

## A WHITE-TAILED PTARMIGAN WITH BLACK RECTRICES

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The rectrices of adult White-tailed Ptarmigan (*Lagopus leucurus*) remain white throughout the year (Richardson in Wilson and Bonaparte 1831, Osgood 1901, Chapman 1902, Braun and Rogers 1971:27). Popular field guides (Robbins et al. 1966:86, Peterson 1969:84, Udvardy 1977:568) consider the white tail to be diagnostic in distinguishing White-tailed Ptarmigan from the two other North American ptarmigan (Rock, *L. mutus*, and Willow, *L. lagopus*), both of which, as adults, have dark brownish-black rectrices narrowly tipped with white (Salomonsen 1939, Bergerud et al. 1963). In all these ptarmigan, however, the central pair of greater upper tail coverts closely resemble rectrices. The coverts usually molt twice each year, and may be differently colored in the nuptial versus winter plumage. This has led some (Ridgway and Friedmann 1946, Johnsgard 1973) to erroneously believe that central rectrices changed from mottled brown to white at different seasons in *L. lagopus* and *L. leucurus*. The color difference in the *rectrices* is especially useful for field identification when all three species are in their white winter plumage and inhabiting the same geographic range. These species overlap in large areas of British Columbia, Alaska, and the Yukon Territory (Aldrich 1963, Johnsgard 1973).

While studying the distribution of White-tailed Ptarmigan in Montana (Scott 1982), I saw 18 individuals within the boundaries of Glacier National Park. Four in winter plumage were sighted in late November 1979, and 14 others in breeding plumage were observed in late May-early June 1980. Since this species is quite tame, I was able to approach all the birds within 1-3 m, for close examination.

On 22 November 1979, I observed a solitary ptarmigan that had black rectrices on the left side of its tail in the Preston Park area of Glacier National Park (Fig. 1). The bird was approximately as large as other White-tailed Ptarmigan I had seen, and was definitely smaller than Rock or Willow ptarmigan.

Ptarmigan differ from other grouse in that their upper tail coverts (especially the middle pair) usually extend to the tips of the rectrices (Johnsgard 1973:210). The photograph reveals that the black (and white) rectrices of this bird were partly overlain by white upper tail coverts. Consequently, I am certain that the dark feathers were not remnants of a nuptial (or immature) plumage, in which the upper coverts have a mottled gray-brown appearance. Also, the date of this observation makes it unlikely that any nuptial or immature plumage would have been retained.

In order to determine the frequency of this plumage anomaly, I contacted several museums that had significant collections of White-tailed Ptarmigan. Six museums, holding a total of 277 specimens, responded, and none of their specimens had any black rectrices. Four more birds that I examined also lacked this character. Museum collections may not hold aberrant individuals in proportion to their natural occurrence, since unusual specimens may be shunned by collectors or curators. Nevertheless, I conclude from available evidence that black rectrices are rare in the White-tailed Ptarmigan, and would seldom cause identification problems for field observers.

I can think of two possible explanations for the occurrence of the aberrant individual I saw. First, the bird may have been a hybrid between a White-tailed and a Willow

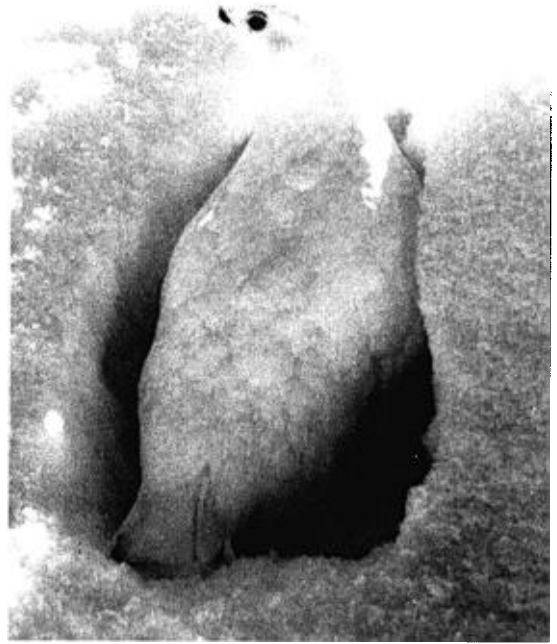


FIGURE 1. White-tailed Ptarmigan with black rectrices, 22 November 1979, Glacier National Park, Montana.

ptarmigan. Willow Ptarmigan breed farther to the south in Canada and Alaska than do Rock Ptarmigan, and they are known to migrate (Aldrich 1963). Snyder (1957) noted that Willow Ptarmigan have migrated to the northern part of Minnesota, and Stanford (1914) reported that three were collected in Glacier National Park, in the winter of 1914. It is possible, then, that the two species could meet and hybridize in Montana. To my knowledge, such hybrids have not been reported, even from areas where the three species regularly overlap and the population densities are much higher.

A second explanation is that this individual was a genetic "throwback" to ancestral plumage. Johnsgard (1973:223, 252) postulated that the White-tailed Ptarmigan arose early from ancestral ptarmigan stock in North America, followed by a splitting of gene pools in North America and Eurasia that gave rise to the current Rock and Willow ptarmigans. Johnsgard (1973:244) suggested that southern Rocky Mountain *leucurus* populations "became isolated during Pleistocene times." Johansen (1956) and Höhn (1980), however, felt that *leucurus* split off from *mutus* stock in the New World after ancestral Rock and Willow ptarmigan had already separated. If this aberrant ptarmigan was carrying alleles (possibly recessive) for black rectrices, this would seem to support the idea of a more phylogenetically recent separation of *leucurus* from other ptarmigan stock.

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