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REDISCOVERY OF THE IMPERIAL SNIPE IN PERU

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SCLATER and Salvin (1869a) described a large, richly colored snipe from a single specimen obtained from the Andes in the vicinity of Bogotá, Colombia, and named it *Gallinago imperialis*. To the best of our knowledge, only one additional specimen (also from the Bogotá region) has reached the world's ornithological collections since then. No locality data are available for either specimen and so virtually nothing is known of the bird's habits or habitat. Although of distinctive appearance, the bird has become an enigma because of its extreme rarity. Taxonomically it has been bandied about wildly and given nearly every conceivable rank between that of a monotypic genus and an aberrant plumage of the widespread Andean Snipe, *G. stricklandii*. Now, with knowledge of its occurrence in Peru over 1,200 miles distant from Bogotá, a highly characteristic vocal and aerial display, and a penchant for a restricted type of habitat, its status vis-à-vis other related species can be brought into greater perspective. The following is an anecdotal account of events surrounding the rediscovery of this remarkable bird in the timberline zone of central Peru.

An interest in mapping the elevational distributions of Andean birds took us for several years in succession to the vast and largely unexplored northern massif of the Cordillera Vilcabamba (Bakeland, 1964). Our interest in such an inaccessible locality was inspired by a desire to study distribution on a large scale environmental gradient that was entirely undisturbed by man (Terborgh, 1971). We first encountered *G. imperialis* in the summer of 1967 when, after the efforts of two expeditions, we finally penetrated to within striking distance of the summit ridge. Our camp was situated just below timberline at 3,300 m (10,800 feet) on a narrow ridge that slopes downward in a westerly direction from the backbone of the range to the Apurímac River. Ap-

proximate coordinates for the position are 12° 35' S, 74° 24' W, but these figures are subject to revision as available maps of the region are notoriously inaccurate.

Shortly after sundown each evening the customary silence of this eerie spot was shattered repeatedly by a crescendo of raucous notes that burst forth suddenly from the darkening sky. Only two or three times during our first stay at this camp (30 July to 10 August, 1967) did one of us catch a fleeting glimpse of a high dark silhouette rapidly coursing across the nearly black sky. We could discern only that the "mystery singer" was a partridge-sized bird with a strikingly long bill.

The following winter, when planning the schedule of our 1968 expedition, we assigned high priority to an effort to discover the mystery singer's identity. On our return to the 3,300-meter camp 11 July that year, we were gratified to find at least three birds displaying in the vicinity. The nearest flew in a circuit that took it over the ridge on which our camp was perched, while the other two were usually heard a third of a mile or so farther up the mountain. Later we encountered one or two additional singing birds at another camp about a mile to the northeast on the crest of the range. A total of four or five displaying birds were thus spaced more or less evenly along a 1-mile transect of ridge-top habitat. Assuming that the vocalizations are audible for half a mile, one arrives at an estimate of 640 acres for the domain inhabited by the four or five singing birds, or 130 to 160 acres per bird (pair?). This assumption is conservative because we found on comparing notes that a single bird could be heard simultaneously from the two camps. While it is probable that much of the terrain included within the bounds of this rough population estimate (steep slopes, etc.) is unsuitable habitat, it is nevertheless clear that the density of *G. imperialis* in the Cordillera Vilcabamba is very low.

Our efforts to secure a specimen were persistently frustrated. Cloud banks drifted over the ridges for much of every day, often reducing visibility to a few yards. On open evenings the birds took to the air so late that it was impossible even to glimpse them unless one happened to fly directly overhead or across the faintly lit western horizon. On one such occasion Weske succeeded in winging the bird that flew closest to camp, but to our great disappointment it scaled off over a ravine that dropped away for thousands of feet. With the most accessible prospective specimen out of the question it now was up to us to secure one of the remaining birds, all of which regularly flew over terrain so steep and irregular as to discourage even the most determined collector. In view of the exceedingly low population density and our inability to determine the daytime haunts of these birds, our

efforts to flush one, not unexpectedly, came to naught. Good fortune finally arrived on 22 July when a single bird, flying unusually low, plunged into a line of mist nests strung along the summit ridge (3,520 m). This was the only specimen to come into our hands through a total effort of roughly 50 collector-days and 827 mist net-nights.

DESCRIPTION

We have not been able to compare our specimen with either of the two from "Bogotá," both of which are in Europe, but ours agrees very closely with a fine plate based on the type (Sclater and Salvin, 1869b: 193, plate 97) and with published descriptions. The rectrices are all sepia color and completely unbarred. The central rectrices shade very slightly paler (toward grayish) at the tips. Sharpe (1896) wrote that the outer rectrices of the type were uniform blackish but that the central ones were barred with rufous. Apparently he mistook some tail coverts (which are dense and numerous in this species) for central rectrices, as both Sclater and Salvin (1869b) and Meinertzhagen (1926) have pointed out that all that remains of the tail of the type are three outer tail feathers.

