

SEABIRD FAUNA OF THE BABUYAN CHANNEL AND ADJACENT WATERS, NORTHERN LUZON, PHILIPPINES

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SUMMARY

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This paper is the first comprehensive report of seabirds in the Babuyan Channel, Northern Luzon, Philippines. We compiled photographic evidence of seabird sightings during cetacean surveys in this region from 2000 to 2015. A total of 18 species were recorded, of which two species were new country records and a further five species were new area records. Our results provide novel knowledge on the distribution of some of these species. They further highlight the importance of the Babuyan Channel to the East Asia–Australasian Flyway, and support the designation of the Babuyan Marine Corridor as a high priority area for conservation and an Important Bird Area in the Philippines. Extensive surveys in the Babuyan Marine Corridor dedicated to seabirds are recommended to continue to identify species and to contribute to the knowledge of seabird distribution and migration patterns.

Key words: Babuyan Channel, East Asia–Australasian Flyway, Important Bird Area, Philippines, seabird fauna

INTRODUCTION

The Babuyan Islands (19.250°N, 121.667°E) are a group of oceanic islands bounded by the Balintang and Babuyan channels, located

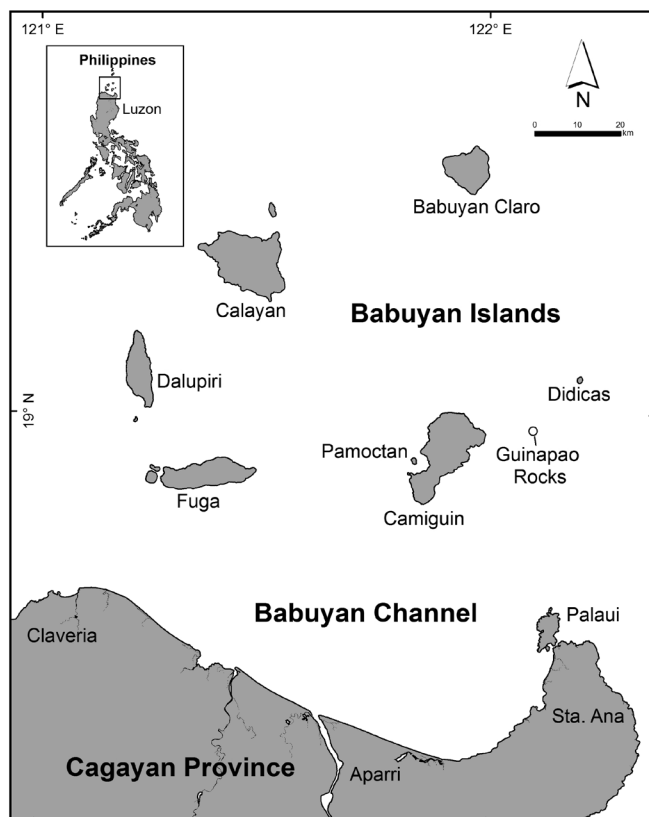


Fig. 1: Map of the study area, Babuyan Channel, northern Philippines.

off Northern Luzon, Philippines. The five main islands, namely Camiguin, Fuga, Dalupiri, Calayan and Babuyan Claro, lie in deep waters, and it is believed that they were never connected to the mainland or to each other during the last glacial period (Heaney 1985). Until recently, the island group has been the subject of little scientific attention, probably because of its isolation from mainland Luzon, with recent research efforts focusing mainly on terrestrial vertebrates and marine mammals (Allen *et al.* 2004, Oliveros *et al.* 2008, Acebes *et al.* 2007, Silberg *et al.* 2013). Despite this, the area has been classified as an Important Bird Area (Mallari *et al.* 2001), as a secondary area for endemic birds (Stattersfield *et al.* 1998) and a distinct ecoregion (Ong *et al.* 2002), in recognition of its rich avifauna (Dickinson *et al.* 1991, Kennedy *et al.* 2000). Studies on seabirds in the area have been limited and an extensive report is yet to be published. We present the first comprehensive account of seabird records from the Babuyan Channel and adjacent waters off Cagayan province (Fig. 1), based on photographic evidence obtained opportunistically during marine mammal surveys in the region. A total of 501 days of boat-based surveys using local outrigger boats were conducted between the months of February and May, 2000–2015. The surveys were based in Camiguin Island, but occasional trips to the other Babuyan Islands and adjacent waters were made throughout the course of the project. A more detailed methodology of the survey and equipment used is described in Acebes *et al.* (2007).

