

### Courtship of the Rufous Piha *Lipaugus unirufus*

In lofty humid forests from southeastern Mexico to western Ecuador, Rufous Pihás *Lipaugus unirufus* forage through the canopy for fruits and arthropods. About the size of a thrush *Turdus*, the sexes of these cotingas are alike in their bright rufous brown, unmarked plumage. Pihás call attention to themselves by a diversity of loud, clear whistles, one of which is responsible for the substantive part of their English name; but they are difficult to detect, or to keep long in view, amid clouds of foliage far overhead. As I told in *Life Histories of Central American Birds*, Vol. III (Pacific Coast Avifauna No. 35, 1969) and as was reported by D. W. Snow in *The Cotingas* (British Museum of Natural History 1982), these birds form no lasting pairs and males do not participate in nesting.

During 50 years amid forests where Rufous Pihás are among the more abundant birds, I learned nothing about the relationship of the sexes. At last, in the valley of El General on the Pacific slope of southern Costa Rica (9° 20' N, 83° 38' W) at about 750 m a.s.l., on 7 January 1988, with three members of a nature tour, we watched two indistinguishable pihás interacting in a way that we could interpret only as courtship. In mid-morning we found them resting close together on a branch in the understorey, much lower than one usually sees these birds, except females at their nests. Together they flew in silence from bough to bough of the lower trees. One plucked a berry and gave it to the other. Then the piha who was apparently the male caught an insect, beat it against his perch, and presented it to his companion. For over an hour, the two continued to move through the forest together; but we saw no more feedings. When last seen, they were about 50 m from the spot where we first encountered them.

At 0710 h on 8 January, I returned to the place where we had watched the pihas on the preceding day. In the following hour and a half, I heard only one call. At 0845 h they became more active. The loud call of one (the male?) was answered softly by another (the female?). Soon I noticed two together, flitting around in a treetop, much higher than on the first day. By 0915 h they had flown beyond view.

At about 0830 h on 9 January, they appeared near the place where we had first seen them. After some flitting about, they rested quietly, only a few cm apart, on a mid-height branch, where they remained for 20 minutes preening (each itself) and at intervals calling softly. Then one flew off, but soon returned to alight beside the other, who had continued to perch in the same spot. Finally, at 0930 h, they flew westward together, and I could not find them again.

On the sunny morning of 10 January, the second (female?) piha joined the first at about the same time as on the preceding day. For the next hour, the two followed each other through the trees and at intervals rested close together, often on low branches, occasionally trilling softly. Neither I nor two visitors who watched with me saw one feed the other. At times a third piha approached the couple without obviously interacting with them. On 11 and again on 13 January, toward mid-morning, I found two pihas together in the same small area of forest where all these observations were made, but soon they vanished through the treetops. Further watching in this and other parts of the same tract of forest disclosed nothing that appeared to be courtship.

### Nesting

In Skutch (1969), I described five nests of Rufous Pihas and reported observations on building, incubation, and care of nestlings. Since then, I have found two more nests in El General. All these occupied nests were from 5 to about 11 m up, well below the canopy of high rain forest, where wind was not likely to toss the egg from a shallow mat just large enough to hold it. (A nest started about 12 m up was never finished). Each nest was built largely of wiry tendrils, on thin arms of a horizontal fork, sometimes with another branchlet beneath it. Small enough that it was difficult to detect beneath an incubating or brooding parent, it was so thin that the egg was visible through the meshes of the bottom. No nest held more than one egg or nestling. In my earlier account (1969), I could give only one incubation period, not less than 24 days and 20 hours nor more than 25 days and 23 hours. At a later nest the egg hatched between 25 days and 17.5 hours and 26 days and 18 hours after it was laid. Although surprisingly long for a thrush-sized passerine, the piha's incubation period is comparable to those of other large cotingas, as given by Snow (1982). At the single successful nest that I found before hatching, the young left when 28 or 29 days old. In Costa Rica, the earliest nest was started at the end of February; the latest held a newly laid egg on 4 August.

### Discussion

The foregoing observations of what I can only interpret as courtship were made early in the dry season, almost two months before nesting is known to begin. This makes it unlikely that the piha who received food was a well-grown juvenile with an attendant parent. Moreover, the recipient bore no trace of immaturity, nor did it beg as a dependent young might have done; it was evidently a mature female. In contrast to what occurs at leks, she did not visit the male at a particular mating perch or bare court on the ground, but the two moved together through at least 50 m of woodland with, except briefly on one occasion, no third piha in sight. This, and the scattered distribution of males that call with no attempt to synchronize their notes, weigh against the view that the Rufous Piha courts in leks, as does the closely related Screaming Piha *Lipaugus vociferans* in South America – although, scattered through the treetops and calling loudly, the Rufous Piha might be regarded as forming an exploded lek. Likewise, courtship feeding is rare or absent among birds with leks. As far as I know, the only cotingas for which feeding of the female by the male has been reported are two species of Andean fruiteaters *Pipreola* which, unlike pihas and many other members of the family, form pairs that cooperate in nest attendance. In aviaries, males of the Green-and-black Fruiteater *P. riefferii* and the Orange-breasted Fruit-eater *P. jucunda* fed their incubating mates. Conclusions drawn from a single series of observations must be regarded as tentative, but years may pass before they can be repeated.

On the first day, when we saw the piha feed his companion, Nancy Douglass, Cathie J. Sullivan, and Anne van Sweringen watched with me. For their help, I am grateful.

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