**Lynx canadensis**, Canada Lynx

Assessment by: Vashon, J.

View on www.iucnredlist.org
Taxonomy

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>Chordata</td>
<td>Mammalia</td>
<td>Carnivora</td>
<td>Felidae</td>
</tr>
</tbody>
</table>

**Taxon Name:** *Lynx canadensis* Kerr, 1792

**Common Name(s):**
- **English:** Canada Lynx, American Lynx
- **French:** Lynx du Canada
- **Spanish:** Lince del Canadá, Lince del Canadá

**Taxonomic Notes:**
The taxonomy of this species is currently under review by the IUCN SSC Cat Specialist Group. It has been placed in the genus *Lynx* according to genetic analysis (Johnson *et al.* 2006).

**Assessment Information**

**Red List Category & Criteria:** Least Concern [ver 3.1](#)

**Year Published:** 2016

**Date Assessed:** May 12, 2014

**Justification:**
This is an amended version of the original assessment that was published in 2014, with some corrections to the distribution map included.

The Canada lynx (*Lynx canadensis*) is listed as Least Concern because over most of its range it is widespread and abundant, it has been legally harvested for the international fur trade for more than 200 hundred years, and recent decades of managed harvests do not appear to have caused any significant population decline or range loss (Mowat *et al.* 2000). In the southern part of its range, lynx are less abundant and as a result are protected from harvest. In New Brunswick, lynx are listed as “Endangered” under the New Brunswick Species at Risk Act, in Nova Scotia as “Endangered” under Nova Scotia’s Endangered Species Act (Nova Scotia Lynx Recovery Team 2006), and in 14 contiguous United States as “Threatened” under the US Endangered Species Act due to inadequate protection of habitat on Federal lands (USFWS 2000). Although a federal recovery plan for lynx in the US has not been started, since listed as Threatened, lynx in the northeast US have been increasing (Vashon *et al.* 2012) and only one state with a resident breeding population has documented significant declines in lynx numbers (Koehler *et al.* 2008). Lynx in the contiguous US may require connectivity with northern populations for persistence (McKelvey *et al.* 2000, Schwartz *et al.* 2003, Squires *et al.* 2013). The US Fish and Wildlife Service’s (USFWS) decision to designate 39,000 acres of critical habitat in portions of Idaho, Maine, Minnesota, Montana, Washington and Wyoming (USFWS 2009) has been challenged and remanded to the USFWS (Interagency Lynx Biology Team 2013).

**Previously Published Red List Assessments**
2016 – Least Concern (LC)
Geographic Range

Range Description:
Canada Lynx generally occupy the boreal forest regions of North America. Its range is coincident with that of their main prey, the Snowshoe Hare (*Lepus americanus*) (Nowell and Jackson 1996, Sunquist and Sunquist 2002). Lynx occur throughout most of mainland Alaska and occupy 95% of their historic range in Canada (Parker 2001, Poole 2003). In the contiguous United States, lynx historically occurred in 24 states (McKelvey *et al.* 2000), possibly ranging as far down the Rocky mountain chain to include a 25th, New Mexico (Frey 2006). However, there is some uncertainty about whether an occurrence or even many occurrences means the area is part of their historic range (McKelvey *et al.* 2000). In 2000, the US Fish and Wildlife Service listed lynx as Threatened in 14 States: Colorado, Idaho, Maine, Michigan, Minnesota, Montana, New Hampshire, New York, Oregon, Utah, Vermont, Washington, Wisconsin, and Wyoming. Although a recovery plan has not been written, in 2005 the US Fish and Wildlife Service identified six "core" areas for recovery where there had been evidence of lynx reproduction within the last 20 years: northern Maine and New Hampshire, northeastern Minnesota, northwestern Montana and northeastern Idaho, the Kettle mountain range and "Wedge area" between the Kettle and Columbia rivers of Washington state, the northern Cascade range of Washington state, and the Greater Yellowstone area of Wyoming, Montana and Idaho (Nordstrom *et al.* 2005). A reintroduced population in the southern Rocky Mountains of Colorado was identified as a provisional core area where 218 lynx from Canada and Alaska were released between 1999 and 2006. Although there is evidence of reproduction, the long-term viability of this population has not been demonstrated (Devineau *et al.* 2010).

