

Field identification of Orange-breasted and Bat falcons

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Introduction

The Bat Falcon *Falco ruficularis* is a widespread, small, generally quite common Neotropical falcon resident from Mexico to South America, west of the Andes to Ecuador, east of the Andes to Brazil¹. Over much of its range the Bat Falcon is sympatric with the larger and much rarer Orange-breasted Falcon *F. deiroleucus*, which is resident from south-eastern Mexico to South America, east of the Andes to Brazil¹. These two species are remarkably similar in plumage (Figure 1), but the field identification of Orange-breasted, a near-threatened species⁶, is poorly treated in many guides. Here we discuss characters that can be used to help correctly identify Orange-breasted Falcons. This paper is based on field observations by SNGH at traditional sites in Belize and Guatemala (1984, 1990-1995) and one bird seen in eastern Ecuador (July 1994), and six birds seen by AW in Amazonian Brazil (1988-1993)²⁰ and one in Roraima, northern Brazil (Nov 1994), plus examination of museum specimens. We also have seen at least 400 Bat Falcons in the field (1981-1995) from Mexico to Ecuador and Brazil, including birds virtually alongside Orange-breasteds in Belize and Guatemala.

The problem

Most literature inadequately treats the field separation of Bat and Orange-breasted falcons, often perpetuating equivocal characters supposedly diagnostic for Orange-breasted, such as the orange chest. For example, for Mexico, Peterson & Chalif¹⁵ state simply "... like a large, big-footed, heavy-billed version of the Bat Falcon. The bright orange breast below the white throat identifies it." For Colombia, Hilty and Brown¹⁰ note the following differences for Orange-breasted compared with Bat: "black vest narrower (usually), crossing only lower breast and upper belly (not entire breast); rufous wash on chest and upper breast (rufous also often present to some

extent on chest of Bat Falcon); **definite coarse buff barring on black vest** (not fine white edging); and proportionately much stronger larger feet." Other guides^{13,18} echo these features, in particular the orange chest, buff barring on the narrower black chest band, and the proportionately larger feet of Orange-breasted. However, many Bat Falcons show orangish to bright orange across the chest above the black vest (as cautioned by Ridgely & Gwynne¹⁶), the barring on the black vest can be whitish or buffy in both species, and judging the relative size of bill or feet on a lone bird can be difficult. Becoming **thoroughly** familiar with the structure and plumage variation of the much commoner Bat Falcon is desirable before identifying an Orange-breasted Falcon.

Geographic variation

The races of Bat Falcon, and their characters, have been the subject of some debate: this has a bearing on field identification. Numerous authors (for example ^{3,4,9,11,14}) recognise nominate *ruficularis* (or *albigularis*, now considered a synonym⁸) throughout most of the Bat Falcon's range, and *petrophilus* of north-west Mexico. Wetmore¹⁹, however, pointed out that Middle American birds were separable as *petoensis* (described by Chubb⁵), and other more recent authors² have followed this course; the race *petrophilus* is at best weakly differentiated, and the race *pax* described from Bolivia⁵ is generally not recognised.

In summary, adult Bat Falcons from Mexico to north-western South America (*petoensis*) tend to be bluish grey above and have a whiter throat (e.g. Figure 1, no. 1c) versus the darker, blackish grey upperparts and buffier throat of most South American birds east of the Andes (*ruficularis*) (Figure 1, no. 1a). The Orange-breasted Falcon is considered monotypic, but note the apparent geographic plumage variation described below.

Identification features**Size and structure**

Orange-breasted Falcons (length 13.5-16", 34.5-40.5 cm; wingspan 30.5-35.5", 77-90 cm) are larger than Bat Falcons (length 9-11", 23-28 cm; wingspan 24-29", 61-73.5 cm)¹². While lengths of the two species do not overlap, judging size of a lone bird perched high on a bare snag against the sky can be difficult. Using size as a primary identification character "it was large so it had to be Orange-breasted" – is circular reasoning akin to "I wouldn't have seen it if I hadn't believed it". Measurements of length and wingspan, however, do not convey the significantly greater bulk of Orange-breasted compared to Bat Falcon: male Orange-breasted weigh around 350 g, and females 550-650 g; Bat Falcons are much lighter, with males about 110-150 g and females 180-240 g⁴.

