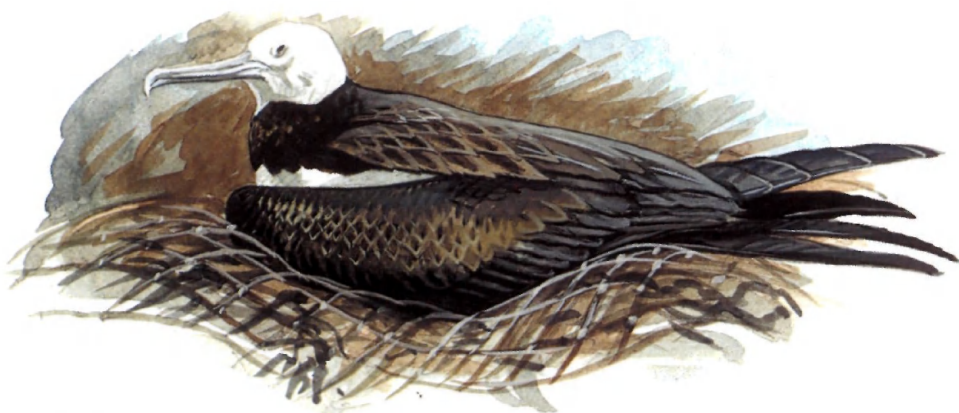


From the Rarities Committee's files:

Ascension Frigatebird on Tiree – new to the Western Palearctic

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Brian Small

ABSTRACT A frigatebird on Tiree, Inner Hebrides, on 10th July 1953 was identified at the time as a Magnificent Frigatebird *Fregata magnificens*. As part of an on-going review of older records by BBRC, the circumstances surrounding this record have been investigated and the specimen re-examined in detail. The measurements and plumage of the Tiree bird are incompatible with Magnificent Frigatebird but closely match those of Ascension Frigatebird *F. aquila* in 'juvenile' plumage. The revised identification has been accepted by both BOURC and BBRC, and this becomes the first record of Ascension Frigatebird for the Western Palearctic.



An exhausted frigatebird *Fregata* captured in a net on Tiree, Inner Hebrides, Scotland, on 10th July 1953 was identified at the time as Magnificent Frigatebird *F. magnificens*, and this identification has gone unquestioned for almost 50 years (Anon. 1953; Anon. 1954; BOU 1956). In an account by John Graham (Anon. 1954), who captured the bird in a landing net at Loch a' Phuill, in the south-west of the island, it is described as 'a big bird with an all-white head and an albatross beak'. He noted that the whole of the back and tail were brown and the tail was deeply forked. There was 'quite a lot of white on the underparts, and freckled black-and-white feathers down the legs to the toes'. Having been found exhausted at 10.30 hrs, the bird unfortunately died at 20.00 hrs the same day. Originally reported as an immature female, with a wingspan of '6 feet 6 inches' (c. 1,980 mm) and a length of '33 inches' (c. 840 mm), the corpse was sent to the then Royal Scottish Museum, Edinburgh (now part of the National Museums of Scotland (NMS)), for preparation as a cabinet skin. It was identified as a Magnificent Frigatebird (of the race *rothschildi**) by Sir Norman Kinnear at the British Museum (Natural History), now Natural History Museum (NHM). The specimen is retained in the NMS, Edinburgh.

Having occurred before 1958, the year that the British Birds Rarities Committee was established, the Tiree frigatebird subsequently became part of BBRC's on-going review of 1950-58 records. Reassessment of the record, principally by Grahame Walbridge (GW), and a close examination of the skin by Robert McGowan (RMcG) have shown that plumage, morphological features and biometrics of the Tiree bird are incompatible with *F. magnificens*. In this paper we describe the Tiree specimen in detail and present arguments to substantiate our assertion that the original identification as Magnificent Frigatebird was incorrect. After reviewing the characters associated with each of the world's five species of frigatebird, we conclude that the features of the Tiree bird are compatible with one species only, Ascension Frigatebird *F. aquila*.

Description of the Tiree specimen

Description from specimen at NMS, Edinburgh [Specimen number NMSZ 1953.16].

Upperparts

Forehead, crown and nape white, sharply demarcated from rest of upperparts. Mantle blackish-brown with paler brown fringes. Back lighter brown with heavily abraded and paler tips to feathers, particularly tertials. Rump and uppertail-coverts brownish-black, the latter with an almost imperceptible purplish-green gloss.

Underparts

Throat white, with slight projection onto light brown breast-band. Breast-band high on breast and deepest at sides (c. 100-110 mm), narrowest mid-ventrally (50-60 mm), with lighter fringes and darker brown shafts (recalling the mottling on the underparts of Great Skua *Catharacta skua*). Feathers of lower breast-band, which adjoin belly, more uniformly dark brown. Although some individual breast feathers are quite fresh and show a blackish centre and shaft-streak, the majority are old and appear faded brown with broad pale fringes. Belly to vent white, with a small white 'axillary spur' contiguous with white on belly, extending to axillary feathers. This is difficult to discern because the wings of the specimen cannot be extended fully.

