BEFORE THE SECRETARY OF THE INTERIOR

Petition to List the Gray-Headed Chickadee (*Poecile cinctus lathami*) as Threatened or Endangered Under the Endangered Species Act and to Concurrently Designate Critical Habitat

Martha de Jong-Lantink (CC BY-NC-ND 2.0)

Center for Biological Diversity

June 25, 2026

NOTICE OF PETITION

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ACTION REQUESTED

Pursuant to Section 4(b) of the Endangered Species Act ("ESA") (16 U.S.C. § 1533(b)), Section 553(e) of the Administrative Procedure Act ("APA") (5 U.S.C. § 553(2)), and 50 C.F.R. § 424.14(a), the Center for Biological Diversity hereby petitions the Secretary of the Interior, through the U.S. Fish and Wildlife Service ("USFWS" or "Service"), to protect the gray-headed chickadee (*Poecile cinctus lathami*) as an endangered species under the ESA. Alternatively, if the Service determines that the gray-headed chickadee does not qualify as an endangered species, the Center petitions to list it as a threatened species. USFWS has jurisdiction over this petition.

This petition sets in motion a specific process, placing definite response requirements on the Service. Specifically, the Service must issue an initial finding as to whether the petition "presents substantial scientific or commercial information indicating that the petitioned action may be warranted" (16 U.S.C § 1533(b)(3)(A)). USFWS must make this initial finding "[t]o the maximum extent practicable, within 90 days after receiving the petition" (16 U.S.C § 1533(b)(3)(A)). If FWS makes a positive initial finding, it must then determine within 12 months after receiving the petition whether the petitioned action is warranted, and if so, the Secretary shall "promptly" propose to implement the listing action with a general notice (16 U.S.C. § 1533(b)(3)(B)). Finally, the Secretary shall finalize the regulation to implement their listing determination "within the one-year period beginning on the date on which general notice is published" (16 U.S.C. § 1533(b)(6)(A)). The petitioner also requests that critical habitat be designated for the gray-headed chickadee concurrently with the species being listed, pursuant to 16 U.S.C. § 1533(a)(3)(A) and 50 C.F.R. § 424.12. References cited in this petition will be available through December 31, 2027, at the following link:

https://tinyurl.com/GHC-ESA-Petition.

The Center for Biological Diversity ("Center") is a nonprofit, public interest environmental organization dedicated to the protection of imperiled species and the habitat and climate they need to survive through science, policy, law, and creative media. The Center is supported by more than 1.8 million members and online activists across the country. The Center works to secure a future for all species, great and small, hovering on the brink of extinction. The Center submits this petition on its own behalf and on behalf of its members and staff with an interest in protecting the gray-headed chickadee and its habitat.

Submitted this 25th day of June 2026,

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EXECUTIVE SUMMARY

The gray-headed chickadee (*Poecile cinctus lathami*) is on the verge of extirpation in North America. Formerly common across a broad area of subarctic Alaska and northwest Canada, the bird has not been observed, recorded, or otherwise detected since 2017. Gray-headed chickadees may be the most imperiled bird species in North America.

The gray-headed chickadee is one of the rarest breeding birds in North America and one of the least known. Despite its documented presence in Alaska and northwest Canada since 1864, the species has not been formally studied, only two individuals have ever been banded, and the first nest site was not located until the 1990s.

Rapid climate changes in the Arctic are shifting the distribution and abundance of wildlife species and habitats, posing challenges for species adapted to cold and dry conditions such as the gray-headed chickadee. As the Arctic becomes warmer and wetter, mid-winter rains have greatly increased in frequency and duration, creating thick ice crusts armoring the snow that can make it difficult for chickadees to access food. A warming Arctic climate is causing loss of insects which can lead to food deprivation for insectivorous birds such as chickadees. As a boreal species, these chickadees have a limited window of time to breed and raise young. Therefore, the chickadees need to synchronize their breeding so that maximum food is available for their offspring, but climate change is causing large-scale shifts in the timing of seasonal ecological events. Gray-headed chickadees are also subject to increased competition for nest sites, food, and mates with other chickadee species that are expanding northward in response to climate change.

The decline of gray-headed chickadees in North America has been rapid and synchronous with dramatic climate disruptions across the Arctic. Many Arctic endemic species, such as gray-headed chickadees, exist at the edge of the continent and their survivable range and face a future with nowhere to go.

This petition seeks Endangered Species Act protection for the highly imperiled gray-headed chickadees. This petition also seeks the designation of critical habitat for the birds, as well as funding to locate and study them in their North American range. The USFWS must take immediate action to ensure the survival of this bird for its contribution to global biodiversity and for future generations.

I. Introduction

As Rachel Carson chronicled in her landmark 1962 book, *Silent Spring*, birds are often the harbingers of broad changes in the environment. Roughly 75% of bird species are in dramatic decline across North America, with at least 3 billion birds lost since 1975 (Rosenberg et al. 2019, p. 120). Habitat loss, habitat fragmentation, and climate change are the most potent forces driving down bird numbers.

Rapid and dramatic changes across Arctic Alaska and Canada are manifesting by (1) rivers turning acidic orange as thawing permafrost releases trapped heavy metals, (2) sea ice vanishing, (3) megastorms devastating coastal communities, and (4) formerly common birds no longer being found. Gray-headed chickadees (*Poecile cinctus lathami*) are one such species. Once common across a broad swath of boreal Alaska and northwest Canada, gray-headed chickadees have seemingly disappeared, with none being located since 2017 despite intensive searches. North America has not lost a breeding bird in 65 years, but gray-headed chickadees may be on the verge of dying out.

Gray-headed chickadees are but one example of the "silent spring" overtaking the Arctic. A 2019 study revealed a net loss in total bird abundance of 2.9 billion birds across almost all biomes, a reduction of 29% since 1970 (Rosenberg et al. 2019). In North America, boreal forest and Arctic tundra are two of the breeding biomes that have seen the largest losses in net abundance of birds (Rosenberg et al. 2019).

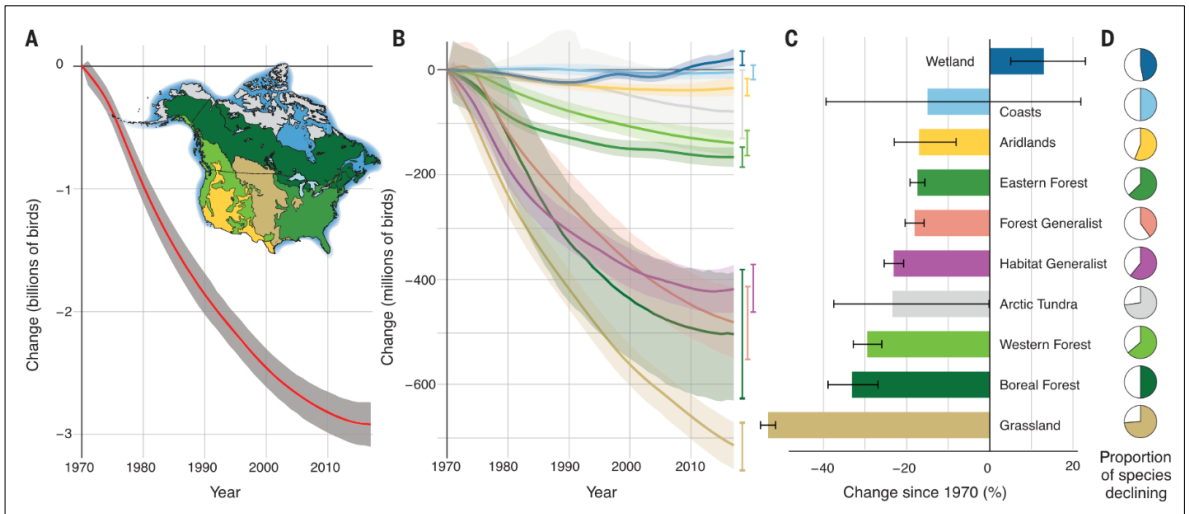


Fig. 1. Net population change in North American birds. (**A**) By integrating population size estimates and trajectories for 529 species (*18*), we show a net loss of 2.9 billion breeding birds across the continental avifauna since 1970. Gray shading represents the 95% credible interval (CI) around total estimated loss. Map shows color-coded breeding biomes based on Bird Conservation Regions and land cover classification (*18*). (**B**) Net loss of abundance occurred across all major breeding biomes except wetlands (see Table 1). (**C**) Proportional net population change relative to 1970, ±95% CI. (**D**) Proportion of species declining in each biome.

Figure 1. Population declines of North American Birds (from Rosenberg et al. 2019)

Gray-headed chickadees may be the most imperiled bird species in North America. Designated as an endangered species in Canada, these birds are widely regarded by U.S. federal and state agencies and conservation organizations as a species of great conservation concern, yet no coordinated plan exists to protect, study, or even locate them. Inaction is causing gray-headed chickadees to drift toward oblivion. The plight of gray-headed chickadees exemplifies the existential threats posed by climate change. Given the gravity of the situation, the continued survival of gray-headed chickadees in North America requires immediate increased protections and resources.

II. Natural History

A. Taxonomy

Kingdom	Phylum	Class	Order	Family	Genus
Animalia	Chordata	Aves	Passeriformes	Paridae	Poecile

The gray-headed chickadee (*Poecile cinctus lathami*), a subspecies of *Poecile cinctus* endemic to northern Alaska and northwestern Canada, is a passerine bird in the chickadee family of Paridae (Booms et al. 2020, pp. 654, 657). It was first classified by James Francis Stephens as *Parus cinctus lathami* in 1817 (Shaw 1826, pp. 44–45). The American Ornithological Union transferred the species to the genus *Poecile* in 1997 (Chesser 2009). There are three other subspecies of *P. cinctus* that occur in northern Eurasia (*P. c. lapponicus*, *P. c. cinctus*, and *P. c. sayanus*), where the bird is known as the Siberian tit (Booms et al. 2020, pp. 657).

Scientists believe genetic mixing between the gray-headed chickadee and the Eurasian tit subspecies is "highly unlikely" "since the last glacial maximum (approximately 20,000 years ago)" (McGuire 2020, p. 1). A recent study documented a multitude of morphological differences between *P. c. lathami* and the Eurasian subspecies *P. c. cinctus*, with *P. c. lathami* found to have "generally darker plumage and a larger bill," supporting the distinct North American subspecies (DeCicco et al. 2017, p. 174).

The gray-headed chickadee (*Poecile cinctus*) is found in clade B of the phylogeny of 67 parid taxa. Clade B parid species are distinguished from clade A species by the ability to excavate their own nests and to cache food (seeds and insects) (Johansson et al. 2013). The gray-headed chickadee is placed within the "brown-capped chickadee" clade of North American chickadees along with the boreal chickadee (*Poecile hudsonicus*) and chestnut-backed chickadee (*Poecile rufescens*) (Gill et al. 2005; Johansson et al. 2013). Though similar in appearance to boreal chickadees, gray-headed chickadees are more closely related to chestnut-backed chickadees.

