

## TWO HYBRID SAGE GROUSE × SHARP-TAILED GROUSE FROM CENTRAL MONTANA

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On 13 September 1969, a hunter stopped at a game checking station near Lewistown, Montana, with three juvenile grouse which he had identified as Sage Grouse (*Centrocercus urophasianus*). During a routine removal of wing-tips for later age and sex determination, I noted that while one of the birds was a juvenile female Sage Grouse, the other two showed characteristics of both Sage Grouse and Sharp-tailed Grouse (*Pedioecetes phasianellus*). For reasons given below, it has been concluded that they were hybrids. The hunter was reluctant to give up the entire specimens, but did permit the skins to be removed. Prior to skinning the birds, I was able to get whole weights. Positive sex identification was made from gonad examination. The hunter also provided details on the location and taking of the birds. One specimen, number 4885, is currently in the museum, Department of Zoology and Entomology at Montana State University. The other, number 4889,

was sent on 24 July 1970 to Mr. Harry Lumsden, Research Branch, Department of Lands and Forests, Maple, Ontario.

The birds were removed from an area which would be considered transitional between the grassland foothills of the Judith Mountains to the west (Sharp-tailed Grouse habitat) and the sagebrush-grassland areas to the east (Sage Grouse habitat). Drainages course generally eastward and the resulting stream-bottom-ridgetop topography permits finger-like extensions of these two vegetation types. Thus breeding display areas for these two species of grouse do occur in a rather close proximity to one another. Two other species of grouse, Blue Grouse (*Dendragapus obscurus*) and Ruffed Grouse (*Bonasa umbellus*), occur in the Judith Mountains about 30 miles to the west of the area in which the hybrids were taken.

The two hybrids and the juvenile Sage Grouse were taken from the same flock of 10–12 birds. This undoubtedly was a group of two to three broods, a common flock association for Sage Grouse at this time of the year (Patterson, *The Sage Grouse in Wyoming*. Sage Books, Inc., Denver, 1952, p. 183). Although Sharp-tailed and Sage Grouse frequent a common area, seldom, if ever, are they observed in mixed flocks. In the past 15 years, I have observed several hundred flocks of either Sage Grouse or Sharp-tailed Grouse in this general area but never a mixed flock. Since the hybrids were taken from a flock in which