SPECIES ACCOUNTS

Eighteen seabird species from six families were observed. Detailed accounts of all of the species encountered are described below.

White-tailed Tropicbird *Phaethon lepturus*

On 13 March 2014, a single individual was sighted as it plunged for prey approximately 4 km west of Camiguin Island (18.860°N,

121.788°E; Fig. 2a). Although there are only two published records of this bird in the Philippines — one in Sarangani, Mindanao, on 6 March 1929 and the other in Dumaguete City, Negros Oriental, on 1 February 1968 (Kennedy *et al.* 2000) — a further five confirmed sightings have been made within the country (Arne Jensen, pers. comm., 15 April 2014). A sighting of a Red-tailed Tropicbird *Phaethon rubricauda* in Aparri, Cagayan, on 22 May 1929 (Kennedy *et al.* 2000) is the only other published record of tropicbirds in the region, suggesting that these birds are rare visitors to the area.

Streaked Shearwater *Calonectris leucomelas*

Streaked Shearwaters were photo-documented on six occasions — 5 March 2006, 13 and 19 March 2013, 2 March and 4 April 2014, and 27 February 2015 — at distances of 0.7 km to 18.2 km from Camiguin. All were single individuals and showed no interest in the research boat. Streaked Shearwaters are regarded as a regular offshore passage migrants or winter visitors in the Philippines (Dickinson *et al.* 1991, Kennedy *et al.* 2000). Breeding colonies are found off East and Southeast Asian countries, but a majority of the breeding sites are thought to be in Japan (Oka 2004).

Wedge-tailed Shearwater *Ardenna pacifica*

Wedge-tailed Shearwaters were photographed on six occasions — 10 and 11 April 2005, 24 April 2006, 24 March 2013, and 28 March and 20 April 2015 — at distances >10 km from the western coast of Camiguin. Unlike the Streaked Shearwaters seen in the area, this species often approached the research boat and stayed in the vicinity for a short time. Sightings of Wedge-tailed Shearwaters have been documented all over the Philippines (Dickinson *et al.* 1991, Kennedy *et al.* 2000), including several observations during boat crossings between islands in the Babuyan Channel from 29 April to 3 June 2004 (Allen *et al.* 2006).

Masked Booby *Sula dactylatra*

A single adult Masked Booby in flight was photographed on March 2002, approximately 15 km south of the coastline of Camiguin (Fig. 2b). Although the species ranges widely in tropical waters around the world, it has been considered most probably locally extinct in Southeast Asia (Wells 1991). To the best of the authors' knowledge, this is the only sighting of a Masked Booby in the country during the past decade. Before this sighting, a record of a single adult bird from the North Islet of the Tubbataha Reefs in 1995 was the last national sighting (Jensen 2007). In the Philippines, Masked Boobies used to breed at the Spratly Islands and Tubbataha Reefs, but are now extirpated as a result of massive egg collection until 1996 and ongoing human disturbance (Jensen 2007). The closest remaining breeding sites are in Senkaku Islands and Nishinoshima of the Bonin Islands (Kohno 2000, Kawakami *et al.* 2005).

Brown Booby *Sula leucogaster*

Brown Boobies were documented and observed nine times during the study period — 28 February 2005, 30 and 31 March 2011, 8 and 17 March 2012, 24 March and 12 April 2013, and 7 and 26 March 2014 (Fig. 2c). Allen *et al.* (2006) also documented one Brown Booby in May. They were primarily seen as single individuals, but group sizes of up to three birds were also seen at multiple times. Only adults have been observed, and occasional associations with humpback whales *Megaptera novaeangliae* were

also recorded. Sightings ranged from 0.7 km to 5.5 km off the coastline of the islands of both Camiguin and Fuga. Historical records made by Worcester (1907) and McGregor (1907), together with anecdotal information from the local residents, suggest that these birds were almost certainly using Guinapao Rocks, locally referred to as *Dilayag*, and Didicas Rocks as a breeding ground in the past. Didicas Rocks, which previously consisted of three rock masses, formed a single island following a volcanic eruption in 1952 (Alcaraz *et al.* 1956). No indications of seabirds breeding on either island were found during a pass by boat in April 2004 (Carl Oliveros, pers. comm., 12 August 2015) or during a more detailed investigation in April 2012.

