

RUSTY BLACKBIRD

TAXONOMY

Scientific name: *Euphagus carolinus* (Muller, 1776)

Common name: Rusty Blackbird

Family: Icteridae

Taxonomic comments:

Two subspecies recognized in North America: *Euphagus carolinus carolinus*, which occupies most of the species' range, and the darker *E. c. nigrans*, which breeds in Newfoundland, Nova Scotia, Magdalen Island, and possibly eastern New Brunswick (AOU 1957, Avery 1995).

Few comprehensive molecular or morphological studies have been conducted on relationships between Rusty Blackbirds and other members of the sizeable family *Icteridae*. Brewer's Blackbird (*Euphagus cyanocephalus*) is likely the closest relative. Species in the genus *Euphagus* are probably more closely allied with the grackles (*Quiscalus*) than to *Agelaius* blackbirds (Avery 1995).



Photo credit: © Jeff Nadler

DESCRIPTION

Basic description: A medium-sized passerine.

General description:

A medium-sized passerine with relatively long, narrow, pointed wings. Both sexes have pale yellow eyes, black bills that are shorter than the head, and entirely black feet. The tail is similar in length to the wings and slightly rounded. In breeding plumage, adult males are uniformly black above with a blue-green to greenish gloss. Adult females are slate gray, often darker above with a bluish green gloss. Non-breeding plumages for both sexes have distinct rusty brown feathering on the crown, nape, and back (Avery 1995).

Diagnostic characteristics:

Sometimes confused with male Brewer's Blackbird, which has a purplish, not green, gloss on the head, and shorter, thicker bill. Females distinguished from Brewer's Blackbirds by the presence of a yellow iris. In fall, Brewer's Blackbirds may have some rust-colored feather edging, though this never extends onto the tertials as in the Rusty Blackbird (Avery 1995). Eastern subspecies *E. c. nigrans* males are more intensely black, with bluish, rather than greenish, head gloss (AOU 1957).

Length (cm): 25

Weight (g): 64

Rusty Blackbird

Reproduction:

Arrives on breeding grounds early April to late May; mostly mid-April (Avery 1995). Nest building by female begins in April for southern regions, May for northern regions (Avery 1995, Hannah 2004). Clutch size is 4-6 eggs and incubation by the female likely lasts 12-13 days. Young are tended by both parents; fledging occurs at 13 days (Hannah 2004).

Ecology:

Loosely colonial during the breeding season. May roost with many other blackbird species, but often found foraging in monospecific flocks or together with Common Grackles (*Quiscalus quiscula*) in or near wooded wetlands and only occasionally in agricultural fields with other blackbirds. Considered an ecological specialist compared to other blackbird species, which are largely generalists; highly dependent upon boreal wetlands for breeding and bottomland wooded wetlands for wintering; more averse to unfamiliar conditions (neophobic) than other blackbirds, and consequently more at risk to changing ecological conditions. Gray Jays (*Perisoreus canadensis*) are potential nest predators, and accipiters, falcons and owls are confirmed predators of adult birds, especially in winter (Lewis 1931, Cade 1951, Hannah 2004).

Migration:

Migrates diurnally in small flocks (Jaramillo and Burke 1999). Spring migrants leave wintering grounds as early as mid-February, peak migration occurs in late April/early May and arrival at breeding grounds is between March and early May. Fall migration begins in late August in Alaska and the northern Yukon, September elsewhere; peak southward migration throughout range is in October and peak arrival at wintering grounds in November (Avery 1995, Jaramillo and Burke 1999, Sinclair et al. 2003).

Food:

Feeds on insects, spiders, crustaceans, snails, salamanders, fish, seeds, and occasionally fruits. Diet is more insectivorous than other blackbirds; over 50% of food is animal matter (Dolbeer 1994). Summer diet consists primarily of aquatic insects and other animals; winter diet is less specialized, more opportunistic, feeding on seeds and small fruits (Avery 1995). During severe winter conditions, has infrequently been observed attacking and feeding on other bird species (Bent 1958, Campbell 1974, Avery 1995).