Linked to bulk, the **overall shape** of Orange-breasted and Bat falcons differs noticeably, something that has been generally overlooked (Figure 1). Orange-breasted is a more heavily-built bird with a proportionately larger, blockier head; in flight its wings appear relatively broader-based and its tail proportionately shorter and broader-based than on Bat Falcon; this is more pronounced in females than males. Thus it has a thickset, powerful shape likely to remind observers of Peregrine Falcon *F. peregrinus*, as noted by Ridgely & Gwynne¹⁶. In contrast, the Bat Falcon is more slightly built, with a proportionately smaller head, narrower-based wings, and a longer, narrower-based tail than Orange-breasted Falcon; thus, in flight, Bat Falcon can suggest a White-collared Swift *Streptoprocne zonaris*. At rest, the wingtips of Orange-breasted are equal with (mainly males?) or often project noticeably beyond (mainly females?) the tail tip. On Bat Falcon the wingtips of females tend to be about equal with, or very slightly longer than the tail tip, whilst those of males usually are slightly shorter than the tail tip.

The tail shape of the two species differs also: Orange-breasted Falcon has a somewhat graduated tail tip like Peregrine; whereas the outermost rectrices of Bat Falcon are not much shorter than the rest, and its tail often appears slightly cleft (see flight shapes in Figure 1). AW has noted that some perched Orange-

breasteds (especially females) show more strongly pronounced shoulders than Bat Falcons.

These overall structural differences parallel those between a Peregrine Falcon and a Merlin *F. columbarius* or European Hobby *F. subbuteo* and, with experience, enable identification of birds at long range when plumage features are not visible. A recent illustration of Orange-breasted Falcon (del Hoyo *et al.*⁷, Plate 27) quite wrongly shows Orange-breasted Falcon with a long tail projecting well beyond the wingtips.

The feet of Orange-breasted are proportionately larger than on Bat Falcon (Figure 1). However, Bat Falcon, like most falcons, has long toes so its feet may look quite large (e.g. Figure 2), although its toes may appear slender relative to the toes of Orange-breasted. Some observers have noted that the large feet of Orange-breasted Falcon can create the impression in flight that the bird is carrying prey (P. Jenny pers. comm.); however, a Bat Falcon carrying prey is going to give the same impression. In Middle America, SNGH has found the proportionately larger, heavier beak of Orange-breasted Falcon to be as useful a character as the feet size, and often easier to see in the field when the feet can be partly covered by belly feathers or hidden by a branch. Correctly judging the size of beak and feet in the field, however, can be difficult, and requires critical experience with Bat Falcons.

Plumage

Basically, both species have dark upperparts, a pale throat, a pale-barred blackish "vest" across the underparts, and rufous thighs and undertail coverts (Figure 1). The sexes are similar in appearance although differing markedly in size (see above). Adult plumage appears to be attained by a complete, first prebasic ("post-breeding") molt within a bird's first year. Thus, there is only one immature plumage stage to consider. The juvenile Orange-breasted Falcon is distinctive if seen well, and is not discussed in detail here: note the extensive dark chevrons on its pale (cinnamon to whitish) thighs (e.g., Plate 6 of Howell & Webb¹²). The following features are important to note when distinguishing adult Orange-breasted from adult and juvenile Bat Falcons.

Upperparts On most Middle American and some eastern South American adult Bat Falcons the blackish head (especially the sides of the face) often is contrastingly darker than the slaty blue-grey upperparts (Figure 1, nos. 1c/d); the back feathers have blackish shaft-streaks, while the upperwing coverts are blackish-centred and edged blue-grey; birds in north-western Mexico (the described race *petrophilus*, Figure 1, no. 1c) tend to be paler above and whiter-throated. On most South American and a few Middle American adults there is often little or no head-back contrast since the upperparts are darker and on some birds can be blackish, narrowly edged grey, similar to Orange-breasted (Figure 1, no. 1a). On juvenile Bat Falcons, the upperparts are blackish (often with a brownish cast) and the upperparts of Middle American birds contrast less with the head; however, the pattern of upperpart feathers tends to be the same as the adult, and blue-grey feathers are usually mixed with brownish feathers within six months of fledging (Figure 1, no. 1b).