Red-necked Phalarope *Phalaropus lobatus*

The Red-necked Phalarope was the most frequently encountered aquatic bird in the study area and was documented 15 times — 17, 22 and 24 April 2004; 11 March 2005; 15 April 2011; 12, 23 and 24 March 2013; 13 and 26 March, 1 and 4 April 2014; and 28 February and 1 and 6 March 2015. Group size varied from one to 10, and distance from the closest coast ranged from 1.0 km to 9.8 km. The earliest encounter was in late February and the latest encounter was in late April; Allen *et al.* (2006) reported encountering this species as late as 3 June in 2004. Most of the birds' plumage was in transitional stages from non-breeding to breeding, with the vividly coloured rufous neck starting to show. Red-necked Phalaropes are known to winter in the South China Sea and are found across Philippine waters (Harrison 1983, Kennedy *et al.* 2000).

Grey Phalarope *Phalaropus fulicarius*

On 24 March 2013, a single Grey Phalarope was observed, together with a group of six Red-necked Phalaropes, approximately 4.5 km from the western coast of Camiguin (18.883°N, 121.781°E). The bird was clearly larger than the rest of the group and revealed an unmistakable bulky black bill with some yellow at the base. Other features observed include pale silvery-grey upperparts and a black eye-patch, suggesting the adult was in non-breeding plumage. This is only the second account of this species in the Philippines, following a dead bird found in a brackish fishpond in Pagbilao, Quezon Province, on 6 December 1981 (Dickinson 1991). However, it is no surprise to find Grey Phalaropes in the Philippines, as a flock of up to 10 000 birds was recorded off Mauritania (Hazevoet 1985) and as some birds are also seen wintering as far south as New Zealand (Brown & Latham 1978). Documenting more sightings of Grey Phalaropes in the Philippines will give a fuller picture of their winter migration. The waters around the Babuyan Islands may well be a potential wintering area or pathway connecting the Arctic breeding grounds and the wintering grounds.

Black-headed Gull *Larus ridibundus*

Single birds were documented twice, once on 30 March 2004, 1.4 km west off Camiguin (18.928°N, 121.838°E), and the other on 16 March 2014, in the channel between Palau and Santa Ana (18.498°N, 122.125°E). Both individuals were in non-breeding plumage. Black-headed Gulls are classified as uncommon, according to Kennedy *et al.* (2000), but a significant number of sightings have been made in recent years by various birders in the country (WBCP 2003, 2004, 2005, 2006, 2007, 2010, 2011). Considering the number of recorded sightings, the species should be thought of as a fairly common winter resident.



Fig. 2: Bird species observed in Babuyan waters: (a) White-tailed Tropicbird, (b) Masked Booby, (c) Brown Booby, (d) Black-tailed Gull, (e) Slaty-backed Gull, (f) Great Crested Tern and Whiskered Terns, (g) Arctic Skua, (h) Long-tailed Skua. Photos: J.M. Acebes (f), D. Macusi (e), S. Nakagun (a, c, d, g), J.N. Silberg (h) and I. Sarenas (b).

Black-tailed Gull *Larus crassirostris*

Black-tailed Gulls were documented on six occasions, noted as adults in their breeding plumage on three occasions (February–May 2002, March 2003, and 28 February 2006) and as immatures in the other three occasions (February–May 2002, and 11 and 16 March 2013; Fig. 2d). Two Black-tailed Gulls, which were caught and sold by fishermen in January 2003, were kept as pets in a household in Calayan (Oliveros *et al.* 2004). Kennedy *et al.* (2000) considered the bird rare for the Philippines, as Redman's (1993) report of a single bird seen in Olango, Cebu, on 4 March 1991 was the only published record of this species up until that time. However, there have been several more sightings made in the later years (WBCP 2005, 2006, 2010, 2011). Black-tailed Gulls are the most common gull species encountered in the area, and they likely use the Babuyan waters as a regular wintering ground.

Slaty-backed Gull *Larus schistisagus*

On 8 April 2014, a large gull was found together with a domestic pigeon in a cage on Camiguin (Fig. 2e). According to the local residents, this gull was found injured at Mag-a-sasoc Beach (18.868°N, 121.830°E) in January and had been held captive since. The bird is believed to have died in June of the same year. The tip of the primary feathers unfortunately could not be observed as a result of feather abrasions, but the dark grey-coloured saddle, sturdy beak, pink legs and brownish spots on the head and neck identified the bird as an adult Slaty-backed Gull in non-breeding plumage. Despite the Slaty-backed Gull being an occasional winter visitor in Taiwan and the Ryukyu Islands, this is only the second record of the species in the Philippines, after a record from 1991 in Davao Gulf, Mindanao (Kennedy *et al.* 2000).

