

BLACKPOLL WARBLER

TAXONOMY

Scientific name: *Dendroica striata* (Forster, 1772)

Common name: Blackpoll Warbler

Family: Parulidae

Taxonomic comments: Banks and Browning (1995) rejected the name *Dendroica breviunguis* for this species, but others have used it in the past (Hunt and Eliason 1999). Burleigh and Peters (1948) described morphological variation in eastern and western birds and proposed subspecies *Dendroica striata lurida* (western) and *D. s. striata* (eastern); Parkes (1954) subsequently refuted this distinction and no subspecies are currently recognized by the American Ornithologists' Union (AOU).



Photo credit: Jim Gilbert

DESCRIPTION

Basic description: A large warbler.

General description:

Breeding male has black cap, remainder of head is white with black stripe on cheeks; body gray streaked with black above, underparts white with bold black streaks on sides and flanks, dark wings with two white wing bars, and a dark tail with bold white tail spots. Females and non-breeding males more cryptically colored; upperparts olive-gray with blackish streaks on crown, nape and back, underparts dull-whitish or yellow, narrowly streaked with black. Legs and feet in both sexes orange-yellow (Hunt and Eliason 1999).

Length (cm): 14

Weight (g): 13

Reproduction:

First nests built in late May on Kent Island, New Brunswick. Females lay eggs 1 to 3 weeks following arrival at breeding grounds; eggs laid June-July; latest date of first nest 22 June (Hunt and Eliason 1999). Clutch size 3-5 (usually 4-5); incubation 11-12 days by female; young tended by both sexes; leave nest at 10-12 days; near independence at 25 days (Bent 1953, Harrison 1978, Terres 1980, Kessel 1989, Hunt and Eliason 1999). Some males bigamous (Eliason 1986). Second broods may be attempted within 9 days of first brood fledging; latest second brood fledging date 5 August (Hunt and Eliason 1999).

Ecology:

Undertakes the longest seasonal migration of any warbler; birds breeding in Alaska may travel over 16,000 km to and from their wintering grounds in South America. Known to

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hybridize with close relative Bay-breasted Warbler (*Dendroica castanea*; Hunt and Eliason 1999). Generally solitary or in pairs during the breeding season; in flocks during migration; sometimes in mixed-species flocks during the non-breeding season (Hunt and Eliason 1999). Sharp-shinned Hawks (*Accipiter striatus*) are predatory on adults; Blue Jays (*Cyanocitta cristata*) and small rodents are predatory on eggs and nestlings (Hunt and Eliason 1999).

Migration:

Northward migration begins late spring (early to mid-April; Hunt and Eliason 1999). Migration occurs east of the western Great Plains; passage through areas west of the Rocky Mountains rare, but regular (Pogson et al. 1997). Also a late migrant in Atlantic states; moves through Northeast in May and June (Terres 1980). Arrives in Alaska late May to early June; thought to move through the Mackenzie Valley and down the Yukon and Kuskokwim Rivers to breeding grounds (Bent 1953, Gabrielson and Lincoln 1959, Kessel 1989, Nisbet et al. 1995, Hunt and Eliason 1999, Latta and Brown 1999, McNair et al. 2002).

Southward migration usually commences by late August in Alaska (Gabrielson and Lincoln 1959) and early October in Newfoundland (Peters and Burleigh 1951). Western breeding birds travel southeast across Canada and the northern U.S., assembling along the coastal plain between Nova Scotia and Cape Hatteras, N.C. and as far west to western Massachusetts and West Virginia, where they join migrants from the eastern breeding range (Hunt and Eliason 1999). Travels to northern South America, nonstop or through the West Indies (McNair and Post 1993). Typically present in South America between September and April, occasionally not until May (Ridgely and Tudor 1989).

Food:

Eats various small insects and spiders gleaned from leaves and twigs of trees; also catches insects in flight and eats some small fruits and seeds during migration (Bent 1953, Terres 1980, Pogson et al. 1997).

Habitat:

Breeding: Cool, wet boreal forests, primarily spruce. Habitat in the eastern and central portion of range predominantly coniferous forests of white spruce (*Picea glauca*), red spruce (*Picea rubens*), and balsam fir (*Abies balsamea*). In the western portion of range, breeds in tall shrub thickets dominated by willow (*Salix* spp.) and alder (*Alnus* spp.) often in spruce forests. Habitats in west usually within riparian areas or ecotones between taiga and tundra (Hunt and Eliason 1999). Also, found in mixed secondary growth, regenerating burns, and peatlands (AOU 1998). Nests usually are well hidden in small trees less than 3 m above ground. Adults often display fidelity to breeding grounds (Eliason 1986).

Non-breeding: In migration, uses various forest, forest border, woodland, scrub, and brushy habitats (AOU 1983), and clearings with scattered trees. In the Dominican Republic, thorn scrub forest habitat appears to be important during migratory stopovers (Latta and Brown 1999). Found in a variety of wooded habitats during winter (Hunt and

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Eliason 1999), including riparian areas and on islands in major rivers. The only North American warbler that regularly winters in lowland Amazonian forest (Stotz et al. 1992).