Country Occurrence:
Native: Canada; United States
Distribution Map

*Lynx canadensis*

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCan, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Range
- Extant & Reintroduced (resident)
- Extant & Vagrant (seasonality uncertain)
- Extant (resident)
- Possibly Extant (passage)
- Possibly Extant (resident)
- Possibly Extant (seasonality uncertain)
- Presence Uncertain & Origin Uncertain

Compiled by:
Maine Department of Inland Fisheries and Wildlife

http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T12518A101138963.en
Population

The Canada Lynx is primarily found in Canada and Alaska, where it is managed and trapped for its fur. It is considered Endangered in New Brunswick and Nova Scotia (Cape Breton), and has been extirpated from Prince Edward Island and mainland Nova Scotia (Nowell and Jackson 1996, Parker 2001, Poole 2003, Nova Scotia Lynx Recovery Team 2006). In the contiguous US, lynx populations are smaller and protected from harvest. In 2000, lynx were federally listed as threatened (USFWS 2000) in 14 States. Currently, resident breeding populations of lynx are supported in four States: Maine, Minnesota, Montana, and Washington. Lynx populations in Maine have increased in recent years (Vashon et al. 2012). The abundance of lynx in Maine likely has contributed to the recent occurrence of lynx in New Hampshire and Vermont, including evidence of reproduction (Vashon et al. 2012). The only significant recent decline in lynx numbers has occurred in Washington following recent forest fires (Koehler et al. 2008). Lynx remain relatively uncommon in Utah, Wyoming, and Idaho and are absent in Oregon, New York, Wisconsin, and Michigan (USFWS 2000). Lynx were reintroduced unsuccessfully in northern New York state in the late 1980s (Sunquist and Sunquist 2002), and more recently, successfully, in Colorado where some offspring born in Colorado have also reproduced (Devineau et al. 2010). In the northern parts of their range, lynx populations undergo dramatic fluctuations roughly every ten years. These population fluctuations follow the regular cycles of population increase and decline of their primary prey, the Snowshoe Hare (Lepus americanus). This pattern of fluctuation is evident in lynx fur trade records dating back to the early 1800s (Nowell and Jackson 1996). In the southern parts of their range, lynx and hares appear to maintain a relatively stable but low density (Parker 2001). Schwartz et al. (2003) documented reduced genetic variation in lynx from the peripheral areas of the range.

Current Population Trend: Stable

Habitat and Ecology (see Appendix for additional information)

Canada Lynx are found primarily in boreal forests, and their main prey species, the Snowshoe Hare (Lepus americanus), depends largely on patches of successional growth (Buskirk et al. 2000) in older multi-layered stands (Ruediger et al. 2000, Koehler et al. 2008, Squires et al. 2008) or younger regenerating stands following disturbance (Burdett 2008, Vashon et al. 2008, Walpole et al. 2012). Hares make up 60-97% of the lynx diet, with an average consumption rate of one hare every 1-2 days (Sunquist and Sunquist 2002). The lynx-hare cycle was first observed in harvest records of the Hudson’s Bay Company dating back to the early 1800s. Numbers of Snowshoe Hares peak approximately every ten years in the northern part of their range, and lynx numbers follow the same pattern with a short lag, typically 1-2 years. The fluctuations can be drastic, with hare abundance reaching 2,300/km² during the peaks, and crashing to 12/km² during the lows. While the populations of many prey and predator species are cyclic and roughly synchronous in the northern latitudes, the hare-lynx correlation is particularly close (Nowell and Jackson 1996, Sunquist and Sunquist 2002). Three primary variables are suggested to drive the cycle: predation, herbivory, and food-plant availability (Krebs et al. 2001). Historically, lynx trapping pressure also influenced the amplitude of the cycle (Gamarra and Sole 2000). Since predator and prey communities are more diverse in the southern part of the lynx range, the importance of Snowshoe Hares in the diet of southern lynx populations has been questioned (Buskirk et al. 2000). However, recent studies have shown that lynx in southern areas prey almost exclusively on Snowshoe Hare (Hanson and Moen 2008, Maletzke et al. 2008, Fuller et al. 2007, Squires and Ruggiero 2007). Ungulates do not usually figure prominently in the lynx's diet, other than as carrion, although lynx preyed on Caribou calves in Newfoundland after the hare population crashed (Bergerud 1983). Lynx...
home ranges average 15-50 km$^2$ and tend to be larger on the southern periphery of their geographic distribution, suggesting that these areas contain are marginal habitat. Average lynx densities range from 1-45 animals (including young) per 100 km$^2$, and fluctuate with hare abundance (Sunquist and Sunquist 2002). However, in an area in Maine where dense young stands of softwood were common, lynx home ranges were averaged 25 km$^2$ for adult females and 50 km$^2$ for adult males (Vashon et al. 2008).