B. Description

The gray-headed chickadee is the largest chickadee in North America, with a body length of 13.5 to 14 cm, and body mass of 11.3 to 13 g (Hailman and Haftorn 2020). Breeding adults have a distinctive gray-brown cap, white cheeks and neck, small dark bib, light cinnamon flanks, white-

edged wings, and a long, white-edged tail. The back is gray-brown, with mottled white, grey, and black wings. The breast and belly are primarily white. The bill is black, and the legs are light grey. Gray-headed chickadees are distinguished from the morphologically similar boreal chickadee by a broader white cheek patch; white edging to the primaries and wing coverts; a grayer head; and buffier flanks. Juveniles are similar to adults but have a dull brown-black cap; dull grey-brown back; pale creamy-white or buff-tinged cheeks; and a larger and slightly palebrown bib (Hailman and Haftorn 2020).

In a comparison of Nearctic and Eastern Palearctic gray-headed chickadees, *P. c. lathami* is noted to have a darker mantle and flanks, redder edges of the flight feathers, and a larger bill size (length, width and depth) than *P. c. Cinctus* (DeCicco et al. 2017, p. 174).

Figure 2. Photo of specimen records of *Poecile cinctus cinctus* (two left birds), *Poecile cinctus lathami* (center bird), and *Poecile hudsonicus* (two right birds). The *P.c. lathami* bird was collected in Denali National Park, Alaska, in 1925. (photo credit: David Sibley)

Gray-headed chickadees have a similar vocal repertoire to other *Poecile* species, consisting of 11 or 12 common vocalizations or call types (*trill, gargle, chick-a-dee, alarm zee, flag, club, crackle, sexual see, broken dee, hiss* and *squawk*), and no known song. This aligns them with boreal chickadee and chestnut-backed chickadee in North America (Mahon 2006; Ficken et al. 2020). Gray-headed chickadee vocalizations (with the exception of the *alarm zee* in the above list) can be reliably distinguished from those of other chickadee species by several unique tonal elements, which can be detected using both auditory and visual (spectrogram) traits. For example, the *chick-a-dee* call of the gray-headed chickadee is typically shorter, lower pitched, and more emphatic (*chick-a-chew-chew*) than that of the hoarse-sounding boreal chickadee. The one described call unique to gray-headed chickadee, the *El* call, is characterized as a modified *dee* note of the *chick-a-dee* complex and can be distinguished by its spectrogram, which resembles the capital letter "L" (Hailman and Haftorn 2020, p. 2).

Although the identification of gray-headed chickadee using morphology and vocalizations may be challenging, the intense interest in this species by North American ecologists, birdwatching enthusiasts, and citizen scientists suggests that it is unlikely to be consistently overlooked or incorrectly identified by observers within its range.

C. Migration

The gray-headed chickadee is generally considered to be a permanent, non-migratory Arctic resident (ADFG 2026a). Adults are mostly sedentary but may be nomadic during the non-breeding season, especially during harsh winters (Booms et al. 2020, p. 657). Historical sightings around Fairbanks in the Alaska interior occurred primarily during fall and winter, suggesting patterns of juvenile dispersal and nomadism that are similarly exhibited by Eurasian populations.

D. Habitat

Gray-headed chickadees inhabit mixed coniferous boreal forests and deciduous Arctic shrublands close to the northern treeline (Booms et al. 2020, p. 655). Specifically, "[i]n eastern Alaska and the Yukon Territory, the species uses spruce (*Picea* spp.) and willow (*Salix* spp.)-dominated habitats adjacent to rivers that are otherwise surrounded by open tundra" (Booms et al. 2020, p. 655). In northwest Alaska, they occur in stunted "shrublands of low willow and spruce, 6m tall" (Booms et al. 2020, p. 655). In the Brooks Range Foothills, gray-headed chickadees are found in "isolated balsam popular (*Populus balsamifera*) groves, at least during the spring and summer seasons" (Booms et al. 2020, p. 655). It has been suggested that they may snow-roost during the winter (McGuire 2020). Gray-headed chickadees are likely a specialist species occupying uncommon, atypical, and specialized habitats in northern portions of the boreal forest, due to their dependence on mature/old, structurally complex habitat types containing specific structural attributes needed for nesting, roosting, and foraging (Mahon et al. 2016).

E. Diet

The diet of gray-headed chickadees is primarily small invertebrates, as well as conifer seeds (McGuire 2020, p. 1). Insects include "caterpillars, flies, beetles, and the eggs and pupae of many insects, as well as spiders" (Audubon 2026). These chickadees cache food items, such as

seeds, insects, and moose fat gleaned from carcasses (McGuire 2020, p. 1; Hailman and Haftorn 2020, p. 5).

F. Breeding

The gray-headed chickadee is a monogamous breeder that forms lifelong pair-bonds. Mean age of first breeding is unknown, but most *Poecile* species first breed at one year of age and produce one brood per year (Ficken et al. 2020). As is typical of *Poecile* species, the birds nest in single breeding pairs and winter in flocks (for example, one or two mated pairs plus juveniles).

The gray-headed chickadee is an obligate cavity nester, using excavated or natural cavities, woodpecker holes or nest boxes (in Eurasia). In North America, nest trees include spruce (*Picea*) and poplar (*Populus*), although nest records are limited in number (Booms et al. 2020, p. 657). In Europe, there are local variations in the selection of pine, spruce, and birch (*Betula*) as nest tree species (Hailman and Haftorn 2020, p. 2). This aligns with empirical evidence for chestnut-backed chickadee in northwestern Canada, where the type of nest tree selected appeared to shift depending on the species present and the condition (for example, live or dead, shape of tree stem and crown, condition of wood, presence of health agents like disease and insects, and physical defects) and size of the available trees (Mahon et al. 2007). In Eurasia, nest trees may include pine (*Pinus*), spruce, birch, and aspen (*Populus*) (Saari et al. 1994), with nest height averaging 1.8 to 4.6 m above the ground (Hailman and Haftorn 2020, p. 2). Breeding habitat is thought to be "restricted to sites with trees or shrubs of sufficient diameter to support existing cavities in spruce, poplar, birch, or willow" (Booms et al. 2020, p. 657).

Most brown-capped chickadees excavate cavities in areas of decaying wood in dead or dying trees (Mahon and Martin 2006; Mahon et al. 2007). Female gray-headed chickadees excavate or renovate nest cavities, including creating a three-layer nest with decayed wood and moss, with lagomorph or rodent fur lining the nest cup (Järvinen 1983; Hailman and Haftorn 2020, p. 2). The degree of nest reuse and competition for nest sites is unknown. Males roost near the nest cavity and females roost inside the nest cavity. There is a known occurrence of a gray-headed chickadee using a cliff swallow (*Petrochelidon pyrrhonota*) nest cavity along a river in the Brook Range Foothills on the North Slope of Alaska for at least seven consecutive years, indicating there is some level of plasticity in nest site selection (Booms et al. 2020, p. 657).

The size of breeding territories averages 16 to 17 ha in Europe but is unknown in North America. Reported breeding density in Europe ranges from 0.05 pairs to 6.7 pairs/km^2 (Hailman and Haftorn 2020), with the most recent estimate 0.05 to 0.17 pairs/km^2 in undisturbed mature forest in southern Norway (Dale and Andreaseen 2016). In Europe, nest building begins in early May, with copulation and egg laying occurring once the nest is completed or near completion. The date of the first egg is approximately June 10 to 24 in Alaska and June 1 to 30 in Canada (Hailman and Haftorn 2020). One egg is laid per day until the clutch is complete. Clutch size (range: 4 to 11) may vary with habitat, laying date, and year (Järvinen 1983), but is typically 6 to 10 in North America and Europe (Hailman and Haftorn 2020, p. 2). Incubation period in Europe is 13.7 to 16 days. The female broods the newly hatched young, and both parents feed nestlings a variety of invertebrates during the nestling period of approximately 19 days. Fledglings remain in the territory for roughly two weeks and are fed by the adults for around 10 days before the young disperse (Hailman and Haftorn 2020, p. 2).

Data on gray-headed chickadee survival rates are limited, with one estimate of annual adult mortality of 49% and a maximum observed adult age of 7 years (Virkkala 1990). Generation time (average age of adults in the population) is estimated to be 2.2 years, based on modelling of age of first reproduction (*F*), maximum longevity (*L*), annual adult survival (*S*) (for example, as a function of phylogeny, body mass, migratory status, broad habitat, diet, breeding range centroid latitude, and mean clutch size), and derived estimates of generation time (Bird et al. 2020). Data on annual reproductive success are limited, but estimates in Europe suggest a mean range of 4.8 to 7.7 fledglings/nest. Lifetime annual reproductive success is unknown because mean adult lifespan and age-specific reproductive success are unknown (Hailman and Haftorn 2020, p. 2).

Key factors affecting the productivity and survival of gray-headed chickadee in North America are unknown, but may include the effects of climate change, both direct (exposure of eggs, nestlings and adults) and indirect (food and prey limitation, predator shifts, cache integrity, vegetation and habitat shifts, and altered natural disturbance patterns). Cold temperatures appear to affect nestling survival during the breeding season (Järvinen 1983) and adult survival in winter in Finland (Järvinen 1982). Food limitation appears to influence nestling survival in Scandinavia (Järvinen 1982; Järvinen 1983; Järvinen 1990). Storage of seeds and invertebrates as a source of food is important for gray-headed chickadees throughout the year (Hailman and Haftorn 2020, p. 2), and changes in the integrity of cached food during non-breeding periods may influence demographic rates in the species.

G. Distribution and Range

The gray-headed chickadee supergroup (*Poecile cinctus*) has the most extensive and northern distribution of all Parid species. Collectively, their nearly circumboreal range extends from Scandinavia and across northern Eurasia to the Russian Far East, with a disjunct population in northern Alaska and adjacent Canada (DeCicco et al. 2017, p. 172). In Eurasia, the northern range limits reach into northern Siberia and the southern limit extends into extreme northwestern Kazakhstan and northern Mongolia. The full extent of the range of *Poecile cinctus* exceeds 1 million square miles, the vast majority of which is in Eurasia.

Since most Parids are sedentary and tend to occupy contiguous ranges, it is presumed that *Poecile cinctus* occurred across Beringia during the Pleistocene glacial maximum and the North American population later became disjunct with the return of higher sea levels. It is currently unknown whether *Poecile cinctus cinctus* and *Poecile cinctus lathami* shared ancestors within the Beringian refugium or if these two subspecies existed in disparate refugia during the last glacial maximum (DeCicco et al. 2017, p. 174). The small Nearctic population represents either the most basal population, from which the Palearctic populations dispersed, or a subsequent recolonization of the Nearctic from the Palearctic (DeCicco et al. 2017, p. 172).