Foraging: During breeding season, same as breeding habitat. At migration stopover sites in the Dominican Republic, utilizes acacia trees in thorn scrub forests that support lepidopteran larvae (Latta and Brown 1999).

State habitat:

Breeding: Predominantly along rivers, streams, or bogs in deciduous forests and tall shrub thickets (especially *Salix alaxensis* and *Alnus incana*) sometimes with a sparse spruce (*Picea glauca* or *P. mariana*; particularly in central Alaska) or mixed spruce-paper birch overstory (*Betula papyrifera*; Gabrielson and Lincoln 1959, Kessel 1989, McCaffery 1996, Kessel 1998, Cotter and Andres 2000). Also inhabits ecotones between treeline taiga and alpine or coastal tundra (Kessel 1998, Kessel and Gibson 1978). Breeding density highest in riparian habitats in western Alaska (McCaffery 1996, Harwood 2002). No ground nests reported in Alaska; 62% of nests found in shrub habitat near Soldotna, on the Kenai Peninsula, were less than 0.6 m off the ground and 42% were less than 0.3 m above ground (Kessel 1998).

STATUS

Global rank: G5 (03Dec1996); recommended change to S4 (12Jun2006)

Global rank reasons:

Secure – widespread and abundant.

State rank: S4B (12Jun2006)

State rank reasons:

Widespread distribution. Alaska population estimated at 6.4 million birds, but has declined by over 50% since 1980 (about 2.9%/year). Species is declining throughout broader geographic range, but declines are most pronounced on breeding range in Alaska and Canada. Causes of the decline are uncertain. Greatest threat in Alaska is collision with communication towers, wind turbines and tall buildings, particularly in coastal areas.

DISTRIBUTION AND ABUNDANCE

Range:

Global range:

Breeding: Western and north-central Alaska and northwestern Canada (Mackenzie Delta) to northern Labrador and Newfoundland, south to southern Alaska, south-central British Columbia, northern Saskatchewan, eastern New York, northern New England, and Nova Scotia.

Non-breeding: Primarily in Amazon basin in Colombia, Venezuela, Ecuador, Peru, Brazil, and Bolivia. Several records from southern South America (perhaps common locally in southeastern Brazil; Ridgely and Tudor 1989). Autumn transient in Bermuda,

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Bahamas, eastern Greater Antilles, and throughout Lesser Antilles. Spring transient in western Greater Antilles and Bahamas. Casual in Central America (Stiles and Skutch 1989).

State range:

Breeding: Western Alaska as far north as the Kobuk and lower Noatak drainages, south to Katmai; common in central Alaska south to the Matanuska-Susitna Valley, less common in eastcentral Alaska and the Kenai Peninsula, a rare migrant in Southeast Alaska (Gabrielson and Lincoln 1959, Hines 1963, Isleib and Kessel 1973, Kessel and Gibson 1978, Kessel 1989, Petersen et al. 1991, BPIF Working Group 1999, Cotter and Andres 2000).

Abundance:

Global abundance:

Global abundance estimated at 21,000,000 birds (Rich et al. 2004).

State abundance:

State abundance estimated at 6,400,000 birds (about 30% of global population), although likely inaccurate (Rosenburg 2004).

Highest densities recorded during Breeding Bird Surveys (BBS) occurred in riparian areas along tributaries on the Kuskokwim and lower Yukon rivers in western Alaska (average 51.4 birds per route [bpr], $n = 24$, 1998-2002; Johnson and Matsuoka 2004). In interior Alaska, highest abundance was reported on Lake Louise (30.6 bpr) and Cantwell (28.6 bpr) BBS routes (Johnson and Matsuoka 2004). Over 17 bpr were recorded on BBS routes in central, southcoastal, southwestern, and western Alaska (Pogson et al. 1997).

Trends:

Global trend:

Increasing from 1966 to 1980 (Sauer et al. 2005). Since 1980, North American BBS data indicate this species has suffered the steepest long-term decline of any neotropical-nearctic migrant landbird (9.6% per year, $P < 0.00$, $n = 59$), with population declines of over 50% and 90% across breeding ranges in Alaska and Canada, respectively (Sauer et al. 2004, 2005). When the entire BBS data set is analyzed, the long-term trend is a nonsignificant decrease of 2.6%/year (1966-2005). Only in New Brunswick is this long-term trend significant (6.3% per year, $P < 0.00$, $n = 8$; Hunt and Eliason 1999, Sauer et al. 2005).

State trend:

Alaska population has declined by 54% since 1980 (Sauer et al. 2005). Alaska BBS data from 1980-2005 indicate a significant population decline of 2.9% per year ($P < 0.01$, $n = 55$; Sauer et al. 2005).

EXISTING PROTECTION

Global protection:

Protected under the Neotropical Migratory Bird Conservation Act and the Migratory Bird Treaty Act; habitat is protected in state and national parks and wildlife refuges.

