

## FIRST OCCURRENCE OF THE CAVE SWALLOW IN BRITISH COLUMBIA

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On 11 November 2012 we observed a group of four swallows foraging over a freshwater pond at Iona Island Regional Park in Richmond, British Columbia (49° 21' N 123° 21' W). At a distance of 100 m, we quickly identified three of them as Barn Swallows (*Hirundo rustica*), while the fourth appeared at first to be a Cliff Swallow (*Petrochelidon pyrrhonota*). When it got closer to the observers, we identified the fourth bird—by its dark cinnamon-orange forehead, pale cinnamon-orange throat and chin, and dark cinnamon-orange rump—as a Cave Swallow (*Petrochelidon fulva*) (Figures 1 and 2), a species previously unknown in British Columbia. The bird remained at Iona Island for nine days (to 19 November), during which period it was seen and photographed by many. Photographs show that the bird was undergoing primary molt and that it had replaced primaries 1 through 6 (Figure 1). The prebasic molt of adult Cave Swallows begins promptly after breeding, with flight feathers being replaced from June through September. In contrast, the preformative molt of immature birds occurs later, in the fall and winter, with flight-feather replacement from September through March (Pyle 1997). Given the date of our observation and the extent of primary replacement, we aged the bird as an immature in preformative molt.

Of five generally accepted subspecies of the Cave Swallow (Strickler and West 2011), three (*puertoricens* in Puerto Rico, *poeciloma* in Jamaica, and *citata* in the Yucatan and Chiapas), are thought to be nonmigratory and are not known to have occurred in the United States or Canada. Two subspecies, *P. f. fulva* and *P. f. pallida*, are migratory and are known to occur in the United States and Canada. Nominate *fulva* breeds in Cuba, including the Isle of Pines, and Hispaniola (Strickler and West 2011), and in 1987 a breeding population became established in southern Florida (Smith et al. 1988). Subspecies *pallida* breeds in Texas, New Mexico, and north-central Mexico (Strickler and West 2011).

Subspecies *pallida* differs from the others by its longer wing and tail and paler rufous coloration (Ridgway 1904, Selander and Baker 1957, Turner and Rose 1989, Garrido et al. 1999). More specifically, nominate *fulva* has darker cinnamon-rufous or deep chestnut coloration on the forehead, cheeks, collar, throat, breast, flanks, vent, and rump, while *pallida*, in contrast, has the forehead and rump paler orange-rufous and the collar, throat, cheeks, and breast pale buffy-orange or cinnamon-orange. In contrast to those of *P. f. fulva*, the flanks and vent of *P. f. pallida* have limited rufous coloration and are mostly gray-brown.

The Iona Island Cave Swallow exhibited less extensive cinnamon-orange coloration on the rump and cheeks than does *P. f. fulva*, and its flanks and vent were gray-brown, with rufous nearly absent. The collar was mostly gray-brown with little cinnamon-orange at the base of the head, and the forehead was darker and more saturated than the cinnamon-orange of the rump, cheeks, throat, and breast (Figures 1 and 2). These plumage characteristics all strongly suggest that the bird was an example of the southwestern subspecies, *P. f. pallida*.

In Texas, the breeding population of *P. f. pallida* has increased considerably (10.8% annually), from 1957 to 1999 expanding its breeding range by 900% (Kosciuch et al. 2006). In eastern North America, extralimital occurrences of Cave Swallows (both

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Figure 1. Cave Swallow at Iona Island, British Columbia, 12 November 2012. Note the molt limit in the outer primary feathers.

Photo by David Tang



Figure 2. Cave Swallow at Iona Island, British Columbia, 12 November 2012. Note the limited extent of cinnamon-orange coloration on the flanks and vent.

Photo by Michelle Lamberson

subspecies) have increased in frequency, with reports extending from their breeding ranges north to the Great Lakes and east to Canadian Atlantic provinces. McNair and Post (2001) examined photographs and specimens of extralimital Cave Swallows in eastern North America and reported that spring occurrences on the Atlantic coast were of *P. f. fulva*, spring occurrences inland were of *P. f. pallida*, and fall occurrences at both coastal and inland localities were of *pallida*. Subsequently, a few Cave Swallows occurring along the Atlantic coast in spring appear to have included *pallida* as well (P. E. Lehman pers. comm.). Fewer occurrences have been recorded west of the normal breeding range of *pallida*: eight records in Arizona (Rosenberg et al. 2011) and nine in California (Tietz and McCaskie 2014). McNair and Post (2001) concluded that the single breeding pair in Arizona and the first Cave Swallow recorded from California were *pallida*. Hamilton et al. (2007) suggested that *pallida* is likely the subspecies to which all California records can be attributed.

Our record is the first of a Cave Swallow in western Canada and the Pacific Northwest but follows the pattern of increasing vagrancy in the East that is likely being driven by the expansion of the breeding population in Texas and New Mexico.

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