Great Crested Tern *Thalasseus bergii*

Great Crested Terns were encountered four times: in February–May 2002, on 31 March 2007, and on 2 and 4 April 2014 (Fig. 2f). Group size ranged from one to two, and distance from the closest coast ranged from 1.0 to 7.5 km. The species is considered fairly common, as they are found along the coast all around the Philippines (Kennedy *et al.* 2000), but this is the first report of Great Crested Terns in the Babuyan waters. More sightings of the species are expected in future surveys, considering the regionally stable population of the species and the proximity between Babuyan waters and the nearby breeding grounds in Japan and Taiwan.

Common Tern *Sterna hirundo*

On 27 April 2010, nine Common Terns were photographed feeding off Santa Ana (18.500°N, 122.135°E), in association with a single Sooty Tern. Another sighting of 21 Common Terns was documented on 21 April 2015 off the western coast of Camiguin (18.898°N, 121.818°E). All birds were in their breeding plumage. The species is known to breed in North America and Eurasia, while the wintering grounds range over a wide region including the Philippines. Although Common Terns are considered uncommon in the Philippines, records exist for all parts of the country and include over-summering individuals (Kennedy *et al.* 2000). Common Terns were sighted off Babuyan Claro and Claveria; on both occasions, more than 10 birds were observed at a single time (Allen *et al.* 2006, WBCP 2010).

Little Tern *Sternula albifrons*

Little Terns were photographed on two occasions. The first documentation was of a single bird on 4 April 2003; it was following a large mixed pod of over 200 Fraser's Dolphins *Lagenodelphis hosei* and Pantropical Spotted Dolphins *Stenella attenuata*. The second encounter involved two birds resting on floating debris on 18 April 2004. All birds were in breeding plumage, and the yellow bill with a black tip was noted. Although sightings of this species are not uncommon throughout the Philippines, only a limited number of previous reports have been made from the Babuyan Channel (Allen *et al.* 2006).

Bridled Tern *Onychoprion anaethetus*

A single adult Bridled Tern was photographed on 9 April 2013, approximately 3.4 km west of Camiguin (18.956°N, 121.836°E). The distinctive white "V" pattern on the forehead was noted while the bird flew past the survey boat. Early in the 20th century, Worcester had noted large numbers of these terns at Didicas in June 1907 (Worcester 1907). Apart from that report, the only other record of this species in Babuyan waters was made in May 2004 (Allen *et al.* 2006).

Sooty Tern *Onychoprion fuscatus*

Sooty Terns were documented on three occasions: (i) a single adult following a mother and calf pair of Humpback Whales *Megaptera novaeangliae* on 17 April 2002; (ii) two adults on 24 April 2006; and (iii) a single adult feeding in association with nine Common Terns on 27 April 2010. The species is considered uncommon in the Philippines, although there are continuous breeding records from the Tubbataha Reefs (Kennedy *et al.* 2000, Jensen 2007). A documented sighting in April 2004 (WBCP 2004) is the only other record from the Babuyan Channel. The consistency of sightings in April may be an indication that the Sooty Terns are a regular visitor during the month of April, possibly extending to May.

Whiskered Tern *Chlidonias hybrida*

Two Whiskered Terns were recorded on 17 April 2002, approximately 10.4 km north of Camiguin (19.063°N, 121.821°E), together with a single Great Crested Tern (Fig. 2f). Two sightings of single individuals were also recorded on 16 and 22 April 2015, 1.8 km and 2.2 km west of Camiguin, respectively (18.858°N, 121.809°E and 18.857°N, 121.806°E). The unmistakable black cap with blood red bill and legs indicated that all individuals were in breeding plumage. Whiskered Terns, one of the marsh terns, are usually found closer to the coast and further inland; encounters offshore are less common. They are considered common in the Philippines, with migration northward peaking in May and southward peaking in September to October (Kennedy *et al.* 2000). The species was also reported from Dalupiri and Calayan, consistent with its known migration patterns (Allen *et al.* 2006, WBCP 2010).