Habitat:

Breeding: Wet coniferous and mixed forests from northern edge of tundra southward to beginning of deciduous forests and grasslands (Avery 1995). Frequents alder-willow bogs, fens, muskegs, beaver ponds, tall shrub thickets near water, and wet forest openings across the boreal region (AOU 1983, Kessel 1989, Avery 1995, Sinclair et al. 2003, Hannah 2004). In the Yukon Territory, occurs in wetland habitats, usually along the edges of ponds or lakes with dense marsh grasses, shrubs, and usually scattered dead trees (Sinclair et al. 2003). May be disturbance-dependent, selecting habitats that have reverted to early- to mid-successional stages due to fire, windthrow, and beaver activity (Spindler 1976, Ellison 1990). Nests are often located in trees or shrubs up to 6m in

Rusty Blackbird

height, near or over water, and frequently in conifers such as black spruce (*Picea mariana*) and other stunted muskeg trees (Bent 1958, AOU 1983).

Non-breeding: In migration, frequents wetland areas, open woodland, scrub, pastures, and cultivated lands (AOU 1983, Sinclair et al. 2003). Large flocks may also congregate at open landfills (Gabrielson and Lincoln 1959, Sinclair et al. 2003). In winter, associated with swamps, moist woodlands, and pond edges; generally uses habitats near water sources and open fields that are not occupied by other wintering blackbirds (Rosenberg et al. 1991, Sibley 1993, Jaramillo and Burke 1999, Hannah 2004).

State habitat:

Breeding: Favors open habitat near water, with a preference for nesting in tall shrubs (Spindler and Kessel 1980). Also prefers moist woodland (primarily coniferous), bushy bogs, and wooded edges of water courses (Spindler and Kessel 1980). May be found along streams and rivers and at associated sloughs and wetlands, around the margins of taiga ponds, beaver ponds, lakes and adjacent marshes, and in brackish estuarine meadows (UAM unpubl. data in Hannah 2004).

STATUS

Global rank: G4 (16Sep2003)

Global rank reasons:

Still common, but has declined precipitously over the past few decades.

State rank: S3S4B, S3N (26Jun2006)

State rank reasons:

Widespread and common; statewide abundance about 570,000 individuals, although estimate is suspected inaccurate. Observed decline of -5.2% per year between 1980-2004 mirrors global decline. Due to remote breeding habitats, statewide threats are minimal.

DISTRIBUTION AND ABUNDANCE

Range:

Global range:

Breeding: From western and north-central Alaska to southern Keewatin and Labrador, south to central British Columbia, central Saskatchewan, to the northern shores of Lake Superior and Lake Huron, through southeastern Ontario to Vermont, New Hampshire, Maine, northeastern New York, Massachusetts, and Nova Scotia (Avery 1995).

Non-breeding: Primarily in the southeastern U.S.: from southcoastal Alaska, southern Canada, and northern U.S. south to Texas, Gulf Coast, northern Florida (Avery 1995).

State range:

Breeding: Found throughout most of mainland Alaska south of the Brooks Range (Gabrielson and Lincoln 1959, Johnson and Herter 1989, Avery 1995, Anderson et al. 2000, Andres et al. 1999, Hannah 2004).

Rusty Blackbird

Non-breeding: Occasionally in coastal Southeast Alaska. A very rare early winter visitor in interior Alaska (Kessel and Gibson 1978, National Audubon Society 2002). Overwinters in the Copper River Delta-Prince William Sound region during years when marshes remain unfrozen (Manuwal 1974).

Abundance:

Global abundance:

Post-breeding global abundance estimated at 4,900,000 individuals by Blancher (2003) based on analysis of North American Breeding Bird Survey (BBS) and Canadian Breeding Bird Census (BBC) data. For the same time period, Rich et al. (2004) estimated a global population of about 2,000,000 birds based on BBS survey data. The disparity between population estimates demonstrates the current lack of abundance data and the potential inadequacies of using the BBS to survey for this species due, in part, to the relative inaccessibility of most of the species' breeding range (Hannah 2004).