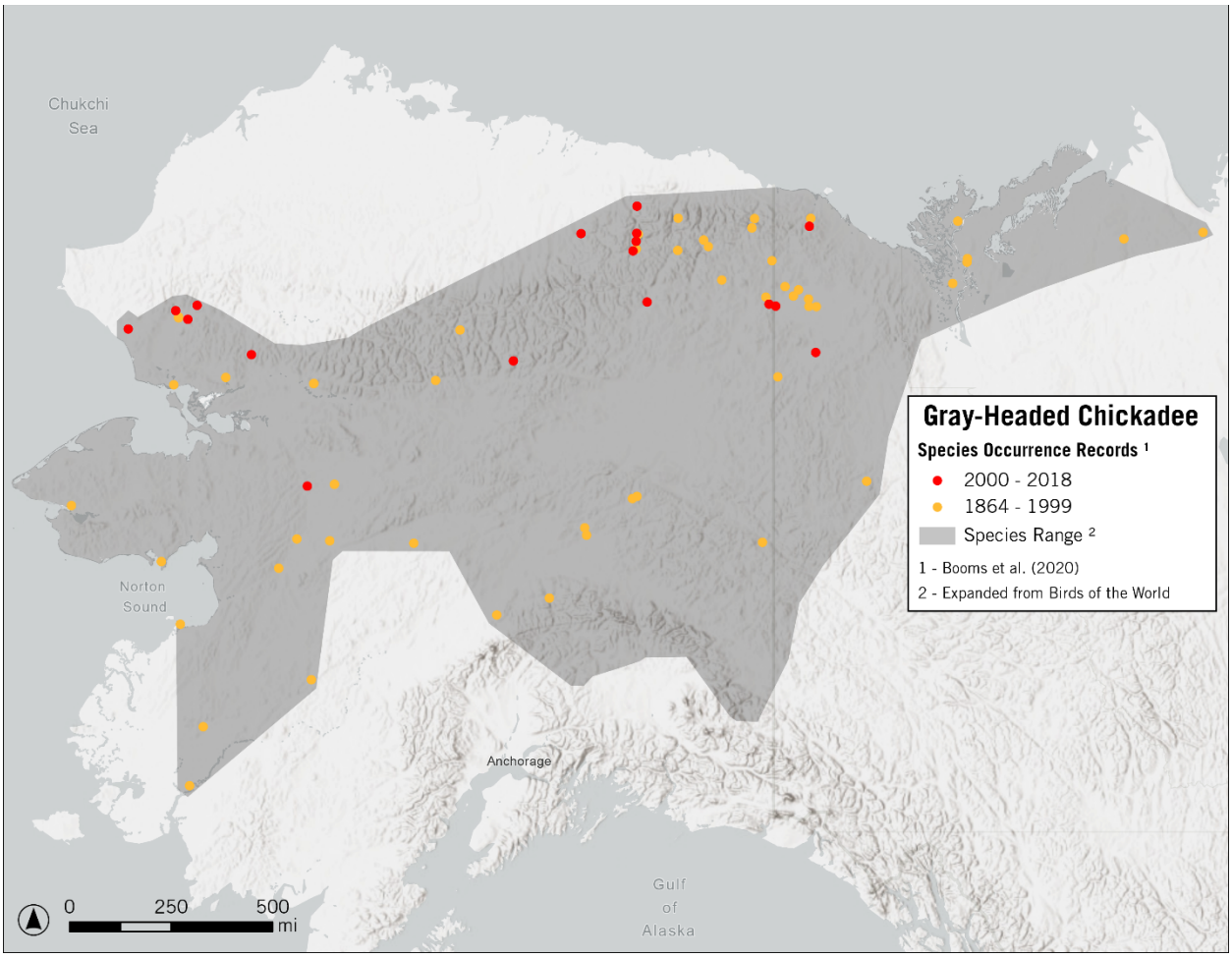


Figure 3. Gray-headed chickadee range, adapted from Birds of the World, with species occurrence records (map by Center for Biological Diversity).

Historically, the gray-headed chickadee in North America occurred across a broad swath of Alaska, from the Yukon–Kuskokwim Delta to the northern foothills of the Brooks Range in the U.S. and into northwestern Canada (*see* Figure 3, above), with 75–90% of the North American population thought to occur in Alaska (ADFG 2015, p. 142).

In Canada, the species primarily occurred in the northern regions of the Yukon Territory and Northwest Territories from Cape Bathurst west to the United States–Canada border. The historical Canadian range included the Northwest Territories, but more recently it has only been seen in Yukon, with only two observations in Canada since 2000 despite extensive surveys in 2019 (COSEWIC 2024).

Gray-headed chickadees in North America occur primarily within mixed coniferous and deciduous forests near the northern edge of treeline. In eastern Alaska and the Yukon Territory the species uses spruce (*Picea* spp.) and willow (*Salix* spp.) dominated habitats adjacent to rivers

that are otherwise surrounded by open tundra (Murie 1928). In the foothills of the Brooks Range the birds use isolated balsam poplar (*Populus balsamifera*) stands for nesting (Tobish 1997).

Booms et al. (2020) found that the distribution of gray-headed chickadees in North America has likely contracted and that the species no longer regularly occurs in southwestern or interior Alaska, or the Northwest Territories (*see* Figure 3 showing range contraction after 1999).

H. Abundance

An American expedition in 1884 noted that gray-headed chickadees were "more or less common throughout the wooded interior" of Alaska (Gesmundo 2023). Observers described the species as locally common in the Noatak and Kobuk river drainages in Alaska through the first half of the 1900s (McLenegan 1889; Grinnell 1900; Hines 1963) and in the Old Crow Flats in the Yukon Territory in Canada in the 1920s (Murie 1928). Historical sightings in interior Alaska around Fairbanks occurred primarily during fall and winter (Gibson 2011), suggesting patterns of juvenile dispersal and nomadism that are similarly exhibited by Palearctic populations (Booms et al 2020, p. 658).

In 1938, a scientist in Denali National Park found the bird "well distributed in the aspen and spruce forests," and people living in the region told the scientist's party that "these chickadees disappear in the spring and are rarely seen all summer, but that in the fall they again gather about the cabins to be fed" (Gesmundo 2023). While sparsely distributed across its North American range, it was considered "locally common in some areas as recently as the 1960s" (Booms et al 2020, p. 655). Hines (1963, p. 420) considered gray-headed chickadees to be widely distributed and more common in the Noatak River watershed than boreal chickadees, the latter being observed on several occasions in small flocks of gray-headed chickadees in 1960 and on only two occasions during 1961. Martin described the species as ''probably locally common'' during a multiweek field program along the Kongakut River in the Brooks Range of the Arctic National Wildlife Refuge in 1976 (Martin 1976). Over the course of a week, his party observed multiple pairs and individuals in poplar stands within a couple specific drainages.

A total of 108 occurrence records of gray-headed chickadees in North America exist from 1864–1999, with records for every decade except for the 1930s–1950s (Booms et al 2020, p. 658). Gray-headed chickadees could still be reliably found at select locations in Alaska's Brooks Range until the early 2000s. Thereafter, the birds became increasingly scarce and hard to find. Extensive surveys between 2010–2017 by Booms et al. (2020) across eight field seasons in some of the most remote parts of Alaska yielded only three detections of gray-headed chickadees (Booms et al 2020, p. 656). The last documented observation of gray-headed chickadees in North America occurred on June 14, 2017, at the Marsh Fork of the Canning River in Alaska's Arctic National Wildlife Refuge (Gesmundo 2023).

Booms et al. (2020, p. 661) concluded that the number and distribution of North American gray-headed chickadees have likely declined in recent years:

> We base this conclusion on multiple lines of evidence. First, although we have conducted 862 hours of surveys at historical sites with presumably some of the best available habitat, we detected only three individuals and observed no signs of

> breeding. Second, it appears the species' distribution has likely contracted and that it no longer regularly occurs in southwestern or Interior Alaska, or the Northwest Territories. Third, at the two locations in Alaska for which there are reliable, long-term occupancy records in recent history, the species has become absent at both sites in the past 5–10 years. Recent records of nesting Gray-headed chickadees are rare, and observers report only a few reliable sightings of Gray-headed chickadees annually in Alaska and Canada, nearly all of them from within Alaska's Brooks Range. Hence, though we acknowledge that we base our conclusion on limited information and that one of the locations with long-term data had only a few nests that were observed annually, all the available information is consistent with a recent decline in abundance and distribution.

Global population estimates for *P. cinctus* vary widely and are highly speculative. The species' global population has been estimated as low as half a million to as high as 2 million (McGuire 2020, pp. 1–2; NatureServe 2026); in 2020 the European population size was estimated at 328,000–588,000 adults (Hailman and Haftorn 2020).

No current and reliable population estimates exist for gray-headed chickadees (*P. cinctus lathami*) in North America. Rosenberg et al. (2016) estimated fewer than 5,000 (McGuire 2020, p. 2) and in 2017 the Alaska Department of Fish and Game estimated a few hundred to a few thousand individuals (NatureServe 2026 (citing Travis Booms (ADFG, pers. comm.))). In Canada there have been only two observations since 2000 despite extensive surveys in 2019. No individuals have been detected anywhere in North America since 2017 despite extensive searches and surveys.

It cannot be assumed that gray-headed chickadee analogs are secure in other parts of their global range. According to multiple authors, *P. cinctus* has declined across its global range in recent decades (Dale and Andreassen 2016; Booms et al. 2020; Hailman and Haftorn 2020). In Fennoscandia, the species has declined substantially since the 1960s, and in Southern Norway it has declined by an estimated 90% (McGuire 2020, pp. 1–2).

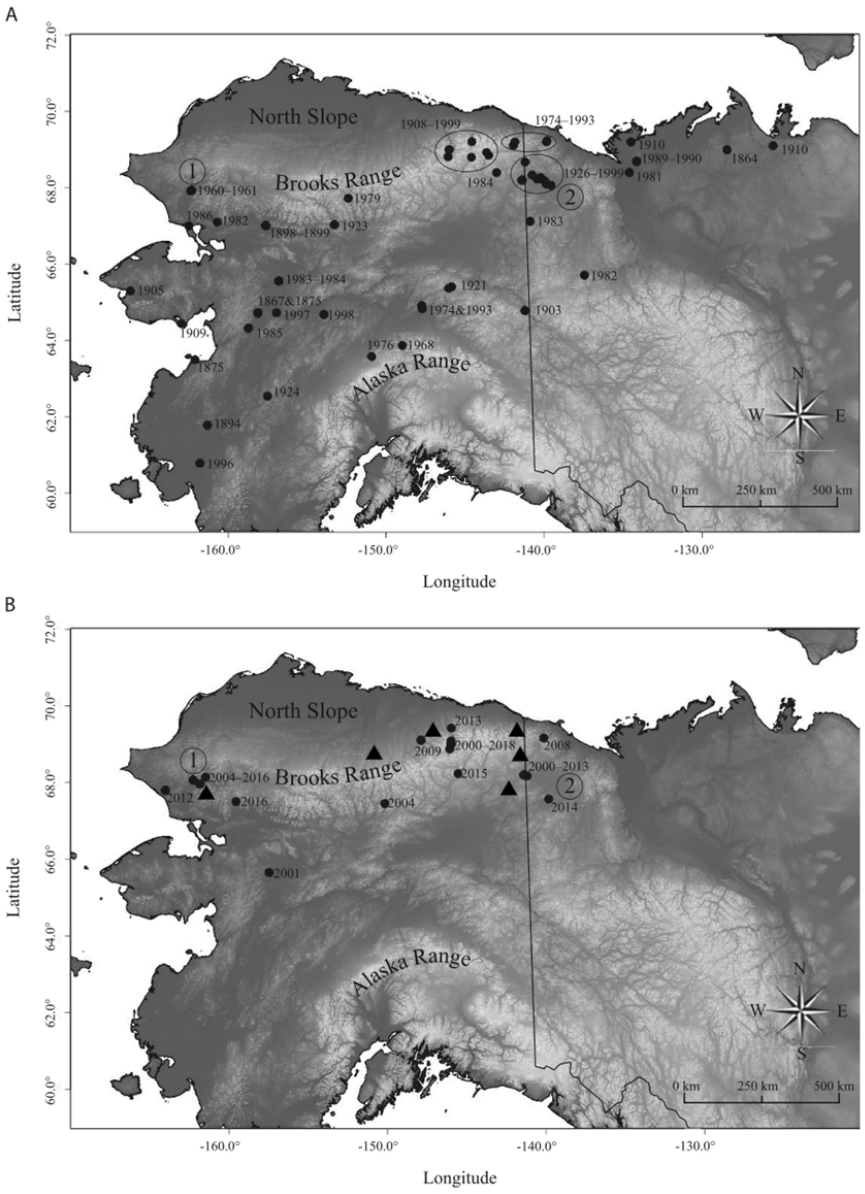


Figure. 1. Occurrence records of gray-headed chickadees *Poecile cinctus lathami* in North America prior to 2000 (A) and from 2000 onward (B). Map shows all known occurrence records with year of each observation noted, as well as place names used in the text. The figure provides a span of dates for locations near each other and enclosed in a circle. Their respective numbers denote approximate location of the confluence of the Kelly and Noatak rivers (1) and the Old Crow Flats (2) referenced in the text. Approximate locations of field surveys conducted 2010–2017 are denoted by black triangles (B).