**Systems:** Terrestrial

**Use and Trade**
See details under Threats.

**Threats (see Appendix for additional information)**
In most of Canada and Alaska, trapping of lynx for the fur trade is managed through regulated seasons. Trapping can reduce lynx populations and can have the greatest impact when hare populations cyclically crash. In the 1980s, in response to concerns about over-harvest during the cyclic low of the lynx-hare cycle, Alaska and most Canadian provinces modifying seasons or bag limits to match harvest with lynx population levels and trends (Golden 1999, Mowat et al. 2000). In the early 1980s (1980-1984), an average of 35,669 Canada Lynx pelts were exported from the US and Canada during the cyclic high. By the late 1980s (1986-1989) the annual export of lynx averaged 7,360 pelts during the cyclic low. Exports have trended lower and fluctuated less severely since then, with annual exports from 2000-2006 averaging 15,387 pelts (UNEP-WCMC 2008). Historical information suggests that, despite minimal harvest controls for much of the last century, lynx-hare cycles have been largely stable in the northern part of their range and no permanent range decrease has been detected (Mowat et al. 2000, Poole 2003).

In eastern Canada where lynx are protected, the primary threat is believed to be from interspecific competition from the eastern coyote, which expanded its range into eastern North America in the last few decades (Parker 2001). In southern Alberta, road density and the presence of Coyotes influenced lynx occupancy (Bayne et al. 2008). In the contiguous US, the primary threat to lynx is habitat loss or fragmentation. Maintaining connectivity with the abundant northern lynx population is considered essential for recovery of southern lynx populations (Ruediger et al. 2000, Nordstrom 2005, Walpole et al. 2012, Squires et al. 2013) especially with warmer climate (Hoving et al. 2005, Carroll 2005). Older multi-storied forest provide winter habitat for lynx and Snowshoe Hare (Koehler et al. 2008, Squires et al. 2010) in the western US fire frequency has increased four-fold in the western U.S. in boreal forests that supports lynx and this disturbance is expected to increase with warmer climate (Westerling et al. 2006). However, young dense conifer forest also provides habitat for lynx and Snowshoe Hare, thus natural disturbance and logging practices that foster dense understories of conifers can benefit lynx and hares (Burdett 2008, Vashon et al. 2008, and Walpole et al. 2012). Climate change increases insect-related disturbance to boreal forests (Fleming et al. 2002, Logan et al. 2003).

Interspecific competition from other predators whose populations have increased in recent decades may also affect lynx through direct mortality or competition (Bunnell et al. 2006, Bayne et al. 2008, Vashon et al. 2012, but see Kolbe et al. 2007). The USFWS concluded that trapping was not responsible for lower lynx numbers at the edge of their range (USFWS 2000). Since listed as threatened, only a few lynx are captured and die in traps or snares set for other furbearers (DelGiudice et al. 2007, Vashon et
Although lynx have been killed on logging roads with lower traffic volumes and speeds (Vashon et al. 2012), roads with high traffic speed and volumes may result in more road mortalities (Moen et al. 2008). Although, hybridization with bobcats has been found by genetic analysis in Minnesota, Maine, and New Brunswick (Schwartz et al. 2003, Homyack et al. 2008), hybridization does not appear to threaten southern lynx populations (Homyack et al. 2008).

Conservation Actions (see Appendix for additional information)

Although Canada Lynx are one of five North American furbearers included on CITES Appendix II, in order to monitor the international trade of their fur, there are no quotas or suspensions currently in place. In Canada, the national and provincial governments manage harvests by region (Government of U.S. 2007), using closed seasons, quotas, limited entry and long-term trapping concessions (Nowell and Jackson 1996). In the US, trapping takes place only in Alaska, and harvest quotas are increased during periods of population increase and decreased during periods of cyclic decline (Government of U.S. 2007).

