

## Observations on diet, foraging behaviour, vocalisations and displays of Spangled Cotinga *Cotinga cayana*

Leonardo Chaves

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Se brinda información sobre el comportamiento de forrajeo, dieta, despliegues usando la base negra de las plumas y canto de *Cotinga cayana*. Todo esto alrededor de una agregación de matapalo. También se hace énfasis en la importancia de las observaciones de las aves en el dosel del bosque mediante el uso de torres u otros medios.

Spangled Cotinga *Cotinga cayana* belongs to the group of blue cotingas<sup>7</sup>. Its biology, like congenics, is poorly known. It extends from the Guianas and east Colombia to north-west Bolivia and Amazonian Brazil<sup>2</sup>. In Ecuador, it occurs in Amazonian humid tropical forest below 600 m<sup>9</sup>.

In August 1999, I visited Jatun Sacha Biological Station for four days. The station is on the south side of the río Napo, 8 km east of Port Misahualii, Napo Province (04°00'S 77°36'W, at 450 m), Ecuador. There is a 30 m-high canopy tower, on a ridge surrounded by tall forest. Vegetation is Tropical Wet Forest. Annual rainfall is very high (4,100 mm), but my visit coincided with a dry period of c.15 days, during which bird activity was low. Rain commenced at midday on 28 August.

On 29 August, I made observations from the tower from 07h00 to 10h30 under an overcast sky. At 09h00, four (three male and one female) Spangled Cotingas arrived very close to the tower. I focused my attention on a male perched at eye-level 15 m away on a bare branch. It began to display by giving a soft, medium-pitched *hooo* 2–3 times at irregular intervals. While singing, it opened the bill very slightly and erected the crown and back feathers, displaying the black feather bases and greatly accentuating the species' spangled appearance. This display is reminiscent of Pectoral Sandpiper *Calidris melanotos*, which uses its black feather bases in advertisement<sup>4</sup>. All other species of blue cotinga, with the exception of Plum-throated Cotinga *Cotinga maynana*, also have black bases to the blue feathers<sup>7</sup>. Their possible use in courtship requires study. When singing, the male held the body horizontally, moving the wings and spreading the tail. I did not notice the purple throat being puffed out, as Snow<sup>7</sup> reported for *C. maynana*. Another male was then noted on an exposed branch c.40 m from the first, also giving a mournful *hooooo*, erecting the crown and back feathers while crouching horizontally, spreading the tail and moving the wings. The female and third male fed in a tree, 30 m distant, with a large clump of fruiting mistletoe.

Skutch<sup>6</sup> described the only other blue cotinga vocalisation, for Turquoise Cotinga *C. ridgwayi*, in Costa Rica, which alarm-called while defending the

nest. Of the few displays reported, most consist of flights between treetop perches, accompanied by wing noises and displays, using the purple throat in Plum-throated Cotinga<sup>7</sup>. Males were noted flying between perches several times, but I did not hear any wing whistles, rattlings or twittering sounds, unlike other observations<sup>2,5,7</sup>.

Foraging behaviour was similar to Parker's description of White-cheeked Cotinga *Ampelion (zaratornis) stresemanni*<sup>7</sup>. The female fed at a mistletoe clump, using short sallies to pluck a fruit, before flying to a nearby perch and then to an exposed perch. Some minutes later, the bill was opened widely and the seed, apparently coated with a sticky viscous substance, regurgitated. On cleaning the bill, the seed stuck to the underside of the branch. A considerable quantity of regurgitated seeds on this branch and nearby branches suggests that these are favourite perches, regularly used while eating mistletoe. The fruits were large, black and green with red-orange pedicels. Two males were observed taking black fruits and the female green and black fruits. The female regurgitated two seeds, one of which stuck to the branch while the other fell off. Males regurgitated seeds in the same manner, also leaving the seeds on the underside of thin leafless branches, some of which were used in display. One male dropped a fruit, after picking it in flight. The last male left at 09h45. I returned to the observation platform that afternoon and next day, but did not see any Spangled Cotingas.

Other cotingas that feed on mistletoe are purpletufts *Iodopleura* spp.<sup>5,7</sup>, Swallow-tailed Cotinga *Phibalura flavirostris*<sup>5</sup>, *Cotinga ridgwayi*<sup>5</sup>, Snowy *Carpodectes nitidus* and Yellow-billed Cotingas *C. antoniae*<sup>8</sup>, and *Ampelion stresemanni*<sup>7</sup>. Three-wattled Bellbird *Procnias tricarunculata* has been seen regurgitating mistletoe with 'great effort', in Costa Rica and, as noted in Spangled Cotinga, it leaves the sticky seeds stuck to a branch when cleaning the bill. Some also fell to the ground (D. DeRosier pers. comm.). The bill-cleaning behaviour, after regurgitation, may function as part of a dispersion system for mistletoe.

It is possible that the male Spangled Cotingas were displaying to the female and each other. All

activity was centred on the fruiting mistletoe. Snow<sup>7</sup> comments:

'It is probable, however, that there are some species in which the displaying males are not confined to a traditional area, and the fundamental reason for this may be that the population needs to follow a seasonally shifting food supply. Such may be the case in the genera *Xipholena*, *Carpodectes*, and *Cotinga*. What little is known of these cotingas indicates that males make themselves conspicuous by flight displays above the forest canopy, a method suited for long-distance advertisement, and thus appropriate for birds that need to range widely for food'.

The canopy strategy of Spangled Cotinga and other blue cotingas consists of advertisement using treetop flights between perches, the display of black and blue feathers (this note), wing whistles and other calls, which may be influenced by the patchy distribution of mistletoe or other favoured fruits.

Although several bird species perched in the same trees used by the cotingas, I observed only two aggressive interactions. A male Spangled Cotinga chased a Black-headed Parrot *Pionites melanocephala* for a short distance, and a male Spangled Cotinga chased another male away.

Research is required to expand our knowledge of the species' ecology. From the ground it is impossible to detect the soft call of Spangled Cotinga and witness its displays. In Jatun Sacha, more than 25 species have been added to the site list from the tower (A. Suarez pers. comm.). At other Amazonian research sites, the use of canopy observation towers has been instrumental in an increase in knowledge of avian ecology, as well as identifying species<sup>1</sup>.

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### Leonardo Chaves Salgado

*Asociación Ornitológica de Costa Rica, Apdo 1402-2100 Guadalupe, San Jose, Costa Rica. E-mail: leonardo@crsuntours.com or leoaves@hotmail.com.*