

Euphonias using pollen make-up: an identification pitfall

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In 2009, general excitement arose among birdwatchers and ornithologists in French Guiana when euphonias with a rufous forehead were seen on different occasions at two widely-separated localities. These observations recalled a previous observation of similar euphonias in 2002. However, no species of *Euphonia* with a rufous forehead is known to occur in French Guiana. The birds were not specifically identified at that time, but it was noted that both males and females typically had a rufous forehead and white undertail-coverts. The mystery was finally solved in 2010 when Tanguy Deville climbed a tree to photograph birds feeding on the abundant nectar produced by the flowers of a liana growing in its crown...

On 24 September 2002, Maxime Zucca (*in litt.*) reported sighting four euphonias, two males and two females, with rufous foreheads in the village of Kaw (04°30'N, 52°02'W), in the coastal region of eastern French Guiana. Males had blue-black upperparts, sides of head, throat and chest, and yellow lower underparts. Females had olive upperparts, a greyish throat and an olivaceous-yellow breast. They were tentatively identified as Orange-bellied Euphonia *Euphonia xanthogaster*, the only species of *Euphonia* in the geographical region with a rufous forehead, although it was obvious that both sexes had white undertail-coverts, a characteristic which does not fit this species. The possibility that the forehead of these euphonias was stained by pollen was later proposed by Guillaume Léotard (*in litt.*).

At the end of November 2009, Guillaume Léotard and VP observed a female euphonia with a rufous forehead feeding with other frugivorous birds on berries of *Henriettea succosa* (Melastomataceae) along the road to the Dégrad Florian (c.05°28'N, 53°31'W) in north-western French Guiana. However no photos were obtained to help specific identification of this euphonia. On 5 December 2009, Sylvain Uriot and Jean-Luc Sibille (pers. comm.) saw a male euphonia with a rufous forehead at PK7 along the route de Stoupan near Roura (c.04°45'N, 52°19'W).

From photographs it was obvious that the undertail-coverts were white, making the bird most closely resemble a male of Tawny-capped Euphonia *Euphonia annea*, a largely Central American species (Hilty 2011) the occurrence of which in French Guiana seemed unlikely. Neither mystery euphonia could be identified and Alexandre Renaudier and members of the Comité d'Homologation de Guyane (*in litt.*) speculated that these birds might represent a new subspecies of Orange-bellied Euphonia in French Guiana.

The discussion among birdwatchers and ornithologists on the forum Ornithoguyane (<http://fr.groups.yahoo.com/group/ornithoguyane/>) offered two opinions: (1) agreement with Alexandre Renaudier that the mystery euphonias represented a new subspecies of the Orange-bellied Euphonia, with a rufous forehead and white undertail-coverts, or (2) they were simply White-vented Euphonias *Euphonia minuta* with the forehead stained by rufous pollen from unknown flowers.

White-vented Euphonias are uncommon in French Guiana (Tostain *et al.* 1992). They are found in the canopy of large trees in lowland forest, and along forest borders and are a small euphonia (9 cm) with a blackish throat and distinctive white undertail-coverts. Males of the subspecies *minuta* have a small bright yellow patch

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Figure 1. White-vented Euphonia *Euphonia minuta minuta*, male. Note the white undertail-coverts and the small bright yellow patch on the forehead. Saül, French Guiana, August 2009 (Johann Tascon).

Figure 2. Orange-bellied Euphonia *Euphonia xanthogaster brevirostris*, male. Note the yellow undertail-coverts and the large deep yellow patch on the forehead. Tiputini Biodiversity Station, Universidad San Francisco de Quito, Orella, Ecuador, July 2006 (Murray Cooper).

Figure 3. Orange-bellied Euphonia *Euphonia xanthogaster exsul*, male. Note the yellow undertail-coverts and the large rufous-yellow patch on the forehead. Henri Pittier National Park, Aragua, Venezuela, January 2007 (Lars Petersson).

Figure 4. White-vented Euphonia *Euphonia minuta minuta*. Moulting young male probing the calyx of a *Combretum cacoucia* flower. The forward curving stamens touch the forehead and stain it with pollen. Photos 4, 5, 6 & 7 were taken near Saint-Laurent-du-Maroni, French Guiana, October 2010 (Tanguy Deville).

