Threatened Birds of Asia:
The BirdLife International Red Data Book

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CHRISTMAS ISLAND FRIGATEBIRD

Fregata andrewsi

Critical ■ A2c,e; B1+2b,c,e
Endangered □ —
Vulnerable □ A1a,c; C1; C2b; D2

This species is restricted to a tiny area on one small island. It is predicted to undergo a rapid decline of more than 80% over the next 30 years (three generations) as a result of the introduction of a species of ant. As such, it has been upgraded to Critical.

DISTRIBUTION As a breeding species the Christmas Island Frigatebird (see Remarks 1) is confined to Christmas Island (to Australia) in the Indian Ocean, but in the non-breeding season it is found in many parts of Indonesia, ranging northwards in numbers to Malaysia and peninsular Thailand, occurring as a vagrant to the Andamans and Nicobars (India) and possibly southern India and Vietnam (see Remarks 2). It has not been recorded from Myanmar, but seems likely to occur occasionally in the Mergui archipelago off Tenasserim (= Taninthayi). There is one record from northern Australia (van Tets 1976), and another from the Kenyan coast (Mann 1986), indicating that the species wanders very widely in the Indian Ocean.

■ ***CHINA*** ■ ***MAINLAND CHINA*** This species is only known by two certain records from the south and east coasts, as follows:

■ ***Jiangsu*** at sea near Dongzoushan, Yuntaishan district, near **Lianyungang**, north-east Jiangsu, in July 1984, when fewer than 10 were seen but with one or more collected and identification verified by Cheng Tso-hsin (Wang Ziyu *et al.* 1986);

■ ***Guangdong*** **Dianbai county**, June 1965 (female in SCICN).

Unconfirmed reports include: Cheniushan island, Qiansandao islands, near Lianyungang, north-east Jiangsu, where one bird probably of this species circled over the island in July 1980 (Gao Yuren *in litt.* 1997); islands near Jieshi, Lufeng city, Guangdong, five or six seen flying over an island in August 1984 (Zhang Song *per* Gao Yuren *in litt.* 1997).

■ ***HONG KONG*** It is a rare visitor, with records as follows: off **Ting Kau**, adult male, April 1976 (HKBWS database); **Sha Chau**, one, August 1996 (*Oriental Bird Club Bull.* 25 [1997]: 61–69, HKBWS database); **Cape D'Aguilar**, one, September 1993 (HKBWS database). Unconfirmed reports include: one apparent adult male seen at a great height over Victoria Peak in May 1971 (HKBWS database; see Chalmers 1986); one picked up at Ho Man Tan (a park in Kowloon) in September 1996 (*Oriental Bird Club Bull.* 25 [1997]: 61–69), kept in care and released at Cape D'Aguilar in November, but not considered a confirmed record as its arrival was not certainly unaided (HKBWS database).

■ ***INDIA*** A record of an immature off Mangalore, Karnataka (Jerdon 1862–1864), is open to doubt as only two species of frigatebird were then recognised (Whistler and Kinnear 1931–1937, Ali and Whistler 1935–1937). One young individual picked up alive, undated, at Perumathoray, Kerala, c.16 km from Trivandrum (Ferguson and Bourdillon 1903–1904), was initially noted as Lesser Frigatebird *F. ariel* so that, with no specimen to check, this record is perhaps best regarded as provisional (Whistler and Kinnear 1931–1937, Ali and Whistler 1935–1937). Another caught in a fishing net at sea off Quilon, July 1928 (Prater 1929), on inspection proved to be a Greater Frigatebird *F. minor*, leaving no confirmed record for the Indian mainland (Abdulali 1961a). Thus the only acceptable record is:

■ ***Andaman Islands*** **Rangat bay** jetty, Middle Andaman, one juvenile, November 1989 (Saxena 1994).

■ ***SRI LANKA*** Baker (1922–1930) mentioned two Sri Lanka records, but the only specimen stored in the Colombo museum proved on examination to be a Greater Frigatebird *F. minor aldabrensis* (Phillips 1953; see Remarks 3). Until recently there had been "no authentic record" of this species in Sri Lankan waters (Phillips 1978), only a "few (mostly dubious) records" without conclusive documentation (De Silva 1990). However, Grimmett *et al*. (1998) mapped **Colombo** for the species, presumably on the basis of a recent confirmed record, although this has not been traced.