Figure 4. Gray-headed chickadee occurrences (from Booms et al. 2020, p. 659)

III. Conservation Status and Warranted ESA Protection

The gray-headed chickadee may be the most imperiled bird species in North America. Once common and widespread across Alaska and northwestern Canada, the species has not been detected since 2017 despite extensive searches. These birds are widely regarded as a species of

great conservation concern by international, Canadian, U.S. federal, and Alaska state agencies and conservation organizations.

As of 2024, the gray-headed chickadee was classified globally by NatureServe as Vulnerable (G3), meaning the species is at moderate risk of extinction or collapse due to a fairly restricted range; relatively few populations or occurrences; and recent widespread declines, threats, or other factors (NatureServe 2026). The species is classified as Vulnerable (N3) at the federal level of the United States.

In Alaska the species is classified as Critically Imperiled (S1) and at a very high risk of extirpation due to its severely restricted range, perilously low populations or occurrences, steep declines, severe threats, or other factors (NatureServe 2026). The 2025 Draft Alaska State Wildlife Action Plan lists the gray-headed chickadee as a high-priority species of greatest conservation need (ADFG 2025). The Alaska Department of Fish and Game considers the gray-headed chickadee both a stewardship species and a sentinel species (ADFG 2025, p. 101). A "stewardship species" is any taxon with a large percentage of its population or range in Alaska (ADFG 2025, p. 30) and sentinel species are used as indicators of ecosystem health or environmental change (Caro and O'Doherty 1999; Pearce and Venier 2005). Because global climate change is expected to have large effects on ecosystems and wildlife in Alaska, species that are expected to show shifts in distribution or changes in abundance due to climate change are logical sentinel species.

Audubon Alaska (2017) included the species in the Red List of declining bird populations in their 2017 Alaska WatchList, citing its small population size, rarity, anecdotal reports of decline, and lack of study.

Canada designated the gray-headed chickadee as an endangered species in 2024 due to its very small population (COSEWIC 2024).

Despite the grave concern expressed about the conservation status of the species, no coordinated plan exists to protect, study, or even locate them. Inaction is causing gray-headed chickadees to drift toward disappearance. Given the gravity of the situation, the continued survival of gray-headed chickadees in North America requires increased protections.

The ESA is a "comprehensive scheme with the 'broad purpose' of protecting endangered and threatened species" (*Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt*., 698 F.3d 1101, 1106 (9th Cir. 2012) (quoting *Babbitt v. Sweet Home*, 515 U.S. 687, 698 (1995)). Congress's plain intent in enacting the ESA was "to halt and reverse the trend toward species extinction" (*Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184 (1978)). In doing so, the ESA requires that all federal departments and agencies "shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of [these] purposes" (16 U.S.C. § 1531(c)(1)). Endangered and threatened species are "afforded the highest of priorities" (*Tenn. Valley Auth.*, 437 U.S. at 174). Endangered species are those that are "in danger of extinction throughout all or a significant portion of [their] range" (16 U.S.C. § 1532(6)), while threatened species are ones that are "likely to become endangered species within the foreseeable future" (16

U.S.C. § 1532(20)). Endangered and threatened species are listed for protection pursuant to section 4 of the ESA (16 U.S.C. § 1533).

The ESA states that a species shall be determined to be endangered or threatened based on any one of five factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence (16 U.S.C. § 1533(a)(1)).

The gray-headed chickadee is clearly imperiled with imminent extirpation across the entirety of its North American range. At least three of the qualifying factors under the ESA are currently impinging on the species: the present or threatened destruction, modification, or curtailment of its habitat or range; the lack of existing regulatory mechanisms to protect it; and other natural or manmade factors that affect the continued existence of the species.

While the ESA does not define "foreseeable future," the U.S. Fish and Wildlife Service ("USFWS" or "Service") must use a definition that is reasonable, ensures protection of a petitioned species, and gives the benefit of the doubt regarding any scientific uncertainty to the species of extinction in the future. Because climate change is one of the primary threats to the gray-headed chickadee, the minimum period that meets these criteria is generally considered through the year 2100, which is the timeframe used in climate modeling by the latest Sixth Assessment of the Intergovernmental Panel on Climate Change (IPCC 2021; IPCC 2023). USFWS considered climate threats to the polar bear through 2100 in its most recent Species Status Assessment (USFWS 2023). USFWS also considered IPCC modeling through 2100 in its most recent Species Status Assessment for Steller's eider (USFWS 2025). The National Marine Fisheries Service, the other agency responsible for protecting imperiled species under the ESA, has used the end of the century as the timeframe with which "threats stemming from climate change were foreseeable" in other Arctic species listing decisions, including bearded and ringed seals (NMFS 2012a; NMFS 2012b). Therefore, USFWS should consider the year 2100 as the "foreseeable future" in determining extirpation risk for the gray-headed chickadee.

Listing of the gray-headed chickadee under the ESA is clearly warranted as the bird is hovering on the brink of extirpation in North America. ESA listing of the species would provide the impetus and funding to develop a conservation plan to protect the species. Designation of critical habitat would identify areas essential to the survival of gray-headed chickadees and reduce potential threats to them.

IV. Threats

The gray-headed chickadee is on the verge of extirpation from North America. The Arctic and boreal habitats the bird occupies are the global epicenter for the most dramatic manifestations of climate change. Ahistorical weather events such as mid-winter rains, anomalous heat, sudden warming, coastal typhoons, and lightning are resulting in ice armoring, devastating floods, melting permafrost, acidifying rivers, coastal erosion, and tundra fires. In turn, these events are upending Arctic ecosystems by disrupting the movement, breeding, feeding, and survival of fish, birds, insects, mammals, and people. That a small passerine like the gray-headed chickadee would be affected, endangered, and possibly exterminated by these events is not just possible,

but highly likely. Unfortunately, the chickadee has plenty of company: animals as varied as Dall sheep, caribou, Pacific walrus, and aquatic invertebrates, as well as endemic plants, are also in decline across the Nearctic.

Gray-headed chickadees in North America face a variety of other threats, many of which are exacerbated by climate change. These include competition with other bird species expanding their ranges; mismatches in phenology or timing of prey availability; novel diseases; increased predation; rotting of or inaccessibility of cached food sources; and the potential destruction or modification of their habitat by development activities.

A. Present or Threatened Destruction, Modification, or Curtailment of Habitat or Range

Most of the historic habitat for gray-headed chickadees in North America consists of vast expanses of wild, largely intact boreal forest and tundra with little or no development and limited human visitation. Many of the locations where chickadees were observed throughout the 20th and 21st centuries are in established conservation units, including the Arctic National Wildlife Refuge, the Noatak National Preserve, Gates of the Arctic National Park, and Kobuk Valley National Park, where development activity is minimal and direct threats to the species appear to be few. Some small communities with limited road infrastructure do exist in these areas. The Trans-Alaska Pipeline and the Dalton Highway are the most significant development features, and both bisect the core of the historic range of gray-headed chickadees.

A large area of suitable habitat for gray-headed chickadees lies immediately south of the southern boundary of the National Petroleum Reserve – Alaska, which contains extensive groves of large balsam poplar trees over approximately 15 miles of the Chandler River. Nest boxes have been deployed in hopes of attracting chickadees, and in 2025 one of the nest boxes was observed to contain possible nesting evidence of chickadees.

The proposed Ambler Road corridor for mining projects passes through suitable and historic habitat for gray-headed chickadees, with a sighting of the species in the area in 2004. The proposed road and its attendant mines could degrade potential chickadee habitat within the road corridor and mining footprints and disturb chickadees due to noise from traffic and construction. The Ambler Road would cross 3,000 streams or rivers, through preferred chickadee habitats.

Viable gray-headed chickadee habitat is threatened by additional extractive development in the corridor and on surrounding existing state lands, which stem from a range of actions and decisions. These include (1) Congress's recent recission under the Congressional Review Act of the Bureau of Land Management's ("BLM") 2025 Central Yukon Management Plan revision, and (2) the Secretary of Interior's revocation of Public Land Order 5150, resulting in the potential conveyance of Alaska's top-filed and selected lands in the Dalton Highway corridor north of the Yukon River from BLM to the state of Alaska. The Alaska liquid natural gas ("LNG") pipeline would also be constructed within this corridor, and if built, would further exacerbate habitat degradation.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

The gray-headed chickadee is the rarest breeding bird in North America and is highly sought after by bird enthusiasts. Several commercial guiding companies in Alaska have offered wilderness rafting and hiking trips in the recent past that were tailored specifically around finding gray-headed chickadees. These trips visited known locations where the birds could reliably be found in Alaska's Brooks Range, such as Kelly Bar on the Noatak River and the Marsh Fork of the Canning River. Highly motivated individuals have mounted private expeditions to look for these birds in remote wilderness regions of Alaska and Canada. Intensive scientific surveys have been conducted in recent decades in areas historically used by gray-headed chickadees. Researchers have installed semi-permanent nest boxes and autonomous recording units in likely habitat and deployed mist nets temporarily in their efforts to locate the birds.

These commercial, recreational, and scientific expeditions passed through the known habitat areas for only a few days out of each year to observe, photograph, and record the birds; no sampling, banding, handling or killing of specimens occurred. It is unlikely that this level of passive activity over very short durations had any detrimental effect on the birds.

C. Disease or Predation

No direct evidence exists that gray-headed chickadees have declined across North America because of disease or predation. However, the potential exists that the rapidly changing climate across the Arctic has and will exacerbate both threats.

1. Avian Keratin Disorder

An avian keratin disorder that results in bill deformities has been documented among black-capped chickadees (*Poecile atricapillus*) and 29 other bird species in Alaska (Handel et al. 2010, p. 883; Zylberberg et al. 2018, p. 8). The disorder causes extreme beak abnormalities that apparently impair feeding and grooming and may increase bird mortality (Handel et al. 2010, p. 883). There have been no documented or reported cases of the disorder in gray-headed chickadees.

