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## Facial caruncles in Jamaican Turkey Vultures (*Cathartes aura*)

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*Photo: Gary R. Graves*

## Facial caruncles in Jamaican Turkey Vultures (*Cathartes aura*)

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**Abstract** The resident Turkey Vultures of Jamaica and the Greater Antilles have long been assigned to the nominate subspecies (*Cathartes aura aura*) based on wing and tail length of museum specimens. Epidermal characters of living birds provide an unappreciated additional source of information on the zoogeographic affinities of Antillean populations. In this paper, I offer photographic documentation of preorbital facial caruncles in the Jamaican population and call attention to their presence in archived eBird photographs of vultures from Cuba, Hispaniola, Puerto Rico, and the Bahamas. Caruncle morphology of Antillean populations resembles that of breeding populations from both the eastern United States (*C. a. septentrionalis*) and Middle America (*C. a. aura*). The South American subspecies (*C. a. ruficollis*, *C. a. jota*, and *C. a. falklandicus*) lack preorbital facial caruncles.

**Keywords** *Cathartes aura*, facial caruncles, Greater Antilles, Jamaica, Turkey Vulture

**Resumen** Carúnculas faciales en individuos de *Cathartes aura* en Jamaica—Los catártidos residentes en Jamaica y las Antillas Mayores han sido asignados durante mucho tiempo a la subespecie denominada *Cathartes aura aura* basado en las longitudes de las alas y la cola de especímenes de museo. Los caracteres epidérmicos de individuos vivos proporcionan una fuente adicional de información poco valorada sobre las afinidades zoogeográficas de las poblaciones antillanas. En este artículo, ofrezco documentación fotográfica de carúnculas faciales preorbitales en la población jamaicana y llamo la atención sobre su presencia en fotografías archivadas en eBird de individuos de Cuba, La Española, Puerto Rico y las Bahamas. La morfología de las carúnculas de las poblaciones antillanas se asemeja a la de las poblaciones reproductoras tanto del este de los Estados Unidos (*C. a. septentrionalis*) como de América central (*C. a. aura*). Las subespecies sudamericanas (*C. a. ruficollis*, *C. a. jota* y *C. a. falklandicus*) carecen de carúnculas faciales preorbitales.

**Palabras clave** Antillas Mayores, carúnculas faciales, *Cathartes aura*, Jamaica

**Résumé** Caroncules faciales chez l'Urubu à tête rouge (*Cathartes aura*) en Jamaïque—L'Urubu à tête rouge sédentaire en Jamaïque et dans les Grandes Antilles est depuis longtemps rattaché à la sous-espèce nominale (*Cathartes aura aura*) compte tenu de la longueur des ailes et de la queue des spécimens de musée. Les caractères épidermiques des oiseaux vivants constituent une source supplémentaire et encore non évaluée d'informations sur les affinités zoogéographiques des populations antillaises. Le présent article comporte une documentation photographique sur les caroncules faciales préorbitales de la population jamaïcaine et signale leur présence sur des photographies archivées d'Urubus de Cuba, d'Hispaniola, de Porto Rico et des Bahamas. La morphologie des caroncules des populations antillaises ressemble à celle des populations reproductrices de l'est des États-Unis (*C. a. septentrionalis*) et d'Amérique centrale (*C. a. aura*). Les sous-espèces sud-américaines (*C. a. ruficollis*, *C. a. jota*, et *C. a. falklandicus*) ne présentent pas de caroncules faciales préorbitales.

**Mots clés** caroncules faciales, *Cathartes aura*, Grandes Antilles, Jamaïque, Urubu à tête rouge

The Turkey Vulture (*Cathartes aura*; Linnaeus 1758) has one of the largest avian breeding ranges in the Western Hemisphere, extending from ~53°N to ~55°S latitude (Wetmore 1964, Kirk and Mossman 1998). Breeding populations have traditionally

been divided into six subspecies, including three north of the Isthmus of Panama (Wetmore 1964, Kirk and Mossman 1998). Subspecific taxonomy of North American populations is based on external measurements and subtle plumage characters, such as paleness of wing coverts (Wetmore 1964). These characters vary clinally along environmental gradients and the delineation of subspecies is largely arbitrary (Swann 1922, Wetmore 1964). Antillean populations have been assigned to the nominate subspecies (*C. a. aura*) owing to the relatively short wing and tail lengths of museum specimens (Nelson 1905, Swann 1922, Wetmore 1964). Population genetic analyses of Turkey Vulture have yet to be performed and the zoogeographic affinities of Antille-

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an populations remain poorly understood.

