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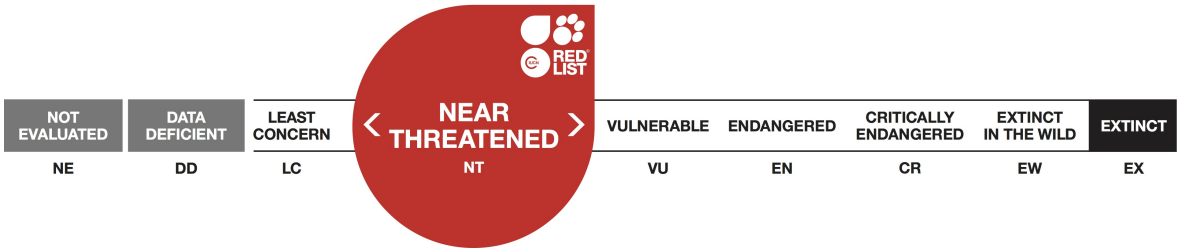
Pagophila eburnea, Ivory Gull

Assessment by: BirdLife International



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Taxonomy

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Aves	Charadriiformes	Laridae

Taxon Name: *Pagophila eburnea* (Phipps, 1774)

Regional Assessments:

- Europe

Common Name(s):

- English: Ivory Gull

Taxonomic Source(s):

Cramp, S. and Simmons, K.E.L. (eds). 1977-1994. *Handbook of the birds of Europe, the Middle East and Africa. The birds of the western Palearctic*. Oxford University Press, Oxford.

Assessment Information

Red List Category & Criteria: Near Threatened ver 3.1

Year Published: 2018

Date Assessed: August 8, 2018

Justification:

This species has declined rapidly in parts of its range, but its status in other areas is poorly known. A number of factors are likely to be contributing to declines, including climate change, pollution and increasing human intrusion or hunting within breeding areas. It is currently considered Near Threatened; but further surveys are required in order to clarify the true magnitude of declines.

Previously Published Red List Assessments

2017 – Near Threatened (NT)
http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22694473A118603183.en

2017 – Near Threatened (NT)
http://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22694473A112324957.en

2016 – Near Threatened (NT)
http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22694473A90111998.en

2012 – Near Threatened (NT)
http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T22694473A37879176.en

2010 – Near Threatened (NT)

2008 – Near Threatened (NT)

2006 – Near Threatened (NT)

2005 – Near Threatened (NT)

2004 – Least Concern (LC)

2000 – Lower Risk/least concern (LR/lc)

1994 – Lower Risk/least concern (LR/lc)

1988 – Lower Risk/least concern (LR/lc)

Geographic Range

Range Description:

This species has a circumpolar distribution in the Arctic seas and pack-ice during the non-breeding season, while its breeding range is confined to the Arctic Atlantic sector. It breeds from Canadian Arctic Archipelago (to **Canada**) through **Greenland** (to **Denmark**), Svalbard **(Svalbard and Jan Mayen Islands** (to **Norway**), and islands of Franz-Josef Land, Severnaya Zemlya and offshore islands in the Kara Sea (to **Russia**). In Russia, there are 55 known sites where Ivory Gulls have bred or have been breeding until now (Gavrilo 2009). During the past 25 years, 38 breeding sites have been confirmed, eight historical sites have been abandoned and 10 remain unsurveyed. Using all data obtained recently and the current knowledge on the species' biology, populations have been estimated at 1,000-1,500 breeding pairs on Franz-Josef Land (European Russia), 1,500-3,000 pairs on Severnaya Zemlya and 1,000-2,500 pairs in the rest of the Kara Sea Islands (Central Asian Russia) (M. Gavrilo, *unpubl. data*). During the last five years, the numbers of breeding pairs varied greatly between seasons and also inter-annually. For example, the colony on Sedov Archipelago (Severnaya Zemlya) had 2,000 breeding pairs in 2006-2007, but has held between 100 and 1,000 pairs in previous years. Also, the total numbers for five of the monitored colonies dropped from a maximum of 2,720 breeding pairs observed during 1990s-2000s to 450 pairs in 2016. Overall, no large-scale survey covering most of the key colonies during the same single season has been performed after 2006 and, thus, further research is needed to assess the overall Russian population estimate and trend. Other populations include 1,000 individuals in northeast Canada (Hess 2004, Gilchrist and Mallory 2005, Mallory *pers.comm*. 2016), 900-2,000 pairs (equating to 2,700-6,000 individuals) in Greenland (BirdLife International 2015), and 800-1,500 pairs (equating to 2,400-4,500 individuals) in Svalbard (BirdLife International 2015). Extrapolations based on aerial estimates suggested >35,000 individuals between Canada and Greenland in 1978-1979 (Orr and Parsons 1982). The global population is perhaps best placed in the band 58,000-78,000 individuals.