2. Predation

Several professional bird guides with extensive experience with gray-headed chickadees in Alaska speculate that northern shrikes (*Lanius borealis*) may have eliminated the last of the North American chickadees. According to these sources, the shrikes and chickadees fledge at roughly the same time; adult shrikes are voracious predators of everything, including chickadees, as they seek to provide food for their young (Meiklejohn 2025).

D. Inadequacy of Existing Regulatory Mechanisms

Federal and state wildlife agencies, as well as respected bird conservation organizations, have been aware of and warning about the demise of gray-headed chickadees for over a decade.

Despite these justified concerns, there is no comprehensive plan to protect, study, or even locate these birds. Existing regulatory mechanisms are utterly failing to safeguard the most imperiled bird in North America.

Despite the bird's global, national, and state vulnerability rankings, neither the USFWS nor the state of Alaska are taking any significant actions to conserve the species. While the gray-headed chickadee is on the brink of extirpation, there are no current conservation plans or any critical habitat designations for the bird. None of the existing regulatory mechanisms are working adequately to protect the gray-headed chickadee from disappearing from North America.

Biologists from the USFWS, the Alaska Department of Fish and Game, and other institutions have been collaborating on efforts to locate gray-headed chickadees in their historic range. These teams have installed nest boxes in likely habitat, conducted searches, and installed automated recording units in attempts to find the birds (Booms et al. 2020, p. 656). However, their efforts have been far from comprehensive, being severely limited by the remoteness of the historic range of gray-headed chickadees and hampered by limited funds. Rather than implementing mechanisms to reduce climate change, the state of Alaska, acting through the Alaska Department of Fish and Game, has commissioned studies on captive breeding programs, preparing for the species to be put on life support (McGuire 2020).

1. Inadequacy of Climate Change Regulatory Mechanisms

The United Nations Emissions Gap Report warned that the United States and the global community are vastly off-track to limit warming to 1.5°C or even 2°C and must greatly accelerate greenhouse gas emissions reductions (UNEP 2019, p. 37). The report concluded that current climate policies and countries' climate pledges under the Paris Agreement (called Nationally Determined Contributions) leave us with 2.4 to 2.8°C of warming by 2100. Current Nationally Determined Contributions are only estimated to reduce global emissions by 5 to 10%, but to limit warming to 1.5°C, countries must strengthen their climate pledges and reduce global emissions by 45% compared to current policy projections (UNEP 2022).

Meanwhile, U.S. policies aggressively promote ever greater fossil fuel production and infrastructure by enabling dangerous hydraulic fracturing, lifting the crude oil export ban, and providing billions in government subsidies to the fossil fuel industry, among other destructive actions (SEI 2021). In 2005, Congress exempted ultra-hazardous hydraulic fracturing ("fracking") from the Safe Drinking Water Act in legislation known as the "Halliburton Loophole." Thereafter, fracking spread rapidly and enabled a dramatic increase in U.S. gas and crude oil production (USEIA 2016a; USEIA 2016b). In 2015, Congress lifted the 40-year-old crude oil export ban, leading to skyrocketing crude oil exports that have been supplied by a corresponding increase in U.S. oil production (GAO 2020). Crude oil exports increased by ~750% since the export ban was lifted from 2105–2020 and averaged more than three million barrels per day—about a quarter of all U.S. production (OCI 2020). U.S. government subsidies are also spurring fossil fuel production. A 2017 study assessing the impact of major federal and state subsidies on oil production found that these subsidies pushed nearly half of new oil investments into profitability, potentially increasing U.S. oil production by 17 billion barrels over the next few decades (Erickson et al. 2017).

In 2021, President Biden issued a "whole of government" directive for every federal agency to "avoid the most catastrophic impacts of that crisis and to seize the opportunity that tackling climate change presents," pausing oil and gas leasing on federal lands and launching a review of the fossil fuel leasing and permitting program (White House 2021). However, both the first Trump administration and the Biden administration stalled in addressing climate challenges and, instead supported new oil and gas pipelines; approved thousands of new drilling permits on public lands and waters; maintained strong support for false solutions such as carbon capture and storage that perpetuate fossil fuel extraction; and proposed weak tailpipe emissions standards. In Alaska, the Biden administration approved the massive Willow Project in the Western Arctic Reserve, which alone could result in the extraction of 576 million barrels of oil and over 260 million metric tons of greenhouse gas emissions.

The second Trump administration withdrew the United States from the 2015 Paris Climate Agreement, pulled the United States out of the foundational 1992 United Nations Framework Convention on Climate Change treaty, and halted $4 billion in promised funding to the United Nations Green Climate Fund. The Trump administration is censoring and defunding climate science (including through data deletion by removing National Climate Assessments, defunding crucial ocean-climate tracking data, cutting federal grants, and layoffs of government climate and weather scientists). Trump's Executive Orders on "American Energy Dominance" (White House 2025) and "Unleashing American Energy" (USDOI 2025a) are accelerating carbon-intensive oil and gas development projects.

The Trump administration is obstructing clean energy development by blocking billions in clean energy grants, attempting to financially penalize offshore wind projects, and freezing permitting for wind energy projects (90 Fed. Reg. 8363–65 (Jan. 20, 2025)).

The Trump administration has sabotaged efforts by the Environmental Protection Agency ("EPA") to address carbon emissions and the climate crisis by deregulating polluting power plants; repealing Biden-era emission standards for coal- and gas-fired power plants while introducing subsidies for expensive coal infrastructure; weakening methane rules and offering reprieves for high-polluting wells; and dismantling a EPA 2009 endangerment finding, which provided the legal foundation for regulating greenhouse gases.

Trump's EPA has gutted motor vehicle greenhouse gas emission standards, rescinding the 2009 Endangerment Finding as well as eight different regulations establishing vehicle emissions standards (USEPA 2025; USEPA 2026), even though transportation is the largest source of carbon pollution in the United States and strong vehicle emissions standards are one of the most effective tools for curbing these emissions. Even the EPA (2026) estimates that the Trump rule will result in a cumulative increase of 8.3 billion metric tons of carbon dioxide emissions by 2055; an independent analysis estimated that it will increase in greenhouse gas emissions by 9.1 to 17.9 billion metric tons of carbon dioxide emissions by 2055, an increase in nitrogen oxide emissions by 2.0 to 4.7 million U.S. tons by 2055, and an increase in sulfur oxide emissions of 37,000 to 54,000 U.S. tons by 2055 (EDF 2026).

In Alaska, Trump's Executive Order "Unleashing Alaska's Extraordinary Resource Potential" (White House 2025) calls for expediting permitting and leasing of oil and gas projects—

prioritizing the Alaska LNG project, and facilitating oil and gas leasing in the Arctic National Wildlife Refuge and western Arctic (National Petroleum Reserve-Alaska). Trump's draft five-year plan for offshore oil and gas development (BOEM 2025) envisions 21 sales in Alaska alone. Congress supported Trump's priorities in passing the One Big Beautiful Bill Act (Pub. L. 119-12 (2025)), requiring six lease sales in Cook Inlet, four lease sales in the Coastal Plain of the Arctic Refuge, and at least five lease sales in the western Arctic.

All these actions will drive up greenhouse gas emissions and worsen climate-driven threats at the very moment scientists warn rapid reductions are necessary to avoid the most catastrophic impacts of climate change. This increase in emissions will worsen a range of climate-related impacts, from more frequent and intense extreme weather events to rising sea levels and threats to biodiversity.

National regulatory mechanisms utterly fail to provide sufficient mechanisms to address climate change. To date, federal agencies have failed to fully capitalize on existing authority under domestic law to reduce greenhouse gas emissions to levels that would be protective of the gray-headed chickadee.

While the state of Alaska acknowledges the existence of, and threats posed by, climate change, no binding regulatory structure exists that would help mitigate climate change impacts to the gray-headed chickadee (*see* Office of Governor 2017). Alaska state law thus does not serve as an adequate regulatory mechanism sufficiently protective of the bird.

International, national, and state climate change regulatory mechanisms thus remain inadequate to protect the gray-headed chickadee from the effects of rapid climate changes and extirpation.

2. Inadequacy of International Regulatory Mechanisms

Migratory Bird Treaty Act

The Migratory Bird Treaty Act ("MBTA") (16 U.S.C. §§ 703 *et seq*.) implements four international conservation treaties between the United States, Canada, Mexico, and Russian. The MBTA prohibits direct actions to "pursue, hunt, take, capture, [or] kill" any migratory bird included in the terms of the treaties (16 U.S.C. § 703). However, the act provides no authority for the protection of habitat and food sources nor requires designation of critical habitats (*see* (16 U.S.C. § 703)). As climate change is considered the greatest threat to gray-headed chickadees, the MBTA is not sufficient in providing protection for the species. Furthermore, the Trump administration recently reinstated its previous, 2017 interpretation of the MBTA that eliminates any protection from indirect forms of take (USDOI 2025b, p. 1).

3. Inadequacy of Federal Regulatory Mechanisms

Overlap With Other ESA-Listed Species

The gray-headed chickadee range and occurrence records do not overlap with designated critical habitat for any ESA-listed species that shares habitats with gray-headed chickadees.

National Conservation Units

The majority of recorded observations of gray-headed chickadees in North America since 2000 have occurred within existing federal conservation units (Booms et al. 2020, pp. 659–670;) (*see* Figure 5 for National Wildlife Refuges, National Parks, National Preserves, and National Monuments within the range of the gray-headed chickadee).

The National Wildlife Refuge System Improvement Act of 1997 established the protection of biodiversity as the primary purpose of the National Wildlife Refuge system, prioritizing wildlife conservation over other uses (P.L. 105-57, 111 Stat. 1252 (1997)). Federal Wildlife Refuges within the range of the gray-headed chickadee are Arctic National Wildlife Refuge, Yukon Flats National Wildlife Refuge, Kanuti National Wildlife Refuge, Selawik National Wildlife Refuge, Koyukuk National Wildlife Refuge, Nowitna National Wildlife Refuge, Innoko National Wildlife Refuge, Yukon Delta National Wildlife Refuge, and Tetlin National Wildlife Refuge.

National Parks and National Preserves conserve important natural and historic lands to leave them "unimpaired" now and in the future (NPS 2017, p. 1) and help to protect and restore at-risk species, including those listed under the ESA and Migratory Bird Treaty Act (NPS 2023, p. 1). Most National Parks and Preserves are closed to mining and "consumptive activities" (NPS 2015, p. 1), although some energy and mining developments are still allowed within some park and preserve boundaries (NPS 2017).

National Parks and National Preserves managed by the National Park Service within the range of the gray-headed chickadee are Gates of the Arctic National Park, Gates of the Arctic National Preserve, Kobuk Valley National Park, Noatak National Preserve, Cape Krusenstern National Monument, Bering Land Bridge National Preserve, Denali National Preserve, Denali National Park, Wrangell-St. Elias National Park, Wrangell-St. Elias National Preserve, and Yukon-Charley Rivers National Preserve.