In side by side comparison, *G. imperialis* is a darker, more rufescent bird than *G. stricklandii jamesoni*, which is paler and grayer (Figure 1). The throat and upper breast of *imperialis* are more boldly marked and rufescent, while the lower breast and abdomen are strikingly different, with bold black and white barring as opposed to the much finer brownish and white barring in *jamesoni*. There is much contrast between anterior and posterior underparts in *imperialis*, but rather little in *jamesoni*. Above, *imperialis* is darker and irregularly mottled with rufous and black, where *jamesoni* is grayer and paler, with wings, head, and hind neck mottled, but with the back streaked in appearance owing to buff and rufous edgings to the scapulars. *G. imperialis* has very long secondaries that completely conceal the primaries when the wing is folded, but in *jamesoni* the tips of the primaries extend beyond the ends of the secondaries. Our specimen of *imperialis* has been deposited in the American Museum of Natural History. Its measurements are as follows: wing chord 157.5 mm, wing flattened 161 mm, tail 58 mm, culmen 93.7 mm, tarsus 38.5 mm. The bird was a male with testes 18×4.5 mm (left) and 15×4 mm (right). In life the bill was dark brownish-gray, the iris dark brown, and the tarsus and toes medium gray.

TAXONOMIC COMMENTS

The Imperial Snipe was described in *Gallinago*, but was placed subsequently in *Scolopax*, *Homoscolopax*, and then until recently in *Chubbia* (Bond, 1951). We agree with Olog (1962) that *stricklandii* and *imperialis* are best included in *Gallinago*, but Olog is clearly incorrect in suggesting that *imperialis* is a race of *stricklandii* or an immature *jamesoni*. In fact our specimen agrees so closely with the color plate of the type that there is no hint that the Colombian and Peruvian populations may be racially distinct.

In view of the increased information on the species' range, we feel that the common name "Imperial Snipe" that Hellmayr and Conover

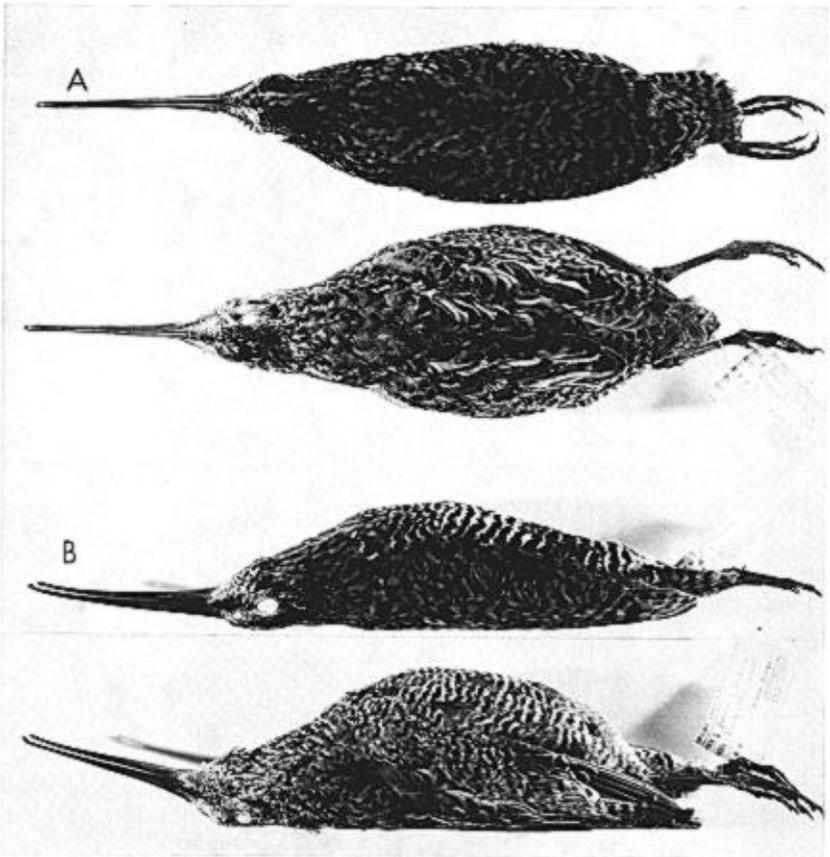


Figure 1. Dorsal (A) and side (B) views of our specimen of *Gallinago imperialis* (top) and *G. stricklandii jamesoni* (bottom).

(1948) used is more appropriate than the recently coined "Bogotá Snipe" (Meyer de Schauensee, 1966).