Results from the North American BBS indicate a survey-wide average of 0.27 birds/survey route for 1966-2004 (Sauer et al. 2005). Breeding densities are generally very low, even at the center of the breeding range (Flood 1987, Hannah 2004). Densities are generally higher in northwestern Canada than in Atlantic Canada. In northern Saskatchewan, densities ranged from 2 to 31 individuals/km² (Hobson et al 2000); in the Hudson Bay lowlands of northern Manitoba densities were 20 individuals/km² (Gillespie 1982); in the Old Crow region, Yukon Territory, densities range from 18 to 90 individuals/km²; and in British Columbia, densities of 5 individuals/km² were reported (Erskine 1977). In Alaska, densities are relatively high, ranging from 10 to 30 territories/km² (Hannah 2004).

State abundance:

Statewide abundance about 570,000 individuals, although estimate is suspected inaccurate (Rosenberg 2004a and b). A fairly common spring migrant, breeder, and fall migrant throughout much of central, western, and southwestern Alaska, and in the upper Cook Inlet area of southcoastal Alaska (Kessel and Gibson 1978). Occurrence becomes uncommon at the periphery of the taiga in southwestern and western Alaska, and in the upper river valleys on the south slope of the Brooks Range (UAM unpubl. data in Hannah 2004). Several regions in the interior may contain denser breeding populations (Andres et al. 1999). Based on Alaska-wide BBS data, abundance appears to increase from east to west, with a pronounced peak in abundance between 156° and 162° W longitude (Sauer et al. 2005).

Trends:

Global trend:

Short-term: A statistically significant, survey-wide decline of -10.3% per year ($P < 0.01$, $n = 96$), 1966-2004, is indicated by North American Breeding Bird Survey data (Sauer et al. 2005).

Long-term: A significant, range-wide decline of approximately 90% over the past 4-5 decades is indicated by data from the Breeding Bird Survey, Christmas Bird Counts, and

Rusty Blackbird

Quebec Checklist Program (Greenberg and Droege 1999, Niven et al. 2004, Savignac 2004, Sauer et al. 2005). Analyses of abundance classifications in bird distribution books and annotated checklists reveal a long-term decline dating back to at least the early part of the 1900s (Greenberg and Droege 1999).

State trend:

BBS data indicate a statewide population decline of -5.2% per year from 1980 to 2004 ($P < 0.5$, $n = 27$; Sauer et al. 2005). The period of documented decline is shorter in Alaska than nationwide due to lack of monitoring surveys prior to 1980. Overall, sample sizes are small and state trends should be interpreted with caution (Hannah 2004).

EXISTING PROTECTION

Global protection:

Protected in the U.S., Canada, and Mexico under the Migratory Birds Convention Act (1916). However, because the species is considered a pest in the U.S. and Canada, it can be eliminated if it causes damage to human property (Dolbeer 1994, Northern Prairie Wildlife Research Center 2004 in Savignac 2004).

State protection:

Despite being identified as a species of conservation priority in Alaska by Boreal Partners in Flight (Andres et al. 1999), no management specific to this species has been initiated (Hannah 2004).

CHALLENGES

Global challenges:

On wintering grounds, potential threats and/or causes for observed population decline include destruction of wooded wetlands and blackbird control programs; on breeding grounds, acid precipitation and conversion of boreal forest wetlands have been implied (Greenberg and Droege 1999).