The lynx population in the contiguous US was listed as Threatened under the Endangered Species Act in 2000, due to inadequate regulatory mechanisms to protect lynx or lynx habitat on Federal lands (USFWS 2000) requiring the US government to develop a recovery plan and identify critical habitat for lynx (Nordstrom 2005). In the absence of a recovery plan, activities on federal lands are guided by the lynx conservation assessment and strategy (Interagency Lynx Biology Team 2013).

The US Fish and Wildlife Service has recommended various measures to trappers (e.g., avoid the use of hares or rabbits as bait) to reduce accidental taking of lynx in traps set for other furbearers (Golden and Krause 2003). In addition, several States have passed trapping regulations to further reduce accidental capture of lynx in traps set for other furbearers (Del Giudice et al. 2007, Vashon et al. 2012).

Critical habitat designations only apply to federal lands or private lands with federally funded or permitted activities. This designation gives the federal government the authority to manage activities that affect the designated habitat. In 2009, the US Fish and Wildlife Service published a revised designation of critical habitat. The designation significantly increased a 2006 designation of 4,768 square miles within the boundaries of Voyagers National Park in Minnesota, Glacier National Park in Montana, and North Cascades National Park in Washington (USFWS 2009). In total, 39,000 square miles of critical lynx habitat was designated in 2009 as follows:

Maine: Approximately 9,497 square miles in portions of Aroostook, Franklin, Penobscot, Piscataquis and Somerset Counties.

Minnesota: Approximately 8,065 square miles in portions of Cook, Koochiching, Lake, and St. Louis Counties, and Superior National Forest.

Northern Rocky Mountains: Approximately 10,102 square miles in portions of Boundary County in Idaho, and Flathead, Glacier, Granite, Lake, Lewis and Clark, Lincoln, Missoula, Pondera, Powell and Teton Counties in Montana. This area includes the Flathead Indian Reservation, National Forest lands and Bureau of Land Management (BLM) lands in the Garnet Resource Area. North Cascades: Approximately 1,836 square miles in portions of Chelan and Okanogan Counties which includes BLM lands in the Spokane District. Greater Yellowstone Area: Approximately 9,500 square miles in Gallatin, Park, Sweetgrass, Stillwater, and Carbon Counties in Montana, and Park, Teton, Fremont, Sublette, and...
Lincoln Counties in Wyoming. The Kettle range of Washington state was not included as critical habitat due to lack of recent evidence of reproduction, and the reintroduced population of Colorado and Utah in the southern Rockies was also not included due to lack of evidence that it is self-sustaining. In September of 2013, for the 3rd time since lynx were listed as threatened, the US Fish and Wildlife Service proposed revising lynx critical habitat. If revised, an additional 632 square miles will be designated as critical habitat (USFWS 2013).

Credits

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Reviewer(s): Nowell, K., Hunter, L., Schipper, J., Breitenmoser-Würsten, C., Lanz, T. & Breitenmoser, U.

Contributor(s): Austin-Smith, P., Bernier, C., Carrière, S., Cormier, J., Cudworth, N., Erb, J., Giddings, B., Golden, H., Kertson, B., Kolbe, J., MacFarland, D., McLaughlin, C., Meehan, A., Moen, R., Murray, D., Poole, K., Squires, J., Tate, P. & Weir, R.
Bibliography


**Citation**


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**External Resources**

For [Images and External Links to Additional Information, please see the Red List website](http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T12518A101138963.en).
# Appendix

## Habitats

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

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<tr>
<th>Habitat</th>
<th>Season</th>
<th>Suitability</th>
<th>Major Importance?</th>
</tr>
</thead>
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<td>Resident</td>
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<td>1. Forest - Subarctic</td>
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<td>1. Forest - Temperate</td>
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<td>Marginal</td>
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<td>3. Shrubland - Boreal</td>
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<tr>
<td>4. Grassland - Subarctic</td>
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</tbody>
</table>

