Black Rosy-Finch

Leucosticte atrata

REGULATORY STATUS

USFWS: Migratory Bird
USFS R2: No special status
USFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Protected Bird

CONSERVATION RANKS

USFWS: Bird of Conservation Concern
WGFD: NSSU (U), Tier II
WYNDD: G4, S1B/S2N
Wyoming Contribution: VERY HIGH
IUCN: Least Concern
PIF Continental Concern Score: 16

STATUS AND RANK COMMENTS

Black Rosy-Finch (*Leucosticte atrata*) has been assigned different S-ranks by the Wyoming Natural Diversity Database for the breeding and non-breeding seasons. This is because the species' habitat is not as restrictive during the non-breeding season, which makes the species less intrinsically vulnerable.

NATURAL HISTORY

Taxonomy:

There are no recognized subspecies of Black Rosy-Finch. In 1983, the three American rosy-finch species: Black Rosy-Finch, Brown-capped Rosy-Finch (*L. australis*), and Grey-crowned Rosy-Finch (*L. tephrocotis*), were combined with Asian Rosy-Finch (*L. arctoa*) into one species. In 1993, the American Ornithologist Union (AOU) reinstated original species status designations due to a lack of evidence supporting the merge [1]. Recent genetic evidence suggests that the three North American Rosy-Finches may only constitute one species [2]. However, the most recent AOU ruling rejected merging the three American rosy-finches into one species [3].

Description:

Identification of Black Rosy-Finch is possible in the field. The Black Rosy-Finch is approximately 16 cm in length, similar in size and overall shape to large sparrows, but stockier. The species has a mid-sized conical bill, and a relatively short, notched tail. Adult males and females differ in plumage. The male is uniformly dark brownish-black on the back, breast, neck, and face below the eye. The feathers of the belly, rump, upper- and under-tail coverts, and the bend of the wing (shoulder) are broadly tipped with pink. The forecrown is black, with a silver-gray band around the hindcrown. The bill is yellow during the breeding season, and gray to black during the winter. Females look similar to the male, but the body is a lighter grayish-brown, and the back is more streaked. The pink on the feathers is reduced or absent. The gray on the

hindcrown is often absent by midsummer. Juveniles look similar to females, but are lighter in coloring. The species is similar in appearance to Brown-capped Rosy-Finch and Gray-crowned Rosy-Finch but Black Rosy-Finch is darker overall [4, 5].

Distribution & Range:
Black Rosy-Finch is a localized, high altitude breeder in the mountains of Wyoming, Montana, Idaho, Oregon, Nevada, and Utah. In winter, the species may descend to lower elevations adjacent to breeding areas. Occasionally, the species may wander farther, regularly occurring in Colorado, northern New Mexico and southern Wyoming and has been documented in the Black Hills of South Dakota [5-7].

Habitat:
Black Rosy-Finch breeds in alpine tundra habitats. The species nests on cliff and rock faces, and forages on tundra, fellfields, rock slides, snowfields, and glaciers within 4 km of the nest site. In Wyoming, suitable habitat is found in the Gallatin, Teton, Gros Ventre, Wind River, and Absaroka ranges, and the Beartooth and Bighorn Mountains [5]. In the winter, Black Rosy-Finches use alpine tundra and open slopes just below tree line. The species often descends into intermountain valleys when snow covers higher slopes, and can also be found in human landscapes especially where bird feeders provide food [5].

Phenology:
Migratory patterns and timing of Black Rosy-Finch are largely unknown. Generally, the species leaves wintering grounds in mid-March to mid-April and arrives in breeding areas by late April. Post breeding migration to lower elevations usually occurs in October. Knowledge of the nesting cycle is limited but observations suggest nest building begins between early June and mid-July, egg laying occurs between late June and late July, followed by incubation between mid-June and early August, nestlings hatch from early July to late August, and young fledge from late July to late August [5].

Diet:
The species eats seeds in winter, including those offered at bird feeding stations. During the breeding season, the species eats seeds and insects [5].

CONSERVATION CONCERNS

Abundance:
Continental: REGIONAL ENDEMIC
Wyoming: RARE
No population estimates are available for the Black Rosy-Finch in Wyoming. In 2013, Partners in Flight estimated the global population at 20,000 birds [8]. Wyoming supports a large portion of this population [5].