Habitat degradation: Land-use practices that degrade or reduce wooded wetlands are detrimental to this species' habitat needs (Avery 1995). Greatest loss of wooded wetlands is on the wintering grounds. Between the mid-1950s and mid-1980s, about 25% of remaining wooded wetlands in the southeastern U.S, an area that encompasses most of the species' winter range, were drained and converted (Hefner and Brown 1984, Greenberg and Droege 1999). However, modern rates of wooded wetland conversion may not be sufficient to explain the severity of recent declines; changes on the breeding grounds may also be limiting this species (Greenberg and Droege 1999). Several other species that utilize high-latitude wetland habitats for breeding, such as the Horned Grebe (*Podiceps auritus*) and Lesser Yellowlegs (*Tringa flavipes*), are also experiencing survey-wide (BBS) declines (Sauer et al. 2005).

Clearcut logging on breeding grounds removes habitat and may also encourage establishment of competitors Common Grackles and Red-winged Blackbirds (*Agelaius*

Rusty Blackbird

phoeniceus) (Ellison 1990), or encourage invasion by Brown-headed Cowbirds (*Molothrus ater*), a common and potentially problematic nest parasite (Avery 1995). Conversely, recently logged habitat, when saturated with water, may provide breeding habitat for this species; Ellison (1990) found several Rusty Blackbird nests and fledglings in recent clearcuts in Vermont. Although recent clearcuts may satisfy habitat requirements for this species, no data exists on the relative quality of these sites (Hannah 2000, 2004).

Blackbird control programs: Rusty Blackbirds may form mixed-species flocks in winter with other blackbirds and starlings, regularly exceeding 1 million birds. As a result, species has been subjected to lethal control to reduce nuisance, health, and crop damage problems (Avery 1995). Winter roost control programs in the eastern U.S. coincided with declines in Common Grackle populations (Avery 1995, Greenberg and Droege 1999). The overall effect on Rusty Blackbird populations is unknown but suspected localized and nominal, as this species typically constitutes <1% of winter roosts (Avery 1995).

Wetland acidification: Acidification of boreal wetlands due to industrial emissions is also of concern, particularly in eastern North America, but overall effects are unknown (Greenberg and Droege 1999). Since Rusty Blackbirds inhabit areas with naturally high soil acidity, it is difficult to determine the real impact of acidification (Darveau et al. 1989, Savignac 2004). Declines in snail abundance in acidified soils in the Netherlands have been linked to declines in passerine production (Graveland et al. 1994); given the high proportion of snails and mollusks in Rusty Blackbird diets, the impacts of acidification on food resources could be of concern (Greenberg and Droege 1999).

State challenges:

Habitats in Alaska are generally largely intact and not directly disturbed by development (Greenberg and Droege 2003). However, climate change and associated degradation of permafrost and drying of ponds and lakes could result in loss of key breeding habitats. Habitat could also potentially be affected by placer mining or fire management practices.

RESEARCH AND INVENTORY NEEDS

Global research needs:

Work in the U.S. and Canada using stable isotopes to link wintering and breeding populations, and to connect demographic changes with specific regions of North America is underway (CWS 2005). Additional research is needed to understand the cause(s) of the population decline. Natural history and breeding biology, including productivity and courtship behavior, require further study. Also needed is information on foraging behavior and diet, flocking habits, and habitat and resource use during the non-breeding season (Greenberg and Droege 1999).

State research needs:

Improving current knowledge of distribution and abundance in Alaska should be a priority. Information on habitat preferences and habitat quality across the state is needed for management of this species. The use of thermokarst ponds by Rusty Blackbirds in

interior Alaska may warrant further investigation. Future habitat studies should place less emphasis on the structural components of habitat selection and more on the actual wetlands themselves (i.e. wetland size, wetland classification, water quality, invertebrate biomass etc.). Quantitative information on foraging behavior, diet, nest success, and courtship is also needed (Hannah 2004).

Global inventory needs:

BBS and other traditional large-scale monitoring programs are insufficient for this species; methods to better survey remote roadless and wetland areas should be explored, including efforts similar to the Off-road Breeding Bird Survey (ORBBS) and the Alaska Landbird Monitoring Survey (ALMS); the status of breeding populations needs to be clarified throughout its range (Hannah 2004).

