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**Intergradation Between the Bush-Tanagers  
*Chlorospingus punctulatus* and *C. ophthalmicus* in Western Panama  
(Aves: Thraupidae)**

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The taxa included under *Chlorospingus ophthalmicus* (Common Bush-Tanager) show complex geographic variation throughout the vast range of the species from Mexico to Argentina. For example, there are 10 named subspecies divided into at least 14 discrete populations in Colombia and Venezuela alone (Olson 1983). Three taxa in this complex have been named from western Panama. One of these, *C. punctulatus* Sclater and Salvin 1869, found in the provinces of Veraguas and Coclé (Fig. 1), is sufficiently distinct from the others in its very dark cap and more intense coloration that it has almost always been given the status of a separate species (e.g. Hellmayr 1936 [and all previous authors], Eisenmann 1955, Storer 1970), or has been maintained as its own subspecies "group" (AOU 1983).

The subspecies *C. o. regionalis* Bangs 1906 ranges from the mountains of Costa Rica to the western slope of the Volcán de Chiriquí in Panama. Although its distribution had previously been misunderstood, the

population known as *C. o. novicius* Bangs 1902 was shown to occur (Olson 1981) only on the eastern slope of Volcán de Chiriquí (Fig. 1), mainly in the vicinity of the town of Boquete. This form is decidedly more richly colored than *C. o. regionalis* and was considered to show some approach to the coloration of *C. punctulatus* (Olson 1981).

These bush-tanagers are common and conspicuous where they occur and the absence of specimens between western Chiriquí and central Veraguas is probably an artifact of collecting due to lack of roads in the mountains in the area. Construction of an oil pipeline and an accompanying highway (often known as the Fortuna or "oleoducto" road; Ridgely and Gwynne 1989), from Gualaca on the Pacific slope of Chiriquí to Chiriquí Grande on the Caribbean slope of Bocas del Toro, provided access to mountainous habitats some 25 km east of the Boquete area. Birds of the *C. ophthalmicus* complex were observed along this road and referred to the subspecies *novicius* by Ridgely and

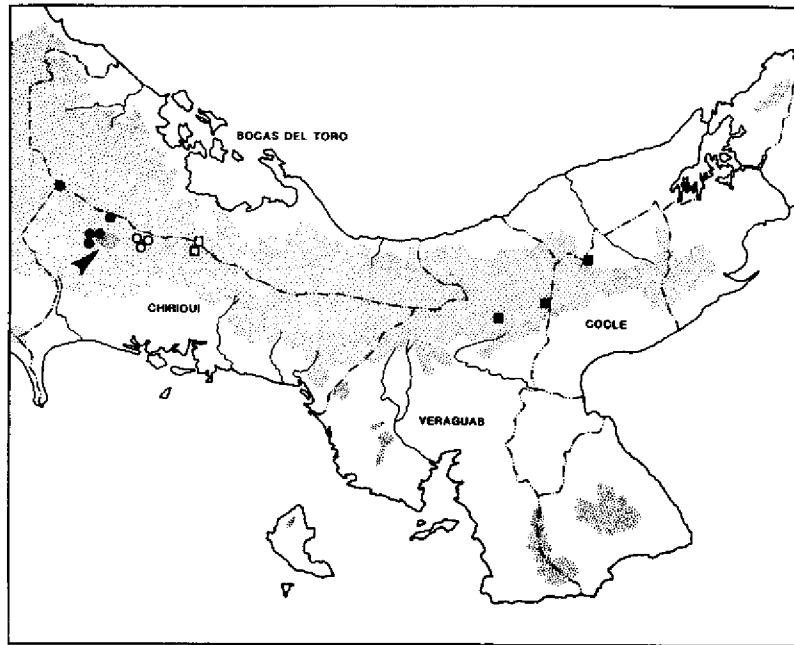


Fig. 1. Map showing known distribution of *Chlorospingus ophthalmicus* in western Panama. *C. o. regionalis* (solid circles); *C. o. "novicius"* (= *regionalis* > *punctulatus* intergrades; open circles); *C. o. punctulatus* > *regionalis* intergrades (open squares); *C. o. punctulatus* (solid squares). Stippled area indicates elevations above 200 m. Darker stippling indicated by arrow shows location of Volcán de Chiriquí. Names provided for provinces mentioned in text.

Gwynne (1989:405), most likely on geographical grounds. In 1990, I examined a specimen of this species labelled "Fortuna" in the Gorgas Memorial Laboratory in Panama City, collected 13 February 1976 by Rodolfo Hinds, that I recognized as distinct from *novicius*. Smithsonian field parties then obtained additional specimens near Fortuna in 1990 and from just over the continental divide in Bocas del Toro in 1991.

In general, these specimens are intermediate in plumage characters between *punctulatus* and *novicius*, but are more similar to *punctulatus* in having the crown and sides of head very dark. The crown color varies individually, with some being more brown, although the crown is never as blackish as in *punctulatus*. The throat and chin are more heavily speckled than in *novicius*, but less so than in *punctulatus*, and the bases of the feathers are paler, more whitish, than in *punctulatus*, thus approaching *novicius*. The lower throat and upper breast are less intensely orange than in *punctulatus*, but not as dilute as in most specimens of *novicius*.

The population of bush-tanagers reported here is more similar to *C. punctulatus* than to the less-intensely colored forms *novicius* and *regionalis*, found only 25 to 30 km distant on the slopes of Volcan de Chiriquí. Although the species has not yet been collected anywhere between Fortuna and Veraguas, birds from most

of this area will probably prove to be similar to or inseparable from *punctulatus*. Thus, the transition from dark-capped *punctulatus* to light-capped *regionalis* takes place abruptly over a narrow band probably less than 50 km wide, within which complete intergradation may be expected. Thus, the population to the west known as "*novicius*" and the newly sampled populations to the east reported here probably represent the extremes, both morphologically and geographically, of this narrow band of intergradation.

From the evidence presented here, it seems clear that *punctulatus* is not specifically distinct from other forms of the Common Bush-Tanager occurring to the west and north, and should be regarded as a subspecies of *C. ophthalmicus*. Although the birds from the Fortuna area are distinguishable from other named subspecies, I believe that it is best to regard this population and that represented by "*novicius*" as part of a steep cline of intergrades between *C. o. punctulatus* and *C. o. regionalis* that do not deserve separate nomenclatural status.

*Material examined.*—*C. o. regionalis*: see Olson (1981).

*C. o. "novicius"* (= *regionalis* > *punctulatus* intergrades): see Olson (1981).

*C. o. punctulatus* > *regionalis* intergrades: BOCAS DEL TORO: Continental Divide on Gualaca/Chiriquí Grande road, USNM 608226–608229; CHIRIQUI: 12.6

road km N of Los Planes on Gualaca/Chiriquí Grande road, USNM 607627-607629; Fortuna, GML 068767.

*C. o. punctulatus*: VERAGUAS: Cordillera del Chucú, USNM 62013 (syntype); Santa Fé, AMNH 187972; Chitra, AMNH 246541, 246552, 246553, 246556, 246561. COCLÉ: Cascajal, USNM 150875.

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