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RACES OF PALM WARBLERS KILLED AT A FLORIDA TV TOWER

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It has long been believed that the Western Palm Warbler (*Dendroica palmarum palmarum*) far outnumbers the more eastern race, the Yellow Palm Warbler (*D. p. hypochrysea*), in the southeastern United States during migration and in winter. In Florida, for example, Sprunt (1954: 412) noted that *hypochrysea* is "much less numerous than the Western Palm Warbler (*palmarum*)." Similar statements may be found for Alabama (Imhof 1962), Georgia (Burleigh 1958), and South Carolina (Sprunt and Chamberlain 1949). The bases for these statements on relative abundances of the two races stem from collected specimens and field observations especially of spring-plumaged birds. Collectors, however, have probably been biased toward the yellower *hypochrysea*. Furthermore field identification of even these well marked races cannot always be reliable and certain, partly because intermediates exist.

A less biased "collector," in my opinion, is the television tower, which very likely kills birds indiscriminately during nocturnal migration. One such TV tower, WCTV tower in northern Leon County, Florida has killed literally thousands of small migrants over the last 20 years. Thanks to the efforts initiated by Herbert L. Stoddard, Sr. (deceased), his colleagues (chiefly Robert A. Norris) and successors such as W. Wilson Baker and Robert Crawford, all dead birds under the tower are picked up at dawn each morning (Stoddard and Norris 1967), and the accumulated birds have been the bases of many published works on migration, fat deposition, morphometrics, and distribution. From September 1961 through November 1966, 369 Palm Warblers were killed at the tower, frozen, and recently given to me for analysis. Because the mass, stored in small plastic bags, had been partially thawed then refrozen several times, determination of sex by dissection was impossible and body weights could not be considered as accurate. So, analysis, as reported here, was limited to racial identification, age identification (in fall only, based upon skull ossification), and presence or absence of an obvious chestnut crown. *D. p. hypochrysea* is decidedly larger than *D. p. palmarum* (Ridgway 1902), but since the deteriorated condition of the present samples prevented determination of sex, size alone was not used in subspecific identification. Rather, identification was based on the yellow coloration of the entire underparts of *hypochrysea*. Racial identification was aided by reference collections of the Florida State Museum

and Pierce Brodkorb, to whom acknowledgments are given. Also, Robert Wallace assisted in important parts of the study.

Table 1 presents the chief results of analysis of these 369 specimens. Of particular importance are the relative numbers of the races: (1) in fall, 89% were *D. p. palmarum*, 6% intermediate, and 5% *hypochrysea*; (2) in spring, these percentages were 74, 16, and 10 respectively. These data certainly corroborate the statements of Sprunt and the others cited above concerning the relative abundance of the two races especially in Florida. In the fall specimens, skull examination showed that 60% of the 233 birds were adults. Furthermore, for all the fall birds including both age groups, 53% had chestnut crowns. Data in Table 1 show that chestnut vs brown crowns is not age-related in the fall (earlier reported by Dwight 1900 and Ridgway 1902), although, parenthetically, a relationship with sex cannot be ruled out because sex of the birds could not be determined. In the spring, all specimens had chestnut crowns.

Table 1

Numbers of Races of Palm Warblers Killed at WCTV Tower, 1961-1966

		Sept. - Nov.		Mar. - Apr.	
		crown		crown	
		chestnut	brown	chestnut	brown
palmarum	adult	69	58	101	0
	immature	34	46		
intermediate	adult	6	3	21	0
	immature	4	1		
hypochrysea	adult	3	0	14	0
	immature	7	2		

One might wonder to what extent these tower-killed birds, especially those killed in the fall, would be truly indicative of relative abundances of birds "on the ground," as it were. In a study of fat deposits involving *D. p. palmarum* striking the WCTV tower, I reported (Johnston 1968: 14) that some of the 34 birds ". . . undoubtedly had sufficient fat stores to fly nonstop to Yucatan or Cuba, whereas others did not; probably the latter birds would have overwintered in Florida." And Stevenson (1957) noted that the bulk of migration for the Palm Warbler in spring is circum-Gulf including Florida. Finally, it should be recalled that *D. p. hypochrysea* winters in the Gulf Coast states, chiefly from Louisiana to central Florida (Griscom and Sprunt 1957; A.O.U. 1957). Thus, I believe that the TV tower samples presented in Table 1 are reasonably indicative of overwintering Palm Warblers of both races in Florida.

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