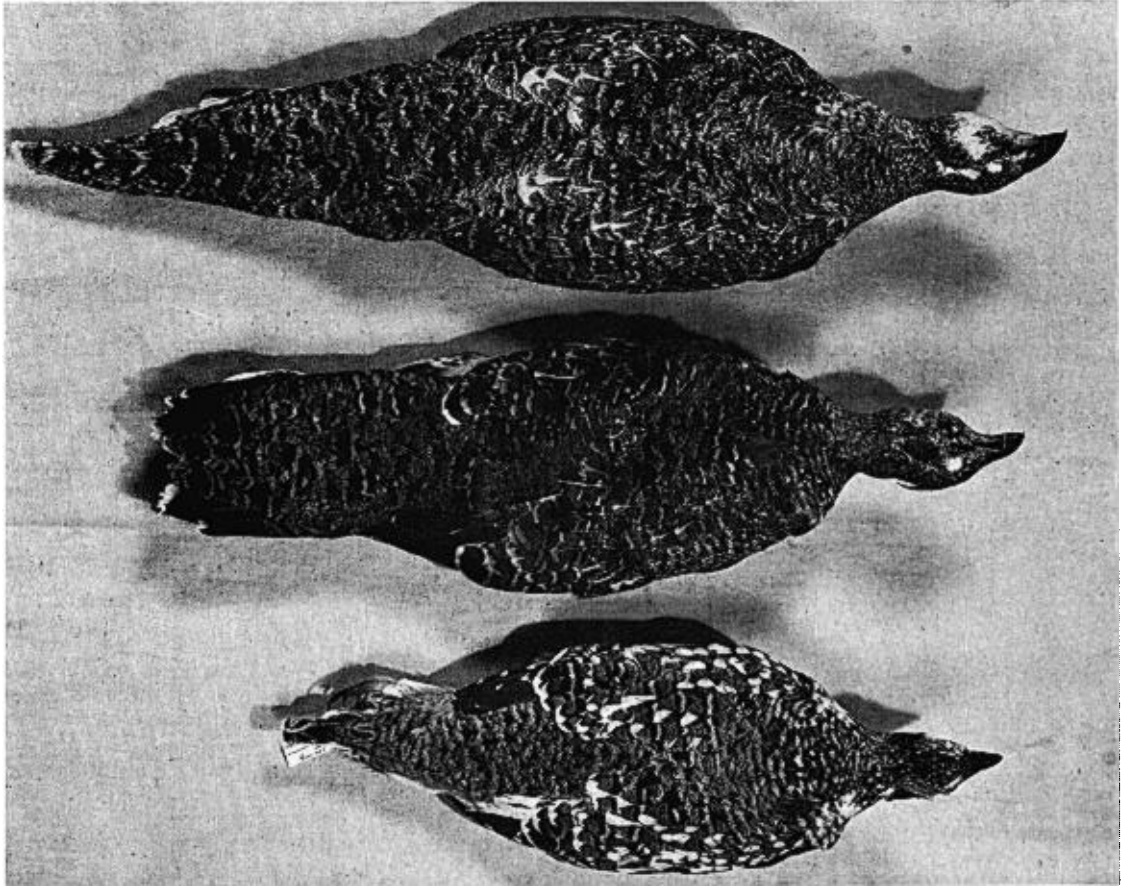


FIGURE 1. Dorsal view of a Sage Grouse (top), the hybrid (mus. no. 4885), and a Sharp-tailed Grouse (bottom).