Recent surveys have revealed a drastic decline in Canadian populations, falling from 2,400 birds in 1987 to 500-700 birds in 2002-2003 (Hess 2004), representing an 80% decline in that period across the Canadian breeding range in all three known nesting habitat types (Gilchrist and Mallory 2005). The species seems to be declining in the south of its Greenland breeding range, while in North Greenland the trends are unclear (Gilg *et al.* 2009). However, the overall population trend in Greenland is estimated to be decreasing (BirdLife International 2015).

Country Occurrence:

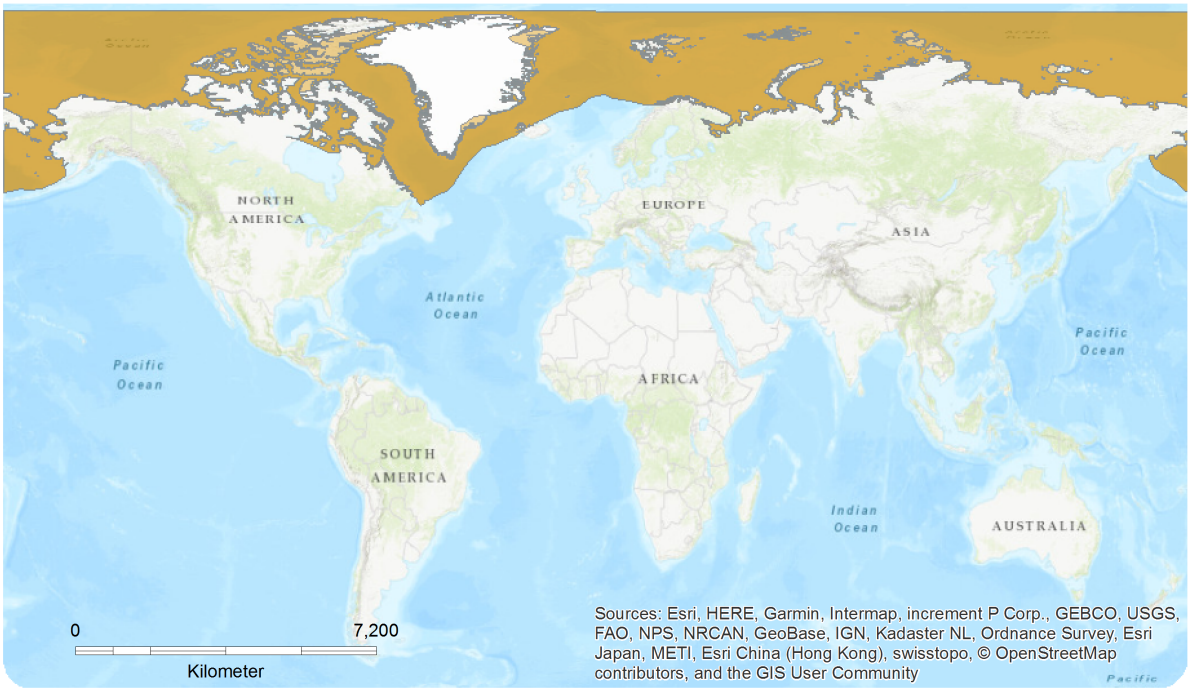
Native: Canada; Greenland; Russian Federation (Central Asian Russia - Vagrant, Eastern Asian Russia, European Russia); Svalbard and Jan Mayen; United States