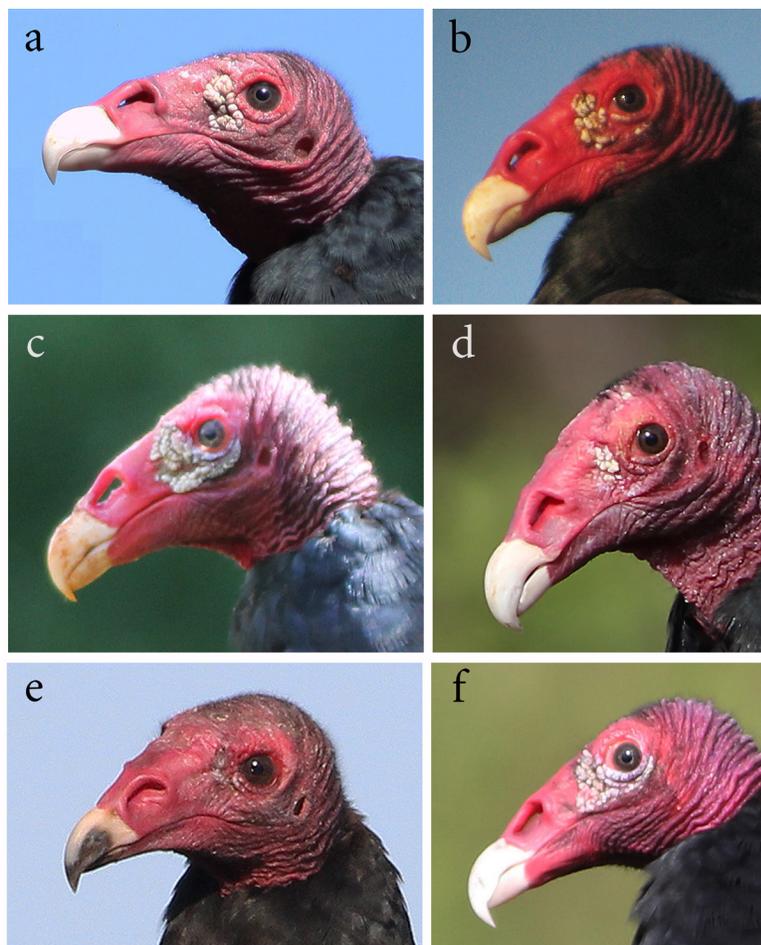
Resident populations of Turkey Vultures in the Greater Antilles (Cuba, Jamaica, Hispaniola, and Puerto Rico) are geographically encircled by breeding populations in the southeastern United States (*C. a. septentrionalis*), Middle America (*C. a. aura*), and northern South America (*C. a. ruficollis*). Although there is some circumstantial evidence that vultures migrate from the Florida Keys to Cuba (Darrow 1983; *but see* Moore 2000), there are no specimens or banding recoveries of the larger migratory subspecies (*C. a. septentrionalis*) in Cuba or elsewhere in the Greater Antilles (Nelson 1905, Wetmore 1964). Moreover, standardized censuses in Cuba have revealed no evidence of seasonal population augmentation from migrants (Wotzkow and Wiley 1988). Until proven otherwise, Turkey Vultures observed in the Greater Antilles are assumed to represent non-migratory resident populations.

The Turkey Vulture exhibits geographic variation through the presence and morphology of fleshy caruncles on the bare head and neck skin of adults (Wetmore 1964, Kirk and Mossman 1998, Graves 2016). I have hypothesized (Graves 2016) that colorful caruncles and epidermal papillae in *Cathartes* vultures are adaptations for individual recognition during courtship (Loftin and Tyson 1965) as well as signaling of age and dominance status at