■ ***THAILAND*** Deignan (1963) listed Christmas Island Frigatebird for both coasts of the country, although he may have been influenced by reports from Peninsular Malaysia where there are confirmed east-coast records; but there appear to be no confirmed records from the Gulf of Thailand (i.e. the Thai east coast). The main roost for all frigatebirds in the Phang-nga bay area (Phuket, Phang-nga and Krabi) is the Bida stacks off the south end of Ko Phi Phi Le, Mu Ko Phi Phi National Park (see below). However, roosts of *Fregata* appear intermittently at other sites, such as Poda island off Laem Phranang, Krabi, and these probably include some *andrewsi* (P. D. Round *in litt*. 1998). Records are from: **Krabi** town, one juvenile, September 1988 (*Bangkok Bird Club Bull*. 5, 10 [1988]: 9); **Phuket** (= Salanga, Tonka), mentioned by Gyldenstolpe (1920) and Medway and Wells (1976), with unspecified numbers observed between 1973 and 1977 from the southern shore of the island (Boswall and Kanwanich 1978); **Ko Bida**, Mu Ko Phi Phi National Park, non-breeding visitor first identified in December 1977 (Boswall and Kanwanich 1978), and occurring sometimes in large numbers down to the present, recorded by many observers (*in litt.* 1990s); 20 km west of **Ko Rok**, Krabi, one, December 1997 (*Bird Cons. Soc. Thailand Bull.* 15, 2 [1998]: 14–15); also an unusual inland record of one in Khlong Saeng Wildlife Sanctuary (not mapped), at the Chiew Larn Dam, Khlong Saeng, May 1988 (*Bangkok Bird Club Bull*. 5, 7 [1988]: 10–11, *Oriental Bird Club Bull.* 8 [1988]: 32–36).

Unconfirmed reports include: Ko Libong east, Kantang district, Trang province, an immature frigatebird thought to be *andrewsi*, March 1983 (P. D. Round *in litt*. 1998); Cham, Phetchaburi, one female, April 1992 (*Bangkok Bird Club Bull*. 9, 6 [1992]: 10, A. Liukiratiyutkul *per* P. D. Round *in litt*. 1998).

■ ***MALAYSIA*** The species is regular in small numbers along the coasts of Sabah and Sarawak, and locally around Peninular Malaysia (Young 1940, Gore 1968, Smythies and Davison 1999, Wells 1999). Records are from:

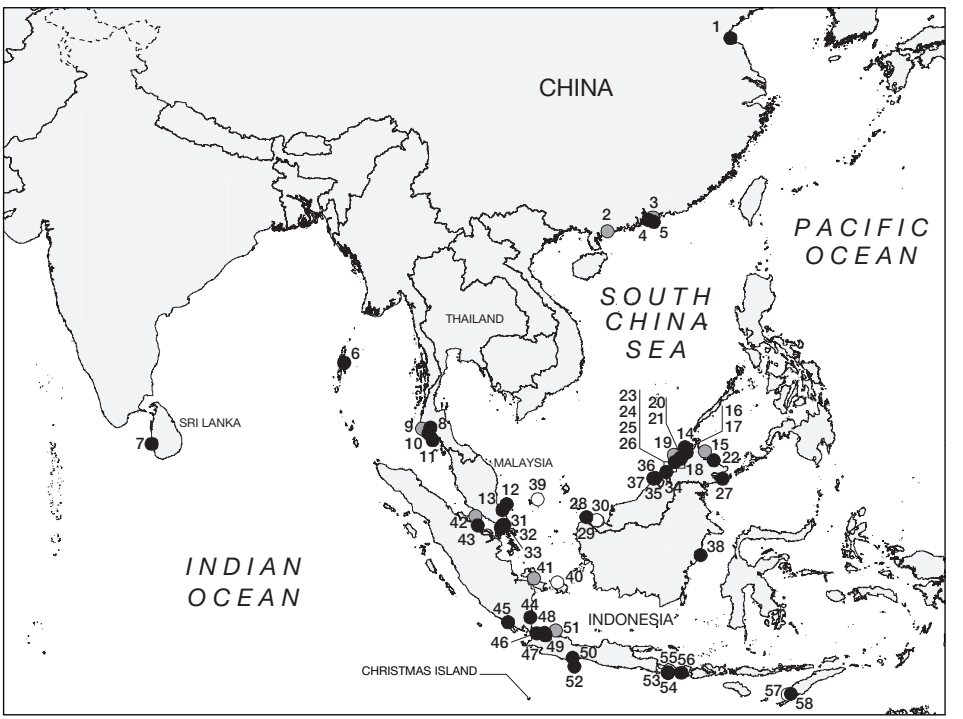
■ ***Peninsular Malaysia*** Kelantan coast (not mapped), four records c.70 km from the coast (Gibson-Hill 1949b); **Pulau Rengis**, close to Tioman island, Pahang (Medway 1966), "fair numbers" (and two collected), April 1962 (Medway and Wells 1963), five individuals pursuing a White-bellied Sea-eagle *Heliaeetus leucogaster*, February 1983 (Wells 1990a), and still regular (Bransbury 1993, C. Briffett *in litt.* 1999); between **Mersing** and Tioman, up to 15 on ferry crossings, May 1986 (Howes *et al*. 1986);