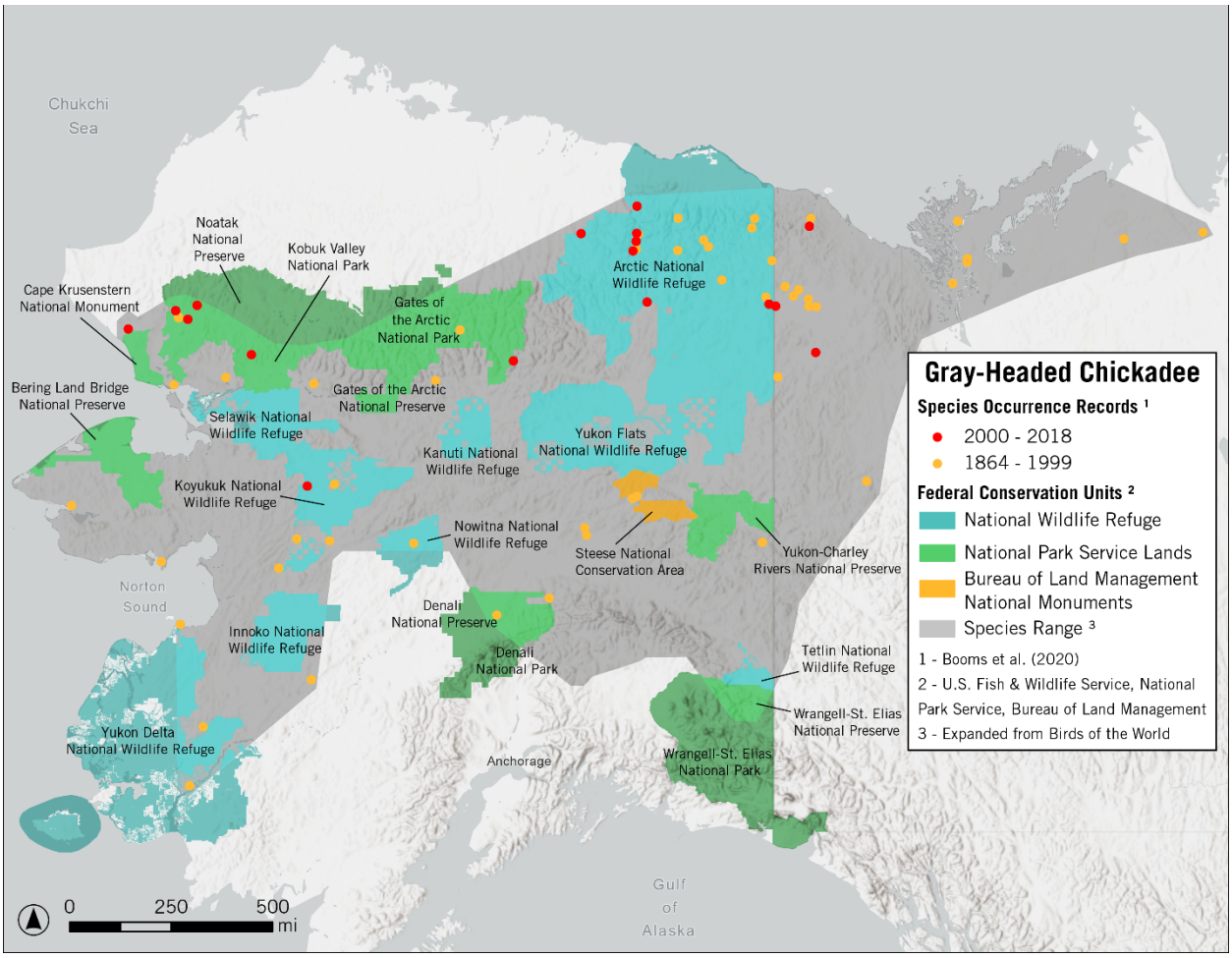


Figure 5. Gray-headed chickadee range and occurrence records overlap with federal conservation units (Map by Center for Biological Diversity).

The primary purpose of National Monuments is to preserve and protect significant historical, cultural, and natural resources. National Monuments can be managed by various agencies, including the National Park Service, Bureau of Land Management, or USFWS. National Monuments have a conservation mandate for the "care and management" of the protected objects as the primary goal, often prohibiting extractive activities like new mining or oil leasing. The only National Monument within the range of the gray-headed chickadee is Steese National Conservation Area, administered by the BLM as part of the National Landscape Conservation System.

In general, the conservation units with gray-headed chickadee occurrence records have seen little to no significant development activity since 2000, and it seems unlikely that there have been direct human impacts to the gray-headed chickadee in these areas that would explain why they have not been redetected since 2017.

BLM Sensitive Species Designation

The gray-headed chickadee is designated as a "sensitive" species by the BLM (BLM 2019). BLM special status species require special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, and they are designated as sensitive by BLM's Alaska State Director (BLM 2008). An objective of the BLM's special status species program is to "initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA" (BLM 2008). However, BLM's designation as a special status species offers little protection for gray-headed chickadees and their habitat. It does not create legally enforceable or mandatory protections. Rather, conservation measures are voluntary agency policies that project managers ultimately have broad discretion on whether to implement.

National Environmental Policy Act

The National Environmental Policy Act ("NEPA") theoretically could provide some protection for the gray-headed chickadee. For activities undertaken, authorized, or funded by federal agencies, NEPA requires that the potential impacts of projects on the human environment be analyzed prior to implementation (42 U.S.C. §§ 4371 *et seq*.). Only projects with a federal nexus (i.e. federal funding, authorization, or permitting) fall under NEPA, and therefore actions taken by private landowners generally are not required to comply with this law.

Federal agencies were previously required to propose mitigations to offset significant environmental effects when such effects were are predicted to occur due to a federal action (40 C.F.R. § 1502). However, a recent recission of 40 C.F.R. §§ 1500–1508 (NEPA implementing regulations) no longer requires agencies to propose such mitigations (CEQ 2025, p. 10611). In 2025 the Trump administration revoked regulations governing environmental reviews under NEPA for numerous federal agencies, including the Department of Agriculture, Department of the Interior, Department of Energy, Department of Transportation, and the Federal Energy Regulatory Commission. The decision affects the review of oil drilling, mining, and many other extractive projects on federal public lands. In addition to administrative rollbacks, the Supreme Court has increasingly narrowed NEPA's scope, further weakening its environmental protections. Recent decisions have constrained the consideration of indirect or cumulative environmental effects, which are often critical for understanding long-term ecosystem impacts (*see Seven Cnty. Infrastructure Coal. v. Eagle Cnty*., 605 U.S. 168 (2025)). Pursuant to Trump's Executive Orders and other directives, the use of Categorical Exclusions by federal agencies is also increasing. Categorical Exclusions are essentially a NEPA shortcut that allow certain projects, such as logging and roadbuilding, to proceed without detailed environmental review—meaning alteration and destruction of habitat could occur with little public oversight or evaluation of long-term impacts. The current administration continues to undermine NEPA's original intent and purpose as a tool for public participation and environmental oversight, reducing transparency and leaving fewer legal avenues to challenge environmentally harmful projects.

Because of its limited application, NEPA is insufficient to protect the gray-headed chickadee.

USFWS Birds of Conservation Concern List

The USFWS Birds of Conservation Concern ("BCC") list, as mandated by the 1988 amendment to the Fish and Wildlife Conservation Act, compiles bird species likely to become candidates for listing under the ESA (USFWS 2021, p. 4). The BCC's main purpose is to stimulate and promote collaborative proactive conservation actions among federal, state, tribal, and private partners to ultimately avoid the need for additional ESA listings of birds (USFWS 2021). The gray-headed chickadee is currently listed as a Bird of Conservation Concern (USFWS 2024). The BCC designation offers no substantive protections. Despite the listing, federal and state actions towards gray-headed chickadee have largely been research-focused as opposed to active-conservation focused.

4. Inadequacy of State Regulatory Mechanisms

The state of Alaska has a Threatened, Endangered, and Diversity Program operated by the Alaska Department of Fish and Game and supported by federal funding through the State Wildlife Grant Program. The purpose of the program is to monitor and conduct research on species of conservation concern to mitigate threats, reverse declines, and avoid the need for listing under the federal ESA (ADFG 2026b).

State Wildlife Grants, which are provided by USFWS, provide money to states to address conservation needs such as research, surveys, and management for Species of Greatest Conservation Need ("SCGN")—meaning those likely to be listed under the ESA as identified individually by each state through State Wildlife Action Plans ("SWAP"). The gray-headed chickadee is listed as a SGCN in Alaska due to the species' small and restricted populations and significant range-wide population declines (ADFG 2025). The SGCN status and designation in the SWAP provides no legal or habitat protections for the gray-headed chickadee. Generally, the purpose is to give attention to species that require special management consideration, stimulate research, and ideally achieve conservation management plans and recovery of species to prevent threatened or endangered species listings on a federal level.

E. Other Natural and Anthropogenic Factors

1. Climate Change

An enormous body of scientific research has documented the growing harms of greenhouse gas emissions and resulting anthropogenic climate change on species and ecosystems, as rising temperatures, more extreme weather events, coastal flooding, sea ice loss and glacier melt, and other climate hazards make conditions more inhospitable for wildlife (Ripple et al. 2025; Wolf et al. 2025). Emissions-driven climate change is already disrupting species' distributions, timing of breeding and migration, physiology, vital rates, and genetics (Parmesan and Yohe 2003; Root et al. 2003; Parmesan 2006; Chen et al. 2011; Maclean and Wilson 2011; Warren et al. 2011; Cahill et al. 2012; Pacifici et al. 2017; Spooner et al. 2018; Román-Palacios and Wiens 2020; McElwee et al. 2023). As greenhouse gases continue to rise and put entire ecosystems under stress, many species are losing their habitats and being forced to move upward and poleward to try to keep pace with suitable climate conditions, physical features such as body size are changing, and species are shifting their timing of breeding and migration.

The U.S. National Climate Assessments have repeatedly recognized that human-caused climate change is causing widespread and intensifying harms to natural systems, including to species and ecosystems. The 2023 Fifth National Climate Assessment (McElwee et al. 2023) confirmed that "species changes and biodiversity loss are accelerating":

> The interaction of climate change with other stressors is causing biodiversity loss, changes in species distributions and life cycles, and increasing impacts from invasive species and diseases, all of which have economic and social consequences (very likely, high confidence). Future responses of species and populations will depend on the magnitude and timing of changes, coupled with the differential sensitivity of organisms; species that cannot easily relocate or are highly temperature sensitive may face heightened extinction risks (very likely, high confidence).

When the Canadian federal government listed the gray-headed chickadee as endangered in 2024, it identified climate change, severe weather, and "natural systems modification (wildfire)" as the principal threats to the survival of the species (COSEWIC 2024, p. 40). But these are all the same thing: climate change is producing more severe weather and more, bigger, hotter fires. According to the authors of this report, "for gray-headed Chickadee, climate change can result in both direct effects (exposure of eggs, nestlings and adults) and indirect ones (food and prey limitation, predator shifts, cache integrity, vegetation and habitat shifts, changes to natural processes and natural disturbances)" (COSEWIC 2024, p. 40).

Below is evidence of climate change and the related mechanisms that may be impacting gray-headed chickadees.

