

## HYBRIDIZATION OF HERMIT AND TOWNSEND WARBLERS

By STANLEY G. JEWETT

For many years a fine adult, off-colored male "Hermit Warbler" (no. 954 S.G.J.), collected by me at Tillamook, Oregon, on May 10, 1913, has been in my collection. Its peculiar coloration made the bird stand out clearly among other Hermit Warblers (*Dendroica occidentalis*) in my series but not until recently did I recognize its importance. On May 14, 1942, I collected a male in similar plumage at Gotchen Creek Ranger Station in the Columbia National Forest on the south slope of Mount Adams in Washington. This bird (no. 367381 U.S. Biol. Surv.) was sent to the Fish and Wildlife Service Washington, D.C., where Dr. John W. Aldrich called my attention to the fact that it was evidently a hybrid *Dendroica occidentalis* x *Dendroica townsendi*. At my request he returned the skin to me for further study.

I have now accumulated a fairly large series of both *townsendi* and *occidentalis*, as well as data on a large number of specimens in other western collections. Thanks to the cooperative spirit of Dr. Alden H. Miller of the Museum of Vertebrate Zoology at Berkeley, California, who forwarded me specimens (nos. 83783 and 83784 M.V.Z.) for study, I now have before me four adult males that show decisive evidence of hybridization of *occidentalis* and *townsendi*. These are:

- M.V.Z. 83783, ♂, North Santiam River, Linn County, Oregon, June 9, 1941, collected by Alden H. Miller.
- M.V.Z. 83784, ♂, 9 miles west of Sisters, Deschutes County, Oregon, June 14, 1941, collected by Joe T. Marshall, Jr.
- U.S.B.S. 367381, ♂, Gotchen Creek Ranger Station, Mount Adams, Washington, May 14, 1942, collected by Stanley G. Jewett.
- S.G.J. 954, ♂, Tillamook, Tillamook County, Oregon, May 10, 1913, collected by Stanley G. Jewett.

All four specimens are in full breeding plumage. Their most striking characteristic is the fact that they show essentially the full head markings of *occidentalis*, without any sign of the mask of *townsendi* except a small black spot in front of each eye on no. 83783 M.V.Z.—just enough for a suggestion of *townsendi*. The whole forehead, crown, sides of head down to and including the malar region, and the sides of neck are clear lemon or canary yellow. The crowns of nos. 954 S.G.J. and 367381 U.S.B.S. show the normal spotting of black found in *occidentalis*, whereas the crowns of nos. 83783 and 83784 M.V.Z., show more blackish spotting, the latter specimen having an abnormal amount of black on the nape and hindneck. The green of the backs of nos. 954 S.G.J. and 367381 U.S.B.S. approaches that in *townsendi* rather closely, whereas the green in nos. 83783 and 83784 M.V.Z. is largely suppressed. Another striking character in this cross is the partial streaking of the sides which in intensity and extent in all specimens is slightly less than in *townsendi*.

Even though all of the hybrid specimens available for study show essentially the full head characters of *occidentalis*, the body characters of nos. 367381 U.S.B.S. and 954 S.G.J. are mainly those of *townsendi*. No. 83783 M.V.Z. has only a faint wash of yellow on the breast, and less green on the back than any of the other three, but it has the streaking of the sides as found in *townsendi*. No. 83784 M.V.Z. has the yellow breast and the positive streaking of the sides, but a back which is remarkably dark and in which the green of *townsendi* is largely suppressed.

The plumage of nos. 83783 and 83784 M.V.Z. suggests that hybridization has gone farther than one generation so that the characters of *occidentalis* and *townsendi* have

been further broken down and assorted. This theory is further supported when past experiences in studying the songs of these birds is recalled. Several years ago, while in the forests of hemlock and spruce near Netarts Bay, Tillamook County, Oregon, with several members of the Oregon Audubon Society, we encountered numerous singing males of both Hermit and Townsend warblers. All were feeding high above the ground and were difficult to see in the dense foliage. I well recall the difficulty we had in distinguishing the songs of some of these birds. Mrs. Jewett and I had exactly the same experience on the slope of Mount Adams in Washington during May, 1942. To further substantiate my experience, Dr. Alden H. Miller, to whom I had never mentioned the matter, wrote me under date of October 27, 1942, as follows: "Discovery of these birds in our material recalls to mind the difficulty I had in distinguishing songs of some Townsend and Hermit warblers while collecting on the North Santiam River [Oregon, in 1941]. Both species were present in the hemlocks and I wonder now if the birds themselves were not confused at times as I was with the similarity in song." Possibly some of the songs we both heard were those of hybrids. I agree completely with Dr. Miller when he says: "Of course, I am reasonably sure that the two species in the main remain separate."

So far as I am aware the hybridization of *Dendroica occidentalis* and *Dendroica townsendi* has not been reported heretofore. In fact, the hybridization of any of the western species of *Dendroica* is extremely rare.

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