

**CLIFF SWALLOW FOREHEAD COLOR  
AT MISSISSIPPI NESTING COLONIES**

Holly Cox,<sup>1</sup> Donna L. Dittmann,<sup>2</sup> and Nicholas A. Winstead<sup>3</sup>

<sup>1</sup> 183 Keesler Circle  
Biloxi, MS 39530

<sup>2</sup> Museum of Natural Science  
119 Foster Hall

Louisiana State University  
Baton Rouge, LA 70803

<sup>3</sup> Mississippi Museum of Natural Science  
2148 Riverside Dr.  
Jackson, MS 39202

The Cliff Swallow (*Petrochelidon pyrrhonota*) has expanded its range dramatically in the southeastern U.S. (Brown et al. 2017). Prior to 1975, Cliff Swallows were known to nest in Mississippi only in Tishomingo County (Turcotte 1975), but subsequently expanded the breeding range across the northern two-thirds of the state (Phares 1975, Turcotte 1975, Weber 1979, Jackson 1980). The first nesting colony from southern Mississippi was discovered in 1986 under the Hwy. 90 bridge over the East Pearl River (Spence and Toups 1986).

Cliff Swallow forehead color can range from pale whitish to dark rufous depending on subspecies (Brown et al. 2017). Generally, northern and eastern birds (*P. p. pyrrhonota* and *P. p. ganieri*) have white to beige foreheads (Brown et al. 2017). By range, Cliff Swallows nesting in Mississippi would be expected to be subspecies *P. p. ganieri*, split from *P. p. pyrrhonota* by A.R. Phillips (1986) on the basis of smaller wing chord and slightly darker buffy to buffy whitish forehead, and breeding west of the Appalachians (probably from west-central Tennessee), southern Oklahoma to central Texas (type locality, Kerr County, Texas),

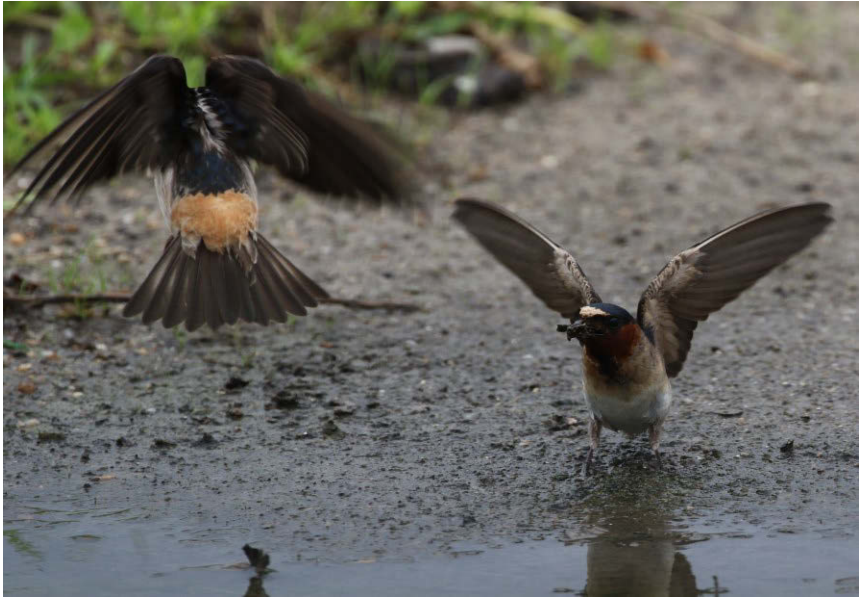
then south to south Texas. Nominate Cliff Swallows would also be expected to occur in Mississippi during migration (Dickinson and Christidis 2014). Southwestern birds (*P. p. tachina* and *P. p. melanogaster*) are smaller with darker buffy to rufous foreheads (Brown et al. 2017). Forehead coloration of *P. p. tachina* can overlap with darker *P. p. ganieri*; rufous coloration of *P. p. melanogaster* is similar to and inviting confusion with Cave Swallow (*P. fulva*), a species anticipated to colonize Mississippi in the near future. Forehead color was mentioned in only one account of Cliff Swallows nesting in Mississippi (Turcotte 1975), and was reported as “light.” The only specimen from a Mississippi nesting colony (MMNS 5665, Figure 1) has a light beige forehead.