■ ***Sabah*** **Mantanani islands**, at least 20 daily in the vicinity, March 1982 (Sheldon 1983), regularly attending non-breeding roosts, undated (Wells 1999); mouth of **Sugut river** (Kuala Sugut), September 1964 (Gore 1968); **Tempasuk**, September and November 1985 (Beadle and Whittaker 1985); **Kota Belud**, 1–2, September–November 1984 (Beadle and Whittaker 1985, also Bransbury 1993); **Tembungo oil rig**, undated (Sheldon *et al*. in press); **Mengalum islands**, singles with Lesser Frigatebirds, June 1965 (Gore 1968); **Kota Kinabalu** (= Jesselton), c.20, February 1964 (Gore 1968), January–February 1964 (Gore 1968) and Puala Gaya, 1.5 km offshore, March 1984 (Smith 1984); **Manukan island**, Tunku Abdul Rahman Park, five individuals, August 2000 (K. Kumar *in litt*. 2000); **Mumiang**, 30 km east of Sandakan, one in September or October 1984 (Beadle and Whittaker 1985); **Tiga islands**, "small numbers", January 1982 (Sheldon *et al*. in press), two circling among Lesser Frigatebirds, December 1984 and singles in January 1986 (Sheldon *et al*. in press), two, April 1993 (Heath

1994b), 10–15, February 1997 (F. Steinheimer *in litt*. 1999); **Kimanis bay**, undated (Sheldon *et al*. in press); **Bongawan**, undated (Sheldon *et al*. in press); **Labuan**, undated (Sheldon *et al*. in press); **Pulau Pandanan**, Semporna islands, one, August 1998 (Kok 1998);

■ *Sarawak* **Samunsam Wildlife Sanctuary**, 25 birds, 1986 (A. C. Sebastian *in litt*. 1999); **Santubong**, specimens taken, undated (Chasen and Kloss 1924); **Buntal**, specimens taken, undated (Chasen and Kloss 1924); also one found nearly dead at Bau lake (not mapped), south of Kuching, the first inland record, February 1958 (Various hands 1958, Smythies and Davison 1999).

■ ***SINGAPORE*** Apart from one early report (not mapped) of one individual seen at sea less than 70 km to the west of Singapore Island (Robinson and Chasen 1936), and another at an unspecified locality in January 1983 (P. Alström, U. Olsson and D. Zetterström *in litt.* 2000), recent records are as follows: **Pulau Ubin**, juvenile, July 1998 (*Oriental Bird Club Bull.* 29 [1999]: 51–56); **Serangoon**, and also at the Singapore National Stadium, recently (Lim 1994a); **Pulau Hantu**, recently (Lim 1994a).



