

Display and mechanical sound in Dusky Piha *Lipaugus fuscocinereus*

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Cotinga 13 (2000): 44–45

Se describe un tipo de despliegue desconocido para la Piha Oscura *Lipaugus fuscocinereus*. Este se caracteriza por un conspicuo movimiento de alas desplegadas y plegadas mientras el ave cae produciendo con las mismas un sonoro sonido instrumental de frecuencia baja. Se describe el despliegue mediante una grafica y se analiza el audioespectrograma del sonido. El mismo es del estilo de los provocados por algunos crácidos como en el caso de *Chamaepetes goudotii*.

Introduction

During the course of the Yellow-eared Parrot *Ognorhynchus icterotis* Conservation Project (see Salaman *et al.*¹), observations in June 1998–March 1999 revealed the presence and unusual behaviour of Dusky Piha *Lipaugus fuscocinereus* in humid forest in the Toche area (04°32'N 75°28'W, 2,400–3,000 m), Municipio de Ibagué, Tolima department, in the central part of Colombia's Cordillera Central. The species' typical whistle was heard sporadically throughout this period, with up to four individuals present. At midday on 20 June 1998 a lek of at least four birds was discovered in a patch of relatively undisturbed dense secondary growth. The calls were apparently produced by different individuals, given the distance between each calling site. Subsequently there was silence until 15h30 when, in addition to the whistles, low-frequency sounds were heard, accompanied by a complex display that has not previously been described.

Display

The weather was calm, damp and overcast. At least two birds, but probably as many as four, were calling from the treetops (the lek). One flew to a bare horizontal branch in the middle storey, c. 10 m above ground, in an open part of the tree. It then flew downward, initially in a straight line and then at a slight angle, as shown in Fig. 1. During the descent, it folded and then unfolded its wings; each time it unfolded them, it appeared that the bird was trying to slow its fall like a parachute or an umbrella, performing this up to 12 times in one flight and producing the mechanical sound described below. Two undulating whistles were heard simultaneously with the descending-flight wing display (which shows as the wavy lines at 2,800–3,600 Hz in Fig. 2). When the displaying bird reached a height of 5 m above the ground, it completed the display by flying up to an adjacent tree without coming into contact with another bird. It appeared that the whistles were made, not by the individual performing the flight display, but by a second bird (and perhaps by a third further away). In fact these whistles came from different directions but were all from the same general area. One bird that had

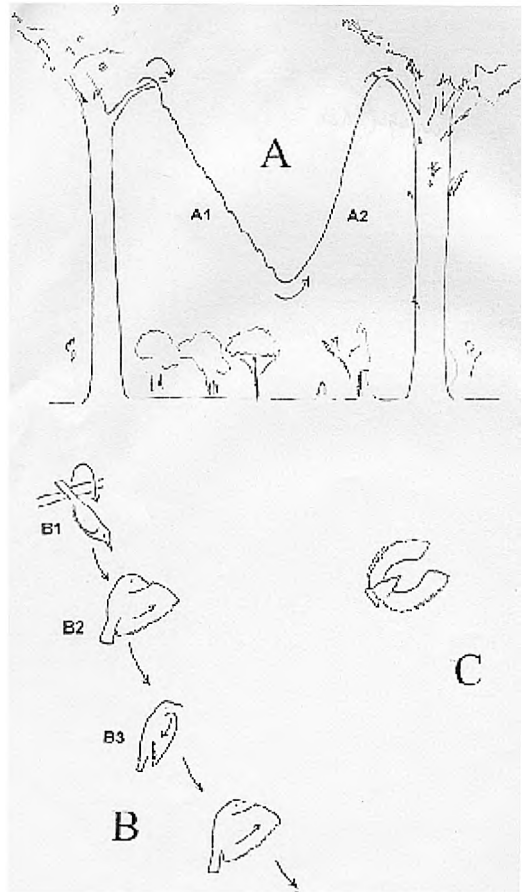


Figure 1. Sketches illustrating Dusky Piha *Lipaugus fuscocinereus* display (B. López-Lanús). A illustrates the trajectory of the display flight; A1 the first part of the display as detailed in B and C; and A2 corresponds to the normal ascent flight following the display. B details the flight pattern when the mechanical sounds are produced; B1 the beginning of the flight; B2 each of the occasions when the bird unfolds its wings in the shape of an umbrella, producing the mechanical sound (C corresponds to this position); and B3 indicates the gaps between one sound and another when the wing is folding and the bird is descending rapidly. C is the view looking up at the bird from position B2.

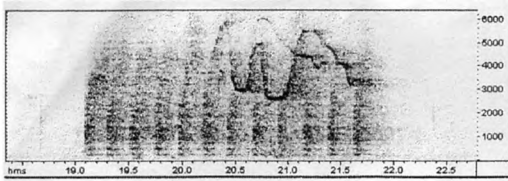


Figure 2. Sonogram of display sound, Dusky Piha *Lipaugus fuscocinereus*, 20 June 1998, Finca Las Cruces, Toche, Tolima, Colombia. Recording by B. López-Lanús; sonogram prepared by N. Krabbe.

perhaps vocalised was perched c. 12 m above ground. The wing-display sound was heard on three more occasions in other areas of the forest, less than 40 m from the one observed (each at an interval of 5–10 minutes). The sequence of four wing-displays lasted from 15h30 to 16h05.

Mechanical sound

Each time a displaying bird unfolded its wings, as shown in Fig. 1, a very loud, low-frequency sound was produced, which was almost deafening at a distance of 10 m. Each element of the sound lasted 0.002 of a second. Each display flight occupied 2.7 seconds, during which time the call was repeated 12 times, with pauses of c. 0.004 of a second in duration, and a frequency ranging of 100–5,900 Hz (Fig. 2). To the human ear the complete sequence appears like a 'fast, harsh, faltering puff', similar to the mechanical sound produced by the flight feathers of Sickle-winged Guan *Chamaepetes goudotii* but significantly slower and perhaps louder. This resemblance was sufficient that, when the recording was played to people with knowledge of the local fauna, they considered it to be of *C. goudotii*.

Conclusion

The mechanical sound appears to be produced by air passing through the flight feathers (as is the case with many cracids), but nevertheless details of exactly how this mechanism operates are required. Indeed, during the study period, the species was heard in groups (leks) on several occasions, but on only one was this mechanical sound noted. However, given that local people recognised the sound (erroneously attributing it to *C. goudotii*), one can assume that the behaviour described above occurs with some regularity in the study area. It is significant that the species has not previously been observed performing this display, or rather, which appears more striking, heard performing it. Is it possible that the sound has been attributed to a member of the Cracidae by previous observers? As regards the function of the lek, beyond the observations described above, insufficient general information concerning the number of individuals present and how they interact at a lek is available to comment further. What can be confirmed is that the observation was certainly made while the bird was producing the mechanical sound, and that this behaviour was not repeated in the same place on at least four other occasions when the species was recorded there.

Acknowledgements

Niels Krabbe made various comments and prepared the sonogram, Luis Miguel Renjifo commented on the text and Simon Allen translated it from Spanish.

References

1. Salaman, P. G. W., López-Lanús, B. & Krabbe, N. (1999) Critically endangered: Yellow-eared Parrot *Ognorhynchus icterotis* in Colombia. *Cotinga* 11: 39–41.

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