but has further declined in numbers in the past decade. It is now estimated at c.1,300-1,800 individuals compared to c.1,800-2,300 in 2011 and c.2,000 in 2001. The drastic decline, which is at least in part due to a management goal designed to reduce conflicts related to sheep and semi-domestic reindeer

depredation, would qualify for classifying the subpopulation as Endangered under Criterion C1 (less than 2,500 mature individuals and a 20% decline over two generations). However, in 2015 and 2016, the decline was halted. There is some connectivity with the Karelian subpopulation and single individuals are likely to disperse. The Category is therefore altered to Vulnerable. The extent of this connectivity and the phylogeny of these two subpopulations, however, need some further investigation. A careful monitoring of the situation, an adaptive adjustment of hunting quotas and derogations, and a re-assessment within a few years are highly recommended. **8. Karelian**

Least Concern. The subpopulation in Finland has further increased and is now estimated c.2,500 individuals (compared to 1,100 animals in 2004). Although there is no up-to-date information from Russian Karelia, the overall subpopulation is also thought to be stable there. It is furthermore connected with the large neighbouring subpopulation in Russia from which a potential rescue effect is to be expected. Therefore, the Karelian subpopulation is assessed as Least Concern. **9. Baltic**

Least Concern. The subpopulation consists of around 1,200-1,500 individuals, without considering Russia and Belarus for which no current information is available. Although there was a slight decrease – particularly in Estonia (probably due to the effect of prey declines following snow-rich winters) – this subpopulation is connected both to the Karelian and the larger Asian Russian subpopulation from which a potential rescue effect can be expected. It is therefore assessed as Least Concern. Developments in the Baltic States and Poland, however, need to be carefully surveyed as the distribution area in this part of the range is still fragmented. A further reduction in Estonia has to be prevented. **10. Balkan**

Critically Endangered (D). This subpopulation consists of only 20-39 mature individuals and has been assessed as Critically Endangered in 2015 (Melovski *et al.* 2015). Number and distribution have not changed since, and the population is isolated. Therefore, Critically Endangered under Criterion D is still valid. **11. Harz**

Critically Endangered (D). This population has been newly founded through re-introduction of lynx into the Harz Mountains in Germany. Formerly treated as an “occurrence”, it is now considered a subpopulation. Between 2000 and 2006, 24 lynx were reintroduced into the Harz National Park in Lower Saxony. Since 2002, reproduction is regularly recorded (https://www.luchsprojekt-harz.de/luchsprojekt/de/start/). It is currently estimated at 46 independent individuals, is isolated, and qualifies for Critically Endangered under Criterion D (below 50 mature individuals).

Previously Published Red List Assessments

2018 – Least Concern (LC)
https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T12519A145266191.en

2007 – Least Concern (LC)

Geographic Range

Range Description:

See the Supplementary Information for a map of this species' distribution.

The Eurasian Lynx has a very broad distribution. It occurs along forested mountain ranges in southeastern and Central Europe and from northern and eastern Europe through the boreal forests of Russia, down into Central Asia and the Tibetan plateau (Nowell and Jackson 1996, Sunquist and Sunquist 2002). In Europe, it was probably absent from some larger islands such as Ireland and Sicily and from countries with few forests. It was also absent from the Iberian Peninsula, where the smaller Iberian Lynx

(*Lynx pardinus*) occurs. From this extensive distribution, lynx were exterminated from most of western and Central Europe, except for the Carpathian Mountains. It also survived in a small area in the southeastern Balkan (FYR Macedonia, Albania, Kosovo and Montenegro). Larger populations persisted in Fennoscandia and the Baltic States (but populations were heavily reduced), and in European Russia. Human activities reduced the lynx to its minimum numbers in the 1950s. In recent decades, many populations have recovered (Chapron *et al.* 2014). Lynx have been released in several areas of Europe in an effort to reintroduce this elusive predator, including in Switzerland, Slovenia, Czech Republic, Austria, Germany and France. There are some local but insufficiently documented releases known to support lynx populations in Poland and Lithuania. Lynx occurring in Europe are viewed as belonging to eleven distinct populations (von Arx *et al.* 2004, Linnell *et al.* 2008, LCIE in prep.):

1. Jura

This population stretches across the Jura Mountains from central-eastern France north of the Rhone to western Switzerland between Geneva and Basel. Based on reintroduction in Switzerland in 1974/75, lynx have now colonised almost the entire mountain range.

