

EVIDENCE OF AN INCOMPLETE PREALTERNATE MOLT IN SOME SOUTH AMERICAN *MYIARCHUS* FLYCATCHERS

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The detection of a prealternate (prenuptial) molt in those birds in which basic and alternate plumages are virtually identical is a difficult task, particularly when this molt is incomplete (i.e. not including the remiges and rectrices). In study skins, one looks for new feathers that may contrast with older, more worn feathers in such areas as the crown, throat, and upper breast, and that show less wear than the corresponding feathers in specimens taken earlier in the annual cycle. These differences may be subtle indeed. Feather sheaths sometimes can be revealed by a careful exploration with a probe or needle, yet the emerging feathers are often insecure in their follicles, dislodged readily, and are lost with repeated handling of the specimens. The sheathing itself in somewhat older feathers may be lost in time. Consequently, dependence solely upon older museum specimens can be inconclusive or even misleading. Dwight (Ann. N. Y. Acad. Sci. 13:145-148, 1900), after examining museum specimens available to him at the time, concluded that the four species of *Empidonax* flycatchers in eastern North America acquired their alternate (breeding) plumage by wear alone. But Johnson (Proc. XIII Int. Ornithol. Congr.:870-883, 1963) later presented evidence for a prealternate molt in three of these, and pointed out that a prealternate molt has been reported for every species of that genus that has been sufficiently studied. The most effective and unequivocal means for detecting prealternate molt is a careful examination of the plumage and of the feather tracts at the time of preparation of specimens taken a few weeks prior to breeding.

Dwight (1900:142) reported only one annual molt (prebasic or postnuptial) for *Myiarchus crinitus*, and I had assumed that this was indicative of the genus as a whole for I knew of no evidence to the contrary. Until recently, all field work and collecting associated with my revision of the genus *Myiarchus* had been purposely timed to coincide with the peak of breeding activity in any given population, in order to maximize data on vocal characters and breeding biology. Consequently, all my specimens were in moderately to very worn alternate plumage. On a trip to the upper Cauca valley of Colombia in March 1973, I misjudged the breeding season and began field work one to two months prior to breeding by two resident, sympatric species, *Myiarchus tuberculifer* and *M. cephalotes*. The serendipitous collection made on this trip showed evidence of body molt in some specimens.

Of five specimens of *Myiarchus tuberculifer* collected near Popayán, Dept. Cauca, Colombia, between 10 and 13 March 1973, four showed moderate to considerable body molt. Two of these had testes at intermediate levels of enlargement; the other two (females) were sexually inactive. Neither specimen of a pair of *tuberculifer* collected at the same locality on 31 March 1973 showed evidence of a body molt; the male had fully enlarged testes and was giving dawn song (evidence of territoriality and readiness to breed). I have interpreted this series of specimens of *tuberculifer* as indicating that the Cauca population

breeds in April and May, and that some if not all adults molt some of their contour feathers one month preceding breeding and possibly earlier. There is, of course, a complete prebasic molt in the adults of this species, as in all *Myiarchus*, following the reproductive season.

Of nine specimens of *Myiarchus cephalotes* collected near Popayán between 10 and 31 March 1973, seven showed moderate body molt. Two of these had testes at intermediate levels of enlargement; the other five (females) were sexually inactive. Three males collected at the same locality on 20 April 1974 showed no evidence of a body molt; their testes were not yet fully enlarged. Male *cephalotes* were giving dawn song at this locality on 11 May 1974, and a female was observed carrying nesting material. This series of *cephalotes* suggests that that species breeds in May and June in Cauca, and that some if not all adults have a body molt at least two months preceding breeding.

This disclosure of an incomplete prealternate molt in two non-migratory South American members of the genus prompted me to reexamine the American Museum of Natural History specimens that had been the basis of Dwight's conclusion that *M. crinitus* has no prealternate molt. Within the series at hand, none of the 35 specimens collected in the southern United States during the months of March and April shows any indication of body molt. There are nine specimens taken as early as 2 December and as late as 5 April, from Colombia, Panama, Costa Rica, and Honduras, that show some body molt in the regions of the throat, crown, and back. These are all adults, with no molt of the remiges and rectrices that had been renewed on the breeding grounds several months earlier. There are seven additional specimens collected during this same time period, from Guatemala, Costa Rica, and Colombia in which I can detect no molt. From these data, I conclude that at least some individuals of *M. crinitus* do undergo an incomplete prealternate molt before returning to the breeding ground.

The only migratory *Myiarchus* in South America are the southernmost populations of *M. s. swainsoni* and *M. s. ferocior* that breed in southern Brazil, Uruguay, and Argentina, and winter north of the Amazon from March through October (Lanyon, Ms). Unfortunately, there are very few specimens taken from the wintering range or on the return southward migration at that time when one might expect a prealternate molt to occur. I have seen two specimens that suggest at least some individuals of this migratory species undergo a partial prealternate molt just before or during their southward migration to the breeding ground: (1) a wintering specimen of *M. s. swainsoni*, taken in Venezuela on 4 September 1948 (Phelps Collection, no. 46409), shows a very slight molt of throat feathers; (2) a specimen of *M. s. ferocior* in the Academy of Natural Sciences of Philadelphia (no. 116923), taken (as a migrant?) in northeastern Peru on 18 November 1933, shows considerable molt of the crown and throat feathers.

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