The distribution of Christmas Island Frigatebird *Fregata andrewsi*: (1) Lianyungang; (2) Dianbai county; (3) Ting Kau; (4) Sha Chau; (5) Cape D'Aguilar; (6) Rangat bay; (7) Colombo; (8) Krabi; (9) Phuket; (10) Ko Bida; (11) Ko Rok; (12) Pulau Rengis; (13) Mersing; (14) Mantanani islands; (15) Sugut river; (16) Tempasuk; (17) Kota Belud; (18) Tembungo oil rig; (19) Mengalum islands; (20) Kota Kinabalu; (21) Manukan island; (22) Mumiang; (23) Tiga islands; (24) Kimanis bay; (25) Bongawan; (26) Labuan; (27) Pulau Pandanan; (28) Samunsam Wildlife Sanctuary; (29) Santubong; (30) Buntal; (31) Pulau Ubin; (32) Serangoon; (33) Pulau Hantu; (34) Muara; (35) Seria; (36) Panaga; (37) Kuala Belait; (38) Mahakam delta; (39) Siantan; (40) Langkuas island; (41) Bangka; (42) Melaka straits; (43) Tanjung Balai; (44) Way Kambas National Park; (45) Bukit Barisan Selatan National Park; (46) Pulau Dua; (47) Pulau Rambut; (48) Muara Angke; (49) Jakarta; (50,Pangandaran; (51) Java Sea; (52) Indian Ocean; (53) Petitenget; (54) Kuta beach; (55) Suwung; (56) Lembar harbour; (57) Semau; (58) Kupang.
○ Historical (pre-1950) ◍ Fairly recent (1950–1979) ● Recent (1980–present) □ Undated

■ ***BRUNEI*** The only confirmed records are from: **Muara**, January 1985 (Mann 1987b); **Seria**, occasional, December–January 1987–1988, and a female, January 1989 (Mann 1991); **Panaga**, one, January 1982 (Vowles and Vowles 1997); **Kuala Belait**, female, February 1990 (Mann 1991).

■ ***INDONESIA*** Most records have come from coasts of the Greater Sundas, with only small numbers occasionally straggling eastwards to Bali, the Lesser Sundas (= Nusa Tenggara) and the Moluccas (= Maluku). Two specimens reportedly from north Sulawesi (Hose 1903) were found to be this species, but owing to possible labelling anomalies they may have been taken in Borneo (White 1974). The species was thought "possibly an occasional visitor in Wallacea" by White and Bruce (1986), although all existing records were rejected at that time.

Kalimantan ■ ***East Kalimantan*** **Mahakam delta**, 1987 (Eve and Guigue 1989);

Anamba islands where apparently common and roosting on **Siantan** in large numbers, at least September 1925 (Robinson and Chasen 1936); also at Ringi island (not mapped), September 1925 (Morioka and Yang 1996);

Belitung **Langkuas island**, Elf islands, off the north-west point of Belitung, July 1936 (Chasen 1937);

Bangka unspecified locality and undated, plus Bangka strait, November 1932, and north of Bangka, two in February 1962 and seven in April 1962 (van Marle and Voous 1988);

Melaka straits 2°N 102°E, three in July 1964 (van Marle and Voous 1988);

Riau archipelago near **Tanjung Balai**, Karimun Besar, October 1999 (Lim Kim Seng *in litt.* 2000), an immature, October 1999 (*Oriental Bird Club Bull.* 32 [2000]: 66–76);

Sumatra (see Remarks 4) ■ ***Lampung*** **Way Kambas National Park**, Lampung, January–February 1979 (van Marle and Voous 1988), and April 1989 (Parrott and Andrew 1996); **Bukit Barisan Selatan National Park**, at some time since 1980 (O'Brien and Kinnaird 1996b);