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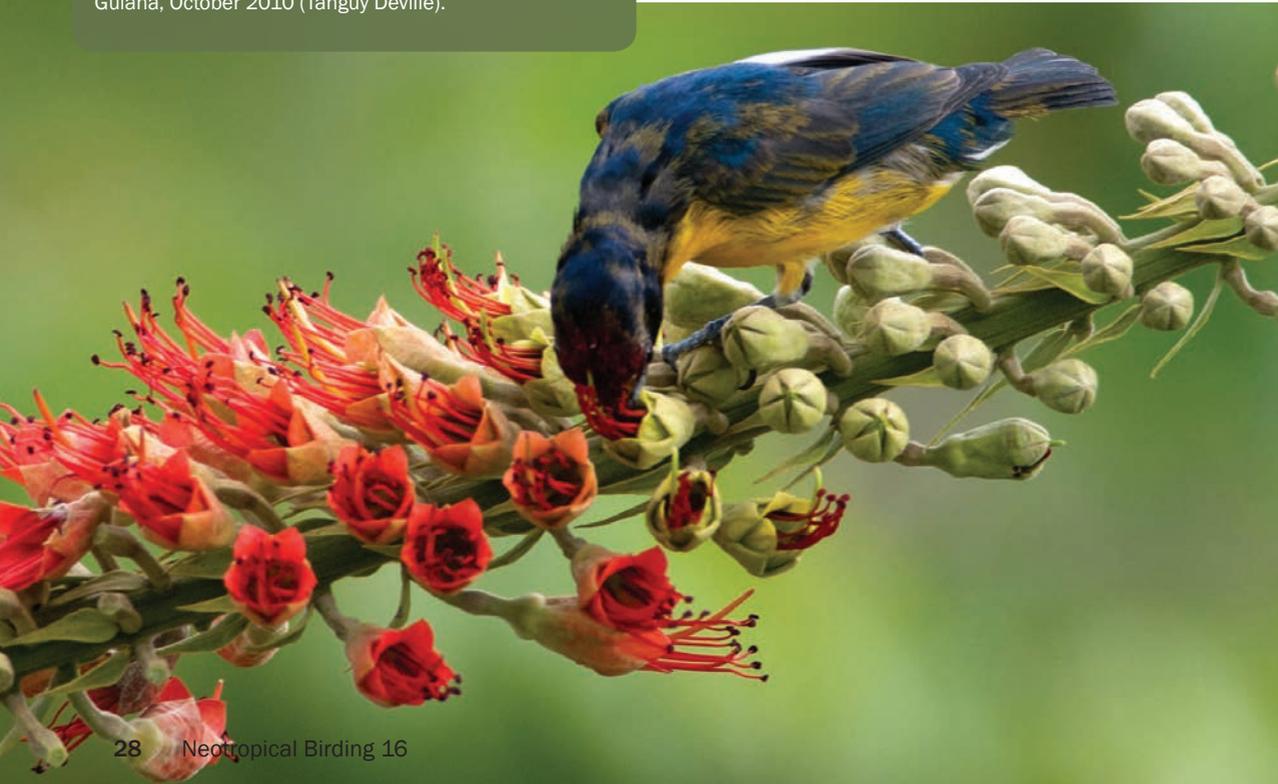




Figure 5. Turquoise Tanagers *Tangara mexicana* visiting the flowers of a *Combretum cacoucia* liana and exhibiting different amount of staining of the forehead (Tanguy Deville).

Figure 6. White-vented Euphonia *Euphonia minuta minuta*, moulting young male with a completely stained forehead, on a *Combretum cacoucia* flower (Tanguy Deville).

Figure 7. White-vented Euphonia *Euphonia minuta minuta*, adult male with the entire forehead completely stained with pollen of *Combretum cacoucia* flowers, resembling a male of one of the subspecies of Orange-bellied Euphonia *Euphonia xanthogaster* with a rufous forehead (Tanguy Deville).

Figure 8. Violaceous Euphonia *Euphonia violacea*, adult female with its forehead stained by rufous pollen of an unknown flower, resembling a female of one of the subspecies of Orange-bellied Euphonia *Euphonia xanthogaster* with a rufous forehead. Airstrip of Régina, French Guiana, November 2013 (Roland Jantot).

Figure 9. Tennessee Warbler *Leiothlypis peregrina* with its forehead stained by rufous pollen of *Combretum* flowers. Montalbán, Carabobo, Venezuela, March 2012 (Luis A. Matheus).



on the forehead, not extending back to the eye (Fig. 1) (Hilty 2011).