Flanks, thighs, vent (distally) and undertail-coverts brownish-black, the undertail-coverts tipped with brown.

Wings

Tertials dark brown with blackish shafts, fairly abraded near tips. Primaries and secondaries brownish-black with blue gloss. Greater coverts black with slight gloss. Median coverts brownish-black, with paler and slightly worn fringes. Lesser coverts mid brown with darker centres and paler fringes. Marginal coverts, along the leading edge from carpal joint to body, dark blackish-brown. Taken together, the lesser coverts (and to a lesser degree, the median coverts) form a conspicuous wing-bar ('ulnar bar') of paler, brown-fringed and abraded feathers which contrast with the darker greater coverts and marginal coverts. Outer-

Footnote:

- * Current taxonomic thinking suggests that *F. magnificens* is, in fact, monotypic, with minimal morphological and size differences throughout its range (Bourne 1957).

most primaries lightly abraded, but there is no evidence of primary moult. The outer primaries (P9 and P10, primaries numbered descendently) of both wings show slight abrasion, though this is considerably less than the extent of wear on the rectrices, tertials, etc. Inner primaries P3 to P8 on the left wing are not obviously abraded and the right wing shows a similar pattern, except that P5 is missing. All the remiges appear to be of the same age, indicating that the bird was a juvenile.

Underside of primaries with cream midline on dark shafts. Underwing-coverts blackish with slight gloss, no evidence of feather wear.

Tail

The tail is deeply forked, and has twelve feathers. Upper surface brownish-black, with brownish-black shafts, T4-T1 with slightly lighter brown fringes. Underside dark brown (proximally) to blackish (distally), with creamy-white shafts. Longer (outermost) feathers fairly abraded.

Bare parts

The following details were noted on the specimen label when the bird was recently dead. Bill: lead-blue with lining surface scale; tip pinkish-flesh, soft skin of pouch tinged turquoise. Iris: hazel. Legs: pale flesh, tinged bluish.

Biometrics

Wingspan	c. 1,980 mm ('6 feet 6 inches', measured when bird was found)
Overall length	c. 840 mm ('33 inches', measured when bird was found)
Wing length	613 mm
Tail, longest rectrix	371 mm
Tail, shortest rectrix	194 mm
Bill length	108 mm
Tarsus	21 mm
Longest toe	54 mm



Robert Y. McGowan

34. Ascension Frigatebird *Fregata aquila*, found on Tíree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

Features of frigatebird species in 'juvenile' plumage

Immature frigatebird identification is notoriously complex and will rarely be straightforward, even given optimum viewing conditions (though in the case of the Tíree frigatebird the presence of a specimen helps greatly). It is made even more difficult by the fact that relatively little is known of the 'juvenile' plumage stages, as young birds of all species disperse from the breeding areas for up to five years after fledging until breeding condition is reached. Here we follow Howell (1994) and use the term 'juvenile' for those birds dependent upon their parents as well as for independent birds which retain the same plumage 'type' (see fig. 1). Some immatures may defy specific identification and there is usually no single diagnostic feature which will identify a non-adult frigatebird to species level. Correct identification will always rely on the detailed assessment of a number of characters, including size, head colour, the precise shape and extent of the breast-band and white belly-patch, and the presence or



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Fig. 1. Juvenile frigatebirds *Fregata*. The illustration shows 'juvenile' frigatebirds with extremes of both axillar spur and breast-band. Great Frigatebird *F. minor*, in particular, frequently shows a less obvious (or absent) axillar spur and dark breast-side patches only. Magnificent Frigatebird *F. magnificens* is clearly larger than the other four species, while Lesser Frigatebird *F. ariel* is much smaller. Note also the angle of the axillar spur: on Ascension Frigatebird *F. aquila* and Lesser it is parallel with the leading edge of the humerus, while on Christmas Island Frigatebird *F. andrewsi* and Great (when present) it angles forward towards it.

absence of a white extension of the belly-patch onto the axillaries and underwing-coverts. The following brief review of 'juvenile' frigatebirds is based on Harrison (1983, 1987), Howell (1994), and Chalmers (2002), and focuses largely on those key areas which help to separate the species and those which concern the reidentification of the Tere bird as Ascension Frigatebird.

Magnificent Frigatebird *Fregata magnificens* **Head and breast**

The head of *magnificens* is usually white, rarely with a trace of a dusky collar, but with time a dark collar or patchy hood develops. The triangular breast-side patches, which occasionally meet in a thin but complete breast-band, form the two leading sides of

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35. Juvenile Magnificent Frigatebird *Fregata magnificens*, Isla Isabela, Mexico, 9th May 1992. Fresh-plumaged juveniles have an extensively white head and neck, lacking the chest-band of *Faquila*. The bill of *magnificens* is deep compared with the slimmer bill of *aquila*.