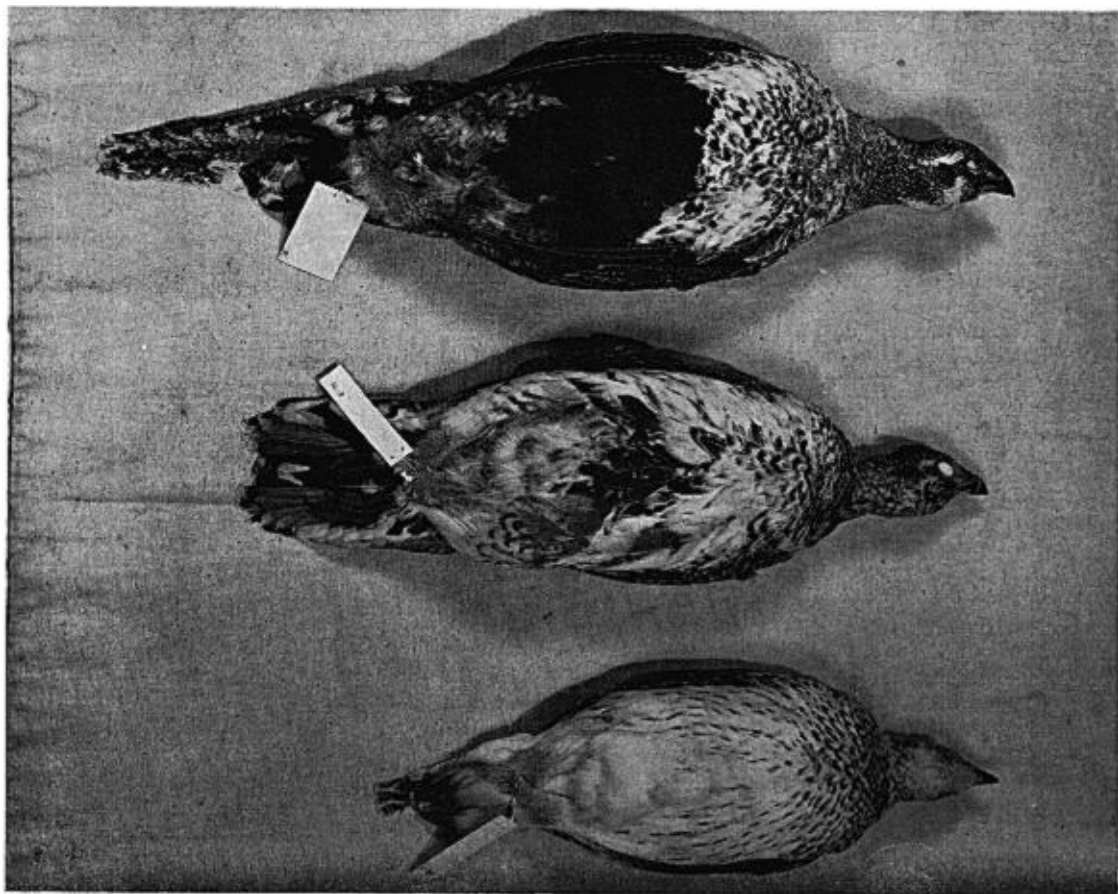


FIGURE 2. Ventral view of a Sage Grouse (top), the hybrid (mus. no. 4885), and a Sharp-tailed Grouse (bottom).

at least one young Sage Grouse was present, it would seem likely that a Sage Grouse was the maternal parent.

The hybrids were very similar. Their plumage characteristics, which are readily traceable to one parent species or the other, are quite evenly distributed. From the dorsal aspect, feather patterns of both species can be found, although the overall color tends more toward the brown of the Sharp-tailed than the gray of Sage Grouse. Individual feathers which are white in the Sharp-tailed Grouse are buff-colored in the hybrid (fig. 1).

The ventral aspect of the hybrids also includes color patterns which can be identified with both species (fig. 2). The overall light appearance is more suggestive of Sharp-tailed Grouse plumage. The black "belly patch," so characteristic of the Sage Grouse, is present in the hybrid but not as extensively as in the Sage Grouse. The under tail coverts resemble closely the comparable feathers found on a male Sage Grouse.

The markings found on the primaries of the hybrids illustrate well an intermediate condition between Sharp-tailed and Sage Grouse (fig. 3). The markings are white and prominent on the Sharp-tailed Grouse and absent in the Sage Grouse. On the hybrid these markings are smaller than found on the Sharp-tailed Grouse, and are buff-colored instead of white.

Only the rectrices of the hybrids show a pattern

unlike either the Sharp-tailed or Sage Grouse. Although they were not fully-grown, these feathers, with the exception of the two central members, have a dark gray or black color with buff tips, lacking entirely the barred or mottled pattern of either species of grouse. The two central rectrices have a partial barred appearance, resembling the pattern found on Sharp-tailed Grouse. There were 18 rectrices, as in Sharp-tailed Grouse, rather than 20, as in Sage Grouse.

Both hybrids were young males. The weight of each bird was 1360 g. The weight of a juvenile male Sage Grouse of the same primary molt stage (and approximate age) was 1632 g. The average weight of 53 juvenile Sharp-tailed Grouse taken at about the same time of the year was 680 g (range, 397-880 g).

The gizzards of the hybrids provided one additional area of comparison. The Sage Grouse possesses a very thin-walled gizzard, unlike the thick-walled muscular organ found in Sharp-tailed Grouse and most gallinaceous birds. The gizzards from the hybrids were much like those from Sharp-tailed Grouse. Comparable measurements of a muscle layer from Sage Grouse, hybrid, and Sharp-tailed Grouse gizzards averaged 1 mm, 5 mm, and 6 mm, respectively.

The bill showed more characteristics of the Sage Grouse than of the Sharp-tailed Grouse, with the tendency toward a swollen, bare area between the nostrils.