There are no records of Orange-bellied Euphonias in French Guiana, the closest portions of its distribution being central Guyana and western Amazonian Brazil, some 600 km distant, where it is found in similar habitats as, and often together with, White-vented Euphonias. It is also a small euphonia (9–11 cm) with a blackish throat, but the undertail-coverts are yellow (Hilty 2011). Males of the closest populations, subspecies *brevirostris*, have a large, deep yellow patch on the forehead, extending to slightly behind the mid-crown (Fig. 2); males of subspecies *exsul* and *badissima* do indeed have rufous-yellow foreheads, but are found in north-eastern Colombia and the northern cordilleras of Venezuela, and in the Andes of Venezuela and adjacent Colombia, respectively 1,700 and 2,400 km away (Fig. 3) (Restall *et al.* 2006).

The mystery was solved in 2010 when TD photographed birds visiting flowers of the liana *Combretum cacoucia* (Combretaceae) in the crown of a tree growing in a suburb of Saint-Laurent-du-Maroni, locally known as Balaté (c.05°28'N, 54°02'W), in north-western French Guiana. The c.20 m high tree stood in a small patch of forest at the side of a dirt road between a residential area and shifting agricultural clearings. Flowers of this liana produce abundant nectar (Scott Mori *in litt.*). Between 1 and 3 October, photographs of the birds visiting the flowering liana were made at close range by TD sitting in the crown of the tree.

Glittering-throated Emerald *Amazilia fimbriata*, Blue-chinned Sapphire *Chlorestes notata*, Black-spotted Barbet *Capito niger*, Silver-beaked Tanager *Ramphocelus carbo*, Blue-grey Tanager *Thraupis episcopus*, Turquoise Tanager *Tangara mexicana*, Blue Dacnis *Dacnis cayana*, Red-legged Honeycreeper *Cyanerpes cyaneus*, Purple Honeycreeper *C. caeruleus* and the mystery euphonias visited the *Combretum cacoucia* flowers. To his surprise, TD discovered that many of the short billed species had their forehead more or less stained by the rufous pollen of the *C. cacoucia* flowers. Fig. 4 shows how the forehead becomes stained by pollen from the forward curving stamens when the visiting birds probe the deep calyx of the *C. cacoucia* flowers. Only the longer-billed hummingbirds showed no staining on the forehead.

When TD later checked the photos with VP, they discovered that the amount of staining on the forehead varied between different birds (Fig. 5). Among the mystery euphonias the staining also varied from little or no staining to a completely

rufous forehead, even in moulting young males (Figs. 6 & 7). They concluded that the mystery euphonias were simply White-vented Euphonias that happened to look like Tawny-capped Euphonias or the rufous-capped subspecies of Orange-bellied Euphonia when their forehead became stained by the rufous pollen of *C. cacoucia* flowers. This liana is widespread in coastal French Guiana, especially along rivers, and it flowers throughout the year (Jean-Jacques de Granville pers. comm.), thus probably accounting for all mystery euphonias reported in 2002 and 2009.

Flowers of *Combretum* lianas such as *C. cacoucia* (this paper) and *C. fruticosum* (Gryj *et al.* 1990), not only produce abundant nectar, an attractive feeding source for birds, but also conspicuous red pollen (Michel *et al.* 2014) that easily stains short-billed perching birds such as tanagers, honeycreepers, warblers, orioles and euphonias. Recently another example of a euphonia with a forehead stained by rufous pollen of an unknown flower was observed in French Guiana. On 3 November 2013, a female Violaceous Euphonia *Euphonia violacea* was photographed by Roland Jantot in a mixed flock of small birds near the airstrip of Régina (04°18'N, 52°08'W) (Fig. 8). In this paper, we have reported five sightings of euphonias with a rufous-stained forehead, four involved White-vented Euphonias, the last one a Violaceous Euphonia. These repeated observations indicate that omnivorous small birds, and particularly euphonias, intensely visit *Combretum* lianas when flowering. *Combretum* lianas are therefore presumably pollinated by these perching birds rather than by longer-billed hovering hummingbirds (Gryj *et al.* 1990).

An enquiry via the NEOORN listserv revealed that staining by pollen is a widespread phenomenon among birds visiting flowers in search for nectar. That a plumage stained by pollen can lead to identification difficulties was pointed out by Kaufmann (1992) for Lucifer Hummingbirds *Calothorax lucifer* in southern USA and Mexico. Migratory songbirds also become stained when visiting flowers during their migration or on their tropical wintering grounds, which may lead to identification difficulties when returning on their breeding grounds with their forehead stained by pollen (C. Collins *in litt.*). In Costa Rica and Venezuela, wintering Tennessee Warblers *Leiothlypis peregrina* (Fig. 9) were seen to get stained by pollen when visiting *Combretum* flowers (D. Martinez *in litt.*, C. J Sharpe *in litt.*, Stiles 1983).

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