Vagrant: Belgium; Czechia; Denmark; Faroe Islands; Finland; France; Germany; Iceland; Ireland; Italy;

Japan; Netherlands; Norway; Poland; Saint Pierre and Miquelon; Sweden; Switzerland; United Kingdom

Distribution Map

Pagophila eburnea



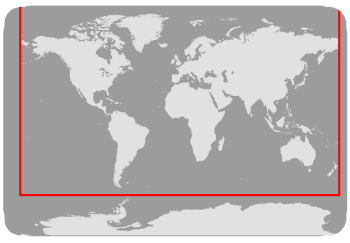
Range

Extant (breeding)

Extant (resident)

Compiled by:

BirdLife International and Handbook of the Birds of the World (2017)



The boundaries and names shown and the designations used on this map do not imply any official endorsement, acceptance or opinion by IUCN.

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Population

Using all data obtained recently and the current knowledge on Ivory's gull biology in Russia, populations have been estimated at 1,000-1,500 breeding pairs on Franz-Josef Land (European Russia), 1,500-3,000 pairs on Severnaya Zemlya; and 1,000-2,500 pairs in the rest of the Kara Sea Islands (Central Asian Russia) (M. Gavrilo, *unpubl. data*). An estimated 1,000 pairs were recorded in northeast Canada (Hess 2004, Gilchrist and Mallory 2005, Mallory *pers.comm*. 2016), 900-2,000 pairs in Greenland between 2000 and 2012 and 800-1,500 pairs in Svalbard between 2001 and 2013 (BirdLife International 2015). Orr and Parsons (1982) recorded aerial estimates of possibly more than 35,000 individuals between Canada and Greenland in 1978-1979, while del Hoyo *et al.* (1996) estimated possibly 25,000 pairs (75,000 individuals). This gives a total of 58,100-77,200 individuals, rounded here to 58,000-78,000 individuals, roughly equivalent to 38,000-52,000 mature individuals.

Trend Justification

Trends are difficult to estimate as colony size fluctuates from year to year, but sustained declines have been recorded in Canada. The European population is estimated to be fluctuating (BirdLife International 2015). Further information is required on long-term trends in other areas.

Current Population Trend: Decreasing

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

Behaviour The species is migratory (Olsen and Larsson 2003). It breeds between late June and August (although most pairs do not lay until early-July). Most of the colonies in Canada, Greenland and Svalbard hold between 1-100 pairs (del Hoyo *et al*. 1996, Gavrilo *et al.* 2007, Volkov de Korte 2000). Breeding numbers in the same colony in any given season is a subject of great inter-annual fluctuations (up to 10 fold) depending on ice conditions (food availability) during the pre-breeding season (Gavrilo 2011a, Eamer *et al*. 2013). There is also inter annual alteration between different breeding sites (Bangjord *et al*. 1994, Mallory 2005, Robertson et al. 2007, MacDonald, 1976, Volokov and De Korte, 1996, 2000, Gavrilo 2011a, Spencer *et al.* 2012). It departs from the breeding grounds during August - first half of October, returning late-February to early-June (Malory *et al.* 2008, Olsen and Larsson 2003, Volkov and De Korte 2000, Gilg *et al*. 2010, Spencer *et al.* 2014). Most active migration occurs in November, with the first birds only arriving on the wintering grounds in December (Bering Sea, southeast Greenland, Davis Strait/Labrador Sea), and with birds from Greenland, Svalbard, and Russia arriving in sequence (Gilg *et al.* 2010). Most of the birds wintering in the Pacific are thought to originate from the largest Russian colonies, Kara Sea Islands and Severnaya Zemlya (Gilg *et al.* 2010). Between July-December, they may travel 50,000 km on average, and even more for individuals that move to the Pacific (Gilg *et al.* 2010). Outside of the breeding season the species is weakly gregarious, occurring singly or in flocks of up to 20 individuals (Snow and Perrins 1998) or up to 2,000 individuals in favourable feeding places (Renaud and McLaren 1982, Lydersen *et al.* 2014). Larger numbers also gather in the spring at Hooded Seal *Crystophora cristata* whelping sites, where they feed on carrion and discarded placentae (del Hoyo *et al*. 1996). The species also regularly follows Polar Bears *Thalarctos maritimus* to feed on scraps from their kill (del Hoyo *et al*. 1996). **Habitat** *Breeding* It breeds on the high Arctic islands north of the July 5°C isotherm (Snow and Perrins 1998). Twelve different habitats are described for the species (Gavrilo 2011b) which are grouped into two principal categories: i) relatively inaccessible coastal or inland (up to 50 km from the coast [Wright and Matthews 1980, Gilg *et al.* 2009]) rocky mountains and cliffs up to 750 m high (Frisch and Morgan, 1979) and ii) a variety of flat-ground habitats including plain polar deserts,