Java casual off Javan coasts (Meeth and Meeth 1977); ■ ***West Java*** off **Pulau Dua**, rare visitor (Milton and Marhadi 1985); **Pulau Rambut**, two, June 1989 (Wilkinson *et al*. 1991a), three, September 1995 (I. Lewis *in litt*. 1999), and between Jakarta and Pulau Rambut, July (at least 20) and August 1988 (F. Verbelen, D. Roberson *in litt*. 1999); **Muara Angke**, one, 1994 (Tobias and Phelps 1994); **Jakarta** ("Batavia") region, rarely, including April 1941 (Hoogerwerf 1948d), and at Tanjung Priok, May–July 1989 (Lewis *et al*. 1989); **Pangandaran**, July 1989 (Lewis *et al*. 1989);

Java Sea at 5°50′S 107°30′E, 30 individuals, October 1975 (Meeth and Meeth 1977);

Indian Ocean at 8°18′S 108°46′E, female, December 1999 (Bourne 2000);

Bali **Petitenget**, March 1982 (Ash 1984); **Kuta beach**, one, August 1997 (Chartier and Chartier 1997, A. Chartier *in litt*. 1999); **Suwung**, July 1982 (Ash 1984);

Lombok **Lembar harbour**, May 1988 (Johnstone *et al.* 1993);

Semau north-east coast, April 1911 (Hellmayr 1914);

West Timor near **Kupang**, June 1986 (McKean 1987).

POPULATION Total numbers at the three breeding colonies have been judged at around 1,600 pairs, with around 4,500 individuals in the entire population; numbers are thought to be stable, although a full census has not been undertaken since the 1980s (del Hoyo *et al*. 1992, Garnett and Crowley 2000). Estimates of numbers in non-breeding populations should be treated with caution because of the difficulties inherent in separating immature *Fregata* (see Remarks 1).

Thailand The first recorded group in peninsular Thailand consisted of 39 males, with additional numbers of unidentified females and immatures, in December 1977 (Boswall and Kanwanich 1978). Since that time some fairly large concentrations have been recorded, mostly in mixed flocks of *Fregata* off Ko Phi Phi, which are usually dominated by *F. ariel* (P. D.

Round *in litt*. 1998). The largest combined total (*F. ariel*, *F. minor* and *F. andrewsi*) was c.3,000, February 1990 (A. Curry *per* P. D. Round *in litt*. 1998), while the largest counts specifically of *F. andrewsi* included 350–500 individuals with 100–150 *ariel*, November c.1990 (E. T. Myers *per* P. D. Round *in litt*. 1998), 500 individuals with 300 *ariel*, December 1989 (K. Shepherd *per* P. D. Round *in litt*. 1998), and a report of c.2,000 *Fregata* of which 40% (c.800) were thought to be *F. andrewsi* and 60% (c.1,200) *ariel*, presumably in the 1990s (R. Slack *per* P. D. Round *in litt*. 1998). In December 1994, 200–300 Christmas Island Frigatebirds were present (P. Schiermacker-Hansen *in litt*. 1999), "several hundred" in December 1997 (A. Drewitt *in litt*. 1999), and c.350 with c.650 *F. minor* in March 1998 (Mauro 1999). The non-breeding population in peninsular Thailand, apparently represented in its entirety by these gatherings of roosting birds, is possibly declining gradually (P. D. Round *in litt*. 1998).

Malaysia The species is a regular visitor to Sabah, outnumbered in its genus only by the Lesser Frigatebird, which is far more abundant there (Gore 1968, Sheldon 1983, in press). It was said to be "the uncommoner frigatebird" around Borneo (Various hands 1958), although whether this assessment included Greater Frigatebird is not clear. Conversely, it was considered to be the commonest frigatebird off Sabah in autumn 1987 (Bourne 1989 in Mann in prep.). It is most frequent along the north coast of Borneo in January–September and December, with usually fewer than 20 individuals a day at any given locality (Mann in prep.).

Singapore It is a "very rare non-breeding visitor" (Lim 1994a).

Brunei Small numbers occur off Brunei, particularly in January–September and December (Mann in prep.).

Indonesia The species is regular in the Sunda straits and off north Java (Parrott and Andrew 1996), and off southern West Java (Holmes and van Balen 1996). It has been presumed rare in Balinese waters (Ash 1984), and is a vagrant to the Moluccas (Coates and Bishop 1997).