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36. Juvenile Magnificent Frigatebird *F. magnificens*, Dry Tortugas, Florida, USA, 24th April 2000. The extensive and tapered black chest-patches help to partially enclose a white, diamond-shaped belly-patch: a pattern typical of juvenile *magnificens*, and very different from that of Ascension Frigatebird *Fregata aquila*.

the distinct diamond shape of the white belly.

Belly and axillar spur

The white on the upper belly is often restricted and becomes blotched with black as the bird matures, and the area of white adjacent to the axillaries rarely 'bleeds' onto those feathers as white axillar 'scallops'. Although some *magnificens* can show axillar spurs, these are usually absent or restricted to small and narrow white patches, distinctly less pronounced than on *aquila*.

Lesser Frigatebird Fregata ariel

Size

Significantly smaller than the other four species.

Head and breast

The entire head of *ariel*, including the chin and throat, is rusty or cinnamon in first-stage juveniles, and often there is no clear demarcation between head and mantle as the white of the nape 'bleeds' into the black of the mantle. As the juvenile matures, the head becomes whiter and rarely it may seem all-white, although most birds retain a russet-brown wash on the crown. The head, including the chin and throat, of



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37. Juvenile Great Frigatebird *Fregata minor*, Isla San Benedicto, Mexico, 25th April 1992. The head and neck of fresh-plumaged juvenile *minor* are typically cinnamon-coloured, as on this bird, and are thus very different from the pure white head and neck of Ascension Frigatebird *F. aquila*.

both sexes becomes black as this species nears maturity. Young juveniles (first stage) show a broad dark band across the mid-breast (a little lower on the breast than on *aquila*), while the lower breast is white, but the belly is mottled darker. This breast-band gradually disappears as juveniles moult through the various stages of immature plumage.

Belly and axillar spur

Lesser Frigatebird possesses prominent white axillar spurs formed by the white breast extending onto the axillaries. These may seem slightly narrower and more pointed than on *aquila* and appear to run parallel with the humerus. In this respect it resembles *aquila*, but differs from *minor* and *andrewsi*. This spur does not extend onto the underwing-coverts, but small pale crescents may appear near the inner underwing-coverts. In females, the extent of white on the flank spur, where it runs onto the axillaries, also increases with age. In males, however, the pattern and extent of white on the breast decreases with increasing maturity.

Great Frigatebird Fregata minor

Head and breast

The head of *minor* is rusty on first-stage juven-

iles, becoming whiter on the crown of older juveniles and, like *ariel*, the division between the white of the hindneck and the mantle is not sharp. Most immatures retain a russet-brown wash, or streaking, on the crown, sides of the head, throat and chest, but as the species nears maturity, the crown, nape and ear-coverts become blacker and the black on the face can appear as a broad mask. Females of all ages, including adults, usually develop a white chin and throat, but some females, which appear close to maturity on plumage features, can still show a russet-brown chin and throat. In males, the chin and throat darken with age. Young juveniles usually show a dark breast-band which is russet-brown in the centre, becoming blacker towards the flanks. This band narrows considerably with age and is very thin or absent in older 'juveniles'. Although the breast-band may be complete, Howell (1994) suggests that a breast-band is rare in *minor*. If present, it is lower on the breast than is typical of *aquila*, narrower (c. 15-30 mm), and invariably black. The breast-band differs from that of Christmas Island Frigatebird *F. andrewsi* in shape and position, being broadest at the sides of the upper breast, while across the lower edge of the breast it is concave where it meets the white belly-patch. In



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38. Immature Great Frigatebird *Fregata minor*, Isla San Benedicto, Mexico, 25th April 1992. Older immatures of this species develop a white head and neck with a broken black chest-band. They can then resemble juvenile Ascension Frigatebird *F. aquila* (plate 39), but *minor* typically lacks white axillar-patches (so the shape of the white underparts is different), while many retain some cinnamon wash.

this respect, *minor* resembles *ariel*, but unlike *aquila* the breast-band crosses the mid- or lower breast. In first-stage juveniles there is usually contrast between the whitish head and russet-brown breast-band. In later stages, some immatures lack the breast-band and appear white from the chin to lower belly, while others show a very narrow band.

Belly and axillar spur

The belly-patch, which is white in juveniles, is widest across the upper belly towards the front or centre of the wing and narrows towards the feet. On some individuals the belly-patch bulges out onto the flanks near the axillaries, but only rarely extends onto them as indistinct 'scallops'. Plate 395 in Harrison (1987) shows a juvenile *minor* with a relatively prominent axillar spur akin to that of *andrewsi*, but this appears to be rare. On *magnificens* the white belly is narrow, being more tapered to a point, while on *andrewsi* the belly-patch is usually broader towards the rear of the wings. The belly-patch

becomes darker with age and can often appear mottled and diffuse as black feathering moults through.