CREPUSCULAR DISPLAY

During the 30 days that we spent within the haunt of *G. imperialis*, its vocal activity was restricted to the brief interval of tropical twilight. At latitude 12° S the days are somewhat shorter than 12 hours in July and August. Sundown comes at approximately 17:15 and sunrise shortly after 06:00. At our camp on the west-facing slope of the range, the morning arrival of the sun was delayed more than an hour by interposed ridges on the eastern horizon.

Display activity by the several individuals under observation seemed

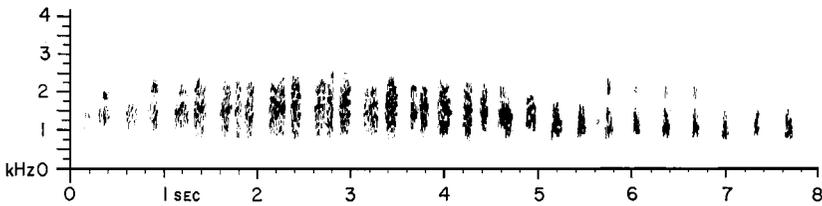


Figure 2. Sonogram of a complete flight song of *G. imperialis*. Recorded in the Cordillera Vilcabamba, Peru at 3,300 m, July 1968.

to be of equal intensity at dawn and dusk. Cloudiness strongly influenced the duration and intensity of vocalization, heavy cover almost entirely squelching the usual performance. When the clouds were low or broken the birds seemed to fly above or to seek out openings. The extreme limits of the morning and evening display periods were 05:35 and 06:03, and 17:55 and 18:30. Display activity usually reached peak intensity near the midpoints of these intervals when the full complement of birds could be heard in favorable weather.

Using an Uher model 400 tape recorder and a 24-inch parabolic sound reflector, we recorded a sequence of six complete vocalization cycles from the bird that regularly flew nearest camp. The physical characteristics of the song bout that was performed closest to the microphone are represented in the sonogram shown in Figure 2. The song begins with a series of rough staccato notes that rapidly increase in volume. A climactic middle section is marked by a complex rhythmic pattern of double and triple notes. After a final triple burst, the song enters a terminal phase in which the sound intensity diminishes in a sequence of evenly spaced single notes.

Our recordings were made at the time of peak vocal activity when the episodes follow one another with greatest frequency. Individual song bouts ranged in duration from 9.0 to 11.6 seconds with an average of 9.8 seconds. Songs were separated by silent interludes of 5.6 to 6.2 seconds (mean, 5.9 seconds). Complete cycles lasted from 14.9 to 17.2 seconds (mean, 15.6 seconds).

On only a few occasions were we able to view the entire display as a bird passed overhead in silhouette against the nearly dark sky. The routine is performed at a considerable height above the ground, variously estimated at 50 to 150 m at the point where the flight path crossed the ridge top. Of course the birds flew at far greater heights above the valleys.

The first two-thirds of the song, comprising the crescendo and climactic phases, is given in level flight powered by rapid shallow beats of

the stiffly held wings. A gently sloping dive commences with the terminal sequence of single notes. An instant after the last note of the vocalization the bird pulls sharply out of the dive, producing a rush of air through the remiges (?) that is clearly audible at close range. The bird then resumes level flight during the interval between songs. Although the course followed during vocalizations is nearly linear, the birds usually executed a roughly circular course over the period of several display bouts. The diameter of these circuits was probably in the range of 200 to 500 m.

While living in separate camps in 1968, we independently noticed that *G. imperialis* occasionally gives a second type of vocalization. It consists of a uniform series of five to eight harsh notes of a quality and pitch similar to those of the terminal notes of the flight song. The utterances are evenly metered and given at the rate of two or three per second. Each of us heard this call several times. Its source always seemed to be below the ridge crest, leading us to suspect that it may be given on the ground.

A recent account of the aerial display of *G. stricklandii jamesoni* in Bolivia indicates that the performance is in several respects similar to that of *G. imperialis* (Vuilleumier, 1969). Both species display after sundown well into darkness and call repeatedly while flying in wide, nearly level circles. The vocalizations of *G. stricklandii jamesoni* are apparently given continuously for several circuits, while those of *G. imperialis* are more complex and divided into discrete episodes. Both species produce a low whirring sound while descending, presumably by allowing air to pass through the remiges in a certain way, *G. imperialis* at the end of each song bout and *G. stricklandii jamesoni* at the termination of a 30- to 60-second display period as it spirals back to earth.