2. Vosges-Palatinian

Founded through re-introductions in the French Vosges Mountains in the 1980s, the established population expanded to the German Palatinian Forest. The population started declining in the 1990s and is currently at the verge of extinction. A current EU LIFE project (Reintroduction of lynx in the biosphere reserve Palatinian Forest") aims at releasing 20 lynx from the Carpathian and Jura populations into the Palatinian Forest in Germany (https://snu.rlp.de/de/projekte/luchs/).

3. Alpine

Originates from re-introduction projects in the 1970s in Switzerland, Austria and Slovenia. In the 1990s the population was fragmented into two sub-populations, nowadays, four subpopulations are identified (Molinari *et al.* 2018): (1) The area occupied by lynx in the north-western Alps (CH, FR) which has increased, (2) a new subpopulation founded in north-eastern Switzerland with the translocation of 12 lynx between 2001 and 2008, (3) a new occurrence established through the release of five lynx, from 2011 to 2017, in the north-eastern Alps (Kalkalpen AT) and (4) the south-eastern Alpine subpopulation (IT, SI) which has however decreased continuously since 2000.

4. Bohemian-Bavarian-Austrian

The population stretches in the triangle of the three range countries: in the south-western Czech Republic (Šumava Mts., SE-part of the Český les Mts. = Oberpfälzerwald, the Šumava foothills, Blanský les, Novohradské Mts.; Kutal *et al.* 2017), eastern Germany (Bayerischer and Oberpfälzer Forest, Fichtelgebirge, Frankenwald), and northern Austria (Böhmerwald, Mühlviertel, Waldviertel).

5. Dinaric

The Dinaric population is distributed from central-southern Slovenia through central Croatia (Gorski Kotar and Lika) up to western Bosnia.

6. Carpathian

The distribution area covers at present almost the entire mountain chain of the Carpathians. The stronghold of the population is in Romania. Slovakia, Poland and Ukraine also hold relevant population segments. The distribution in Hungary, Serbia and Bulgaria is scattered. Distribution and numbers may

be overestimated as in many of the range countries no robust monitoring system exists.

7. Scandinavian
Lynx occur from southeastern to northern Norway and almost all over Sweden.

8. Karelian
The population stretches from the Republic of Karelia across to Finland where it is however only permanently present in the south to the centre of the country. The occasional presence in northern Finland is consistent with the situation in Murmanskaya Oblast, where indications are also much more scarcely compared to Karelia (Bragina *et al.* 2015) and with animals shared with the Scandinavian population.

9. Baltic
In the north (Estonia, eastern Latvia and northern Belarus) the distribution is continuous with Russia. In the rest of the range (Lithuania, main parts of Belarus, Poland, the Ukraine, and Kaliningrad) the distribution is highly fragmented.

10. Balkan
The Balkan Lynx is distributed in the south-west Balkans, mainly in the border area between Albania and Macedonia. Mavrovo National Park in Macedonia is the stronghold of the population. The Munella Mts. in Albania host the second but smaller subpopulation. Two different individuals were pictured in Bjeshkët e Nemuna, western Kosovo, not far from the border with Montenegro. From time to time there are single, unconfirmed observations in northern Greece. **11. Harz**
Lynx were reintroduced into the Harz National Park in Lower Saxony from 2000–2006. They have settled the entire Harz Mountains and surrounding areas.

For further information about this species, see Supplementary Material.

Country Occurrence:

Native, Extant (resident): Albania; Belarus; Czechia; Estonia; Finland; Greece (Greece (mainland)); Latvia; Lithuania; North Macedonia; Norway; Poland; Romania; Russian Federation; Serbia; Slovakia; Sweden; Ukraine

Native, Extant (passage): Greece

Extant & Reintroduced (resident): Austria; Bosnia and Herzegovina; Croatia; France (France (mainland)); Germany; Italy (Italy (mainland)); Slovenia; Switzerland