Christmas Island Frigatebird Fregata andrewsi *Head and breast*

The head of juvenile *andrewsi* is rusty or cinnamon in first-stage juveniles, but this typically wears and bleaches to a pale tan wash or occasionally white. The upper breast is also usually white, faintly mottled with pale tan, and merges with the chin and throat, which also become whiter with age. In strong sunlight, the head and upper breast often appear entirely white at a distance. All immatures exhibit a blackish breast-band which crosses the lower breast. This is typically very narrow across the centre but widens considerably at the sides. Because the throat and upper breast are white and the black breast-band very narrow at the centre, the band appears to taper evenly along both edges towards the centre of the breast. The shape of this breast-band is different from that of *magnificens* and *aquila* and would seem to be a key feature in its separation from those two species. On some birds, the centre of the breast is white but there are always black spurs extending from the flanks towards the breast centre.

Belly and axillar spur

A white axillar spur extends from the widest part of the white belly-patch across the axillaries and often onto the underwing-coverts. This spur is narrower than that shown by *ariel* and *aquila*, and is similar to *minor* in that it angles towards the humerus.

Ascension Frigatebird Fregata aquila *Head and breast*

The head and neck of juvenile *aquila* are always entirely white, without the rusty or cinnamon wash evident on other species, the white ending abruptly at a clearly defined border between the hindneck and the dark upper mantle. There is some question as to the variability of juvenile *aquila*, as some juveniles on Ascension Island have underparts which are extensively white, yet many have a complete or broken breast-band, possibly indicative of age, although these are 'at most the first post-juvenile plumage' (S. Howell pers. comm.).

Perhaps the most important plumage feature which separates 'juvenile' *aquila* from all other species is the brownish (or patchy black) breast-

band, which is distinct in its width and position on the breast. On all specimens of *aquila* at the NHM of a similar age to the Tíree bird, i.e. in 'older juvenile' plumage, the breast-band is brownish, broad at the sides of the breast, and sometimes narrows towards the centre, although two specimens of 'juvenile' *aquila* at Tring have the breast-band broken by white on the central breast. Studies of photographs have shown that the amount of white dividing the breast-band is variable, with some juvenile *aquila* being apparently white-breasted (del Hoyo *et al.* 1992). Diagrammatical drawings of *aquila* on Ascension Island by Robin Prytherch (*in litt.*) show that the breast-band may be complete or broken on young birds (complete on five birds, broken on two and with a white notch on the lower breast-band on two), and also that the breast-band is invariably high across the upper breast. Though a complete or partial breast-band might be apparent on other species of frigatebird, it is never positioned as high on the breast as in *aquila*. On *magnificens*, the breast-band is much lower on the breast, virtually never complete and is usually blacker than that of *aquila* (Howell 1994). The breast-band on *minor* may be complete (although Howell 1994 indicates that a breast-band is rare



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39. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, 12th April 2002. Most birds show a solid black upper-chest band but some have a broken band like this individual. Note the extension of white into the axillars, with the front edge parallel with the humerus.



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40. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, 13th April 2002. From above, black from the mantle wraps around into the upper-chest band and isolates a white head – note the sharp division between the white of the head and the upper mantle, and also that the remiges are apparently of the same age.



Ed Mackrill

41. 'Juvenile' Ascension Frigatebird *Fregata aquila*, Ascension Island, March 1980. This bird shows the typical clean white head and virtually complete brown breast-band of young *aquila*. Note the triangular expansion of white onto the underwing. The near wing shows a step in the secondaries and is possibly missing an inner primary, indicative of an older 'juvenile'.

in *minor*), but is again lower on the breast, narrower towards the centre (c. 15-30 mm), and invariably black. Similarly, *andrewsi*, like *minor*, shows a very narrow black band which runs across the lower breast.

Belly and axillar spur

On juveniles, and even some 'adult-type' females, a prominent square or blunt triangular spur extends from the upper flanks onto the axillaries. This spur is distinctly different in shape from that of *magnificens* and *minor*, where it is absent or poorly defined, subtly different from that of *ariel* and similar to (yet larger than) that of *andrewsi*. Harrison (1983) states that *ariel* is the 'only other species with white axillaries likely to occur in Atlantic'.

Identification of the Tiree frigatebird

During the early stages of the review of this record, GW became aware that plumage features possessed by the Tiree specimen, notably the breast-band, were inconsistent with *F. mag-*

nificens. Further investigation revealed that other structural differences and post-mortem evidence supported this. He soon realised, to his amazement, that the Tiree frigatebird was an Ascension Frigatebird, new to the Western Palearctic, and the only sighting away from Ascension Island and western Africa!

Plumage

As described above, there are crucial features which, when taken in combination, enable the five species of frigatebirds to be identified in 'juvenile' plumage. Comparison of the plumage details of the Tiree frigatebird has been made with birds of a similar age, using literature, input from observers with field experience of frigatebirds (and *aquila* in particular), and examination of reference collections at NMS, Edinburgh, and NHM, Tring. All species of frigatebird have been considered, and all, with the exception of *aquila*, have been rejected on the plumage features described above. In particular, by concentrating on the colour and definition of the head, the shape, width and position of the breast-band, and the white axillar spur, the identification as *aquila* is relatively straightforward.