On Orange-breasted Falcon there is usually little head-back contrast as the upperpart feathers are blackish, edged with slaty blue-grey in adults (Figure 1, nos. 2a/b) or brownish grey (pale cinnamon in fresh plumage) in juveniles. In bright light, however, the upperwing coverts of Orange-breasted may appear blue-grey (Figure 3).

Underparts The chest and sides of the neck are, as one would expect, orangish on Orange-breasted Falcons; adults in Middle America (Guatemala and Belize, at least) have these areas fairly bright, solid orange (Figure 1, no. 2b; Plate 9 of Smithe¹⁷). In some South American adults, however, as has been noted in Brazil by AW, these areas have only a "pale orangy-apricot wash" which can show some dark streaks (Figure 1, no. 2a; also Plate 5 of Hilty & Brown¹⁰). This apparent geographic, neotenic plumage variation, paralleled by variation in bare-part colours (see below) appears not to have been commented upon in the literature. Importantly, the throat is clean, bright white in adult Orange-breasted Falcons of all populations, contrasting with the orange chest and neck sides.

Middle American Bat Falcons generally appear "white-throated", usually with a narrow

wash of cinnamon or orange along the border with the black vest and on the sides of the neck (Figure 1, no. 1c; also Hilty & Brown¹⁰, Plate 5; Ridgely & Gwynne¹⁶, Plate 7; Howell & Webb¹², Plate 6). However, on many birds the sides of the neck and the chest above the blackish vest have a distinct cinnamon or orangy wash; on some birds this can be bright orange, as bright as Orange-breasted Falcon (Figure 1, no. 1d). In such cases, the orange colour tends to be more extensive than on Orange-breasted and suffuses into the throat which appears buffy white, often with a buffy-cinnamon band or patch across the lower or median throat; the throat can, however, look fairly clean white unless seen well. SNGH has seen such Bat Falcons misidentified frequently as Orange-breasted Falcons in Mexico and Guatemala, not really surprising since they look superficially much more like the picture of the latter than the former in Peterson & Chalif¹⁵. At least in northern Middle America, one member of a pair of Bat Falcons often has fairly bright orange on the chest and neck sides while the other has a cleaner, whitish throat and chest; males and females show both patterns.

In South America, east of the Andes, Bat Falcons typically have the throat, chest, and neck sides mostly buffy or pale cinnamon (Figure 1, no. 1a), quite different from the clean white throat of Orange-breasted Falcon; other birds may have the throat whitish. Observations are still needed to more fully evaluate geographic plumage variation in these two species.

The pale-barred blackish vest on the underparts of Bat Falcon extends farther up into the chest than on Orange-breasted, although across the median underparts it is relatively narrow. The apparent extent of the black vest varies with angle of viewing and posture of the bird, although from the front, the upper edge of the vest often has a U-shape in Orange-breasted rather than a straight-across shape in Bat Falcon. In adult Bat Falcons the pale barring is whitish to buff, in juveniles typically it is pale cinnamon, fading to whitish. The bars are narrow and relatively linear (often narrower and less distinct in nominate *ruficularis*), unlike the coarser, more scalloped barring of Orange-breasted (Figure 1). Thus the bars on Bat Falcon tend to be indistinct at a distance versus more noticeable on Orange-

breasted (compare Figures 4 vs. 3). The pale bars on Orange-breasted are whitish (mostly Middle America?) to pale cinnamon (mostly South America?). Thus, pattern of barring is useful: narrower, more linear, and less distinct on Bat, coarser, wavier, and more distinct on Orange-breasted. Colour of the barring is not useful, *contra* several references, since it is cinnamon, or buffy, on juvenile Bat Falcons and, conversely, can be whitish on adult Orange-breasted. Orange-breasted Falcons have black bars on their undertail coverts, lacking in most adult Bat Falcons but characteristic of juvenile Bat Falcons; this can be hard to see in the field.