Presence Uncertain & Vagrant: Bulgaria; Hungary; Montenegro

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Population

The total number of lynx in Europe is estimated at 8,000-9,000 individuals (excluding Russia and Belarus) and 17,000-18,000 individuals including European Russia, respectively. The largest subpopulations are the autochthonous ones in the north and east which have around 1,500-2,500 individuals each: Scandinavian (~1,300-1,800), Karelian (Finish part ~2,500), Baltic (~1,200-1,500), Carpathian (~2,100-2,400). All the re-introduced populations are still of small size. The current subpopulation sizes are as follows: Alpine 140-170, Bohemian-Bavarian-Austrian 60-80, Dinaric ~140, Jura ~140, Vosges-Palatinian a few individuals, Harz 46 individuals. The subpopulation of greatest conservation concern is the fifth autochthonous one, the Balkan lynx subpopulation, which numbers only 20-39 mature individuals. Most subpopulations have generally been stable in the past few years. Exceptions are the Scandinavian and Baltic subpopulations which have decreased and the Vosges-Palatinian population which has almost vanished. Information on the status, distribution and developments of the European subpopulations over time are compiled in Breitenmoser and Breitenmoser-Würsten (1990), Breitenmoser *et al.* (2000), von Arx *et al.* (2004), Linnell *et al.* (2008), Kasczensky *et al.* (2013), Chapron *et al.* (2014) and LCIE (in prep.).

Current Population Trend: Stable

Habitat and Ecology **(see Appendix for additional information)**

Throughout Europe and Siberia, the Eurasian Lynx is primarily associated with forested areas which have good ungulate populations and which provide enough cover for hunting. It inhabits extended, temperate and boreal forests from the Atlantic in Western Europe to the Pacific coast in the Russian Far East (Breitenmoser and Breitenmoser-Würsten 2008). In Europe, it can be found in Mediterranean forests up to the transition zone of taiga to tundra and lives from sea level up to the tree line (Breitenmoser and Breitenmoser-Würsten 2008). In the far north of Scandinavia lynx can also make extensive use of open alpine tundra habitats. The Eurasian lynx is the largest species in the *Lynx* genus, and the only one to primarily depend on ungulate prey, although they rely on smaller species where ungulates are less abundant. Lynx kill ungulates ranging in size from the 15 kg musk deer to 220 kg adult male red deer, but show a preference for the smaller ungulate species, such as roe deer and chamois. Occasionally, lynx also hunt foxes, hares, marmots, wild pigs, beavers, birds or domestic animals such as sheep and goats, or, in Scandinavia, semi-domestic reindeer (Odden *et al.* 2013, Mattisson *et al.* 2014). In the northern parts of European Russia and western Siberia, where roe deer are absent, mountain hares and tetraonids form the basic prey base (Breitenmoser and Breitenmoser-Würsten 2008, Matyushkin and Vaisfeld 2003). Home range size varies widely from 100 to over 1,000 km² (Breitenmoser and Breitenmoser-Würsten 2008) depending on both prey density and social pressure (Herfindal *et al.* 2005, Aronsson *et al*. 2016). Home ranges averaged 248 km² for males (n = 5) and 133 km² for females (n = 5) in a radio telemetry study in Poland's Bialowieza forest (Schmidt *et al.* 1997). Average home range sizes in Switzerland were 90 km² for females and 150 km² for male lynx (Breitenmoser and Breitenmoser-Würsten 2008). In contrast, home range sizes are almost an order of magnitude larger in northern Scandinavia. Male home ranges generally enclose 1-2 female territories. Densities are typically 1-3 adults per 100 km², although higher densities of up to 5/100 km² have been reported from Eastern Europe and parts of Russia and lower densities of 0.3/100 km² from Scandinavia (Jedrzejewski *et al.* 1996, Schmidt *et al.* 2011, Sunde *et al*. 2000).

Systems: Terrestrial

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Use and Trade

The species is sometimes hunted for sport. In some countries the species is also important for the skin market and the pelt industry.