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gravel and sandy spits, stony plateau, small gravel/bare islands (del Hoyo *et al*. 1996, Snow and Perrins 1998, Gavrilo 2011b), or even icebergs (MacDonald 1962, Macpherson 1962, Boertmann *et al.* 2010, Nachtsheim *et al*. 2016) or grounded ice floes (Kristoffersen 1926) as well as abandoned wooden buildings and other human artefacts (Gavrilo 2011b). In general, spatial-territorial patterns of Ivory Gull breeding colonies distribution are affected by the terrestrial predation, mostly by Arctic Foxes *Vulpes lagopus* (Gavrilo 2011b, 2012). *Non-breeding* Outside of the breeding season it strongly associates with sea ice (del Hoyo *et al*. 1996, Gilg *et al*. 2010, Spencer *et al*. 2014) with preference for the marginal pack-ice zone. Gulls wintering in Davis Strait were found to persistently use ice areas with predictable and valuable food resources provided by remains of breeding and polar bear kills at the whelping patches of Hooded Seals (Spencer *et al.* 2016). The timing of formation and recession and extent of sea ice is suggested to play a large role in their distribution and migratory timing (Spencer *et al.* 2014). **Diet** Its diet consists predominantly of fish, crustaceans, molluscs, and carrion (e.g. seal placentae) (del Hoyo *et al*. 1996, Mallory *et al.* 2008, Karnovsky *et al*. 2009). The species is supposed to occupy upper trophic levels during the entire annual cycle, making it vulnerable to accumulation of toxic substances (Spencer *et al.* 2014). It feeds mostly by hovering and contact dipping in open leads in ice-filled waters or at the glacier fronts, walking along ice-floe edges and along the sandy beaches, or scavenging on marine mammal remains (Divoky 1976, Renaud and McLaren 1982, Mallory *et al.* 2008, Karnovsky *et al*. 2009, Lydersen *et al.* 2014, Gavrilo pers. comm.). **Breeding site** The nest is constructed of mosses and available vascular plants, straw and other debris on a snow-free area of broad rock ledges on steep, inaccessible coastal or inland cliffs up to 300 m high; on gravel, sand or clay ground; broken ice-fields and bare, level shorelines with low rocks; or on ledges, logs or roofs of abandoned buildings (del Hoyo *et al*. 1996, Snow and Perrins 1998, Gavrilo 2011a,b, Mallory *et al.* 2008, Volkov and de Korte 2000), avoiding areas with developed tundra vegetation (Gavrilo 2011b).

Systems: Terrestrial, Marine

Threats (see Appendix for additional information)

The loss of sea ice due to climate change represents a significant threat to the Ivory Gull as it is reliant on sea ice for breeding and hunting, selecting areas with 40-80% sea ice cover to forage. Decreasing sea ice has been linked to declines in Canada (Gilchrist and Mallory 2005) and changes to sea ice is decreasing the area of overlap with polar bears and seals, which they scavenge from, and is likely to lead to increased competition (Hamilton *et al*. 2017). Decreasing sea ice has been linked to declines in Canada (Gilchrist and Mallory 2005), as well as more generally across its range (Joiris 2017). Industrial diamond and gold mining in Canada (Bordeur Peninsula of Baffin Island, Severnaya Zemlya Archipelago) is likely causing habitat degradation and disturbance to breeding colonies (Gilchrist *et al*. 2008).