Population Trends:
Historic: UNKNOWN
Recent: UNKNOWN
Population trends of Black Rosy-Finch are largely unknown. The Christmas Bird Count (CBC) is the only long term monitoring program to provide frequent detections of the species. In Wyoming, these counts have shown a slight increase in the number of birds detected over the past 20 years. This is similar to national trends, which suggest a slight increase over this time

period [9]. However, apparent trends should be viewed with caution due to the nomadic nature of the species in winter [5].

Intrinsic Vulnerability:

HIGH VULNERABILITY

Black Rosy-Finch is highly vulnerable to extrinsic stressors. Specifically, during the breeding season, the species is restricted to high alpine slopes, nesting on cliff and rock faces above tree line. This habitat only occurs in limited locations in Wyoming, and elsewhere across its range [5]. The species is less vulnerable in the winter, using a variety of landscapes at lower elevations for foraging.

Extrinsic Stressors:

SLIGHLTY STRESSED

The remoteness and inaccessibility of breeding habitat protects Black Rosy-Finch from most threats. Breeding habitat may become reduced in size and quality due to global climate change [10]. Potential human impacts on the species are poorly understood and largely conjectural. For example, blasting operations for mining could both destroy or create breeding habitat [5]. Livestock grazing may have a negative impact by reducing food availability and by attracting Brown-headed Cowbirds (*Molothurs ater*), which parasitize the nests of many passerine birds leading to reduced nest success [5, 11]. In winter, the species tends to occur in larger concentrations at lower elevations, which may lead to increased mortality through window and automobile collisions, predation by domestic cats, and potential disease transmission [5].

KEY ACTIVITIES IN WYOMING

A graduate research project initiated in fall 2015 at the University of Wyoming will investigate abundance and distribution of Black Rosy-Finch in western Wyoming. The goals of this study are to develop a predictive distribution map and evaluate potential impacts of reduced snowfields at breeding sites. Preliminary field work funded through the Meg and Bert Raynes Wildlife Fund in summer 2015 resulted in the documentation of three new breeding sites in western Wyoming [12]. The Integrated Monitoring in Bird Conservation Regions program has detected the species during a limited number of point counts [13-15]. The species is regularly detected during CBCs in Wyoming. However, due to the nomadic nature of the species and the inconsistent survey effort, results from these surveys should be considered carefully [5].

ECOLOGICAL INFORMATION NEEDS

A clear understanding of the genetic relationships between the three rosy-finch species in North America is lacking. Genetic studies by Drovetski (2009) and McDonald (2002) remain inconclusive but suggest that American rosy-finch species are closely related [2, 16]. Little is known in regard to breeding biology of the species, specifically, when and where pair bonds form; timing of breeding as it relates to latitude; nesting and annual reproductive success; and nest site fidelity. Factors that negatively affect the species during the breeding season and in winter are unknown. One recent study indicated that stocking fish in high alpine lakes affected rosy-finch productivity [17]. Robust abundance and population trend estimates are lacking. Specific wintering locations for birds that nest in Wyoming are unknown.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Susan M. Patla. Black Rosy-Finch is one of the least studied bird species in the western United States, including Wyoming where the majority of the population appears to nest. Baseline data are needed on distribution and abundance. A recent graduate study funded through a State Wildlife Grant should provide valuable information for future management strategies and actions. Information needs include: determining the importance of persistent snowfields during the nesting season for productivity, creating and testing a map of potential nesting habitat to determine distribution and abundance, identifying the mechanisms of how future climate changes may affect rosy-finches throughout the year, identifying migration and wintering sites for Wyoming's nesting population, and setting up a long-term monitoring protocol to determine future population trends.

CONTRIBUTORS

Susan M. Patla, WGFD
Michael T. Wickens, WYNDD
Ian M. Abernethy, WYNDD
Douglas A. Keinath, WYNDD

REFERENCES

[1] Monroe, B. L., Banks, R. C., Fitzpatrick, J. W., Howell, T. R., Johnson, N. K., Ouellet, H., Remsen, J. V., and Storer, R. W. (1993) Thirty-ninth supplement to the American Ornithologists' Union Check-list of North American Birds, *The Auk 110*, 675-682.