State inventory needs:

BBS and other traditional large-scale monitoring programs are insufficient for this species; methods to better survey remote roadless and wetland areas should be explored, such as the Off-road Breeding Bird Survey (ORBBS) and the Alaska Landbird Monitoring Survey (ALMS). The status of breeding populations should be clarified throughout Alaska. Possible survey alternatives include incorporating the Rusty Blackbird into the North American Breeding Waterfowl Survey (conducted annually from mid-May to mid-June by U.S. Fish and Wildlife Service) or into river or riparian bird surveys. The timing of these surveys should overlap with the breeding chronology of Rusty Blackbirds and could provide additional distribution and abundance data in a cost-effective manner (Hannah 2004).

CONSERVATION AND MANAGEMENT NEEDS

Global conservation and management needs:

Protecting beaver populations might indirectly lead to creation of good habitat for Rusty Blackbirds. Knowledge of stopover sites and migratory corridors is needed to aid management of this species and for the protection of key habitats.

State conservation and management needs:

Much of the species' range in Alaska remains relatively intact, unlike areas in southern and eastern parts of the range where wetland drainage and habitat conversion has been more widespread. Because Alaska may contain some of the largest areas of remaining intact habitat it may be a good location to study the breeding ecology and life history characteristics of this species, and to preserve wetland and riparian habitat with the goal of reversing this species' serious decline.

LITERATURE CITED

- American Ornithologists' Union (AOU). 1957. Check-list of North American birds. Fifth edition. American Ornithologists' Union. Ithaca, NY. 691 p. (Reprinted in 1961 by Port City Press, Inc., Baltimore, MD.)
- American Ornithologists' Union (AOU), Committee on Classification and Nomenclature. 1983. Check-list of North American Birds. Sixth Edition. American Ornithologists' Union, Allen Press, Inc., Lawrence, KS.
- Anderson, B.A., R.J. Ritchie, B.E. Lawhead, J.R. Rose, A.M. Wildman, and S.F. Schlentner. 2000. Wildlife studies at Fort Wainwright and Fort Greely, Central Alaska, 1998: Final Report. ABR, Inc., Fairbanks, AK.
- Andres, B.A., D.L. Brann, and B.T. Browne. 1999. Inventory of Breeding Birds on Local Training Areas of the Alaska Army National Guard: Final Report. Nongame Migratory Bird Management, U.S. Fish and Wildlife Service, Anchorage, AK.
- Avery, M.L. 1995. Rusty Blackbird (*Euphagus carolinus*). In: The Birds of North America, No. 200 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.
- Bent, A.C. 1958. Life histories of North American blackbirds, orioles, tanagers, and their allies. U.S. National Museum Bulletin 211. Washington, D.C.
- Blancher, P.J. 2003. Importance of Canada's boreal forest to landbirds. Bird Studies Canada report for North American Bird Conservation Initiative, Canada National Council.
- Cade, T. 1951. Food of the Peregrine Falcon, *Falco peregrinus*, in Interior Alaska. Auk 68:373-374.
- Campbell, R.W. 1974. Rusty Blackbirds prey on sparrows. Wilson Bulletin 86:291-293.
- Canadian Wildlife Service (CWS). 2005. CWS landbird committee news – 2005. Whitehorse, Yukon. Unpublished document obtained at the Boreal Partners in Flight annual meeting, December 7-8, 2005, Anchorage, AK.
- Darveau, M., B. Houde, and J.-L. DesGranges. 1989. Phyto-ecology of lacustrine bird habitats in Quebec. Pp. 42-67 in: DesGranges, J.-L. (Ed.). Studies of the effects of acidification on aquatic wildlife in Canada: lacustrine birds and their habitat in Quebec. Occasional paper 67. Canadian Wildlife Service, Ottawa.
- Dolbeer, R.A. 1994. Blackbirds: damage prevention and control methods for blackbirds. Denver Wildlife Research Center, USDA-APHIS-ADC, Sandusky, OH.