Arctic Skua *Stercorarius parasiticus*

A single immature skua was encountered flying northwards on 2 April 2014, approximately 700 m off the coast of Northern Luzon (18.430°N, 122.285°E) (Fig. 2g). Identification of the *Stercorarius* skuas, especially the immature birds, is known to be exceptionally challenging in the field owing to their wide distribution and

enormous individual plumage variations. Based on the photographs obtained, it was concluded that the bird was an Arctic Skua in its first-alternate plumage. The bodyline was consistently slim without an apparent projection of the chest, and the beak was slender with white spots on the basal. The Arctic Skua is the most widely distributed of the *Stercorarius* species, having an almost circumpolar breeding range. The species' winter distribution is not yet fully known, but the largest concentration of Arctic Skuas winters in the Pacific around southeast Australia, New Zealand and at the Humboldt Current off western South America (Olsen & Larsson 1997). Kennedy *et al.* (2000) has described this species as "expected, no confirmed records" in the Philippines, making this the first documented record of the Arctic Skua in the country.

Long-tailed Skua *Stercorarius longicaudus*

A single skua was documented on 30 March 2011, 1.3 km west of the coastline of Camiguin (18.832°N, 121.822°E) (Fig. 2h). Due to the gloomy weather and rough sea conditions at the time of the sighting, the photograph taken was not of the best quality. However, characteristics such as the long central tail streamers, short head and pale breast gradually shading into the grey belly identified the bird as an adult Long-tailed Skua in breeding plumage. Information on the wintering grounds and migration of the species is limited, especially for the western Pacific (Olsen & Larsson 1997). In addition to the few records from Hong Kong, Indonesia and Papua New Guinea, this sighting could add to our knowledge and understanding of the wintering and migration patterns of the Long-tailed Skua. This is the first confirmed sighting of this species in the Philippines.

DISCUSSION

This paper summarizes 15 years of opportunistic observations of seabirds in the Babuyan Islands and their surrounding waters. The rough sea conditions, remoteness of the island-group and lack of active protocols on seabird observations limit the opportunities for researchers to observe and take photographs of species in this area. Despite the limitations of the study, this paper contributes to the limited knowledge of seabird distribution in the Philippines and of the overall biodiversity in Babuyan waters.

Of the 18 seabird species documented, two species (Arctic Skua and Long-tailed Skua) are new country records, and a further five species (White-tailed Tropicbird, Masked Booby, Grey Phalarope, Slaty-backed Gull and Great Crested Tern) are new area records, highlighting the importance of the Babuyan Channel and its adjacent waters for migratory birds. In addition to the species documented in this paper, Tahiti Petrel *Pseudobulweria rostrata*, Bulwer's petrel *Bulweria bulwerii* and Herring Gull *Larus argentatus* have previously been recorded in the Babuyan Channel (Allen *et al.* 2006), while a Red-tailed Tropicbird was previously sighted off Aparri (Kennedy *et al.* 2000). This brings the total of documented seabirds in this region to 22 species.

Our findings show evidence that the Babuyan Channel contributes to the East Asian–Australasian Flyway. The Babuyan Islands are situated on an extensive bird migration route that stretches from Siberia, Japan, Korea and China through Taiwan to the Philippine archipelago (Broad & Oliveros 2005). Some of these species may be using the Babuyan Channel as pathways for migration — with the closest known breeding ground for the

majority of the species documented in this paper being in Japan — or to fly to the North Pacific to winter. The complete migration routes of these species are still unknown, and further investigation could provide a clearer picture of their complete distribution and migration patterns.

At present, active nesting sites have yet to be documented, but historical reports by Worcester in 1907 of nesting Brown Boobies and Bridled Terns in Didicas Rocks imply that the islands in the Babuyan Channel were once suitable breeding sites for some of these seabirds. The volcanic eruption of the Didicas Rocks in the 1950s altered the environment in the area; however, vegetation has been recently observed on the island. Meanwhile, markings of bird droppings on rocks and anecdotal observations from local fishermen of white birds congregating provide evidence that Guinapao Rocks are possible roosting sites for some of these seabirds (Oliveros *et al.* 2004). Future surveys may reveal whether these islets are currently harbouring breeding populations of seabirds.

Adding to the importance of this region are the presence of threatened and near-threatened species, such as the Tahiti Petrel, the occurrence of rare species, and the documentation of species thought to be locally extinct, such as the Masked Booby. The Babuyan Channel is a high-priority area for conservation (Ong *et al.* 2002) because of its high biodiversity and the persistent threats to this biodiversity, including habitat change and excessive hunting.