[2] Drovetski, S. V., Zink, R. M., and Mode, N. A. (2009) Patchy distributions belie morphological and genetic homogeneity in rosy-finches, *Molecular Phylogenetics and Evolution 50*, 437-445.

[3] Chesser, R. T., Banks, R. C., Barker, F. K., Cicero, C., Dunn, J. L., Kratter, A. W., Lovette, I. J., Rasmussen, P. C., Remsen, J. V., Jr., Rising, J. D., Stotz, D. F., and Winker, K. (2013) Fifty-fourth supplement to the American Ornithologists' Union Check-list of North American Birds, *The Auk 130*, 1-14.

[4] Peterson, R. T. (2008) *Peterson Field Guide to Birds of North America*, First ed., Houghton Mifflin Company, New York.

[5] Johnson, R. E. (2002) Black Rosy-Finch (*Leucosticte atrata*), In *The Birds of North America* (Rodewald, P. G., Ed.), Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/bkrfin.

[6] Taulman, J. F., and Platt, S. G. (2003) First record of the Black Rosy Finch in the Black Hills of South Dakota, *South Dakota Bird Notes 55*, 96-97.

[7] Keinath, D., Anderson, M., and Beauvais, G. (2010) Range and modeled distribution of Wyoming's species of greatest conservation need, Wyoming Natural Diversity Database, University of Wyoming, Laramie, Wyoming.

[8] Partners in Flight Science Committee. (2013) Population Estimates Database, version 2013, http://rmbo.org/pifpopestimates.

[9] National Audubon Society. (2012) Christmas Bird Count Historical Results [Online], National Audubon Society, www.christmasbirdcount.org.

[10] Romme, W. H., and Turner, M. G. (1991) Implications of global climate change for biogeographic patterns in the greater Yellowstone ecosystem, *Conservation Biology 5*, 373-386.

[11] Bull, E. L., and Wales, B. C. (2001) Effects of disturbance on birds of conservation concern in eastern Oregon and Washington, *Northwest Science 75*, 166-173.

[12] Brown, C. W., Johnson, R. E., and Patla, S. (2016 *In prep.*) Extension of the breeding range of Black Rosy-Finch in Wyoming, *Intended for Western Birds*.

[13] Orabona, A. (2010) Wyoming Partners in Flight, In *Threatened, Endangered, and Nongame Bird and Mammal Investigations: Annual Completion Report* (Orabona, A. C., Ed.), pp 235-242, Wyoming Game and Fish Department.

[14] Orabona, A., Cudworth, N., White, C., and Hanni, D. (2011) Wyoming Partners in Flight and Integrated Monitoring in Bird Conservation Regions, In *Threatened, Endangered, and Nongame Bird and Mammal*

Investigations: Annual Completion Report (Grenier, M. B., Ed.), pp 205-214, Wyoming Game and Fish Department.

[15] Orabona, A., Cudworth, N., White, C., Van Lanen, N., and Hanni, D. (2012) Wyoming Partners in Flight and Integrated Monitoring in Bird Conservation Regions, In *Threatened, Endangered, and Nongame Bird and Mammal Investigations: Annual Completion Report* (Grenier, M. B., Abel, B., and Cudworth, N., Eds.), pp 238-248, Wyoming Game and Fish Department.

[16] McDonald, D. (2002) A Genetic Wallace's Line Across Wyoming- Genetic Structure of North American Rosy-Finches, In *University of Wyoming National Park Service Research Center Annual Report*, pp 103-105.

[17] Epanchin, P. N., Knapp, R. A., and Lawler, S. P. (2010) Nonnative trout impact an alpine-nesting bird by altering aquatic-insect subsidies, *Ecology 91*, 2406-2415.