Head and breast-band

As previously noted, the head of the Tiree frigatebird is pure white, this colour ending quite abruptly on the lower hindneck and upper breast. The area of white on the hindneck is more extensive and more sharply demarcated than on *magnificens*, while on *minor* the white head (of older 'juveniles') 'bleeds' into the upper mantle, and almost always has a rusty wash. Young birds of both *ariel* and *andrewsi* never show a pure white head and this feature alone rules them out also. The shape, colour and position of the breast-band of the Tiree frigatebird is wide, brownish with a few black feathers moulting through, and is positioned high on the breast, bordering the throat. This is typical of *aquila*, and this feature alone probably identifies the Tiree frigatebird conclusively.

Axillar spur

The presence of a white axillar spur on the underwing, described and illustrated for all juvenile stages of *aquila* and even pale-morph adult females (Harrison 1983), can be found on the Tiree frigatebird, but this is not diagnostic on its own. Partial relaxing of the Tiree spec-

imen, to loosen the wings, did reveal a white area on the axillaries, sufficient to rule out *magnificens* and most *minor*, but this feature can be shown by *ariel*, *andrewsi* and a few *minor*.

The underwing-coverts of *aquila* are described by Harrison (1983) as 'mostly blackish except for random white patches on coverts (this feature consistently appears in juvenile stages of this species)'. Descriptions in the main text of Enticott & Tipling (1997) and illustrations in Borrow & Demey (2002) support this as a feature of *aquila*, but are presumably based on Harrison's (1983) earlier work. Steve Howell has commented that these white patches are not, however, evident on juveniles on Ascension Island and, furthermore, they are not present on the Tiree specimen. Interestingly, what is apparent on the specimen are the pale feather-bases on the underwing-coverts, which are only visible when feathers are displaced. The validity of random white patches on the underwing-coverts as a feature of juvenile *aquila* is further questioned by their absence in published photographs of juvenile *aquila* in Harrison (1987) and Enticott & Tipling (1997).

On the basis of the body plumage, it would appear that the Tiree frigatebird was probably in fully developed so-called 'second-stage juvenile' plumage, in which the breast-band is more or less complete, but with a few black feathers evident on the upper and lower borders. The lack of evidence of primary moult, however, indicates that it was in 'first-stage juvenile' plumage, as an older bird would show moult or colour contrast between feathers of different ages in the primaries and secondaries. The sex was recorded at preparation as female, presumably by inspection of gonads, even though the wing length is beyond the range of measurements given for female *magnificens*. The colour of the legs of adults is described as black in males and pink or coral-red in females, but on juveniles the legs are pale blue (Stonehouse & Stonehouse 1963). The Tiree frigatebird had 'pale flesh, tinged bluish' legs, which gives the



Robert Y. McGowan

42. Ascension Frigatebird *Fregata aquila*, found on Tiree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

impression that their colour was changing from the pale blue of a juvenile to the pinker colour of an adult female. This also suggests that the Tiree bird was a female, which is further supported by the wing length and other measurements.

Size and structure

Biometrics

The size and structure of the Tiree specimen show several inconsistencies with *magnificens*. The measurements, in particular wing length, are the first clue, though published data are based on very restricted sample sizes. On their own, measurements cannot be used to differentiate the Tiree bird from other frigatebird species, except *ariel*, which is markedly smaller (table 1). Given that the Tiree frigatebird is a female, and therefore larger than a male, it appears too small to be *magnificens*. Although its wing length is at the lower limit

for male *magnificens*, all other measurements fall well below those for females. In contrast, the biometrics of the Tíree frigatebird fit more or less within the range for *aquila*, although the wing length of 613 mm is slightly higher than the highest value given for four *aquila* by Murphy (1936). Conversely, the wingspan (1,980 mm) is relatively low for a female *aquila*, as is the overall length (840 mm), which is less than would be expected for *aquila* of either sex, although we stress again that the sample size of measurements used by Murphy (1936) is very small. Measuring the wingspan of such a large bird is difficult, and wing length is a better (more accurate, and more repeatable) measure of size. It does, however, seem that in comparison with other large frigatebirds, the wingspan of *aquila* is proportionally smaller, indicating that it is relatively shorter-winged.

Bill

The bill length of the Tíree frigatebird, 108.3 mm, is slightly above the range given by Murphy (1936) for *aquila* (n=4). It is also at the lower end of the range for male *magnificens*, though it is consistent with measurements quoted by Stonehouse & Stonehouse (1963) who recorded bill lengths of 102–120 mm for *aquila* between 61 and 120 days old. Murphy (1936) considered that the ‘slender and remarkably depressed bill, the culminicorn plate of which is extraordinarily flat, rising little if any above the latericorn plates’ is diagnostic. In his examination of the specimen, RMcG considered that the bill plates looked swollen. Measurement of the depth of the latericorn plates and culminicorn plate does appear to confirm some distortion, possibly caused by differential drying of the bill sheath-plates. Measurements of the various frigatebird species at the NMS and the NHM show that the depth of the cul-

minicorn plate on *aquila* is slim, in the range 1.3–1.5 mm, compared with other species. It is apparent that the bill of the Tíree frigatebird cannot be used safely to argue for or against its identity as *aquila*.

