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A NEW RACE OF THE PURPLE FINCH

Carpodacus purpureus (Gmelin)¹

By A. L. RAND

National Museum of Canada, Ottawa

EXAMINATION of the purple finches in the National Museum of Canada collection indicates that the birds from the central western part of the range of the species represent a well marked, unrecognized race that is here described as:

Carpodacus purpureus taverneri, new subspecies. Type No. 25387, National Museum of Canada; male adult; Government Hay Camp (Park Headquarters), Wood Buffalo Park, Alberta; May 26, 1933; collector, J. Dewey Soper.

Diagnosis:—Most similar to *purpureus* of eastern Canada but differs in the male in spring plumage being considerably lighter coloured; the red of the head, rump, and breast, and the reddish wash of the back being lighter; the brownish edgings of rectrices, remiges, and upper wing coverts being paler; the underwing and underwing coverts being whiter; the partly concealed edgings of the feathers of the neck and upper back that give a streaked effect being more evident and more white, less greyish; the grey of lores and nostrils being paler; and the bill being light horn, rather than dark horn in color.

The females are much less different, but average slightly paler brown above, with the paler, greyish-white, partly concealed, feather edgings more conspicuous; and average paler underwings.

Measurements: male adult, wing (chord) (10) 82-87 (av. 83.6 mm.); tail (10) 56-61 (av. 57.6 mm.); bill (exposed culmen) 10-12 mm.

Range: Specimens taken in the breeding season outline the breeding ranges as from northern Alberta to central Manitoba, south to Jasper, Indian Head and Clear Lake; intergrading with *C. p. purpureus* in south-

ern Manitoba; northern and eastern British Columbia birds probably also belong to this form.

Specimens examined.

C. p. purpureus: Total, 79; Nova Scotia, 1 (Cape North); New Brunswick, 3 (Youghall, 1; Miscou Island, 1); Quebec, 18 (Perce, 3; Natashkwan, 1; Moisie Bay, 8; Richerville, 3; Hatley, 1; Meach Lake, near Hull, 2); Ontario, 42 (Ottawa, 18; Galetta, 11; Germanicus, Renfrew Co., 1; Picton, 1; Toronto, 2; London, 3; Arden, 1; St. Mary's, 1; Pt. Pelee, 3; Longwood, 1; Fairmount, 1; Georgian Bay, 1; Kapuskasing, 5; Lac Seul, 3); Michigan, 5 (Trenton, 1; Rockwood, 3; Greenfield, 1); Manitoba, 10 (Selkirk, 1; Whitewater Lake, 1; Oak Lake, 2; Virden, 1; Shoal Lake, 5²).

C. p. taverneri: Total, 30; Manitoba, 6 (Clear Lake, 2; Dauphin, 2; Swan River, 1; The Pas, 1); Saskatchewan, 1 (Indian Head); Alberta, 23 (Wood Buffalo Park, 7; Peace River Landing, 1; Lac La Nonne, 8; Belvedere, 1; Edmonton, 3; Red Deer River, 1; Canmore, 1; Jasper Park, 1).

C. p. rubidus: Total 35; British Columbia, 35 (Douglas, 4; Huntingdon, 5; Chilliwack, 4; Agassiz, 2; Brackendale, 3; Burrard Inlet, 2; Lillooet, 4; Victoria, 3; Comox, 4; Kimsquit, Dean River, 3; Hagensborg, 1).

C. p. californicus: Total 3; California (Palo Alto, 3; Haywards, 1).

Remarks:—The taxonomic treatment of the purple finches in Canada now stands as follows:

C. p. purpureus Gmelin; Nova Scotia, to Ontario and southern Manitoba, intergrading with the next form in south west Manitoba.

1. —Received for publication February 19, 1946.

2. —Show a tendency toward *taverneri*.

C. p. taverneri Rand; central and northern Manitoba to northern British Columbia (at least to Telegraph Creek and the Cariboo). No area of intergradation with the next form is known.

C. p. rubidus Duvall; southwestern British Columbia, at least north to Kimsquit and east to Lillooet.

Manitoba specimens from Oak Lake and Shoal Lake show an approach to *taverneri*, but the populations are best referred to *purpureus*; those from Clear Lake northward are definitely *taverneri*. No area of intergradation between *taverneri* and *rubidus* has been demonstrated. Swarth (1922, University of California Pub. Zool., 24, p. 232) refers to Telegraph Creek specimens as unequivocally *C. p. purpureus*, and Munro (1945, Can. Jour. Research D, 23, p. 88) says Lac La Hache specimens are typical of *C. p. purpureus*. Laing (1942, Condor, 44, p. 181) records *C. p. purpureus* from the Bella Coola area, but says that Allen Brooks found the specimens intermediate, the color favoring *californicus*, the wing formula *purpureus*. These specimens (Hagensborg and Kimsquit) are now in the National Museum, and they are plainly referable to *rubidus* in color. Their measurements (wing, male, 78, 82; female, 78, 78) while not conclusive, permit the same allocation. Apparently the main reason for considering them *purpureus* was the wing formula. Ridgway (1901, Bull. U.S. Nat. Mus. No. 50, part 1, p. 130) says one of *californicus* characteristics is that it usually has the 9th (outermost) primary shorter than the 6th. A survey of the present material of *rubidus* from south west British Columbia and *taverneri* from Alberta and Manitoba gives the following results.

9th Primary

	Longer than 6th	9 and 6 sub-equal	Shorter than 6th
<i>rubidus</i>	16 examples	5 examples	13 examples
<i>taverneri</i>	20 examples	5 examples	6 examples

Thus there is a slight average difference, but it is not diagnostic, and Duvall (1945,

Condor, 47, p. 202) in his recent work on this species did not mention this character.

Though the material available of *C. p. californicus* to compare with the recently described *C. p. rubidus* (Duvall, l.c.) is scanty, the present material substantiates Duvall's conclusions that Canadian birds be referred to *rubidus*.

Duvall has shown that *rubidus* intergrades with *californicus* near Fort Klamath, Oregon.

The trends in variation in this species do not run smoothly from one edge of the range of the species to the other. The characters seem fixed over considerable areas, with apparently narrow zones of intergradation. Nor do the characters show progressive changes when comparing the four subspecies in geographical sequence. Arranging the subspecies thus:

- | | |
|-------------------------------|---------------|
| (1) <i>C. p. purpureus</i> | east |
| (2) <i>C. p. taverneri</i> | north central |
| (3) <i>C. p. rubidus</i> | west |
| (4) <i>C. p. californicus</i> | south west |

In size (1) and (2) contrast with (3) and (4). In depth of color (2) is palest, followed by (4), (3) and (1). In intensity of streaking the sequence is (2) most prominently streaked, followed by (1), (3) and (4).

Thus it is seen that neither *rubidus* nor *taverneri* are intermediates between the two extreme geographical representatives; *rubidus* with the obscure streaking of *californicus* represents a darkened condition, correlated with increased humidity; *taverneri*, with the streaked condition of *purpureus* intensified, is a paler form correlated with the low rainfall of its range. *C. p. taverneri* is more different from *rubidus* than is *purpureus*.

Apparently the main break in the species, from a taxonomic viewpoint is central British Columbia; to the east are the larger, streaked forms *C. p. purpureus* and *C. p. taverneri*; to the south are the smaller, less streaked forms, *rubidus* and *californicus*.



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