Figure 1: Male (top) and female (bottom) Black Rosy-Finches near Lake Hattie, Albany County, Wyoming. (Photos courtesy of Shawn Billerman)

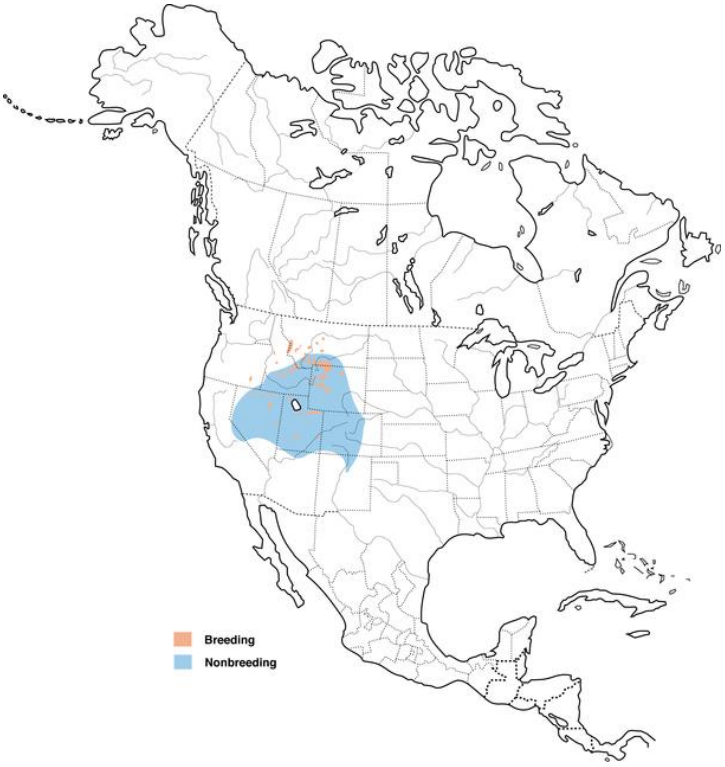

Figure 2: North American range of *Leucosticte atrata*. The species breeds at high elevation sites and migrates to lower elevations for the winter months. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

Figure 3: Black Rosy-Finch habitat in Bighorn National Forest, Wyoming, near Lake Angeline in the Cloud Peak Wilderness. (Photo courtesy of Jesse Agee)

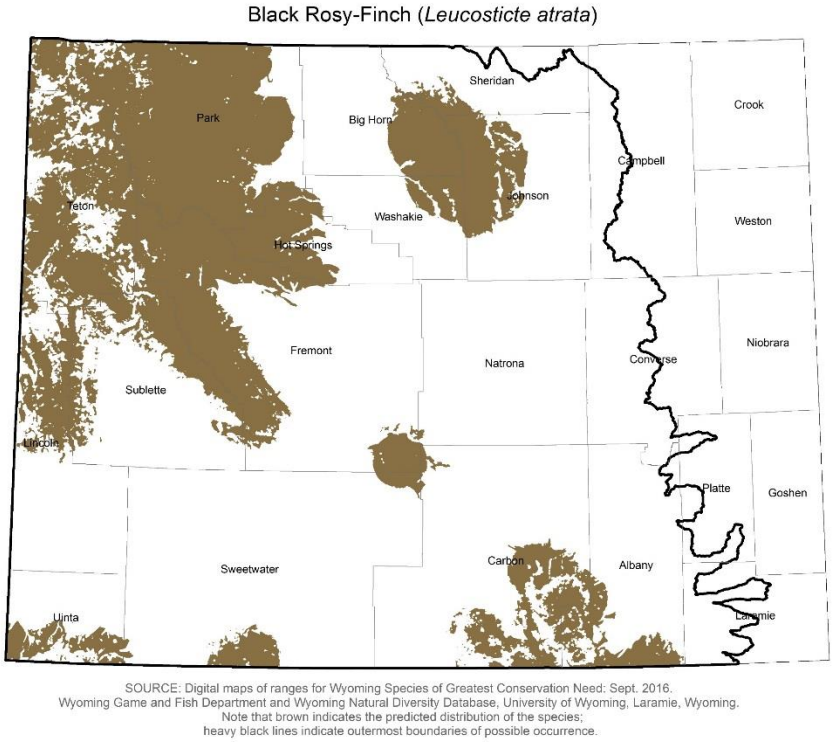

Figure 4: Range and predicted distribution of *Leucosticte atrata* in Wyoming.