Further evidence

One piece of highly relevant evidence supporting the identification as *aquila* owes much to the prescience of the original examiners of the Tíree corpse, who collected a number of parasites from the specimen. These have been identified as *Tetraborthius* sp. tapeworms, the hippoboscid fly *Olfersia spinifera* (Leach 1817) and three species of chewing lice *Fregatiella aurifasciata* (Kellogg 1899), *Colpocephalum angulaticeps* (Piaget 1880) and *Pectinopygus crenatus* (Giebel 1874). During the course of this investigation, the lice were sent to R. L. Palma, Curator of Insects at the Museum of New Zealand, who reviewed their identity. Chewing lice are obligate ectoparasites, completing an entire life-cycle by feeding on a single host’s tissues. As these insects are wingless, transmission between hosts occurs only when hosts are in physical contact,



43. Ascension Frigatebird *Fregata aquila*, found on Tíree, Inner Hebrides, July 1953. The specimen is now at the National Museums of Scotland, Edinburgh.

Table 1. Overall length, wingspan and wing length of Magnificent Frigatebird *Fregata magnificens*, Ascension Frigatebird *F. aquila*, Christmas Island Frigatebird *F. andrewsi*, Great Frigatebird *F. minor* and Lesser Frigatebird *F. ariel*. All measurements in mm (maximum chord).

Species	Sex	Overall length	Wingspan	Wing length	Source
Magnificent Frigatebird		890-1,140	2,170-2,440	651-682	Harrison (1983)
Ascension Frigatebird		890-960	1,960-2,010		Harrison (1983)
Magnificent Frigatebird	female (n=3)	940-1,120	2,240-2,360	628-674	Murphy (1936)
Ascension Frigatebird	female (n=4)	960	2,055	587-607	Murphy (1936)
Christmas Island Frigatebird		890-1,000	2,060-2,300		Harrison (1983)
Great Frigatebird		860-1,000	2,060-2,300		Harrison (1983)
Lesser Frigatebird		710-810	1,750-1,930		Harrison (1983)

Table 2. Bill measurements of Ascension Frigatebird *Fregata aquila* and Magnificent Frigatebird *F. magnificens* taken from Murphy (1936). Bill length refers to the exposed culmen, measured from the feathering at the base of the upper mandible to the tip of the upper mandible. All measurements in mm.

Species	Sex	Bill length (mean)	Mean bill depth at mid-point
Ascension Frigatebird	females (n=4)	99.0-105.9 (103)	14.0
Magnificent Frigatebird	females (n=21)	109.2-130.0 (121)	17.6

such as during breeding (Barker 1994). Louse distributions, therefore, are generally restricted to a small number of closely related host species, or often to a single species of host. The degree of host-specificity exhibited by these lice provides a useful aid to understanding the taxonomic relationships of birds (Pilgrim & Palma 1982; Zonfrillo 1993; Forrester *et al.* 1995; Zonfrillo & Palma 2000).

The three species of lice recorded from the Tíree specimen were checked against contemporary listings of hosts. The species *Fregatiella aurifasciata* is a louse recorded from all five species of frigatebird, and is, therefore, not useful for the identification of the host. The occurrence of *Colpocephalum angulaticeps* is strong evidence that the Tíree frigatebird cannot be *Fregata magnificens* because this latter species is host to *C. spineum* (Kellogg 1899) only in this genera (Forrester *et al.* 1995); *C. angulaticeps* has also been recorded from *F. ariel* and *F. minor* (Palma & Barker 1996). There are currently no authenticated records of *Colpocephalum* sp. from Ascension Island birds (R. L. Palma pers. comm.). Due to problems with identification and, in particular, a lack of authenticated comparative material, the *Pectinopygus* lice are of little assistance in the taxonomic determination of the Tíree bird.

Population, breeding and movements of Ascension Frigatebird

Ascension Frigatebird now breeds exclusively on Boatswainbird Islet, which measures approximately 225 m by 275 m and lies only 250 m off the northeast coast of Ascension Island in the tropical eastern Atlantic. It breeds on the ground 'among the stones and guano of the rough basalt cap' (Stonehouse & Stonehouse 1963). It formerly bred on Ascension Island itself, but since the 1800s has undergone a population decline as a result of predation by feral cats in particular, but also by introduced Black Rats *Rattus rattus*, and persecution by humans through the taking of eggs and guano. There remains the threat of predators reaching the current breeding site, while other threats such as longline fishing and over-exploitation of the fish stocks in the region of the colony are real, though as yet there is no evidence to suggest that these are affecting the population. Currently, a proposal to eradicate cats from Ascension Island is being considered.