ECOLOGY ***Habitat*** The Christmas Island Frigatebird is primarily oceanic, preferring warm, low-salinity waters of the South Equatorial Current, and only coming to land to roost at night and to breed (Marchant and Higgins 1990). It breeds (on current knowledge exclusively) in low dry forest on Christmas Island in the Indian Ocean; details of breeding ecology are given in, e.g., Gibson-Hill (1947), Nelson (1972, 1975). It roosts communally, often alongside other frigatebird species; these communal roosts are generally sited on undisturbed offshore stacks, cliffs and islets.

Food The species is a surface-feeding piscivore, scavenger and, to a lesser extent, kleptoparasite. Most frigatebirds consume large numbers of flying fish (genera *Cypselurus* and *Exocoetus*), as well as cephalopods (especially squid), and lesser numbers of fish, jellyfish and larger plankton (del Hoyo *et al*. 1992). Flying fish form part of the diet around the Anamba islands; also, according to the local inhabitants of these islands, it is partial to a small fish named "tamban" "Clupeidae" (Robinson and Chasen 1936). Like other members of the genus, it forages by snatching prey from the surface of the sea, rarely immersing more than the bill, occasionally the head; its kleptoparasitism is overstated, although it will harry almost any seabird carrying food, perhaps especially birds returning to colonies (del Hoyo *et al*. 1992). Birds have been seen foraging above a shoal of dolphins (Meeth and Meeth 1977) and skimming water near net-hauling sardine fishermen, picking off exhausted fish (Banks in Smythies 1981). In the breeding season adults steal eggs or chicks from neighbouring nests, and pick carrion or offal from beaches (Gibson-Hill 1947, Marchant and Higgins 1990). Remarkably, the species sometimes feeds inland, as shown by one specimen whose crop was jammed with grasshoppers Orthoptera (del Hoyo *et al*. 1992).

Breeding Detailed accounts of breeding biology can be found elsewhere (Gibson-Hill 1947, 1949c, Nelson 1972, 1975, Marchant and Higgins 1990). Courtship usually begins in late December; almost 90% of eggs are laid from March to mid-May (Marchant and Higgins 1990).

Nests are sites high in trees, particularly Indian almond *Terminalia catappa* (less often "Grewia" and rarely *Gyrocarpus americanus*), often up to 20 m above ground in this species (Gibson-Hill 1947, Stokes 1988, del Hoyo *et al*. 1992). The season lasts an estimated 9–10 months, with an incubation period of over 40 days (Gibson-Hill 1947); parental care is extraordinarily protracted, with up to 15 months of post-fledging dependence being recorded (del Hoyo *et al*. 1992). Pairs can probably only produce one young every two years (Dunn and Hill 1997); the age of first breeding is not known but probably between five and seven years (Nelson 1975).

Migration Although del Hoyo *et al*. (1992) stated that "all five frigatebirds are essentially sedentary, spending most of the year in the vicinity of their colony", this species sometimes wanders very widely, and a regular movement of non-breeding birds to the coasts of Indonesia, Malaysia and Thailand is well known. Some frigatebirds, including *andrewsi*, are present off Ko Phi Phi throughout the year, with quite large numbers, presumably younger birds, remaining through the breeding season. The Andaman islands bird was observed shortly after a cyclonic storm hit the area (Saxena 1994), but the occurrence of the species in Sri Lanka and Kenya suggests that some individuals wander widely in the Indian Ocean.

THREATS This species is highly threatened because its population is small, confined to one small area of land, and potentially at risk from an invasive species of ant. The restriction of its entire breeding population to a single island elevates the potential impact of natural disaster or disease. The occurrence of non-breeding individuals through the western Indonesian archipelago, and the coasts of Thailand and Malaysia, is of relatively little importance to the conservation of the species, as few threats are believed to exist in those areas.