Rusty Blackbird

- Ellison, W.G. 1990. The status and habitat of the Rusty Blackbird in Caledonia and Essex counties. Cooperative project with the Nongame and Natural Heritage Program, Vermont Fish and Wildlife Department, Woodstock, VT.
- Erskine, A.J. 1977. Birds in boreal Canada. Report 41. Canadian Wildlife Service, Ottawa, Ontario.
- Gabrielson, I.N and F.C. Lincoln. 1959. The birds of Alaska. Pp. 739-741. The Wildlife Management Institute and the Stackpole Company, Harrisburg, PA.
- Gillespie, W.L. 1982. Breeding bird populations in northern Manitoba. Canadian Field Naturalist 96:272-281.
- Graveland, J., R. van der Wal, J.H. van Balen, and A.J. van Noordwijk. 1994. Poor reproduction in forest passerines from decline of snail abundance on acidified soils. Nature 368:446-448.
- Greenberg, R. and S. Droege. 1999. On the decline of the Rusty Blackbird and the use of ornithological literature to document long-term population trends. Conservation Biology 13:553-559.
- Greenberg, R. and S. Droege. 2003. Species profile: rusty blackbird- troubled blackbird of the bog. Bird Conservation. June 2003. Available online at: http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Featured_Birds/default.cf. Accessed 15Nov04.
- Hannah, K.C. 2000. Patterns in habitat quality for the White-throated Sparrow (*Zonotrichia albicollis*) in a recently logged landscape. M.S. thesis, Dept. of Renewable Resources, University of Alberta, Edmonton, AB.
- Hannah, K.C. 2004. Status review and conservation plan for the Rusty Blackbird (*Euphagus carolinus*) in Alaska, Draft Report. Alaska Bird Observatory, Fairbanks, AK.
- Hefner, J.M. and J.P. Brown. 1984. Wetland trends in southeastern U.S. Wetlands 4:1-11.
- Hobson, K.A., D.A. Kirk, and A.R. Smith. 2000. A multivariate analysis of breeding bird species of western and central Canadian boreal forests: stand and spatial effects. Ecoscience 7: 267-280.
- Jaramillo, A. and P. Burke. 1999. New World Blackbirds: The Icterids. Pp. 357-360. Princeton University Press, Princeton, NJ.
- Johnson, S.R. and D.R. Herter. 1989. Birds of the Beaufort Sea. BP Exploration (Alaska), Inc., Anchorage, AK.