The authors' observations and local anecdotes reveal that migratory birds are hunted opportunistically in the region's communities; migratory birds are shot with airguns and kept as pets. For instance, it was suspected that the Slaty-backed Gull seen in 2014 was shot by hunters, judging from its injuries, before it was found and kept by a farm owner. In 2008, three vagrant Demoiselle Cranes *Anthropoides virgo* were shot by local hunters at Calayan island, and one was caught and kept as a pet (Oliveros & Layusa 2010). In both instances, the birds were kept with domesticated livestock, cats and dogs, and the wings of the birds were clipped, which made release to the wild impossible without appropriate long-term rehabilitation measures. Hunting of eggs may also be a conservation issue for these seabirds, although this practice and species identification of the eggs have yet to be confirmed.

More research and survey efforts are needed to add to the knowledge of seabird diversity and distribution in the Babuyan Channel and its adjacent waters. Published records from the more northern Batanes Islands are limited (Kennedy *et al.* 2000), but personal observations confirm the occurrence of migratory seabirds such as the Red-tailed Tropicbird and Great Frigatebird *Fregata minor* in this area (Medel Silvosa, pers. comm., 23 July 2014). In addition, seabirds have also been observed around Palaui Island and during travels to and from the Babuyan Islands in June and July. Extending the survey of seabirds to these months and to the autumn migration is sure to produce new species records and provide new observations on their migratory patterns. With the new technology and survey equipment currently available, such as inexpensive digital SLR cameras and telephoto lenses providing excellent image quality, future research may yield more species of seabirds that occur in these waters. Species that have been the subject of unconfirmed sightings off Camiguin Island and are candidates for future documentation include Buller's Shearwater *Ardenia bulleri*, Lesser Frigatebird *Fregata ariel*, Chinese Crested Tern *Thalasseus bernsteini* and Pomarine Skua

Stercorarius pomarinus. These waters may be serving as an important foraging site, while nearby rock formations and islets may be nesting or roosting sites of some species. This information may be used to aid in biodiversity planning and management to further the conservation of marine avifauna in the country.