Threats (see Appendix for additional information)

The major threats to lynx in Europe are low acceptance due to conflict with hunters (and in northern Europe also with livestock farmers and semi-domestic reindeer herders), illegal killing, habitat loss and fragmentation mainly due to infrastructure development, poor wildlife management structures and poor law enforcement, and accidental mortality. There are also concerns in regard to the low genetic diversity and small population sizes shown in some of the populations. Besides the authochthonous Balkan lynx population this particularly concerns all the reintroduced populations which have – compared to the Carpathian source population – a considerably reduced heterozygosity and the high number of lost alleles as a consequence of genetic drift (Breitenmoser *et al*. 2011, Breitenmoser-Würsten and Obexer-Ruff unpubl.). This phenomenon is more pronounced in the Alpine (Breitenmoser-Würsten and Obexer-Ruff unpubl., Breitenmoser-Würsten and Obexer-Ruff 2003), Dinaric (Sindicic *et al*. 2013), Bohemian-Bavarian-Austrian and Vosges-Palatinian populations (Bull *et al.* 2016) while the Jura subpopulation is doing better. Inbreeding and inbreeding depression is, therefore, a potential threat to all the reintroduced, small subpopulations. Additional threats to the European populations are detailed below:

1. Jura

Traffic accidents, illegal killing, conflicts with hunters and lack of knowledge about conflict mitigation. **2. Vosges-Palatinian**

Illegal killing due to conflicts with hunters and fragmentation used to be the major threats. Currently, the small population size is of big concern. **3. Alpine**

Threats include illegal killing, infrastructure development (especially road constructions), vehicle and train collisions, and limited dispersal. An emerging threat for the Alpine population is the narrow genetic base: all of the relatively few founder animals came from the same region and some of them were probably closely related. Genetic analysis indicates that the Alpine population has today the smallest level of heterozygosity of all European lynx populations. **4. Bohemian-Bavarian-Austrian**

Intentional illegal killing, conflicts with hunters, and poor enforcement of legislation are the most relevant threats. Illegal killing is considered the most likely cause for the limited distribution (Magg *et al.* 2016). **5. Dinaric**

Poor enforcement of legislation (illegal killing), traffic mortalities and prey/food base depletion are major threats to the Dinaric population. An emerging additional threat is inbreeding depression as the population displays a considerable level of inbreeding (Sindicic *et al.* 2013). **6. Carpathian**

Poor integration of science into decision-making, traffic mortalities, conflicts with hunters, and lack of knowledge about species numbers and trends (lack of robust monitoring systems) are considered the most prominent threats. **7. Scandinavian**

The main threats are legal hunting (i.e. quotas are set too high) and illegal killing, both due to conflicts with livestock (nomadic grazing of reindeer, free-ranging sheep, Mattisson *et al.* 2014) and conflicts with hunters. Data indicate that illegal killing is an important mortality cause in some areas (Andrén *et al.* 2011). **8. Karelian**

Potential threats are intentional legal hunting/calling, conflicts with hunters, and lack of capacity and funding in management authorities. **9. Baltic**

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Roads and railroads, poor dialogue with stakeholders, prey/food base, lack of knowledge about species numbers and trends, and lack of capacity and funding in management structures were considered the most important threats. **10. Balkan**

Poor enforcement of legislation, lack of capacity and funding in management structures, poor integration of science into decision making, corruption, accidental illegal killing and poorly regulated large-scale forestry all pose a major threat to the Balkan lynx. **11. Harz**

Road fatalities and diseases are the most relevant mortality factors of the released lynx so far (Anders 2016).

Conservation Actions **(see Appendix for additional information)**

Included on CITES Appendix II and protected under the Bern Convention (Appendix III with the exception of the Balkan lynx *Lynx lynx balcanicus* which is listed in Appendix II) and the EU Habitats Directive (Annexes II and IV, except for Estonia where it is Annex V and with an exception from Annex II, and Finland and Latvia where it also has an exception from Annex II). The Lynx is protected and hunting prohibited in Albania, Austria, Belarus, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Liechtenstein, Lithuania, Macedonia, Poland, Serbia, Slovakia, Slovenia, Switzerland and Ukraine. In Sweden, Finland and Romania the lynx is protected but a limited number of lynx can be killed under Derogation. In Estonia and Norway the lynx is listed as a game species with an open hunting season and in Latvia lynx are exploited to a limited extent under derogation (Kaczensky *et al.* 2013). In the European part of Russia, the lynx is hunted/trapped in places where it is abundant as in some areas of the Central region and the Volga region, and in most areas of the North-Western region. Hunting is not allowed in the Northern Caucasus and in the Southern region (Bersenev *et al*. 2011). Since 2006, a programme for the recovery of the Balkan Lynx is being implemented aiming to secure the survival and recovery of this Critically Endangered subspecies. In several European range states, prevention measures to counteract livestock depredation are in place and awareness has increased but measures for managing conflicts with hunters are still missing (Kaczensky *et al*. 2013). There is a need for improved monitoring activities in many parts of the Carpathian and Baltic populations. The small and isolated European lynx populations in western and central Europe need a genetic improvement through the translocation of individuals from the source population (Carpathian) and improved connectivity between the populations to allow gene flow and prevent inbreeding depression. Further recommendations on general and population-specific measures for the European populations are compiled in Boitani *et al.* (2015).

