

Reassessment of a frigatebird record for Wyoming: Lesser Frigatebird (*Fregata ariel*)

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Abstract

This paper establishes the third record (chronologically, the second record) for North America of Lesser Frigatebird (*Fregata ariel*), an adult female found emaciated and near death on 11 July 2003 near Basin, Big Horn County, Wyoming. Details surrounding the original encounter, the bird's demise and final resting place, reassessment of documentary photographs, separation from other species, and weather conditions possibly responsible for this bird's presence in Wyoming are discussed herein.

Field encounter

On 11 July 2003, a Wyoming Game and Fish Department biologist discovered a severely emaciated frigatebird (*Fregata*) lying on the ground near the town of Basin, Big Horn County, Wyoming. He picked up the bird and delivered it to a wildlife rehabilitation clinic in Cody, where the bird died within an hour of its arrival. Prior to and after its demise, several photographs were taken (Figures 1-3). The bird was promptly placed in the rehabilitation center's freezer. Later, when the local museum refused the specimen because it was

not a species native to the state, the rehabilitator was compelled to dispose of it in the local landfill due to wildlife regulations regarding storage of non-game birds.

During this period, it was reasonably assumed to be a Magnificent Frigatebird (*F. magnificens*), and the record, along with all of the photographs presented here, was submitted as that species to the Wyoming Bird Records Committee. The Committee formally accepted it as the first state record of Magnificent Frigatebird (file WBRC #03-002).

Reassessment of the photographs

In late June 2006, while working on a major publication updating the status and distribution of Wyoming's avifauna, I asked the Cody wildlife rehabilitator about the Magnificent Frigatebird. She sent a single photograph (Figure 1) showing the bird's dorsal aspect post-mortem and mentioned that more photographs were submitted along with the records committee documentation. Several features immediately looked wrong to me for Magnificent: the reddish orbital ring, pink bill, and especially the white collar with rusty tinge on the hindneck. I consulted Harrison (1985), and, after finding that Magnificent did not exhibit any of those characteristics in any age/sex combination, I contacted the records committee's Secretary for the remaining photographs. I sent these images to several seabird biologists, who confirmed the identification as an adult female Lesser Frigatebird (*F. ariel*).

Identification

As Brennan and Schultz (2006) mention regarding their analysis of a Lesser Frigatebird in Michigan, it is important to determine age and sex of any frigatebird before trying to establish a specific identity. Fortunately, the available photographs of Wyoming's frigatebird are of an in-hand or deceased bird, and several diagnostic features are shown in close detail.

There are five frigatebird species worldwide—Ascension (*F. aquila*), Christmas Is-

land (*F. andrewsi*), Great (*F. minor*), Lesser, and Magnificent. All five share similar basic plumage features that more or less characterize age and sex classes. Using these basic plumage features, one may decisively rule out sexes and entire age classes.

The Wyoming frigatebird's black head rules out juvenal plumage of all species, in which the head is either white or rust-colored, depending on the species. Additionally, the combination of black head and white breast (Figure 2) eliminates males of all age classes in all species. Subadult and adult males typically exhibit a dark head and upper breast, though many age classes have a white belly (Harrison 1985, Howell 1994). In Figure 2, the Wyoming bird shows a dark head/throat, white breast, and dark belly, defining it as a female. The rusty tinge to the white collar, also apparent on the black throat in Figure 2, was determined to be stain from the handler's leather gloves.

Separation of close age classes can be difficult, as frigatebirds may take 4+ years to reach maturity (Harrison 1985, Howell 1994). Examination of the wing shows a non-juvenal p10 (tenth primary) and staffelmauser primary-replacement patterns indicative of a frigatebird at least four years old (Figure 1; Peter Pyle, pers. comm.). Thus, this bird has reached maturity and can be safely considered an adult female.

For adult female frigatebirds, the ventral patterning is crucial for separating species. The white axillary spurs (Figure 2) rule out Magnificent and all but a small proportion of Great Frigatebirds (Harrison 1987). Moreover, unlike in Magnificent Frigatebird, the Wyoming frigatebird has a reddish orbital ring, pink bill, and an extensive white collar dorsally (Figure 1); Magnificent shows a blue orbital ring, grayish bill, and a reduced gray hind collar (Howell 1994). The black throat rules out female Great Frigatebird, which has a pale gray throat; likewise, the white hind collar and alar bars (Figures 1, 3) further eliminate Great, in which both are brown (James 2004).