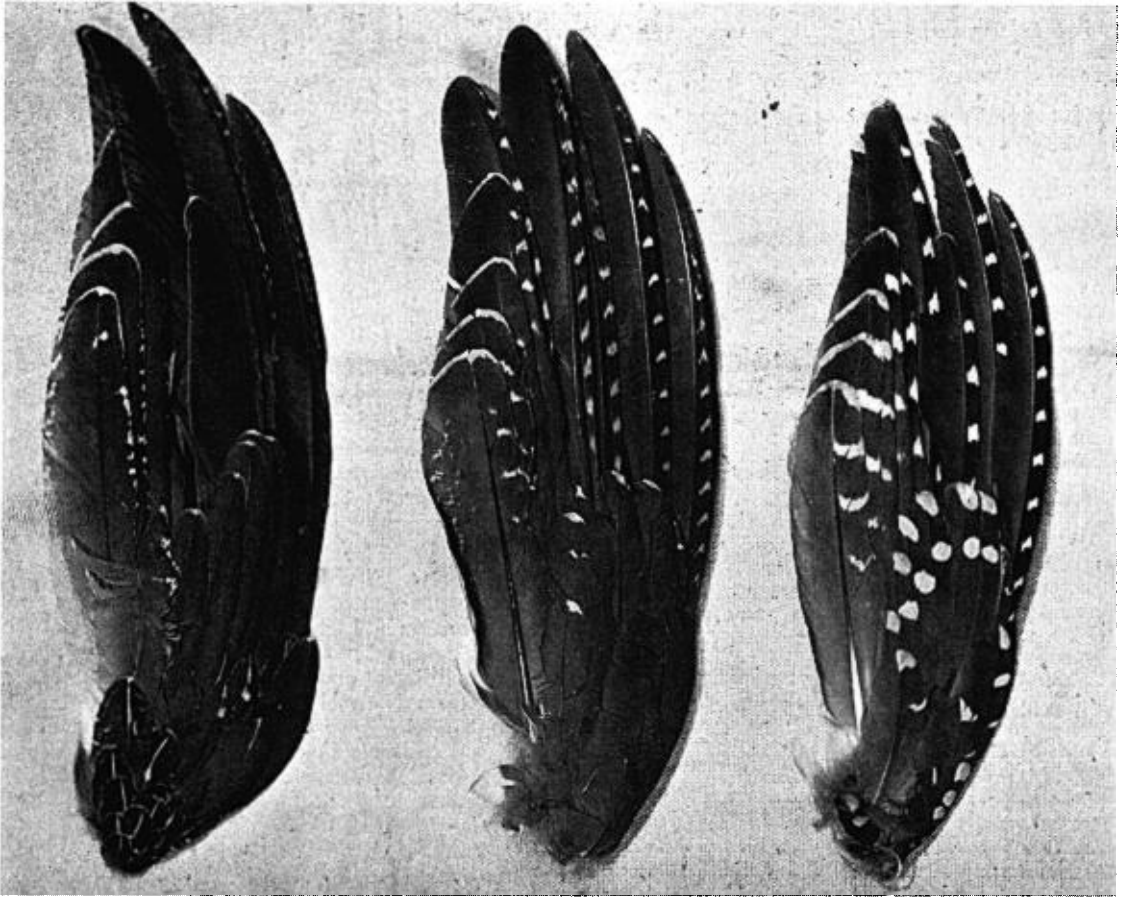


FIGURE 3. Dorsal view of the wing primaries from a juvenile Sage Grouse (left), the hybrid (mus. no. 4885), and a juvenile Sharp-tailed Grouse (right).

In reviewing published reports of hybrid birds, Cockrum (Wilson Bull. 64, 1952:140-159) lists several hybrids between Sharp-tailed Grouse and Blue Grouse (*Dendragapus obscurus*), and between Sharp-tailed Grouse and Prairie Chicken (*Tympanuchus cupido*). To my knowledge, there are no previous

reports of Sharp-tailed Grouse hybridizing with Sage Grouse.

This paper is published as a Journal Series 240, Montana Agricultural Experiment Station.

Accepted for publication 7 January 1971.