On 29 May 2017, Cox observed a small group of Cliff Swallows at Biloxi, Mississippi; they were along the edge of a water puddle, gathering mud for nest-building (Figure 2), performing courtship displays, and copulating (Figure 3). Some had pale to intermediate foreheads, but most had dark rufous foreheads resembling the southwestern subspecies, *P. p. melanogaster*. Copulations were not restricted to individuals of similar forehead color (Figure 3). After trying to find information on forehead color of Cliff Swallows nesting in Mississippi, we learned that nesting Cliff Swallows with dark rufous foreheads were reported by at least 2010 in Hancock County (Sibley 2011, Susan Epps personal communication). Individuals at these and other southern Mississippi colonies can range in forehead color from pale beige to dark rufous (Sibley 2011). A series of specimens (LSU Museum of Natural Science) from nearby southern Pearl River, Louisiana (on the border with Mississippi) where colonies have been present since at least spring of 1981 (Purrington 1988), shows a similar range of forehead colors to those reported from Biloxi (Figure 4). Nesting colonies with individuals with dark foreheads have also been reported in southern Alabama and Florida (Summerour 1989, Sibley 2011).



**Figure 1.** Cliff Swallow specimen MMNS 5665 collected 25 June 1999 at a nesting colony under the Hwy. 25 bridge over Hwy. 43 near Sand Hill, Rankin County, Mississippi.

Subspecific identification of individuals with dark rufous to chestnut-colored foreheads at these mixed colonies has not been determined. The subspecies *P. p. melanogaster* breeds from southeastern Arizona and southwestern New Mexico south over



**Figure 2.** Cliff Swallows gathering mud for nest-building on 29 May 2017 at Biloxi, Harrison County, Mississippi.

the Mexican Plateau (Brown et al. 2017), has the darkest forehead color (deep cinnamon-rufous to dark chestnut), and is similar to some Mississippi birds. However, it seems unlikely that Mississippi breeders would be this Southwestern subspecies based on range. Possible explanations for forehead color variations (ranging from beige to dark chestnut) within colonies could include (1) introgression from expanding *P. p. melanogaster* and/or *P. p. tachina* populations, (2) previously overlooked individual variation, or (3) potential hybridization with Barn (*Hirundo rustica*) or Cave swallows. To distinguish between these hypotheses, further investigation and additional genetic sampling is needed (Dittmann and Cardiff 2002).

Within Mississippi, colonies with mixed forehead colors have been documented along the Gulf Coast in Hancock and



**Figure 3.** Cliff Swallows copulating at a mud hole, 29 May 2017 at Biloxi, Harrison County, Mississippi. Males with dark forehead patches (A) and light forehead patches (B) were copulating with individuals with different colored forehead patches.



**Figure 4.** Pearl River Cliff Swallows. LSUMNS specimens collected 22 May 1995 (seven on right, West Pearl River) and 28 June 1998 (leftmost, Middle Pearl River) show range of forehead coloration from darkest (left) to lightest (right) of a random collection at breeding colonies on the Pearl River Hwy. 90 bridges, St. Tammany Parish, Louisiana.

Harrison counties and at one inland colony near Ross Barnett Reservoir (Sibley 2011). Sibley's blog post (Sibley 2011) mapped relative distribution of forehead color, as well as requests information to update distribution of forehead color. Surveying the forehead colors of Mississippi's Cliff Swallow colonies is important to document current distribution and potential future changes in forehead color frequency to better understand the relative abundance and distribution of individuals with dark foreheads.

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