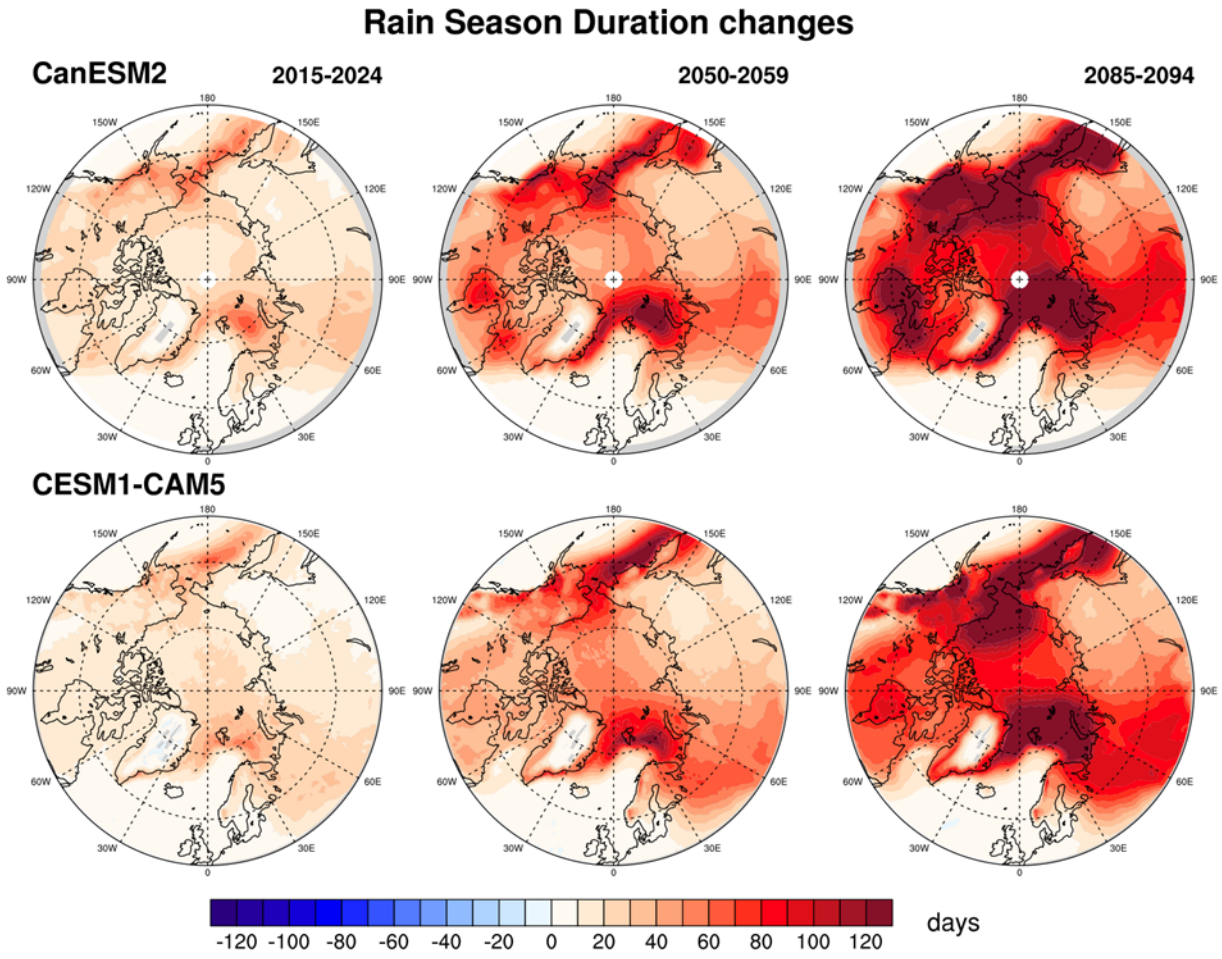
a. Climate Change in the Arctic

Over the last 40 years, the Arctic has warmed nearly four times faster than the globe with no signs of slowing down (Rantanen 2022). Climate change and related extreme weather events are expected to exacerbate existing challenges and changes in the Arctic, shifting the distribution and abundance of species and habitats and increasing land disturbance (USGCRP 2023; Thoman et al. 2023). The IPCC expects with high confidence that "[a]s warming levels increase, so do the risks of species extinction or irreversible loss of biodiversity in ecosystems including . . . in Arctic regions (*high confidence*)." (IPCC 2023, p. 18). Events that were previously rare in the Arctic, such as severe wildfires, exponential permafrost thaw, uncharacteristically warm precipitation events, and heat waves—all climate change-driven—are affecting Arctic ecosystems in important and challenging ways (Dobricic et al. 2022, p. 4).

According to the National Oceanic and Atmospheric Administration, "[e]xtreme weather and climate events during the past year in the Arctic and elsewhere have brought unambiguous, climate change-supercharged impacts to people and ecosystems. . . . In the span of a few hours, individual storms may create hardships and damage that last for years. Longer-term extremes, such as drought or prolonged high temperatures, also have direct, distinct impacts, produce cascading effects in other parts of the environment, and may exacerbate (or mitigate) shorter time frame weather extremes" (Thoman et al., p. 4).

The Arctic region is experiencing extremes in temperature, sea ice, and precipitation far outside anything experienced in the past century and probably much longer. Not only is the warming in the Arctic exceeding that of lower latitudes, but daily fall and winter temperatures are expected to increase by 16–28 °C for most of the Arctic Ocean. Rainfall will replace snowfall, with an extension of the rainy season by 2–4 months. Projections through 2100 show that precipitation will increase more than 50% across the Arctic (Ford and Fauenfeld 2022, p. 1). These changes have extreme consequences for Arctic communities and local ecosystems (Landrum and Holland 2020, p. 1,116). Natural and human systems are adapted to the recently observed climate, but not necessarily for rare or unobserved conditions, so rapidly changing extreme weather patterns make these systems vulnerable to deterioration and destruction (Lader et al. 2017, p. 2,394).

The Arctic is becoming warmer and wetter as a decline in sea ice provides greater local evaporation that fuels more frequent and larger storms, and increased frequency, duration, and amounts of rain (Lader et al. 2017, p. 3,404; Dial et al. 2024). Of special significance to Arctic wildlife is the rising incidence of rain-on-snow events (Pan et al. 2018, p. 1, 2, 12; *see* Figure 6). Once rare, mid-winter rains in the Arctic have greatly increased in frequency and duration, creating thick ice crusts armoring the snow that make it difficult for animals as varied as Dall sheep, caribou, ptarmigan and chickadees to access food, travel, and survive (Bartsch et al. 2023, p. 890). For species adapted to cold and dry conditions, the shift to warm and wet conditions represents an existential threat.



Extended Data Fig. 8 | CMIP5-MMLE rain season duration from (1950-1959) baseline. Results shown for early, middle and late 21st century under RCP8.5 forcing scenario.

Figure 6. Rain season duration changes in the Arctic (from Landrum and Holland 2020).

b. Arctic Birds and Climate Change

Arctic birds comprise one of the world's most vulnerable groups to climate change (Doyle et al. 2020, p. 1927). Many species of Arctic birds evolved over thousands of years to travel as much as 8,000 miles twice a year to take advantage of conditions they find in the Arctic: abundant food, relative scarcity of predators, long summer days, and, until recently, weather conditions within a tolerable range. Continued warming is shoving many bird species off the map as the Arctic contracts northward (Martins et al. 2024). With continued warming we are likely to witness the disappearance of entire ecological communities. Gray-headed chickadees are but the leading edge of this unfolding, human-caused, and still preventable disaster.

Climate change affects Arctic birds in a variety of ways: range shifts in breeding areas (Raymundo et al. 2023, p. 4); changes in prey abundance and availability; shifts in body mass or

size; decreased fertility; changes in foraging success; and changes in population size (Miller-Rushing et al. 2010, pp. 296, 297, 299). A temperature rise of 2°C has been demonstrated to lead directly to eightfold increases in the sterility of insects (Lister and Garcia 2018). Sterility in insects could lead directly to food deprivation for insectivorous birds such as chickadees.

Youngflesh et al. (2023, p. 1) described the negative phenological responses to climate change:

> [O]ne of the clearest ecological responses to climatic change has been large-scale shift in the timing of seasonal ecological events, known as phenology. Variation in the magnitude and direction of these shifts across taxa and trophic groups has raised concerns that ecological interactions are becoming increasingly decoupled in time, with the potential to negatively impact vulnerable species and ecological systems. For example, depressed survival or breeding productivity might be expected if organisms mistime their breeding events in such a way that periods of peak resource requirements do not match periods of peak resource availability or favorable environmental conditions.

Many Arctic birds have their young on or about the same day year after year. Being "too early" or "too late" relative to the availability of food can prove disastrous (Youngflesh et al. 2023, p. 3; Høye and Forchhammer 2008, p. 301; Martin and Wiebe 2004, p. 183). Green-up across the Arctic is rapidly advancing on the calendar, and birds simply cannot adapt fast enough. Research across 41 species showed Arctic birds adapting at less than one-third the rate of phenological change (Youngflesh et al. 2023, p. 3). A major determinant of the fitness of birds is well-synchronized between peak food abundance and offsprings' needs (Visser et al. 2012, p. S75, S76).

According to the Alaska Department of Fish and Game (2015, pp. 119–120):

> The growth, survival, and reproductive success of most species in Alaska, both migratory and year-round residents, are highly dependent on synchronous timing of migratory or reproductive events . . . with the phenology of physical . . . or biological . . . events. In general, species have evolved specific life history attributes, and populations are strongly affected by disruptions in the timing of these events. Climate change is already leading to changes in the phenology of many of these kinds of events, leading to a "mismatch" between species behavior and the events that behavior is based upon. While many species may readily adapt to the changes in timing of events important to their life history, the heterogeneity and inconsistency of event timing that is exacerbated by climate change could result in significant population fluctuations of a large number of susceptible species.