State protection:

Breeding habitat protected where species occurs in state and national parks and wildlife refuges. In Alaska, breeding has been documented in Innoko, Tetlin, Togiak, Yukon Delta, Koyukuk/Nowitna Complex, Kanuti, Selawik, and Kenai National Wildlife Refuges; also in Noatak National Preserve and Yukon-Charley, Denali, Lake Clark, and Wrangell-St. Elias National Parks (Igl 1996).

CHALLENGES

Global challenges:

Threats include habitat loss at breeding and non-breeding areas, in-flight collisions during migration, mortality during migration associated with increased storm frequency/severity, and climate change related habitat loss of favored riparian and bog habitats.

Habitat loss: Breeding densities declined in 20 m riparian buffers after the surrounding habitat was removed by clearcutting in the Canadian boreal forest (Darveau et al. 1995). Degradation of red spruce and subalpine spruce-fir forests from acid rain in the northeastern U.S. and southeastern Canada may adversely affect this species (Darveau et al. 1995, Hunt and Eliason 1999, Moegenburg and Greenberg 2004). Deforestation on wintering grounds in lowland Amazonia may also impact the species; Blackpoll Warblers were considered one of the 12 species most vulnerable to extinction due to tropical deforestation (Petit et al. 1993, Petit et al. 1995).

Collisions: Species commonly collides with towers during migration (e.g., communication, wind turbines, buildings), presumably due to their attraction to lights and disorientation during night migration (Bent 1953, Ogden 1996, Hunt and Eliason 1999). Hundreds to thousands of deaths have been reported at single locations over one season (Ogden 1996). In a study of tower kills in the U.S. since 1949, Blackpoll Warblers were the seventh most commonly killed bird (of 230 reported species) with 6,304 documented dead at 32 towers (Shire et al. 2000). Of concern is the marked increase in the number of towers constructed in the U.S. and Canada following the growth of the cell phone industry and wind energy development (Shire et al. 2000, ADFG 2005).

Climate change: Rates of survival and productivity of trans-oceanic migrants are associated with El Niño and North Atlantic Oscillation events (Nott et al. 2002). Abundance of breeding Blackpoll Warblers from 1967 to 1996 was negatively correlated with the frequency and severity of storms over the Atlantic Ocean and Gulf of Mexico during fall migration the previous year (Butler 2000). During this long, transoceanic flight (the longest of any North American warbler), birds may be particularly susceptible to mortality, which has been found to account for 90% of annual mortality in congener

Black-throated Blue Warbler *Dendroica caerulescens*; Sillett and Holmes 2002). Climate change may reduce riparian and bog habitats favored by this species through permafrost degradation and drying (ADFG 2005).

State challenges:

Threats include collisions associated with communication towers, wind turbines and tall buildings; in Alaska, towers associated with military operations and wind turbines located throughout coastal areas may be of the most concern. Reductions in this species' breeding habitat across Canada and the northeastern U.S. as a result of resource development and acid rain may increase the value of Alaskan breeding habitat, which is generally undisturbed and in good condition (ADFG 2005). Climate change may reduce riparian and bog habitats favored by this species through permafrost degradation and drying (ADFG 2005).

RESEARCH AND INVENTORY NEEDS

Global research needs:

Evaluate potential threats on both breeding and wintering grounds, and assess their contribution to the observed decline. Examine the role of Atlantic storm frequency on mortality during migration (Butler 2000). Develop ways to reduce the frequency of tower strikes during migration (e.g., study the attractiveness of different light types to this species; Shire et al. 2000, Jones and Francis 2003). Research needed on habitat use at migration stopover sites and on wintering grounds.

State research needs:

The causes for the observed decline in Alaska are not understood; evaluate potential threats including collisions with wind-turbines and communication towers and loss of habitat as a result of climate change, and assess their contribution to the observed decline. Research needed on breeding ecology and habitat use; determine whether deficits in survival, reproduction, or recruitment are linked to specific habitats, habitat changes, climatic changes, or geographical locations (ADFG 2005).

Global inventory needs:

Continue participation in North American BBS; examine independent data on trends from migration stations and other breeding and non-breeding surveys (including off-road surveys) to determine if declines are evident in other datasets (ADFG 2005).

State inventory needs:

Continue participation in roadside BBS; also, implement participation in surveys that target roadless areas including the Alaska Landbird Monitoring Survey (ALMS) and the Alaska Off-road Breeding Bird Survey (AORBBS). Determine if declines are evident in less-studied areas off the road system by examining trend data from migration stations, ALMS, AORBBS, and other surveys.

CONSERVATION AND MANAGEMENT NEEDS

Global conservation and management needs:

Collaborate with researchers throughout species range to determine causes of decline. Identify important habitats and increase protection where warranted, e.g., breeding habitat in Canada, wintering habitat in South America and key migration stopover areas. Encourage practices that develop solutions to reduce the number of tower and building strikes (Ogden 1996, Shire et al. 2000, Jones and Francis 2003).

State conservation and management needs:

Use results of habitat assessment studies to conserve or enhance habitats and areas important for breeding and migration (ADFG 2005). Also, see Global conservation and management needs.

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