There is general agreement that Ascension Frigatebird was more numerous in the 1950s than it is currently. The species account in del Hoyo *et al.* (1992) describes it as rare, with the last census in the late 1950s estimating the population to be 8,000-10,000 breeding birds and



44. Adult Ascension Frigatebird *Fregata aquila*, Ascension Island, September 2001. Adult *aquila* are usually all-dark, though females have a brown breast-band and some can have a white belly, but the blood-red gular pouch shown here indicates a male.

1,000-2,000 juveniles. Subsequent estimates put the population at 1,000-1,500 pairs or less. Enticott & Tipling (1997) refer to counts of 5,000 birds in 1976, and 2,500 birds and 1,000 nests in 1988. A more recent estimate, however, indicates that in 1997 the population 'was estimated to lie between 5,000-10,000 individuals, but may number as many as 10,000-12,000 mature adults' (BirdLife International, 2000).

Studies of Ascension Frigatebird by Stonehouse & Stonehouse (1963) between November 1957 and April 1959 provide the most detailed study of the breeding cycle. They noted that eggs are laid throughout the year, but with a more defined breeding season between the months of April and November or December. Nesting success of 15-20% is given for the population as a whole, but success was highest among early breeders and those pairs breeding at lower densities within the colony. Incubation was thought to last for between 43 and 51 days, with a mean of 44 days. The chicks grow slowly and steadily, finally losing the last of their down between 141 and 180 days after hatching. They are capable of flying within six or seven months, but 'remain at least partly dependent on their parents for a further three or four months'. Young birds begin to leave the nesting area for several

hours at the age of eight or nine months.

Stonehouse & Stonehouse (1963) found that older 'juveniles' with 'mottled breast feathering and scattered black feathers on the [white] head and neck' were seen occasionally at the colony, but that 'no white-headed or mottled birds attempted to breed'. This is in contrast to Harrison (1983), who stated that some birds apparently breed in what would appear to be 'immature' plumage. This may refer to the very few birds which breed with either a white breast or abdomen, or small areas of white on their chest and abdomen, but with otherwise adult plumage. Juveniles are likely to occur in the vicinity of the Ascension Island breeding areas, roosting at various sites, but are unlikely to re-enter the breeding colony until they are adults, or near-adults (S. Howell pers. comm.).

The movements of Ascension Frigatebirds away from Boatswainbird Islet remain relatively unknown. Enticott & Tipling (1997) comment that the species rarely strays more than 150 km from breeding areas, while Brown *et al.* (1982) note that it is a vagrant to the west African coast, from the Gulf of Guinea to the mouth of the Congo River. Borrow & Demey (2002) also state that it is a vagrant in the Gulf of Guinea, where it has been recorded in the waters of São Tomé and Príncipe. BirdLife International



Alan Bull

45. Ascension Frigatebirds *Fregata aquila*, Ascension Island, September 2001. Taken in September; there are very few (or no) juvenile birds present on Boatswainbird Islet in this image, though studies by Stonehouse & Stonehouse (1963) indicate that the breeding season lasts from April to November or December.

(2000) reports that this species probably spends much time far from the island. Being a surface-feeder, preying on fish, flying-fish and newly hatched Green Turtles *Chelonia mydas*, it may well follow shoals farther north than is currently recognised, especially given the difficulty of identification of frigatebird species at sea.

British, Irish and European frigatebird records

There have been other frigatebirds recorded from British waters. There are two records of unidentified frigatebirds in Britain: at Forvie, Grampian, on 20th August 1960; and at Porthoustock and Carrick Roads, Cornwall, on 13th June 1995 (with what is presumed to be the same individual seen off Skomer, Dyfed, on 14th June 1995). There are four accepted records from Ireland, all referring to unidentified frigatebirds: Co. Cork 1973, and Co. Dublin in 1988, 1989 and 1995. The last record, at Booterstown, Co. Dublin, on 22nd June 1995, was presumed to relate to the individual seen in Cornwall and Dyfed. Most recently, an adult female Magnificent Frigatebird was found exhausted on the Isle of Man on 22nd December 1998, and died in captivity in October 1999 (Gantlett 1999). This was accepted by the BBRC (Rogers *et al.* 2000) and now remains the only accepted record of Mag-

nificent Frigatebird for Great Britain; this record is currently under review by BOURC, as it is now a putative 'first' for Britain and the Isle of Man.

Excluding the misidentified Tree bird, Lewington *et al.* (1991) list five records of Magnificent Frigatebird from the Western Palearctic. These include one at Saumur, France, in October 1852; a male at La Rochelle, France, in March 1902; and singles on the Azores in November 'sometime before 1903', in Denmark in March 1968, and in Spain in September 1985. Among several additional reports of unidentified frigatebirds, Scherner (2001) considers that a bird in Germany in January 1792 was 'most probably' Magnificent. Other, recent European records of unidentified frigatebirds include one in Belgium in July 1975 and two there in December 1988, one in the Netherlands in August 1960, singles in Norway in September 1983 and June 1989, and one at the Sea of Azov, Ukraine during the 1980s (Snow & Perrins 1998).

