# FEATURED PHOTO

# PINK-SIDED × GRAY-HEADED JUNCOS

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Rich in variation, Dark-eyed Juncos offer endless opportunities for study. The five subspecies groups (Slate-colored, Oregon, Gray-headed, White-winged, and Guadalupe) currently include 15 recognized subspecies (A.O.U. 1957, 1983), with the distinctive subspecies *mearnsi* (Pink-sided) plausibly considered a sixth group. Although it is easy to become overwhelmed by such complexity—the late Ernst Mayr (1942) termed the species a systematist's "nightmare"—here we embrace only the modest goal of illustrating and reviewing one form of introgression, that between the Pink-sided Junco (*J. h. mearnsi*) and the Gray-headed Junco (*J. h. caniceps*). *Junco h. mearnsi* is generally considered part of the Oregon group, but in this discussion—purely for the sake of clarity and with no taxonomic implications—we treat it as a taxon separate and apart from the Oregon Junco, which consists of seven other subspecies. We preface our remarks by directing readers to the superlative article by Dunn (2002), which covered a range of topics concerning *mearnsi*, including its taxonomic history, geographic range, plumage variation, identification of hybrids, and an enlightening analysis of the way 13 field guides have illustrated Pink-sided Juncos (short answer: poorly in general, with seven of them depicting female Oregon Juncos!). It is perhaps the last point that best explains why many of us who have not lived among Pink-sided Juncos (including Hamilton, but not Gaede) so often confuse them with pale Oregon Juncos (a separate topic not covered here) or hybrids. Another important factor surely is the human predilection for naming things, and for preferring tidy categories over messy ones. Many distinguished ornithologists with first-hand experience sorting Dark-eyed Juncos would seek to disabuse us of this habit.

When Ridgway (1897) described the Pink-sided Junco (as a full species, *J. mearnsi*), it was surely the only case in which the person for whom a species was named (*J. ridgwayi* Mearns) diagnosed that taxon's illegitimacy (the type specimen of *J. ridgwayi* was actually a rufous-backed hybrid similar to the middle bird on the back cover) and then named one of the hybrid's parental taxa (*J. mearnsi* Ridgway) after the very colleague who had tried to do him the same favor [see Ridgway (1901:276) for further explanation]. Both *mearnsi* and *caniceps* breed in the central Rocky Mountains, the former north of the latter, with zones of overlap that include parts of northeastern Nevada, southern Idaho, northeastern Utah, and southern Wyoming (Dunn 2002). Both taxa winter extensively in New Mexico, Arizona, northernmost mainland Mexico, and adjacent areas. *Junco h. caniceps* occurs regularly, albeit sparsely, west across most of California and south into northwestern Baja California, with scattered records south to southern Baja California Sur (e.g., Wilbur 1987). Unlike that of *caniceps*, the winter range of *mearnsi* includes almost all of Colorado but is more restricted than that of *caniceps* south and west of there. *Junco h. mearnsi* is casual in coastal southern California and northwestern Baja California (six records south of the border, the most recent on the 17 December 2004 Ensenada Christmas Bird Count), with a more unusual 19 October 1994 record from the Vizcaíno Peninsula of northern Baja California Sur (Erickson et al. 2001).

*Speciation in the avian genus* Junco, by Alden H. Miller (1941), is widely regarded as the most comprehensive and useful treatment of the genus (e.g., Dunn 2002, Nolan et al. 2002). For our limited purposes, however, we focus on Miller's (1939)

*Analysis of some hybrid populations of juncos*, allowing his words to carry the discussion. He considered *caniceps* to be "the best subject for special study within the genus [because of the] small separated mountain areas around the periphery of its general range [with] small breeding populations that clearly result from hybridization of *caniceps* with other kinds of juncos. These surrounding kinds happen to be either moderately or very well differentiated from *caniceps*, and the hybrid populations are as a result interesting assortments of individuals."