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REFERENCES

- ACEBES, J.M.V., DARLING, J.D. & YAMAGUCHI, M. 2007. Status and distribution of humpback whales (*Megaptera novaeangliae*) in Northern Luzon, Philippines. *Journal of Cetacean Research and Management* 9: 37-43.
- ALCARAZ, A., ABAD L.F. & TUPAS, M.H. 1956. The Didicas submarine volcano. In: *Proceedings of the Eighth Pacific Science Congress*. Vol. II. Diliman, Quezon City: National Research Council of the Philippines, University of the Philippines. pp. 139-156.
- ALLEN, D., OLIVEROS, C., ESPAÑOLA, C., BROAD, G. & GONZALEZ, J.C.T. 2004. A new species of *Gallirallus* from Calayan Island, Philippines. *Forktail* 20: 1-7.
- ALLEN, D., ESPAÑOLA, C., BROAD, G., OLIVEROS, C. & GONZALEZ, J.C.T. 2006. New bird records for the Babuyan Islands Philippines, including two first records for the Philippines. *Forktail* 22: 57-70.
- BROAD G. & OLIVEROS, C.H. 2005. Biodiversity and conservation priority setting in the Babuyan Islands, Philippines. *Sylvatrop* 15: 35-64.
- BROWN, B. & LATHAM, P.C.M. 1978. Grey phalarope in the Bay of Plenty. *Notornis* 25: 198-202.
- DICKINSON, E.C., KENNEDY, R.S. & PARKES, K.C. 1991. *The Birds of the Philippines: an Annotated Checklist*. Tring, UK: British Ornithologists' Union.
- HEANEY, L.R. 1985. Zoogeographic evidence for middle and late Pleistocene land bridges to the Philippine Islands. *Modern Quaternary Research in Southeast Asia* 9: 127-144.
- HARRISON, P. 1983. *Seabirds: an Identification Guide*. Massachusetts: Houghton Mifflin. pp. 317-318.
- HAZEVOET, C.J. 1985. Bird records from Mauritania in December 1984. *Dutch Birding* 7: 26-27.
- JENSEN, A.E. 2007. *Conservation of seabirds and threatened avifauna in the Cagayan Ridge Marine Biodiversity Conservation Corridor, the Sulu Sea, Philippines*. Conservation International Philippines. [Available online at: http://www.conservation.org/global/philippines/publications/Documents/Seabirds-Cagayan_Ridge.pdf. Accessed 24 September 2014].
- KAWAKAMI, K., YAMAMOTO, Y., & HORIKOSHI, K. 2005. The seabird fauna of Nishinoshima Island, the Bonin Islands, Southern Japan. *Strix* 23: 159-166.
- KENNEDY, R.S., GONZALES, P.C., DICKINSON, E.C., MIRANDA H.C. & MANAMTAM, A.S. 2000. *A Guide to the Birds of the Philippines*. Oxford, UK: Oxford University Press.
- KOHNO, H. 2000. Visits of immature blue-faced and red-footed boobies to Nakanokamishima, South Ryukyus, Japan. *Bulletin of Institute of Oceanic Research and Development Tokai University* 21: 111-117.
- McGREGOR, R.C. 1907. The birds of Batan, Camiguin, Y'Ami, and Babuyan Claro, islands north of Luzon. *Philippine Journal of Science* 2: 337-349.
- MALLARI, N.A.D., TABARANZA JR, B.R. & CROSBY, M.J. 2001. *Key Conservation Sites in the Philippines: A Haribon Foundation & Birdlife International Directory of Important Bird Areas*. Makati City: Bookmark, Inc.
- OKA, N. 2004. The distribution of streaked shearwater colonies, with special attention to population size, area of sea where located and surface water temperature. *Journal of the Yamashina Institute for Ornithology* 35: 164-188.
- OLIVEROS, C., BROAD, G., ESPAÑOLA, C., PEDREGOSA, M., REYES, M.A., GARCIA, H.J., GONZALEZ, J.C. & BAJARIAS JR, A. 2004. *An avifaunal survey of the Babuyan Islands, Northern Philippines with notes on mammals, reptiles and amphibians, 29 March-6 June 2004: Final report*. [Available online at: <http://isla.org.ph/pdf/f008.pdf>. Accessed 24 September 2014].
- OLIVEROS, C., PETERSON, A.T. & VILLA, M.J.C. 2008. Birds, Babuyan Islands, province of Cagayan, Northern Philippines: New island distribution records. *Checklist* 4: 137-141.
- OLIVEROS, C.H. & LAYUSA, C.A.A. 2010. First record of Demoiselle Crane *Grus virgo* for the Philippines. *Forktail* 26: 139.
- OLSEN, K.M. & LARSSON, H. 1997. *Skuas and Jaegers: a Guide to the Skuas and Jaegers of the World*. London, UK: Bloomsbury Publishing.
- ONG, P.S., AFUANG, L.E. & ROSELL-AMBAL, R.G. (Eds.) 2002. *Philippine Biodiversity Conservation Priorities: A second iteration of the National Biodiversity Strategy and Action Plan*. Quezon City: Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau, Conservation International Philippines, Biodiversity Conservation Program-University of the Philippines Center for Integrative and Development Studies, and Foundation for the Philippine Environment.
- REDMAN, N. 1993. Two new species of birds for the Philippines and other notable records. *Forktail* 8: 119-124.
- SILBERG, J.N., ACEBES, J.M.V., BURDIN, A.M., MAMAEV, E.G., DOLAN, K.C., LAYUSA, C.A., & ACA, E.Q. 2013. New insight into migration patterns of western North Pacific humpback whales between the Babuyan Islands, Philippines and the Commander Islands, Russia. *Journal of Cetacean Research and Management* 13(1): 53-57.

- STATTERSFIELD, A.J., CROSBY, M.J., LONG, A.J. & WEGE, D.C. 1998. Southeast Asian islands, New Guinea and Australia. In: *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. Cambridge, UK: BirdLife International.
- WELLS, D.R. 1991. Status and conservation of seabirds breeding in Malaysian waters. *International Council for Bird Preservation Technical Publication* 11: 213-223.
- WILD BIRD CLUB OF THE PHILIPPINES (WBCP). 2003–2007, 2010 and 2011. Annual Record. [Available online at: <http://birdwatch.ph/html/record/record.html>. Accessed 20 April 2014].
- WORCESTER, D.C. 1907. On a nesting place of *Sula sula* (Linnaeus) and *Sterna anaetheta* (Scopoli). *Philippine Journal of Science* 5: 275-278.
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