

FIGURE 1. Objects found in the stomachs of two Leach's Petrels. The two pieces of plastic in the upper left corner were found in the gizzard of a petrel collected on Gull Island, Newfoundland. The three pieces of plastic as well as the two claw-like structures in the right half of the figure were all found in the gizzard of a petrel collected on Kent Island, New Brunswick. The claw-like structures have been tentatively identified as the pharyngeal teeth of a large polychaete.

best investigated with the neuston net technique utilized by Carpenter and Smith. However, the initial appearance of plastic particles in the oceans almost certainly predates the use of neuston nets, since such nets have been in use at installations such as the Woods Hole Oceanographic Institute only since about 1963 (Bartlett and Haldrich 1968). Thus, there are no collections of specimens obtained by neuston nets prior to the early 1960s, and some other approach is needed to determine when the particles first appeared. An examination of seabird stomachs (and possibly those of some marine mammals and fishes, too) collected over the last 30-40

AN ALBINISTIC BLUE GROUSE FROM COLORADO

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The incidence of reported albinism in grouse (Family Tetraonidae) is low, having been reported in 9 of 18 presently recognized species (Sage 1962; Ross 1963; Gross 1965). Among the Tetraonidae, albinism has been reported most often from Ruffed Grouse (*Bonasa umbellus*); a fact possibly related to its popularity as a sporting bird over large areas of the northern United States and Canada. We could find no records of albinism in Blue Grouse (*Dendragapus obscurus*), thus making the specimen described here noteworthy.

While hunting for Blue Grouse and White-tailed Ptarmigan (*Lagopus leucurus*) above tree line (elevation 12,000 ft) on 27 September 1969 at Mesa Seco in Hinsdale County, one of us (RGB) flushed a group of five grouse in which a whitish bird was observed. This bird was subsequently collected and

years may be the only way to determine even the approximate date of the initial occurrence of these particles.

I thank Charles E. Huntington, N. Philip Ashmole, and Thomas C. Grubb for their suggestions on the manuscript. Dr. Huntington also made the Newfoundland specimens available and aided my field studies on Kent Island. This work was supported by NSF Undergraduate Research Participation Grant G-22902 to Bowdoin College.

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Accepted for publication 30 August 1972.

identified as an albinistic Blue Grouse. The skin was saved and eventually came into the possession of the senior author. After preparation as a study skin, the specimen was deposited in the Denver Museum of Natural History (DMNH 36061).

Upon examination the specimen was found to be an immature male 10-11 weeks old. It appeared to be normal in all characteristics except color, with measurements of carpal length, outer rectrix, culmen, caruncle, middle toe, and tarsus being in the range of birds of the same sex and age class previously collected in Colorado (unpubl. data). The plumage of the specimen was very pale gray and clearly showed the normal barring present in Blue Grouse (fig. 1). This "pale" or "ghost barred" specimen is therefore an imperfect albino following the classification of albinism of Pearson et al. (1911-13) and Mueller and Hutt (1941). Color of the soft parts was evidently normal because the bill, toenails, and eyes were black while the feet were dark horn-colored.

Studies of imperfect albinism in poultry (Dunn 1923; Mueller and Hutt 1941) indicate this trait is caused by a sex-linked recessive gene. Price and Danforth (1941), working with California Quail (*Lophortyx californicus*), reported that albinistic or "dilute" young were weaker and less vigorous than normal-colored young. The Blue Grouse reported here appeared comparable in all respects except color to other Blue Grouse of the same sex and age. It