## Threats

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

<table>
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<th>Timing</th>
<th>Scope</th>
<th>Severity</th>
<th>Impact Score</th>
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</thead>
<tbody>
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<td>1. Residential &amp; commercial development - Housing &amp; urban areas</td>
<td>Ongoing</td>
<td>-</td>
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<tr>
<td>Stresses:</td>
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<tr>
<td>1. Ecosystem stresses - Ecosystem conversion</td>
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<tr>
<td>1. Ecosystem stresses - Ecosystem degradation</td>
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<tr>
<td>1. Residential &amp; commercial development - Commercial &amp; industrial areas</td>
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<td>1. Ecosystem stresses - Ecosystem degradation</td>
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<tr>
<td>2. Agriculture &amp; aquaculture - Annual &amp; perennial non-timber crops - Agro-industry farming</td>
<td>Past, unlikely to return</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>Stresses:</td>
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<td>1. Ecosystem stresses - Ecosystem conversion</td>
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<td>1. Ecosystem stresses - Ecosystem degradation</td>
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<td>2. Agriculture &amp; aquaculture - Livestock farming &amp; ranching - Agro-industry grazing, ranching or farming</td>
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<td>1. Ecosystem stresses - Ecosystem degradation</td>
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<tr>
<td>4. Transportation &amp; service corridors - Roads &amp; railroads</td>
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<td>2. Species Stresses - Species mortality</td>
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<td>5. Biological resource use - Hunting &amp; trapping terrestrial animals - Intentional use (species is the target)</td>
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<tr>
<td>Stresses:</td>
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<td>2. Species Stresses - Species mortality</td>
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</tbody>
</table>
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.2. Unintentional effects (species is not the target)

Ongoing - - -

| 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 - - -

| Stresses: | 1. Ecosystem stresses -> 1.1. Ecosystem conversion
1. Ecosystem stresses -> 1.2. Ecosystem degradation |

6. Human intrusions & disturbance -> 6.1. Recreational activities

Ongoing - - -

| Stresses: | 2. Species Stresses -> 2.2. Species disturbance |

7. Natural system modifications -> 7.2. Dams & water management/use -> 7.2.11. Dams (size unknown)

Past, unlikely to return - - -

| Stresses: | 1. Ecosystem stresses -> 1.1. Ecosystem conversion
1. Ecosystem stresses -> 1.2. Ecosystem degradation |

7. Natural system modifications -> 7.3. Other ecosystem modifications

Ongoing - - -

| Stresses: | 1. Ecosystem stresses -> 1.2. Ecosystem degradation |


Ongoing - - -

| Stresses: | 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition |

8. Invasive and other problematic species, genes & diseases -> 8.2. Problematic native species/diseases -> 8.2.2. Named species (Canis latrans)

Ongoing - - -

| Stresses: | 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.2. Competition |

Conservation Actions in Place

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

Conservation Actions in Place

In-Place Research, Monitoring and Planning

Systematic monitoring scheme: Yes

In-Place Land/Water Protection and Management

Occur in at least one PA: Yes

In-Place Species Management

Harvest management plan: Yes

Successfully reintroduced or introduced beningly: Yes

Subject to ex-situ conservation: Yes

In-Place Education
Conservation Actions in Place

Included in international legislation: Yes
Subject to any international management/trade controls: Yes

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

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<td>2. Land/water management -&gt; 2.1. Site/area management</td>
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<td>2. Land/water management -&gt; 2.3. Habitat &amp; natural process restoration</td>
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<td>3. Species management -&gt; 3.1. Species management -&gt; 3.1.2. Trade management</td>
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<td>3. Species management -&gt; 3.2. Species recovery</td>
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<td>5. Law &amp; policy -&gt; 5.1. Legislation -&gt; 5.1.3. Sub-national level</td>
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Research Needed
(http://www.iucnredlist.org/technical-documents/classification-schemes)

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<td>1. Research -&gt; 1.3. Life history &amp; ecology</td>
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<td>1. Research -&gt; 1.6. Actions</td>
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Additional Data Fields

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<td><strong>Population</strong></td>
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<td>Population severely fragmented: No</td>
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<table>
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<tr>
<th><strong>Habitats and Ecology</strong></th>
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<td>Movement patterns: Not a Migrant</td>
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