Rusty Blackbird

- Kessel, B. 1989. Birds of the Seward Peninsula, Alaska: their biogeography, seasonality, and natural history. Pp. 271-273. Univ. of Alaska Press, Fairbanks, AK. 330 pp.
- Kessel, B. and D.D. Gibson. 1978. Status and distribution of Alaska birds. Studies in Avian Biology, No. 1. Cooper Ornithological Society (Allen Press), Lawrence, Kansas.
- Lewis, J.B. 1931. Behaviour of Rusty Blackbird. Auk 48:125-126.
- Manuwal, D.A. 1974. Avifaunal investigations in the Noatak River Valley. Pp. 252-325 in: Young, S.B. (Ed.). The environment of the Noatak River basin, Alaska. Contributions from the Center for Northern Studies No. 1. Center for Northern Studies, Wolcott, VT.
- National Audubon Society. 2002. The Christmas Bird Count Historical Results. Available online at: <http://www.audubon.org/bird/cbc>. Accessed 18Mar05.
- Niven, D.K., J.R. Sauer, G.S. Butcher, and W.A. Link. 2004. Christmas Bird Count provides insights into population change in land birds that breed in the boreal forest. American Birds 58:10-20.
- Rich, T.D., C.J. Beardmore, H. Berlanga, P.J. Blancher, M.S.W. Bradstreet, G.S. Butcher, D.W. Demarest, E.H. Dunn, W.C. Hunter, E.E. Inigo-Elias, J.A. Kennedy, A.M. Martell, A.O. Panjabi, D.N. Pashley, K.V. Rosenberg, C.M. Rustay, J.S. Wendt, and T.C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology. Ithaca, NY.
- Rosenberg, K.V. 2004a. Partners in Flight continental priorities and objectives defined at the state and Bird Conservation Region levels, part 1: methods and assumptions. Unpublished report, Cornell Lab of Ornithology, Ithaca, NY.
- Rosenberg, K.V. 2004b. Partners in Flight continental priorities and objectives defined at the state and Bird Conservation Region levels, part 2: Alaska. Unpublished report, Cornell Lab of Ornithology, Ithaca, NY.
- Rosenberg, K.V., R.D. Ohmart, W.C. Hunter, and B.W. Anderson. 1991. Birds of the Lower Colorado River valley. The University of Arizona Press, Tucson, AZ. 416 pp.
- Sauer, J.R., J.E. Hines, and J. Fallon. 2005. The North American Breeding Bird Survey, Results and Analysis 1966 - 2003. Version 2005.2. USGS Patuxent Wildlife Research Center, Laurel, MD. Available online at <http://www.mbr-pwrc.usgs.gov/bbs/>. Accessed 2Feb2006.
- Savignac, C. 2004. COSEWIC status report on the Rusty Blackbird *Euphagus carolinus*: SSC Review Draft. Prepared for Committee on the Status of Endangered Wildlife in Canada. Chelsea, Quebec.

Rusty Blackbird

Sibley, D. 1993. Birds of Cape May. New Jersey Audubon Society, Cape May Point, NJ.

Sinclair, P.H., W.A. Nixon, C.D. Eckert, and N.L. Hughes. 2003. Birds of the Yukon Territory. Pp. 485-486. UBC Press, Vancouver, B.C.

Spindler, M.A. 1976. Ecological survey of the birds, mammals and vegetation of Fairbanks Wildlife Management Area. M.S. thesis, University of Alaska, Fairbanks, AK.

Spindler, M.A. and B. Kessel. 1980. Avian populations and habitat use in interior Alaska taiga. University of Alaska Museum, Fairbanks, AK.

Acknowledgements:

State Conservation Status, Element Ecology & Life History Author(s): McClory, J.G., T.A. Gotthardt and A.L. Jansen, Alaska Natural Heritage Program, Environment and Natural Resources Institute, University of Alaska Anchorage, 707 A Street, Anchorage, AK. <http://aknhp.uaa.alaska.edu>.

State Conservation Status, Element Ecology & Life History Edition Date: 07July2005

Much of the information contained in this report was derived from:

Hannah, K.C. 2004. Status review and conservation status plan for the Rusty Blackbird in Alaska. Draft Report. Alaska Bird Observatory, AK.

We would like to thank the Alaska Bird Observatory for providing us with a draft copy of the report and to Kevin Hannah for all his efforts.

Reviewer(s): Christopher Harwood, Kanuti National Wildlife Refuge, US Fish and Wildlife Service, Fairbanks, AK.

Life history and Global level information were obtained from the on-line database, NatureServe Explorer (www.natureserve.org/explorer). In many cases, life history and Global information were updated for this species account by Alaska Natural Heritage Program zoologist, Tracey Gotthardt. All Global level modifications will be sent to NatureServe to update the on-line version.

Global Element Ecology & Life History Edition Date: 22Mar1994

Global Element Ecology & Life History Author(s): Hammerson, G.

Copyright Notice: Copyright © 2005 NatureServe, 1101 Wilson Boulevard, 15th Floor, Arlington Virginia 22209, U.S.A. All Rights Reserved. Each document delivered from this server or web site may contain other proprietary notices and copyright information relating to that document.

Photo credit: Copyright Jeff Nadler, used with permission. All rights reserved by the photographer.