Bare Parts

Both species typically have a dark bill, a yellowish orbital ring, cere, and gape, dark eyes, and yellow legs and feet. On adult Bat Falcons, at least in Middle America, the legs and feet typically are a bright orange-yellow (Figure 1, nos. 1a, 1d; Figure 2), whereas Orange-breasted have yellow legs and feet (Figure 1, no. 2b). The feet of juvenile Bat Falcons, however, are duller than adults, being yellow to bright yellow. Although Howell & Webb¹² state for Orange-breasted Falcon "cere, orbital ring, and feet yellow to **orange-yellow**" (emphasis ours) this appears to be in error.

The cere and orbital ring of adult Orange-breasted Falcons in Belize and Guatemala are yellow (similar to the feet) to (rarely) greenish yellow, whereas in Brazil, AW has noted these areas as dull yellowish green to pale green on three adults. Juvenile Orange-breasteds have greenish to greenish yellow ceres and orbital rings. The cere and orbital ring of adult and juvenile Bat Falcons is yellow (duller than the feet of adults) or, at least in some juveniles, greenish yellow. Further critical observations and larger samples are needed to check the variation and usefulness of these characters for species identification.

Voice

Both of these falcons can be quite vocal, especially around their nesting sites. Bat Falcons give a relatively high-pitched shrill or screaming *kree-kree-kree...* or *hew-hew-hew...* and single notes, *kik!* or *kiik*, all somewhat suggesting other small falcons such as American *F. sparverius* or European *F. tinnunculus* kes-

trel. Orange-breasted Falcon, on the other hand, gives a quite different, lower-pitched, harder screaming *kyowh-kyowh-kyowh...* or *kyah-kyah-kyah...* and single hard notes, *kyow* or *kyowh*, the quality of which may suggest a Brown Jay *Cyanocorax morio* or Peregrine Falcon.

Figure 1 (Plate on page 40)

1) Bat Falcon. 2) Orange-breasted Falcon. Flight shapes (not to scale): note narrower-based wings and relatively longer, squared or slightly notched tail of more lightly-built Bat Falcon versus broader-based wings and thicker, relatively shorter, graduated tail of more heavily-built Orange-breasted Falcon.

1a) adult *F. r. ruficularis* (eastern South America). Note dark upperparts similar to Orange-breasted, but that throat and sides of neck are washed cinnamon, without bright, clean white throat; also note narrow vest barring, yellow cere and orbital ring, orange-yellow feet.

1b) juv *F. r. petoensis* (Middle America). Darker upperparts than adult suggest 2; note blue-grey feathers molting in, narrow vest barring, and structure.

1c) adult *F. r. petrophilus* (NW Mexico) relatively pale above and white-throated; many Middle American birds show this little cinnamon on neck and throat.

1d) adult *F. r. petoensis* (Middle America), adult with atypical orange on neck and throat. Note smaller-headed, more slender shape than 2, with longer, slightly cleft tail. If the orange is as bright as and even more extensive than 2, the throat is not clean white. Also note the narrow vest barring, head/back contrast, and orange-yellow feet.

2 Orange-breasted Falcon.

a) adult (South America). Note greenish cere and orbital ring, clean white throat (compared with 1a), coarse and wavy vest barring.

b) adult (Middle America). Compare with 1c/d. Note blocky head and thickset, relatively short-tailed shape, graduated tail tip. The white throat, coarse and wavy vest barring, yellow feet, and lack of head/back contrast are good features.

Painting by Sophie Webb.