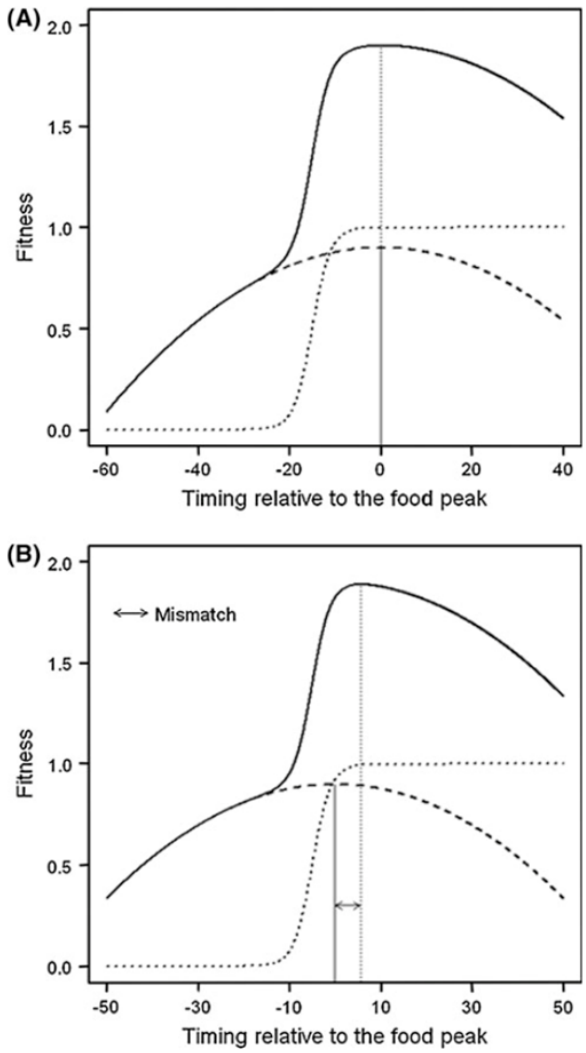


Fig. 2 A model on an adaptive phenological mismatch. The survival probability of the adult during egg laying or incubation (*dotted line*), the value of the young (*dashed line*) and the total fitness (*solid line*) depend on the timing of reproduction relative to the food peak. **a** The optimal timing of reproduction is such that there is a match between the phenology of the birds and their food. **b** The food peak has shifted 10 days forwards compared to (**a**) due to higher temperatures in late spring while the survival probability of the adults have remained the same compared to (**a**), as temperatures in early spring have not increased. In this case, birds are optimally mismatched. The *vertical lines* indicate the optimal reproductive value of the young (maximum at food peak—*solid line*) and the maximum total fitness (*dotted line*): in (**a**) this is at the food peak, in (**b**) this is 6 days after food peak (the adaptive mismatch is indicated)

Figure 7. Model of adaptive phenological mismatch (from Youngflesh et al. 2023, p. 3)

As reported by Carey (2009, p. 3327):

> Temperature is one of the most important environmental factors for living organisms, because unless body temperature is controlled by endogenous

> regulation as it is in birds and mammals, biochemical, cellular, and physiological rate processes of organisms generally increase by about two- to threefold for every 10 degree C increase in temperature. Therefore, all other factors held equal, an increase in air and water temperatures will cause rate processes like seed germination, leaf production on trees, growth and development of insects, etc. to increase. Aspects of the annual cycle of those species whose cycles are regulated by a rigid endogenous clock and/or are timed by photoperiod, which will not be affected by climate change, will probably become mismatched with their foot availability as temperature rises.

In addition to the phenological threat posed by climate change, many Arctic bird species are directly vulnerable to ahistorical weather events such as mid-summer snow or prolonged excessive rain. These events can reduce nestling growth rates and increase mortality (Pérez et al. 2016, p. 269; Martin and Wiebe 2004, p. 183). McFarland et al. (2017, p. 95) reported that inclement weather has been linked to reduced chick growth of Lapland longspurs (*Calcarius lapponicus*) and Gambel's white-crowned sparrows (*Zonotrichia leucophyrs gambelii*) in sites within Alaska's Brooks Range. Climate extremes were negatively associated with productive success for resident mountain chickadees (*Poecile gameli*) in the Sierra Nevada in California (Kozlovsky et al. 2018, p. 1). In Canada, the failure of 100% (n = 18) of Smith's longspur (*Calcarius pictus)* nests was attributed to a 4-day period of rain and cold temperatures (McFarland et al. 2017, p. 95). Even small increases in precipitation can be detrimental to Arctic birds "given that average rainfall for the Arctic is low and its impacts on thermoregulatory costs" are high (Pérez et al. 2016, p. 269).

A changing climate is expressed in changes in vegetation, and that process is well-underway in Arctic Alaska and Canada. Doyle et al. (2020, p. 1915) note that "vegetation shifts at northern latitudes allow low-Arctic and boreal species to expand their range northwards, leading to an overall increase in bird abundance in the Arctic. "[T]his 'borealisation' of tundra habitat may occur at the expense of Arctic specialists, as boreal species replace Arctic species in a geographical area. . . . As such, negative impacts of vegetation shifts are predicted to be strongest in specialist high-Arctic species" (Doyle et al. 2020, p. 1915).

c. Gray-Headed Chickadees and Climate Change

A small non-migratory passerine, living at the edge of the Arctic under extreme conditions, the gray-headed chickadee is particularly vulnerable to the vagaries of a rapidly changing climate. As DeCicco et al. (2017, p. 174) observed, "given their propensity for using transitional habitat at the northern fringe of the boreal forest, *P. c*. *lathami* is likely particularly susceptible to effects of climate change."

Several mechanisms of climate change pose an existential threat to gray-headed chickadees. As noted above, the window of time when Arctic species can conceive, bear, raise, and fledge their young is already extremely limited. They essentially have three months, and every day is critical. If there is no food available when the chicks hatch, the young perish. For example, great tits (*Parus major*), a bird in the same family as the gray-headed chickadee, rely on caterpillars in oaks as the main food source for their nestlings. In this system, the caterpillar prey appears after

the trees have their bud burst and disappears when the caterpillars are fully grown and pupate in the soil and thus are no longer available. Hence, there is only a short period of ample food, and these insectivorous birds need to synchronize their breeding in such a way that the time of the maximal need of their offspring for food coincides with the time of maximal food abundance (Visser et al. 2006, p. 165).

Gray-headed chickadees are known to cache seeds and insects, as well as meat and fat scavenged off carcasses, and retrieve them over the course of the winter. These cached items can be rendered inaccessible by mid-winter rain-on-snow events described above or inedible by prolonged winter temperatures above freezing. According to Sechley et al. (2015, p. 411), "nonmigratory species that depend on cached food to survive during the winter months may rely on cold environments to preserve their caches and prevent decay. In these populations, long-term warming of the environment could limit the availability of winter resources by increasing cache decay, which in turn may lead to a decrease in reproductive success." This "hoard-rot hypothesis" was posited as "the cause of a marked decline of gray jays in Algonquin Park, Ontario, Canada, at the southern edge of their range "due to warming fall temperatures causing an increase in the rotting of stored food" (Sechley et al. 2015, p. 412).

Gray-headed chickadees could be subject to increased competition for nest sites, food, and mates with other chickadee species that are expanding northward in response to climate change (Gesmundo 2023). Dale and Andreassen (2016) found increased abundance of great tits (*Poecile major*) and willow tits (*Poecile montanus)* coincided with decreases in gray-headed chickadees in southern Norway. A similar pattern between boreal chickadees and gray-headed chickadees has been observed in parts of Alaska (Booms et al. 2020, pp. 657–658). A study by Marcot et al. (2015, p. 149) found that boreal chickadee's available habitat would increase by ~20–65% between 2010 and 2100.

Hybridization among members of the Paridae family is not uncommon. While hybridization does not always result in negative outcomes, hybridization can "decrease diversity through the breakdown of reproductive barriers, the merger of previously distinctive evolutionary lineages, and the extinction of populations or species" (Todesco et al. 2016, p. 892). Hybridization may drive rare taxa to extinction through genetic swamping, where the rare form is replaced by hybrids or by demographic swamping, where population growth rates are reduced due to the wasteful production of maladaptive hybrids (Todesco et al. 2016, p. 892). "[G]enetic swamping is much more frequent than demographic swamping" (Todesco et al. 2016, p. 892).

Järvinen et al. (1985, p. 25) documented a female willow tit (*Parus montanus*) and a male Siberian tit (*Parus cincutus*) hybridizing in Finnish Lapland in 1984. Lait et al. (2012) documented the more distantly related black-capped chickadee (*Poecile atricapillus*) hybridizing with boreal chickadees (*Poecile hudsonicus*), suggesting that hybridization between the more closely related gray-headed and boreal chickadees is possible (Booms et al. 2020, p. 658). More recently, Armstrong et al. (2025, p. 14) found genetic evidence in museum specimens that some level of hybridization has occurred between gray-headed chickadees and boreal chickadees in North America. They speculate that "[g]iven the scarcity of Gray-headed Chickadees and the extent of range overlap with Boreal Chickadees, the likelihood of genetic erosion due to ongoing hybridization and decreased population growth rates is a conservation concern for gray-headed Chickadees in North America" (Armstrong et al. 2025).

Armstrong et al. (2025, p. 14) sum up the situation confronting gray-headed chickadees:

> Hybridization is dependent on species range overlap, and variable climate can lead to unstable species ranges. Rare species with limited distributions tend to occupy areas with localized climates that are susceptible to shrinking further with climate change (Ohlemuller et al. 2008). When neighboring species shift distributions in response to new conditions, rare species might be less able to shift in parallel and thus be particularly vulnerable to increased hybridization risk.

When gray-headed chickadees were listed as endangered in Canada in 2024, wildfires were identified as a potential threat to the species (COSEWIC 2024). The number of wildland fires burning in the Nearctic is on the rise and these fires are burning larger, hotter, and longer than in previous decades (AMAP 2025). The role that fires play in directly altering the habitat for or the survivability of gray-headed chickadees is unknown.

V. Conclusion

The gray-headed chickadee is perhaps North America's most imperiled breeding bird. Once locally common across wide reaches of Alaska and Northwest Canada, this bird has reached the vanishing point. Despite extensive searches, gray-headed chickadees have not been observed in North America since 2017.

Canada declared gray-headed chickadees to be an endangered species in 2024. As most of the historic North American range for this bird lies in the United States in Alaska, listing of the species as endangered under the U.S. ESA is fully warranted. The gray-headed chickadee warrants ESA protection because it is endangered by anthropogenic climate change that threatens the continued existence of the species in North America. Climate change is leaving this species with nowhere farther north to go.

Help is not on the way for these birds from outside of North America. Because they are largely sedentary and do not migrate, it is highly unlikely that new arrivals from Eurasia will revive the species in North America. Gray-headed chickadees are in decline worldwide, so it is not safe to assume they are secure elsewhere.

Gray-headed chickadees are canaries in the oil mine. The changes in climate, weather patterns, ecosystems, habitats, and timing of ecological processes occurring in the Arctic are dramatic and undeniable. We are on the cusp of deliberately eliminating entire communities that have evolved over thousands of years. This is a self-inflicted wound that can be stopped and reversed.

There are no existing regulatory mechanisms to prevent the extirpation of gray-headed chickadees from North America. The gray-headed chickadee needs protection under the ESA to have a chance of continued existence. The gray-headed chickadee clearly qualifies as an endangered species under the ESA. We urge the USFWS to swiftly propose gray-headed chickadees for listing as endangered and to designate critical habitat to ensure that they survive into the future.

VI. Request for Critical Habitat Designation

Critical habitat as defined by section 3 of the ESA is "(i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the provisions of section 1533 of this title, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) the specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species" (16 U.S.C. § 1532(5)).

Congress recognized that the protection of habitat is essential to the recovery and/or survival of listed species, stating that "classifying a species as endangered or threatened is only the first step in insuring its survival. Of equal or more importance is the determination of the habitat necessary for that species' continued existence. If the protection of endangered and threatened species depends in large measure on the preservation of the species' habitat, then the ultimate effectiveness of the Endangered Species Act will depend on the designation of critical habitat" (H. Rep. No. 94-887 at 3 (1976)).

Critical habitat is an effective and important component of the ESA, without which the gray-headed chickadee has a minimal long-term chance for survival. The Center thus requests that the Service propose to designate critical habitat concurrently with the bird's proposed listing.

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