feeding assemblages (Wallace and Temple 1987, Houston 1988, Kirk and Houston 1995) and communal roosts (Buckley 1996). Soft part characters have been underutilized in *Cathartes* taxonomy because skin color fades rapidly after death and epidermal ornamentations shrivel, making them scarcely visible in museum specimens (Wetmore 1964, Graves 2016). Breeding populations in the southeastern United States and Middle America possess fleshy white caruncles on the nasal and orbital regions of the facial skin (Kirk and Mossman 1998). In contrast, breeding populations from Panama and South America (*C. a. ruficollis*, *C. a. jota*, and *C. a. falklandicus*) lack preorbital facial caruncles (Wetmore 1964, Graves 2016). The zoogeographic significance of facial caruncles in Greater Antillean populations has not been previously addressed. The purpose of this paper is to present photographic documentation of facial caruncles in the Jamaican population and to call attention to archived eBird (ebird.org/media/catalog; Sullivan *et al.* 2009) photographs of Turkey Vultures from Cuba, Hispaniola, Puerto Rico, and the Bahamas.

### Observations

I studied Turkey Vultures opportunistically during avian field studies (1994–2015) that extended to all 14 Jamaican parishes (Graves 1996, 2015, Graves and Schmidt 2015): Clarendon



**Fig. 1.** Preorbital facial caruncles in the Jamaican Turkey Vultures: (a) Portland Parish, adult, 10 December 2011; (b) Trelawny Parish, adult, 26 February 2008; (c) St. Catherine Parish, adult, 10 December 2013; (d) Clarendon Parish, adult, 11 December 2013; (e) Clarendon Parish, immature, 7 December 2013; (f) Clarendon Parish, adult, 11 December 2013.

(2004, 2006, 2008, 2013); Hanover (2012); Kingston (1995, 1996, 2003–2006, 2008); Portland (1994–1996, 2003–2006, 2011); St. Andrew (1994–1996, 2003–2006, 2008, 2011, 2013); St. Ann (2008, 2010, 2013); St. Catherine (2003, 2006, 2008, 2013); St. Elizabeth (2005, 2009, 2012); St. James (2008–2010, 2012, 2013, 2015); St. Mary (2003–2005, 2010); St. Thomas (1994, 2003–2005, 2011); Manchester (2009, 2013); Trelawny (2008–2010, 2012, 2013, 2015); and Westmoreland (2005, 2008, 2012). Vultures were observed at roosting sites and feeding assemblages with a 20–60x Swarovski® spotting scope (Swarovski Optik, Absam, Austria) and 10x40 Zeiss® binoculars (Zeiss, Oberkochen, Germany) from 31 October through 31 March. Several hundred vultures were scoped but the number of unique individuals could not be determined as none of the birds were marked and some were undoubtedly observed on multiple days. Vultures observed at close range (20–30 m) were photographed (Fig. 1) with a Canon EOS® 50D or 60D camera (Canon, Tokyo, Japan) equipped with a 400 mm lens.

Sexual size dimorphism in Turkey Vultures is subtle (Wetmore 1964, Graves 2017) and individuals cannot be sexed under field conditions. There are no known sexual differences in head color or epidermal ornamentation in *Cathartes* vultures (Graves 2016). Immature Turkey Vultures (through their second year) may be identified by dark pigmentation on the maxillary rhamphotheca (Henckel 1981) and a higher density of filoplumes on the crown and neck (Pyle 2008).

## Results and Discussion

Gosse (1847:9) in *The Birds of Jamaica* was the first to record the presence of facial caruncles in Antillean populations of Turkey Vultures:

The skin of the head is naked, except some small scattered hairs, and falls on the occiput into ten or twelve transverse wrinkles; its colour varies in the same individual, being sometimes purple, then in a few minutes bright red; when dead, it is a dull lake-pink. . . . Immediately in front of the eye is a series of irregular tuberculous excrescences of a dull white, varying in extent.

Photographs confirm Gosse's observations and suggest that the Jamaican population is allied with the mainland North American subspecies (*C. a. aura* and *C. a. septentrionalis*). All adult vultures observed during two decades of field study in Jamaica exhibited a cluster of white facial caruncles on the preorbital skin (Figs. 1 and 2). Immature vultures (second year) with dark bill pigmentation lacked facial caruncles (Fig. 1e). Caruncles appear first in a circumscribed region anterior to the eyes in maturing vultures and later grow on the skin folds below the eyes in older adults. Isolated small caruncles were observed above the eyes in a few adults (Fig. 1d). The ontogeny of facial caruncle growth has not been studied in marked free-living or captive Turkey Vultures, but full caruncle development likely requires years to complete. The maximum reported longevity of free-living birds is 17 yr (Clapp *et al.* 1982). None of the Jamaican vultures possessed the broad white skin plaques on the crown and prominent white neck bands characteristic of *C. a. ruficollis*, the subspecies from northern South America (see Graves 2016). As mentioned