ECOLOGICAL NOTES

As the easternmost of several parallel north-south chains of the Andes, the Cordillera Vilcabamba receives full exposure to the prevailing easterlies of that latitude. As a consequence the range is heavily watered, there being few days when some rain does not fall on the upper levels. Rising moist air from the Apurímac and Urubamba valleys on either side ordinarily reaches the dew point well below 2,000 m, or more than 1,500 m below the summit ridge. The higher parts of the range are thus washed almost continuously during daylight hours by a slowly moving cloud mass. As a rule the skies clear only at night after the evening downdraft has cooled the valley. If there is any sunshine in a day, it is most likely at and shortly after dawn before the valley cloud banks begin to rise. Generally the days

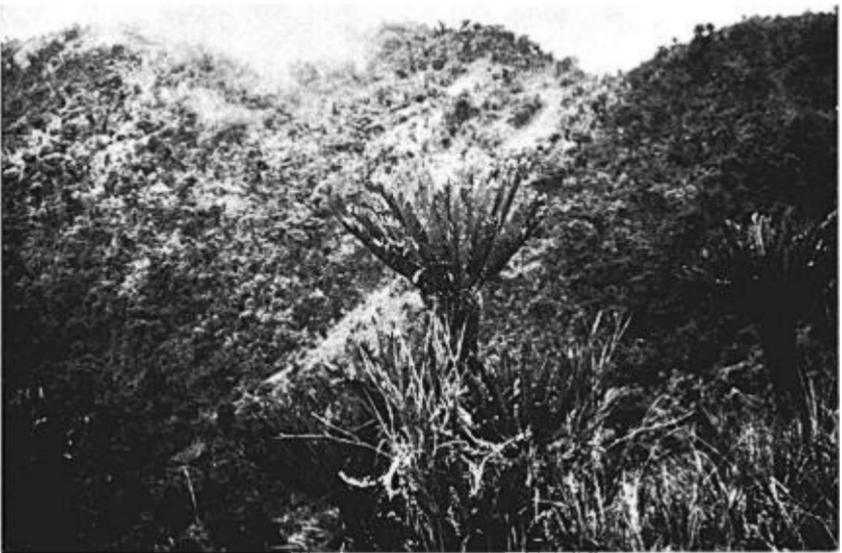


Figure 3. View of terrain and vegetation along the summit ridge of the Cordillera Vilcabamba, Peru. Aerial displays passed back and forth over these ridges and steep slopes. Note mosaic character of the vegetation and tree ferns in the foreground (genus *Blechnum*).

become progressively cloudier and darker and rains or sleet storms are of frequent occurrence in the afternoons.

The haunt of *G. imperialis* is exclusively above 3,100 m in the timberline zone where a damp chill persists both day and night. A light ground frost is usual on clear nights when dawn readings at eye level were around 3°C. Cloudy mornings generally registered a degree or two higher. The greatest variation in temperature is at midday when shade readings were as high as 12° under clear skies and as low as 8° in the midst of dense clouds. The 24-hour mean at 3,300 m is 5–6° during July and August, and is probably not more than one or two degrees above or below that at any time of year.

Timberline in the Cordillera Vilcabamba is ill-defined, in contrast with less well-watered sections of the eastern Andes (Weberbauer, 1934). Instead a low elfin moss forest gives way gradually to larger areas of grassland upwards of 3,100 m (Figure 3). The density of the vegetation conceals the fact that it rests on a thick mat of sphagnum and peat. Measurements taken in open grassland along the summit ridge showed the peat to have a thickness of 10 to 20 inches. In wooded parts of the slopes below the crest, mineral soil or bedrock was as much as 4 feet below the surface of the sphagnum.

At no time did the sphagnum layer undergo more than superficial drying, and a handful always yielded copious quantities of water on wringing. At various sites the sphagnum mat gave pH readings of 3.5 to 5.0, in keeping with the acidophilic character of many of the common plant genera. Living roots were restricted entirely to the upper 10 inches. Below this level the litter became increasingly decomposed and compacted and may have been anaerobic. In digging through the peat mat to collect soil samples we failed to notice any animal life (insect larvae, earthworms, etc.) that could provide food for a snipe. As the sphagnum mat is everywhere thicker than the depth to which even a long-billed bird could probe, there can be no doubt that *G. imperialis* must find its food within the moss layer. Deep thrusts of its 4-inch bill would bring the tip into the zone of maximum root density. What is to be found there remains a puzzle.

The preferred habitat of *G. imperialis* must likewise remain an unresolved issue for the time being. Three marshy depressions, each of several acres in extent, were walked repeatedly to no avail. The near-darkness during the daily display sessions prevented us from ever seeing a bird rise or alight. Attempts to extrapolate flight paths or to pinpoint the direction of last-heard notes proved futile because of the mosaic character of the vegetation. We regret our lack of success in answering this question because it would be interesting to know whether the bird lives in the elfin woodland in the manner of a woodcock, or in marshy grasslands as do other snipes. Vuilleumier (1969) was similarly frustrated in trying to ascertain the habitat of *G. stricklandii jamesoni* in Bolivia because it too is active at night and lives at timberline in a zone of interspersed shrubby thickets and grassy glades. Perhaps, now that the haunts of these little-studied birds are becoming better known, it will be possible to learn more of their habits.

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