Discussion

In 1953, the occurrence of any frigatebird in the British Isles must have seemed highly improbable. Instinctively, thoughts about the identity and origin of such a bird would focus on the

nearest breeding colonies. With *magnificens* being widespread in the tropical Atlantic Ocean and also the species breeding closest to the British Isles, with colonies in southern Florida, USA, the Caribbean and the Cape Verde archipelago, it is understandable that the 'reasonable assumption' was that it was a Magnificent Frigatebird. This assumption, coupled with the lack of suitable comparative material and information about immature plumages, was presumably enough to set the original reviewers off on the wrong track. Although the Tíree frigatebird occurred when the population of *aquila* may have been greater than it is today, there were no records outside the Afrotropical region in 1953, and no reason to suppose it could occur here. Once accepted as a Magnificent Frigatebird, the identification went unquestioned for almost 50 years.

Only relatively recently has an attempt been made to evaluate the problem of immature frigatebird plumages. Even today, these plumages are poorly understood as most immatures depart from the breeding colonies after fledging and disperse into tropical seas where they remain for several years before returning to the breeding colonies as adults, or near-adults. Within this period, they moult through several poorly known plumage stages which radically transform their appearance. To compound the problem further, several species, all in various immature plumage stages, often flock together and congregate in communal roosts, making positive identification of specific individuals of unknown origin extremely difficult.

The above discussion, focusing on the plumage features and biometric data of the Tíree frigatebird, shows how new information and an improved understanding of immature frigatebird plumages has enabled this review to take place. The reidentification as Ascension Frigatebird is unexpected and surprising. With an improved knowledge of the plumage characters of this species, and taking into account the dynamics of seabird populations, linked with possible conservation measures, there is a possibility that it may occur again.

Conclusion/Summary

The identification of juvenile frigatebirds is fraught with problems, particularly in the field, and these should not be underestimated. We do, however, feel confident that the identification of the Tíree bird as Ascension Frigatebird has been

fully established on the basis of the features outlined above. Having confirmed its age as first-stage juvenile, the characters proving its identity as Ascension Frigatebird are as follows: the head is clean white, well demarcated from the mantle and breast-band, with no cinnamon or rufous wash; the brown breast-band, with some dark feathers, is virtually complete, of even depth and high on the chest (this is the most important, and probably the only truly diagnostic feature); and the presence of the axillary spur, which has been established through detailed museum analysis but is not, unfortunately, obvious on the images of the partly relaxed wing. The measurements are insufficient to confirm identity, but do at least establish that it is not Magnificent Frigatebird. Finally, and in some ways most importantly, we have confirmation by perhaps the world's leading authority on the identification of frigatebirds, Steve Howell, that, in his opinion, the Tíree bird could only have been Ascension Frigatebird, and we are extremely grateful for this testimony.

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EDITORIAL COMMENT Colin Bradshaw, Chairman of the British Birds Rarities Committee commented: 'I don't suppose anyone anticipated that the BBRC review of 1950-58 records would result in a new species being added to the British List. Our intent was always to conduct a rigorous evaluation of records from this period and, where possible, we have gone back to the original data rather than relying on published accounts. Where specimens exist, we have tried to get photographs of these added to the file. Grahame Walbridge is to be congratulated for having the acumen to notice that the prominent breast-band would be extremely unusual in Magnificent Frigatebird, and that there was something seriously amiss with this record.'

'After that first step, the detective work was rather more routine. The biometrics were too large for Lesser Frigatebird and, because the bird was sexed as a female on dissection, too small for Magnificent. The extensively white head excluded both Lesser and Christmas Island Frigatebird. The identification thus lay between Greater and Ascension Frigatebird. As described above, the staging of juvenile plumage, the position, extent and shape of the breast-band, the absence of any russet on the head, the presence of an axillar spur, and a sharp cut-off between the white of the head and the dark mantle all proved that this bird was, indeed, an Ascension Frigatebird.'

Eric Meek, Chairman of the British Ornithologists' Union Records Committee, commented: 'This is such an astonishing story that many of us found it hard to believe when the details first began to surface. The Tired Magnificent Frigatebird had been part of the stuff of British ornithological folklore for almost half a century, its identity unquestioned by even the most sceptical – until, that is, the BBRC review of 1950-58 records.'

'The minute attention to detail displayed originally by Grahame Walbridge, and later by both Brian Small and Robert McGowan, has revealed what nobody had ever suspected and has resulted in the belated addition of a completely different species to the British List.'

'One of the surprises revealed by the investigation into this record has been the paucity of biometric data in the literature on which to base the comparisons. Some of the sample sizes are pitifully small, illustrating to ornithologists the world over the need to publish any data of this sort.'

'The circulation of this record saw, I feel, the BOURC working at its best. Several members asked some necessarily hard questions, resulting in some debate that could best be described as 'robust'! When the dust settled, however, we all knew a lot more about the identification problems within this very difficult genus and there was unanimous support for the reidentification.'

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