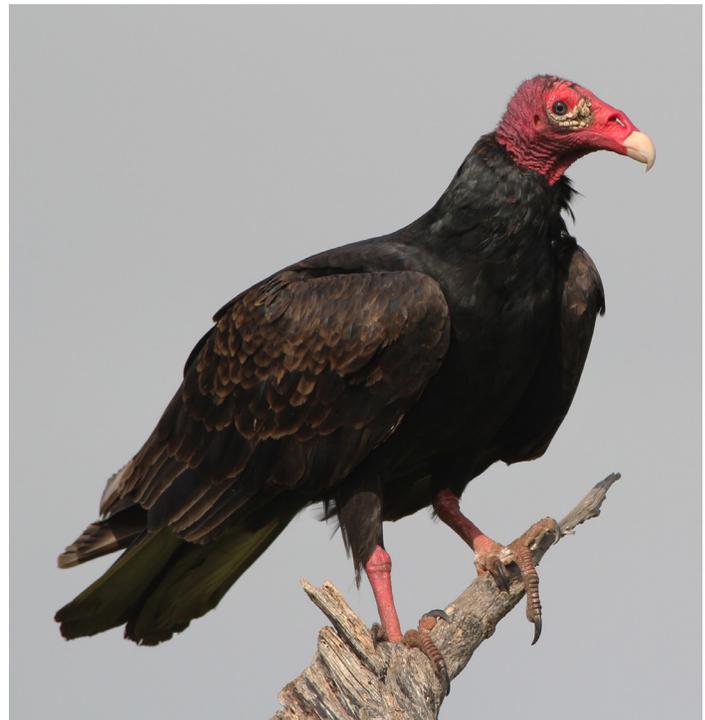


Fig 2. Adult Turkey Vulture photographed near Portland Light-house, Clarendon Parish, Jamaica (11 December 2013).

earlier, none of the breeding populations of Turkey Vultures in South America possess preorbital facial caruncles (Wetmore 1964, Graves 2016).

White preorbital caruncles were described by Gundlach (1876) in the Cuban population of Turkey Vultures. These are well illustrated in a recently published photograph from the province of Ciego de Ávila (Tryjanowski and Morelli 2018). Unpublished photographs appended to eBird checklists submitted from Cuba ([ebird.org/media/catalog?taxonCode=turvul&region=Cuba%20\(CU\)&regionCode=CU&q=Turkey%20Vulture%20-%20Cathartes%20aura](http://ebird.org/media/catalog?taxonCode=turvul&region=Cuba%20(CU)&regionCode=CU&q=Turkey%20Vulture%20-%20Cathartes%20aura)), Hispaniola ([ebird.org/media/catalog?taxonCode=turvul&region=Dominican%20Republic%20\(DO\)&regionCode=DO&q=Turkey%20Vulture%20-%20Cathartes%20aura](http://ebird.org/media/catalog?taxonCode=turvul&region=Dominican%20Republic%20(DO)&regionCode=DO&q=Turkey%20Vulture%20-%20Cathartes%20aura)), Puerto Rico ([ebird.org/media/catalog?taxonCode=turvul&region=Puerto%20Rico%20\(PR\)&regionCode=PR&q=Turkey%20Vulture%20-%20Cathartes%20aura](http://ebird.org/media/catalog?taxonCode=turvul&region=Puerto%20Rico%20(PR)&regionCode=PR&q=Turkey%20Vulture%20-%20Cathartes%20aura)), and the Bahamas ([ebird.org/media/catalog?taxonCode=turvul&region=Bahamas%20\(BS\)&regionCode=BS&q=Turkey%20Vulture%20-%20Cathartes%20aura](http://ebird.org/media/catalog?taxonCode=turvul&region=Bahamas%20(BS)&regionCode=BS&q=Turkey%20Vulture%20-%20Cathartes%20aura)) depict vultures with white facial caruncles. Based on this photographic sample, it is likely that all Antillean breeding populations display preorbital caruncles similar to those found in mainland North American populations. However, a significantly larger sample of geo-referenced photographs will be needed to adequately document the full pattern of epidermal ornamentation.

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