Figure 2. Adult Bat Falcon, Tikal, Guatemala. Note the bright orange-yellow feet and narrow linear barring on the vest. This individual has a bright white throat typical of *F. r. petoensis*, although its upperparts appear blacker than most Middle American birds. (John Gilardi)



Figure 3. Adult Orange-breasted Falcon, Mountain Pine Ridge, Belize. Note the large head and beak, bright white throat contrasting with orange chest and neck sides, the coarse, wavy pale barring on the vest, the yellow toes and that the wingtips project beyond the tail. Sunlight reflecting off the shoulders makes the upperparts appear atypically blue-grey. (Robert A. Behrstock)



Figure 4. Adult Bat Falcon, Calakmul, Campeche, Mexico. Note the small head and beak, slender shape and elongated posture with long, cleft tail. This individual shows about the minimum extent of buffy on its chest, and its black-looking vest (with poorly contrasting, narrow pale bars) and bright yellow feet are other features to note. (Steve N. G. Howell)

Habitat and behaviour

Bat Falcons occur in a variety of habitats in humid lowlands and foothills. They can be found in evergreen forest (usually near edges or clearings), fairly open country with forest patches or scattered trees, and quite commonly in towns, at least in Middle America, where they perch on tall towers, pylons, bridges, etc., and nest in buildings. Away from man-made structures, Bat Falcons typically nest in tree cavities. Orange-breasted Falcons are rarely reported away from forest or forest clearings, and are unlikely to be seen in open country or in towns. Most nest sites known are from cliff faces, although nesting in dead snags has been reported recently from Ecuador (R. S. Ridgely pers. comm.). Birds may be seen far from known cliff faces, especially juveniles or non-breeding adults. While Bat Falcons (and also Orange-breasted Falcons²⁰) seem to favour dead snags along rivers, this may reflect extensive ready access by humans to this

habitat, compared with comparable lack of access to unbroken forest, such as generally less accessible *terra firme* forest in Amazonia. Both species are aggressively territorial and may noisily chase off other birds.

Orange-breasted and Bat falcons tend to be quite confiding and seemingly unconcerned by humans so that good views often can be obtained. Both characteristically perch atop bare snags or other prominent perches whence they watch for prey (birds, large insects, and bats) which they pursue and catch in flight, often returning to the same perch after hunting. Bat Falcons also hunt by soaring and gliding for periods, snatching insects in flight, recalling an Apolomado Falcon *F. femoralis* or European Hobby *F. subbuteo*; we have not seen Orange-breasted Falcon hunt in this manner.

Summary

Identification of adult Orange-breasted Falcons generally requires good views and, importantly, critical field experience with Bat Falcons.

Structure

1. Orange-breasted is more massive, with proportionately broader-based wings, shorter tail, more graduated tail tip, and blockier head. Thus, it suggests Peregrine Falcon (which it replaces ecologically in the Neotropics) while the smaller and more slightly built Bat Falcon may be likened to a Merlin or European Hobby.

2. The large feet of Orange-breasted often have been cited as diagnostic but judging this accurately or seeing the feet clearly in the field can be difficult; the heavier bill of Orange-breasted is also a useful character.

Plumage

Note that diagnostic plumage features vary geographically in the Bat Falcon and that a **bright orange chest and neck sides do not rule out Bat Falcon.**

1. *Throat colour.* Adult Orange-breasted Falcons of all populations show a clean, bright white throat contrasting with the orange chest and neck sides. This is particularly useful in South America, where Bat Falcons typically have a buffy throat. Most Middle American

Bat Falcons have a whitish throat with an orange or buff wash at the border with the dark neck sides and vest. Those birds with a bright orange chest tend to have the throat washed buffy, although it can look whitish unless seen clearly.

2. *Vest barring.* Bat Falcons have narrow, relatively linear pale barring on their black vest, often hard to see at a distance. Orange-breasted Falcons have coarser, scalloped, and more distinct barring often noticeable at a distance.

3. *Head/back contrast.* Middle American Bat Falcons typically show contrast between the blackish head and blue-grey upperparts, whereas the upperparts of Orange-breasted usually appear blackish. However, South American and some Middle American Bat Falcons are blacker above, like Orange-breasted.

We hope this article will alert observers to pay critical attention to Bat Falcons and to key in on Orange-breasted Falcons away from traditional, known sites, thus contributing to our knowledge of a spectacular and poorly-known species.

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