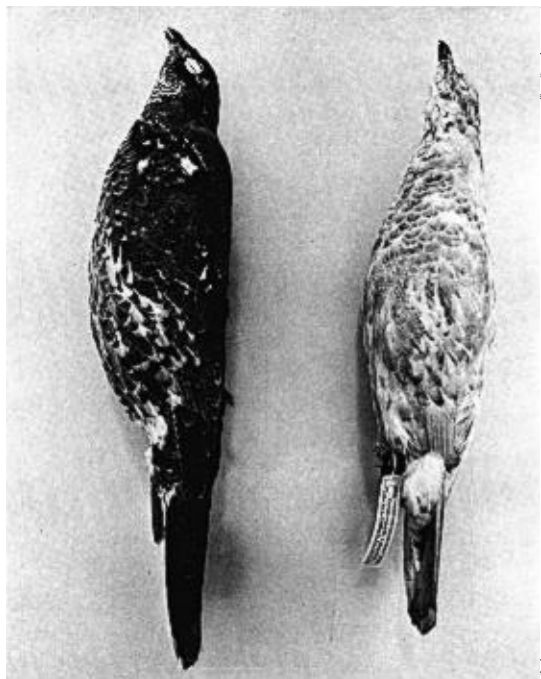


FIGURE 1. Lateral view of albinistic (right) and normal color phase (left) of immature male Blue Grouse.

TERRITORIAL AND FEEDING ACTIVITY OF BROAD-TAILED HUMMINGBIRDS (*SELASPHORUS PLATYCERCUS*) IN *IRIS MISSOURIENSIS*

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Hummingbird territorial systems are often organized around food resources, usually nectar, and hummingbird-flowered plants are the usual source of the nectar. The territorial system described here is organized around a bee-flowered species, *Iris missouriensis*, and some theoretical implications of hummingbird feeding activity under these conditions for the evolution of a hummingbird flower from a bee flower are discussed.

Rustler Park in the Chiricahua Mountains in Arizona lies at approximately 2560 m elevation. Portions of the park, about 2 ha and a few similar, smaller outlying areas, are open meadows which support heavy stands of *Iris missouriensis* during late May and June. *Iris* has a typical gullet-type bee-pollinated flower (Faegri and van der Pijl 1966); the blossom is so constructed that large-bodied bees (*Bombus* spp. and *Xylocopa* spp.), in forcing their way between the ventral tepal and dorsal petalous stamen, contact stigmas and anthers.

During the May-June period of peak *Iris* flowering, male Broad-tailed Hummingbirds (*Selasphorus platycercus*) used the blossoms frequently and established territories in the large meadow. They sometimes fed "legitimately" and effected some pollination, but most often exploited blossoms "illegitimately" by probing

it possible that more pale Blue Grouse occur in wild populations but are selected against through lack of cryptic coloration.

Ronald A. Ryder, Department of Fishery and Wildlife Biology, Colorado State University, critically reviewed this paper and his comments are appreciated. This paper is a contribution from Colorado Federal Aid in Wildlife Restoration Project W-37-R.

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Accepted for publication 17 March 1972.

at the juncture of the tepals just above the blossom receptacle (table 1). Various lepidopterans also secured nectar "illegitimately" in a similar manner, but fed from a stationary position near the base of the receptacle. *Bombus* and *Xylocopa* also frequented the blossoms; thus there appeared to be considerable competition for nectar. Rivoli's Hummingbird (*Eugenes fulgens*) and the Blue-throated Hummingbird (*Lampornis clemenciae*) were also present occasionally at the edges of the meadows, but were never observed feeding on *Iris*.

Female *S. platycercus* did not establish territories but were sighted occasionally at the edge of the meadow. Less often, they were observed within the meadow where, upon discovery, they were usually attacked by the territorial males. No mating displays were observed. During the study period, females were most often seen feeding in smaller open areas where *Iris* was less abundant, more dispersed, and therefore less likely to be dominated by territorial males. Outside the meadows, a few territorial males were observed defending flowering single shrubs or small trees of *Robinia neomexicana* or clumps of *Echinocereus triglochidiatus*. Otherwise, except for an occasional early-blooming *Penstemon barbatus*, blossoms of other species did not appear to be utilized by either sex during the study period.

During the period of observation, 2-24 June 1971, eight territories were maintained in the large *Iris* meadow, four by recognizable individuals (fig. 1). Territories were usually contiguous, but where *Iris* density was low and territorial interaction sporadic or absent, precise boundaries could not be determined. Otherwise, boundaries were well defined and exclusion of conspecifics was complete. Chases were the most obvious territorial activity, but vocal and visual displays were also common. Perched or feeding