Credits

Assessor(s): von Arx, M.

Reviewer(s): Lanz, T.

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Partner(s) and Institution(s): IUCN SSC Large Carnivore Initiative for Europe

Authority/Authorities: IUCN SSC Cat Specialist Group (wild cats)

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Disclaimer

External Resources

For Supplementary Material, and for Images and External Links to Additional Information, please see the Red List website.

Appendix

Habitats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Habitat	Season	Suitability	Major Importance?
1. Forest -> 1.1. Forest - Boreal	-	Suitable	Yes
1. Forest -> 1.4. Forest - Temperate	-	Suitable	Yes
3. Shrubland -> 3.3. Shrubland - Boreal	-	Suitable	Yes
3. Shrubland -> 3.4. Shrubland - Temperate	-	Suitable	Yes
4. Grassland -> 4.4. Grassland - Temperate	-	Suitable	Yes

Use and Trade

(http://www.iucnredlist.org/technical-documents/classification-schemes)

End Use	Local	National	International
Sport hunting/specimen collecting	No	Yes	No
Wearing apparel, accessories	No	Yes	No

Threats

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Threat	Timing	Scope	Severity	Impact Score
1. Residential & commercial development -> 1.1. Housing & urban areas	Future	Minority (50%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation		
1. Residential & commercial development -> 1.3. Tourism & recreation areas	Future	Majority (50-90%)	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
2. Agriculture & aquaculture -> 2.3. Livestock farming & ranching -> 2.3.1. Nomadic grazing	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
4. Transportation & service corridors -> 4.1. Roads & railroads	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Majority (50-90%)	Causing/could cause fluctuations	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality		

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5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.3. Persecution/control	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
5. Biological resource use -> 5.3. Logging & wood harvesting -> 5.3.4. Unintentional effects: (large scale) [harvest]	Ongoing	Minority (50%)	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.1. Species mortality		
6. Human intrusions & disturbance -> 6.1. Recreational activities	Future	Majority (50-90%)	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.2. Species disturbance		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.9. Small dams	Future	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		
7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.10. Large dams	Future	Unknown	Unknown	Unknown
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance		

Conservation Actions in Place

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action in Place
In-place land/water protection
Conservation sites identified: Yes, over entire range
In-place species management
Harvest management plan: Yes
Successfully reintroduced or introduced benignly: Yes
In-place education
Subject to recent education and awareness programmes: Yes

Conservation Actions Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Conservation Action Needed
1. Land/water protection -> 1.2. Resource & habitat protection
2. Land/water management -> 2.1. Site/area management
3. Species management -> 3.3. Species re-introduction -> 3.3.1. Reintroduction
4. Education & awareness -> 4.2. Training
4. Education & awareness -> 4.3. Awareness & communications

Conservation Action Needed
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.1. International level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.2. National level
5. Law & policy -> 5.4. Compliance and enforcement -> 5.4.3. Sub-national level

Research Needed

(http://www.iucnredlist.org/technical-documents/classification-schemes)

Research Needed
1. Research -> 1.2. Population size, distribution & trends
1. Research -> 1.4. Harvest, use & livelihoods
2. Conservation Planning -> 2.1. Species Action/Recovery Plan
2. Conservation Planning -> 2.2. Area-based Management Plan
3. Monitoring -> 3.1. Population trends

Additional Data Fields

Distribution
Estimated extent of occurrence (EOO) (km²): >20,000
Population
Extreme fluctuations: No
Population severely fragmented: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Unknown

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Amendment

Amendment reason: This amended assessment was created to change the population status to "stable" and to update the Supplementary Information. An earlier errata version of this assessment addressed some minor typographic errors, added some textual clarifications, corrected the 'country of occurrence' entries, and added Contributors to the assessment.

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