This species feeds high up in the trophic chain and is therefore vulnerable to bioaccumulation (Braune *et al.* 2006). With pollution accumulating in Arctic waters from diffuse sources, the exact sources of pollutants are unknown. The species' reliance on seal and whale blubber makes it particularly vulnerable to heavy metal contamination (Tucker and Heath 1994, Spencer *et al*. 2014). Trace heavy metals have been recorded, such as silver, arsenic, cadmium and lead (Braune *et al.* 2006, 2007, Miljeteig *et al.* 2009, Lucia *et al*. 2015), as well as high levels of pesticides, including organochlorinated pesticides (OCPs), DDT and polychlorinated biphenyls (PCBs) (Lucia *et al*. 2016). The levels of OCPs, polychlorinated biphenyls PCBs and mercury in Ivory Gulls are among the highest ever reported in Arctic seabirds (Braune *et al.* 2006, Miljeteig *et al*. 2009, Lucia *et al*. 2015). Yet, this is not thought to be at high enough concentrations to cause direct mortality. There is a threat from synergistic and additive effects,

which are likely to having a sub-lethal effect, shown in other bird species to affect parental behaviour, endocrine distribution and neurological functions, as well as potentially causing reproductive disruptions (Miljeteig *et al.* 2012, Lucia *et al.* 2016). Mercury levels are some of the highest reported in Arctic sea birds, and egg concentrations of industrial contaminants exceed published thresholds known to disrupt reproductive success of avian species (Lucia *et al*. 2015). The concentration of methyl mercury in feathers of Canadian birds increased by a factor of 45 during 1877-2007 (Bond *et al.* 2015). High levels of selenium may offer some protection against mercury concentrations, but could also damage gulls (Lucia et al. 2016). Chronic oil pollution is suspected. Although there are no records of oiled Ivory Gulls, they would not be expected to reach land or be recorded due to their ecology. Given impact on other, similar species at risk such as Little Auk *Alle alle* and Thick-billed Murre *Uria lomvia*, Ivory Gulls are likely highly to be at risk (Gilchrist *et al*. 2008).

The Ivory Gull has traditionally been hunted in Canada and Greenland and this is thought to have had an effect on their population (Stenhouse *et al*. 2004a). They have since become fully protected by law in Canada and Greenland (Stenhouse 2004) and, likely as a result of this, shooting is less common. Reports from Russia shows that hunting and egg collection seems to not have a major impact on the population (Gilchrist *et al*. 2008).

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

Conservation Actions Underway

Bern Convention Annex II. In Russia, it was listed in the Red Data Book of the U.S.S.R. (1984) and is currently registered as a Category 3 (Rare) species in the Red Data Book of the Russian Federation. As a result, the species is listed in regional Red Data Books along its breeding range in Russia (Gilchrist *et al*. 2008). However, there are currently no specific conservation measures in action for this species (Varty and Tanner 2009). A Norwegian-Russian project satellite tagged 31 individuals in 2007/2008 to assess movements at breeding grounds and their dispersal ability (Gilg *et al.* 2009). **Conservation Actions Proposed**

Monitor population trends throughout the range, with particular emphasis on determining rates of decline in main breeding areas. Research the magnitude of threats facing all populations. Protect colonies from mining actions and other intrusion (military activities, oil industry infrastructure) and disturbances (tourism).