Christmas Island While the only breeding site falls narrowly outside the geographical scope of this work, a brief appraisal of attendent threats follows. Numbers of breeding frigatebirds on Christmas Island have declined in some areas, although the overall population is thought to be stable; habitat destruction, disturbance and human predation of birds and eggs have been the main causes of decline (del Hoyo *et al*. 1998). In particular, around 36% (0.9 km^2) of the species's forest breeding grounds had been removed by 1946 to make way for phosphate mining (Stokes 1988), while dust from phosphate dryers was also thought to disrupt breeding (Nelson 1972). In the 1950s an influx of Cocos-Malay people (mostly mine labourers) began to harvest eggs and young from frigatebird nests to augment their impoverished diets; in 1967, the remains of 40 birds were found under a single display area (Nelson 1975), but this threat subsided in the 1980s (Stokes 1988). For unknown reasons, but perhaps owing to natural fluctuations in food supply, large numbers of young are left to starve in some seasons, the same being true of another endemic nesting seabird, Abbott's Booby *Papasula abbotti* (see relevant account); however, other seabirds nesting on the island appeared to fare rather better than these two (del Hoyo *et al*. 1992). Resultant low numbers, along with continued poor reproductive output, means that a full recovery of the population is likely to be a slow process (Marchant and Higgins 1990). The species is also, and perhaps most seriously, threatened by an invasive species, the yellow crazy ant *Anoplolepis gracilipes*, which is spreading across the island; this insect is likely to prey directly on nestlings and to alter the island's ecology by farming scale insects that damage trees and killing the Red Crab *Gecaroidea natalis*, the dominant life-form (O'Dowd *et al*. 1999 in Garnett and Crowley 2000).

Thailand Shooting for sport (by fishermen and even by policemen) has been reported (*Bird Conserv. Soc. Thailand Bull.* 15, 2 [1998]: 14–15, P. D. Round *in litt*. 1998). Overfishing and decimation of nesting colonies of boobies and terns by fishermen may have reduced frigatebird populations through affecting their food supply (P. D. Round *in litt*. 1998). Increased disturbance of roosting islands is a potential threat (P. D. Round *in litt*. 1998).

MEASURES TAKEN The species is listed on CITES Appendix I (although trade is not a recorded threat). A national park was established on Christmas Island in 1989 (within which

most frigatebirds nest), phosphate mining was discontinued in 1987, and no further removal of forest is permitted; meanwhile, legal protection for the species has been granted, island inhabitants have improved standards of living and a sizeable exodus of people has occurred, all factors contributing to the greater security of the species (Marchant and Higgins 1990, del Hoyo *et al*. 1992).

Outside the breeding range, it receives full legal protection in China (nationally protected: First Class), Thailand and Malaysia. Ko Bida, the main roost site in Thailand, lies inside the Mu Ko Phi Phi National Park.

MEASURES PROPOSED Detailed measures for conserving the species at Christmas Island are given elsewhere (see Dunn and Hill 1997, Garnett and Crowley 2000). In particular, there is a need to control the yellow crazy ant, so that its population, and the threats it poses, can be contained. The breeding population of the Christmas Island Frigatebird (along with Abbott's Booby) should be surveyed and monitored on a regular basis. All known and potential nesting habitat should be protected, and further forest areas regenerated if possible. A community education programme is perhaps required on the island. Outside the breeding range few measures appear necessary, although strict control of disturbance at key roost sites (e.g. Ko Bida in Thailand) is highly desirable. The whereabouts of all other non-breeding roost sites should be identified and protective measures applied where necessary.

REMARKS (1) The species is not always identifiable at sea, especially in immature phases, owing to the variability of the pattern of white on *Fregata* (see, e.g., Rozendaal 1980). As a result, some of the records listed in the distribution section might involve misidentifications, although in all cases where an element of doubt was detected they are listed as unconfirmed. (2) The species is listed as a rare vagrant to north-east Tonkin (north-eastern Vietnam; not mapped) by Vo Quy (1971) and thus Robson (2000), but no details are given, and there are no confirmed records (J. C. Eames *in litt*. 2001). (3) This individual was mistakenly called "Lesser Frigatebird *Fregata minor*" by Phillips (1953, 1978) and Ali (1969). (4) A record from Telukbetung, Lampung, August 1976 (van Marle and Voous 1988), "was not specifically identified" (Holmes 1996). Five immatures off the Banyuasin peninsula, September 1988, were not certainly this species (Verheugt *et al.* 1993).