Of the three remaining species, Ascension and Christmas Island are superficially more similar to the Wyoming bird. However, pale-morph adult female Ascension Frigatebird has a dark head and brown chest (Harrison 1985), bill and orbital ring color are grayish and pale blue, respectively, and Ascension also has a dark alar bar. Christmas Island Frigatebird has more extensive white plumage below, which connects the collar to the chest and the belly, as well as black breast-tabs (James 2004): the Wyoming frigatebird's belly was black, and the white chest lacked black breast-tabs (Figure 2). Thus, we are left only with Lesser Frigatebird as having no plumage characteristics inconsistent with the

Wyoming bird. In addition, the size of this female frigatebird in comparison with a standard-sized newspaper (56 cm; cf. Figure 3) is too small to be any of the other four species (86 cm minimum: a full 50% longer than the newspaper). All other species are much larger than Lesser Frigatebird, which measures 71–81 cm (Harrison 1985).

Discussion

Brennan and Schultz (2006) thoroughly reviewed the only other North American record of this species (Maine, 3 July 1960) within their account of the Michigan Lesser Frigatebird. The occurrence of any frigatebird in

Wyoming is perhaps even more remarkable than the two other North American records, given the state's landlocked location in western North America. Of states adjoining Wyoming, only Colorado and Utah have confirmed records for Magnificent Frigatebird (Sibley 2000). Brennan and Schultz (2006) rightly indicate that strong tropical storm activity is probably only part of the equation for the occurrence of these birds in North America. While the previous Maine and subsequent Michigan Lesser Frigatebirds have been assumed to be vagrants of the South Atlantic Ocean subspecies *trinitatis*, which breeds on several islands far east of the coast of Brazil,



Figure 1. Dorsal aspect of a Lesser Frigatebird found near Basin, Big Horn County, Wyoming on 11 July 2003. Note the extensive white hind color, whitish alar bars, pink bill, and reddish orbital ring. The rusty tinge to the collar (see also Figure 2) is residue from the handler's leather gloves. Photograph by Susan Ahalt.



Figure 2. Ventral aspect of a Lesser Frigatebird found near Basin, Big Horn County, Wyoming on 11 July 2003. The prominent white axillary spurs, black belly, and white chest help to rule out all other frigatebird species. Photograph by Susan Ahalt.



Figure 3. Lesser Frigatebird found near Basin, Big Horn County, Wyoming on 11 July 2003, shortly before its death. This live bird is only slightly longer than a standard-sized newspaper (56 cm), a measurement that places the bird's estimated length below the range of all other frigatebird species. Photographer unknown (also for frontispiece).

the source population for the Wyoming Lesser Frigatebird is perhaps less likely to be in the Atlantic. The lack of significant tropical weather during the time of the bird's discovery, along with the prevailing westerly winds preceding the date of its discovery, suggest instead an Indo-Pacific Ocean origin, thus most likely indicative of a bird of the nominate subspecies, which is a widespread breeder in the central and eastern Indian Ocean and which disperses widely. The normal dispersal range of Lesser Frigatebird populations in the Indo-Pacific Basin does not extend north of Japan, but there are a few extralimital records for Siberia and Hawaii (Sibley and Clapp 1967, Harrison 1985, Pratt et al. 1987). The subspecies *iredalei* (sometimes called Mascarene Lesser Frigatebird) of the western Indian Ocean has a smaller population that is also geographically more remote from North America; it may not be a valid subspecies (Marchant and Higgins 1990).

Satellite imagery showing weather systems from the week before the Wyoming frigatebird's arrival marks a low-pressure system developing in the northern Pacific Ocean near Alaska's Aleutian Islands on 5 July; this system then moved in a southeasterly direction, toward Wyoming, producing thunderstorms across Montana and Wyoming on 8 and 9 July. The system quickly moved out, and both 10 and 11 July were mostly clear (UNISYS 2006). Thus, the frigatebird, if it arrived with this system, probably wandered for several days before being found and ultimately succumbed to starvation. If this bird did indeed arrive from the North Pacific with this weather system, it represents a remarkable displace-

ment, as the species is already a vagrant in the northeastern North Pacific Ocean.

In the intermountain West, there is scant precedent for this record. Colorado's only Magnificent Frigatebird record was of an adult female found near Denver on 14 September 1985, then again at a mountain reservoir on 16 September. The frigatebird, apparently in a starved state, was eventually killed by a group of windsurfers after it accosted one of them (Webb 1985). This record coincided with remnants of Hurricane *Elena* from the Gulf of Mexico. The possibility that Atlantic tropical weather influenced the Wyoming Lesser Frigatebird's arrival in the way that Hurricane *Katrina* almost certainly did for Michigan's Lesser (Brennan and Schultz 2006) appears to be remote: the only storm activity during this period was Tropical Storm *Bill*, which arrived on the upper Texas Gulf coast 30 June. This weak, slow-moving system moved abruptly eastward after making landfall and was not noted for any avian fallout (Mark Lockwood, pers. comm.).

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