Credits

Assessor(s): BirdLife International

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External Resources

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?
0. Root -> 6. Rocky areas (eg. inland cliffs, mountain peaks)	Breeding	Suitable	Yes
8. Desert -> 8.3. Desert - Cold	Breeding	Suitable	Yes
9. Marine Neritic -> 9.1. Marine Neritic - Pelagic	Non-breeding	Suitable	No
10. Marine Oceanic -> 10.1. Marine Oceanic - Epipelagic (0-200m)	Resident	Marginal	-
12. Marine Intertidal -> 12.1. Marine Intertidal - Rocky Shoreline	Breeding	Suitable	Yes
12. Marine Intertidal -> 12.2. Marine Intertidal - Sandy Shoreline and/or Beaches, Sand Bars, Spits, Etc	Non-breeding	Suitable	No
13. Marine Coastal/Supratidal -> 13.1. Marine Coastal/Supratidal - Sea Cliffs and Rocky Offshore Islands	Breeding	Suitable	Yes
0. Root -> 17. Other	Breeding	Suitable	Yes

Threats

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

Threat	Timing	Scope	Severity	Impact Score
11. Climate change & severe weather -> 11.1. Habitat shifting & alteration	Ongoing	Whole (>90%)	Slow, significant declines	Medium impact: 7
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 1. Ecosystem stresses -> 1.3. Indirect ecosystem effects		
3. Energy production & mining -> 3.2. Mining & quarrying	Ongoing	Minority (50%)	Slow, significant declines	Low impact: 5
	Stresses:	1. Ecosystem stresses -> 1.2. Ecosystem degradation 2. Species Stresses -> 2.2. Species disturbance 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
5. Biological resource use -> 5.1. Hunting & trapping terrestrial animals -> 5.1.1. Intentional use (species is the target)	Ongoing	Minority (50%)	Negligible declines	Low impact: 4
	Stresses:	2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		
9. Pollution -> 9.2. Industrial & military effluents -> 9.2.1. Oil spills	Ongoing	Majority (50-90%)	Slow, significant declines	Medium impact: 6
	Stresses:	2. Species Stresses -> 2.1. Species mortality 2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		

http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22694473A132555020.en

9. Pollution -> 9.3. Agricultural & forestry effluents -> 9.3.3. Herbicides and pesticides	Ongoing	Majority (50-90%)	Unknown	Unknown
	Stresses:	2. Species Stresses -> 2.3. Indirect species effects -> 2.3.7. Reduced reproductive success		

Conservation Actions in Place

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

Conservation Actions in Place
In-Place Research, Monitoring and Planning
Action Recovery plan: No
Systematic monitoring scheme: No
In-Place Land/Water Protection and Management
Conservation sites identified: Yes, over entire range
Occur in at least one PA: Yes
Invasive species control or prevention: No
In-Place Species Management
Successfully reintroduced or introduced beningly: No
Subject to ex-situ conservation: No
In-Place Education
Subject to recent education and awareness programmes: No
Included in international legislation: No
Subject to any international management/trade controls: No

Conservation Actions Needed

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

Conservation Actions Needed
1. Land/water protection -> 1.1. Site/area protection

Research Needed

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

Research Needed
1. Research -> 1.5. Threats
3. Monitoring -> 3.1. Population trends

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Additional Data Fields

Distribution
Continuing decline in area of occupancy (AOO): Unknown
Extreme fluctuations in area of occupancy (AOO): Yes
Estimated extent of occurrence (EOO) (km^2): 40100000
Continuing decline in extent of occurrence (EOO): Unknown
Extreme fluctuations in extent of occurrence (EOO): Yes
Continuing decline in number of locations: Unknown
Extreme fluctuations in the number of locations: No
Population
Number of mature individuals: 38000-52000
Continuing decline of mature individuals: Yes
Extreme fluctuations: No
Population severely fragmented: No
Continuing decline in subpopulations: Unknown
Extreme fluctuations in subpopulations: No
All individuals in one subpopulation: No
Habitats and Ecology
Continuing decline in area, extent and/or quality of habitat: Yes
Generation Length (years): 28
Movement patterns: Full Migrant
Congregatory: Congregatory (and dispersive)

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The IUCN Red List Partnership

The IUCN Red List of Threatened Species™ is produced and managed by the IUCN Global Species Programme, the IUCN Species Survival Commission (SSC) and The IUCN Red List Partnership.

The IUCN Red List Partners are: Arizona State University; BirdLife International; Botanic Gardens Conservation International; Conservation International; NatureServe; Royal Botanic Gardens, Kew; Sapienza University of Rome; Texas A&M University; and Zoological Society of London.