Regarding behavior of the different forms in these areas of overlap, he wrote, "These Gray-headed Juncos apparently have no inhibitions in accepting a member of another race or 'species' as a mate. While in the field in northern Utah, I became impressed with the random mating of *caniceps* and *mearnsi*. Mixed pairs were taken with young. There seems to be nothing to prevent the complete interpenetration of *caniceps* and *mearnsi* except partial geographic barriers consisting of ecologically unsuited regions. It is difficult to imagine a special survival value in the pink sides of *mearnsi* or in the red back of *caniceps* related to the particular environments. There may be physiological features of the two forms that differ, however. Striking also is the fact that the distinct types *J. c. dorsalis* and *J. o. pinosus* have been hybridized in captivity."

This is but one of many such cautionary passages peppered throughout the literature on juncos. Back color is of central importance in distinguishing *mearnsi* from its hybrids with *caniceps*, and Miller explained how the colors are produced: "*Caniceps* has a single pigment, a reddish phaeomelanin, that gives the rich mahogany red back. In *thurberi* [the Oregon Junco] there is a yellowish phaeomelanin in the bases of the barbules and a dusky eumelanin on the tips of the barbules in a proportion that produces a tan-colored back. *Mearnsi* is similar to *thurberi*, but the yellow phaeomelanin is of slight amount and the tips of eumelanin are extensive. The result is a drab brown back."

Furthermore, "In crosses of these forms it is clear that the eumelanin and phaeomelanin pigments are inherited more or less independently. . . . The eumelanin in hybrids either is present in full amount, absent on the outer vanes of many of the feathers, or absent entirely. There results from the independent assortment of these pigments some types of back coloration unlike either parent."

Males of both *mearnsi* (top photo on the back cover) and *caniceps* × *mearnsi* (middle photo) have pearly gray heads and throats, black lores, and pink bills. The back color, however, differs significantly. Pink-sided backs are dull brown, a tone created from a unique combination of the colors (red, yellow, dusky) mentioned above. Thus a Pink-sided's back color is even drabber than that of most subspecies of the Oregon Junco, and even more distinctly different from the rich chestnut tones that stand out so vividly between the wings of a Gray-headed (middle photo). Hybrids typically show the reddish hues of *caniceps* on the back, and sometimes on the tertials, as shown in this photo.

Consider the sides and flanks, as well: "The sides of *caniceps* are pale gray in contrast to the yellowish and cinnamon pink of *thurberi* and *mearnsi*, respectively. The gray is a eumelanin, the yellow and pinks, phaeomelanin, all rather dilute. In crosses, these pigments do not mix. There is no intermediate pigment, and rarely are the two pigments in the same part of a feather. But, some feathers may be gray on part of the web and pink elsewhere, and in the side area totally gray feathers may be mixed with pink feathers. In the *thurberi–caniceps* hybrids the *thurberi* character is more apparent in females than in males. It appears that there is some interaction with sex factors. In most species of the genus females are more given to developing phaeomelanins than are males. The *mearnsi* type of side seems to be dominant over that of *caniceps* in both sexes."

The hybrid on the back cover shows two points mentioned above. Most obviously, the sides are not gray as in *caniceps*, but neither is the pinkish color as broadly or

as evenly distributed along the sides and flanks as on pure *mearnsi*. Although not shown clearly in this photo, the blush of color on this hybrid's underparts appeared to be somewhat patchy, in keeping with Miller's description above. By contrast, pure *mearnsi* shows a wide and uniform wash of pinkish-cinnamon along the sides that tends to bulge outward toward the belly, particularly on females (Dunn 2002).

The photos on the back cover show well-marked individuals that are not difficult to identify. Those seeking a more thorough and sobering framing of the issues will find it in Dunn's review. As much as anything, we intend our brief treatment as an introduction to Miller's extensive work with this genus, work that remains incomplete to this day. On a more practical level, we hope to keep the broad issues of hybridization closer to the front of birders' minds as they pick through junco flocks and ponder the charming oddballs that stand out among the others, some of which don't appear in any field guides.

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